TIPS FOR SAFE PRESCRIPTION WRITING**

1. Take time to write legibly.
2. Print if this would be more legible than handwriting.
3. Use a typewriter or computer if necessary. Prescriptions generated by computer-based electronic medical records will eliminate legibility problems.
4. Carefully print the order to avoid misreading. There are many “sound alike” drugs and medications that have similar spellings (ie, Celexa and Celebrex). For a more extensive list, see www.edrugbook.com.
5. Do not use these clinical abbreviations

<table>
<thead>
<tr>
<th>The Correct Way</th>
<th>Do Not Use</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>daily</td>
<td>qd</td>
<td>Misinterpreted as “qid” (resulting in 4-fold overdose)</td>
</tr>
<tr>
<td>q other day or q48 hours</td>
<td>qod</td>
<td>Misinterpreted as “qid” or “qd”</td>
</tr>
<tr>
<td>units</td>
<td>u or U</td>
<td>Misinterpreted as a “0” (resulting in a 10-fold overdose)</td>
</tr>
<tr>
<td>1 mg (no trailing zero)</td>
<td>1.0 mg</td>
<td>Decimal point can be missed on order (resulting in a 10-fold overdose)</td>
</tr>
<tr>
<td>0.1 mg (use a leading zero)</td>
<td>.1 mg</td>
<td>Decimal point can be missed on order (resulting in a 10-fold overdose)</td>
</tr>
<tr>
<td>international units</td>
<td>IU</td>
<td>Misinterpreted as “IV”</td>
</tr>
<tr>
<td>morphine</td>
<td>MS, MSO₄</td>
<td>Misinterpreted as magnesium sulfate</td>
</tr>
<tr>
<td>magnesium sulfate</td>
<td>MgSO₄</td>
<td>Misinterpreted as morphine sulfate</td>
</tr>
</tbody>
</table>

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TIPS FOR SAFE PRESCRIPTION WRITING
Inside Front Cover

ADULT EMERGENCY CARDIAC CARE (ECC) MEDICATIONS BASED ON 2010 AHA GUIDELINES
Back Page and Inside Back Cover
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Baptist Health
Lexington, Kentucky
We are pleased to present the 13th edition of the Clinician’s Pocket Drug Reference. This book is based on the drug presentation style originally used in 1983 in the Clinician’s Pocket Reference, popularly known as the Scut Monkey Book. Our goal is to identify the most frequently used and clinically important medications, including branded, generic, OTC, and herbal products. The book now includes over 1400 generic product listings with the true number approaching 4000 entries when specific brand names are considered.

Our unique style of presentation includes key “must-know” facts of commonly used medications, essential for both the student and practicing clinician. The inclusion of common uses of medications rather than just the official FDA-labeled indications are based on supporting publications and community standards of care and have been reviewed by our editors and editorial board.

The limitations of difficult-to-read traditional package inserts have been recognized by the US Food and Drug Administration. Today, all newly approved medications provide a more user-friendly package insert. Although very useful, these summaries do not appear alongside similarly approved generic or “competing” similar products, and older medications may not have a newer user-friendly package insert.

It is essential that students and residents in training learn more than the name and dose of the medications they prescribe. Certain common side effects and significant warnings and contraindications are associated with almost all prescription medications. Although providers should ideally be completely familiar with the entire package insert of any medication prescribed, such a requirement is unachievable. References such as the Physician’s Desk Reference, the NIH Dailymed web site, and the drug manufacturer’s web site make many package inserts readily available. While newly released medications often have a prominent presence and easy access to all their FDA-approved data on the web, it is often not the case of older medications, OTC products, or generics. Likewise, encyclopedic information can be found on certain web sites as well, and is occasionally needed when unique clinical situations arise. However, resources that identify the most common and essential facts are sometimes lacking. Our goal is to provide access to not only dosing but to these clinically significant facts and key data, whether for commonly prescribed brand name drugs, generics, or OTC products in this pocket-sized book format. Information contained within is meant for use by healthcare professionals who are already familiar with these commonly prescribed medications.
For 2015, we have added over 60 new drugs with hundreds of changes in other medications based on recent FDA actions and manufacturers’ updates. These include deletions of discontinued brand names and compounds and many black box updates.

Versions of this book are produced in a variety of electronic or eBook formats. Visit www.eDrugbook.com for a link to some of the electronic versions currently available. Additionally, this website has enhanced content features such as a comprehensive listing of “look alike–sound alike” medications that can contribute to prescribing errors and other useful information related to medication prescribing.

Nursing versions of this book (Nurses Pocket Drug Guide) with a section of customized nursing interventions is available and updated annually. An EMS guide based on this book (EMS Pocket Drug Guide) with enhanced content specifically for the field provider and emergency medical practitioner is also available. Information and links for these related publications are available on the website www.eDrugbook.com.

We express special thanks to our spouses and families for their long-term support of this book and the entire Scut Monkey Project (www.thescutmonkey.com). The Scut Monkey Project, launched in 1979 at the University of Kentucky College of Medicine, is designed to provide new medical students and other health professional students with the basic tools needed when entering the world of hands-on patient care. Many other schools have adopted the concept of “students teaching students” over the years. A type of “boot camp,” similar to our course is now offered to graduating medical students before they start their internships.

The contributions of the members of the editorial board, and in particular, Harriet Lebowitz at McGraw-Hill and Yashmita Hota at Cenveo Publisher Services, are gratefully acknowledged. As a reader, your comments and suggestions are always welcome. Improvements to this and all our books would be impossible without the interest and continual feedback of our readers. We hope this book will help you learn some of the key elements in prescribing medications and allow you to care for your patients in the best way possible.

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Medications are listed by prescribing class and the individual medications are then listed in alphabetical order by generic name. Some of the more commonly recognized trade names are listed for each medication (in parentheses after the generic name) or if available without prescription, noted as OTC (over-the-counter).

**MEDICATION KEY**

Medications under the control of the US Drug Enforcement Agency (DEA) (Schedules I–V controlled substances) are indicated by the symbol [C]. Most medications are “uncontrolled” and do not require a DEA prescriber number on the prescription. The following is a general description for the schedules of DEA-controlled substances:
Schedule (C-I) I: All nonresearch use forbidden (e.g., heroin, LSD, mescaline).
Schedule (C-II) II: High addictive potential; medical use accepted. No telephone call-in prescriptions; limit one 90-day supply; no refills. Some states require special prescription form (e.g., cocaine, hydrocodone, morphine, methadone).
Schedule (C-III) III: Low to moderate risk of physical dependence, high risk of psychological dependence; prescription must be rewritten after 6 months or 5 refills (e.g., acetaminophen plus codeine).
Schedule (C-IV) IV: Limited potential for dependence; prescription rules same as for schedule III (e.g., benzodiazepines, propoxyphene).
Schedule (C-V) V: Very limited abuse potential; prescribing regulations often same as for uncontrolled medications; some states have additional restrictions.

FDA FETAL RISK CATEGORIES
Category A: Adequate studies in pregnant women have not demonstrated a risk to the fetus in the first trimester of pregnancy; there is no evidence of risk in the last two trimesters.
Category B: Animal studies have not demonstrated a risk to the fetus, but no adequate studies have been done in pregnant women.

or

Animal studies have shown an adverse effect, but adequate studies in pregnant women have not demonstrated a risk to the fetus during the first trimester of pregnancy, and there is no evidence of risk in the last two trimesters.

Category C: Animal studies have shown an adverse effect on the fetus, but no adequate studies have been done in humans. The benefits from the use of the drug in pregnant women may be acceptable despite its potential risks.

or

No animal reproduction studies and no adequate studies in humans have been done.
Category D: There is evidence of human fetal risk, but the potential benefits from the use of the drug in pregnant women may be acceptable despite its potential risks.

Category X: Studies in animals or humans or adverse reaction reports, or both, have demonstrated fetal abnormalities. The risk of use in pregnant women clearly outweighs any possible benefit.

Category ?: No data available (not a formal FDA classification; included to provide complete dataset).

BREAST-FEEDING CLASSIFICATION
No formally recognized classification exists for drugs and breast-feeding. This shorthand was developed for the Clinician’s Pocket Drug Reference.

+ Compatible with breast-feeding
M Monitor patient or use with caution
± Excreted, or likely excreted, with unknown effects or at unknown concentrations
?/-- Unknown excretion, but effects likely to be of concern
– Contraindicated in breast-feeding
? No data available
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ</td>
<td>change</td>
</tr>
<tr>
<td>?</td>
<td>possible or uncertain</td>
</tr>
<tr>
<td>✓</td>
<td>check, follow, or monitor</td>
</tr>
<tr>
<td>↓</td>
<td>decrease/decreased</td>
</tr>
<tr>
<td>↑</td>
<td>increase/increased</td>
</tr>
<tr>
<td>≠</td>
<td>not equal to; not equivalent to</td>
</tr>
<tr>
<td>+</td>
<td>divided</td>
</tr>
<tr>
<td>µM</td>
<td>symbol for micromolar</td>
</tr>
<tr>
<td>Ab</td>
<td>antibody, abortion</td>
</tr>
<tr>
<td>Abbrev</td>
<td>abbreviation</td>
</tr>
<tr>
<td>Abd</td>
<td>abdominal</td>
</tr>
<tr>
<td>ABG</td>
<td>arterial blood gas</td>
</tr>
<tr>
<td>ABMT</td>
<td>autologous bone marrow transplantation</td>
</tr>
<tr>
<td>abn</td>
<td>abnormal</td>
</tr>
<tr>
<td>ABSSSI</td>
<td>Acute bacterial skin and skin structure infections</td>
</tr>
<tr>
<td>abx</td>
<td>antibiotics</td>
</tr>
<tr>
<td>ac</td>
<td>before meals (ante cibum)</td>
</tr>
<tr>
<td>ACE</td>
<td>angiotensin-converting enzyme</td>
</tr>
<tr>
<td>ACH</td>
<td>acetylcholine</td>
</tr>
<tr>
<td>ACIP</td>
<td>American College of International Physicians; Advisory Committee on Immunization Practices</td>
</tr>
<tr>
<td>ACLS</td>
<td>advanced cardiac life support</td>
</tr>
<tr>
<td>ACS</td>
<td>acute coronary syndrome, American Cancer Society, American College of Surgeons</td>
</tr>
<tr>
<td>ACT</td>
<td>activated coagulation time</td>
</tr>
<tr>
<td>Acts</td>
<td>Action(s)</td>
</tr>
<tr>
<td>ADH</td>
<td>antiuretic hormone</td>
</tr>
<tr>
<td>ADHD</td>
<td>attention-deficit hyperactivity disorder</td>
</tr>
<tr>
<td>ADR</td>
<td>adverse drug reaction</td>
</tr>
<tr>
<td>ADT</td>
<td>androgen deprivation therapy</td>
</tr>
<tr>
<td>AED</td>
<td>anti-epileptic drug</td>
</tr>
<tr>
<td>AF</td>
<td>atrial fibrillation</td>
</tr>
<tr>
<td>AGEP</td>
<td>acute generalized exanthematous pustulosis</td>
</tr>
<tr>
<td>AHA</td>
<td>American Heart Association</td>
</tr>
<tr>
<td>AKA</td>
<td>also known as</td>
</tr>
<tr>
<td>ALP</td>
<td>alkaline phosphatase</td>
</tr>
<tr>
<td>ALL</td>
<td>acute lymphocytic leukemia</td>
</tr>
<tr>
<td>ALT</td>
<td>alanine aminotransferase</td>
</tr>
<tr>
<td>AMI</td>
<td>acute myocardial infarction</td>
</tr>
<tr>
<td>AML</td>
<td>acute myelogenous leukemia</td>
</tr>
<tr>
<td>amp</td>
<td>ampule</td>
</tr>
<tr>
<td>ANA</td>
<td>antinuclear antibody</td>
</tr>
<tr>
<td>ANC</td>
<td>absolute neutrophil count</td>
</tr>
<tr>
<td>antag</td>
<td>antagonist</td>
</tr>
<tr>
<td>APACHE</td>
<td>acute physiology and chronic health evaluation</td>
</tr>
<tr>
<td>APAP</td>
<td>acetaminophen [N-acetyl-p-aminophenol]</td>
</tr>
<tr>
<td>aPTT</td>
<td>activated partial thromboplastin time</td>
</tr>
<tr>
<td>ARB</td>
<td>angiotensin II receptor blocker</td>
</tr>
<tr>
<td>ARDS</td>
<td>adult respiratory distress syndrome</td>
</tr>
<tr>
<td>ARF</td>
<td>acute renal failure</td>
</tr>
<tr>
<td>AS</td>
<td>aortic stenosis</td>
</tr>
<tr>
<td>ASA</td>
<td>aspirin (acetylsalicylic acid)</td>
</tr>
<tr>
<td>ASAP</td>
<td>as soon as possible</td>
</tr>
<tr>
<td>AST</td>
<td>aspartate aminotransferase</td>
</tr>
<tr>
<td>ATE</td>
<td>arterial thrombotic event</td>
</tr>
<tr>
<td>ATP</td>
<td>adenosine triphosphate</td>
</tr>
<tr>
<td>attn</td>
<td>attention</td>
</tr>
<tr>
<td>atyp</td>
<td>atypical</td>
</tr>
<tr>
<td>AUB</td>
<td>abnormal uterine/vaginal bleeding</td>
</tr>
<tr>
<td>AUC</td>
<td>area under the curve</td>
</tr>
<tr>
<td>AV</td>
<td>atrioventricular</td>
</tr>
</tbody>
</table>
AVM: arteriovenous malformation
BBB: bundle branch block
BCL: B-cell lymphoma
BCP: birth control pills
bid: twice daily
bili: bilirubin
BM: bone marrow, bowel movement
↓BM: bone marrow suppression, myelosuppression
BMD: bone mineral density
BMI: body mass index
BMT: bone marrow transplantation
BOO: bladder outlet obstruction
BP: blood pressure
↓BP: hypotension
↑BP: hypertension
BPH: benign prostatic hyperplasia
BPM: beats per minute
BS: blood sugar
BSA: body surface area
BUN: blood urea nitrogen
Ca: calcium
CA: cancer
CABG: coronary artery bypass graft
CAD: coronary artery disease
CAP: community-acquired pneumonia
caps: capsule
cardiotox: cardiotoxicity
CBC: complete blood count
CCB: calcium channel blocker
CCR5: human chemokine receptor
5: HIV attaches to the receptor to infect CD4+ T cells
CDAD: *Clostridium difficile*-associated diarrhea
CDC: Centers for Disease Control and Prevention
CF: cystic fibrosis
CFCs: chlorofluorocarbons
CFU: colony-forming units
CHD: coronary heart disease
CHF: congestive heart failure
chol: cholesterol
CI: contraindicated
CIDP: chronic inflammatory polyneuropathy
CIWA: Clinical Institute Withdrawal Assessment Score; used to monitor EtOH withdrawal
CJD: Creutzfeldt-Jakob disease
CK: creatinine kinase
CKD: chronic kidney disease
CLL: chronic lymphocytic leukemia
CML: chronic myelogenous leukemia
CMV: cytomegalovirus
CNS: central nervous system
combo: combination
comp: complicated
conc: concentration
cond: condition
cont: continuous
COPD: chronic obstructive pulmonary disease
COX: cyclooxygenase
CP: chest pain
CPP: central precocious puberty
CR: controlled release
CrCl: creatinine clearance
CRF: chronic renal failure
CRPC: castrate-resistant prostate cancer
CSF: cerebrospinal fluid
CV: cardiovascular
CVA: cerebrovascular accident, costovertebral angle
CVH: common variable hypergammaglobulinemia
CXR: chest x-ray
CYP: cytochrome P450 enzyme
d: diarrhea
day
DA: dopamine
DBP: diastolic blood pressure
D/C: discontinue
Abbreviations

DDP-4: dipeptidyl peptidase-4
derm: dermatologic
D_{2}LR: 5% dextrose in lactated Ringer solution
D_{2}NS: 5% dextrose in normal saline
D_{2}W: 5% dextrose in water
DHT: dihydrotestosterone
DI: diabetes insipidus
DIC: disseminated intravascular coagulation
Disp: dispensed as; how the drug is supplied
DKA: diabetic ketoacidosis
dl.: deciliter
DM: diabetes mellitus
DMARD: disease-modifying antirheumatic drug; refers to drugs in randomized trials to decrease erosions and joint space narrowing in rheumatoid arthritis (eg, methotrexate, azathioprine)
DN: diabetic nephropathy
DOT: directly observed therapy (used for TB treatment)
DR: delayed release
DRESS: drug rash with eosinophilia and systemic symptoms
d/t: due to
DTap: Diptheria toxin
DVT: deep venous thrombosis
Dz: disease
EC: enteric coated
ECC: emergency cardiac care
ECG: electrocardiogram
ED: erectile dysfunction
EE: erosive esophagitis
eGFR: estimated glomerular filtration rate
EGFR: epidermal growth factor receptor
EIB: exercise-induced bronchoconstriction
ELISA: enzyme-linked immunosorbsorbent assay
EL.U.: ELISA unit
EMG: electromyelogram
EMIT: enzyme-multiplied immunoassay test
epi: epinephrine
EPS: extrapyramidal symptoms (tardive dyskinesia, tremors and rigidity, restlessness [akathisia], muscle contractions [dystonia], changes in breathing and heart rate)
ER: extended release
ESA: erythropoiesis-stimulating agents
ESR: erythrocyte sedimentation rate
ESRD: end-stage renal disease
ET: endotracheal
EtOH: ethanol
extrav: extravasation
fam: family
FAP: familial adenomatous polyposis
Fe: iron
FLP: fasting lipid profile
FMF: familial Mediterranean fever
FSH: follicle-stimulating hormone
5-FU: fluorouracil
Fx n: function
G: gram
GABA: gamma-aminobutyric acid
GBM: glioblastoma multiforme
GC: gonorrhea
G-CSF: granulocyte colony-stimulating factor
gen: generation
GERD: gastroesophageal reflux disease
GF: growth factor
GFR: glomerular filtration rate
GHB: gamma-hydroxybutyrate
GI: gastrointestinal
GIST: gastrointestinal stromal tumor
GLP-2: glucagon-like peptide-2
glu: glucose
Abbreviations

GM-CSF: granulocyte-macrophage colony-stimulating factor
GnRH: gonadotropin-releasing hormone
G6PD: glucose-6-phosphate dehydrogenase
gtt: drop, drops (gutta)
GU: genitourinary
GVHD: graft-versus-host disease
h: hour(s)
H1N1: swine flu strain
HA: headache
HAE: hereditary angioedema
HAP: hospital acquired pneumonia
HBsAg: hepatitis B surface antigen
HBV: hepatitis B virus
HCL: hairy cell leukemia
HCM: hypercalcemia of malignancy
Hct: hematocrit
HCTZ: hydrochlorothiazide
HD: hemodialysis
HDL-C: high-density lipoprotein cholesterol
heme: hematologic
hep: hepatitis
hepatox: hepatotoxicity
HFA: hydrofluroalkane chemicals; propellant replacing CFCs in inhalers
HFSR: hand-foot skin reaction
Hgb: hemoglobin
HGH: human growth hormone
HIT: heparin-induced thrombocytopenia
HITTS: heparin-induced thrombosis-thrombocytopenia syndrome
HIV: human immunodeficiency virus
HMG-CoA: hydroxymethylglutaryl coenzyme A
H: hour
h/o: history of
HP: high potency
HPV: human papillomavirus
HR: heart rate

↑ HR: increased heart rate (tachycardia)
hs: at bedtime (hora somni)
HSCT: hematopoietic stem cell transplantation
HSV: herpes simplex virus
5-HT: 5-hydroxytryptamine
HTN: hypertension
Hx: history of
hypersens: hypersensitivity
IBD: irritable bowel disease
IBS: irritable bowel syndrome
IBW: ideal body weight
ICP: intracranial pressure
IFIS: intraoperative floppy iris syndrome
Ig: immunoglobulin
IGF: insulin-like growth factor
IHSS: idiopathic hypertropic subaortic stenosis
IL: interleukin
IM: intramuscular
impair: impairment
in: inches
Inf: infusion
inflam: inflammation
Infxn: infection
Inh: inhalation
INH: isoniazid
inhal: inhalation
inhib: inhibits, inhibitor(s)
Inj: injection
INR: international normalized ratio
INSTI: integrase strand transfer inhibitor
Insuff: insufficiency
Int: international
intol: intolerance
Intravag: intravaginal
IO: intraosseous
IOP: intraocular pressure
IR: immediate release
ISA: intrinsic sympathomimetic activity
Abbreviations

IT: intrathecal
ITP: idiopathic thrombocytopenic purpura
Int units: international units
IUD: intrauterine device
IV: intravenous
JME: juvenile myoclonic epilepsy
JRA: juvenile rheumatoid arthritis
       (SJIA now preferred)
jt: joint
K: klebsiella
K+: potassium
L&D: labor and delivery
LA: long-acting
LABA: long-acting beta2-adrenergic agonists
LAIV: live attenuated influenza vaccine
LDL: low-density lipoprotein
LFT: liver function test
LH: luteinizing hormone
LHRH: luteinizing hormone-releasing hormone
liq: liquid(s)
LMW: low molecular weight
LP: lumbar puncture
LR: lactated ringers
LVD: left ventricular dysfunction
LVEF: left ventricular ejection fraction
LVSD: left ventricular systolic dysfunction
lytes: electrolytes
MAC: Mycobacterium avium complex
maint: maintenance dose/drug
MAO/MAOI: monoamine oxidase/ inhibitor
max: maximum
mcg: microgram(s)
mcl: microliter(s)
MDD: major depressive disorder
MDI: multidose inhaler
MDS: myelodysplasia syndrome
meds: medicines
mEq: milliequivalent
met: metastatic
mg: milligram(s)
Mg2+: magnesium
MgOH2: magnesium hydroxide
MI: myocardial infarction, mitral insufficiency
mill: million
min: minute(s)
mL: milliliter(s)
mo: month(s)
MoAb: monoclonal antibody
mod: moderate
MRSA: methicillin-resistant
       Staphylococcus aureus
MS: multiple sclerosis, musculoskeletal
ms: millisecond(s)
MSSA: methicillin-sensitive
       Staphylococcus aureus
MTC: medullary thyroid cancer
MTT: monotetrazolium
MTX: methotrexate
MyG: myasthenia gravis
N: nausea
NA: narrow angle
NAG: narrow angle glaucoma
NCI: National Cancer Institute
nephrotox: nephrotoxicity
neurotox: neurotoxicity
ng: nanogram(s)
NG: nasogastric
NHL: non-Hodgkin lymphoma
NIAON: nonischemic arterial optic neuritis
nl: normal
NO: nitric oxide
NPO: nothing by mouth (nil per os)
NRTI: nucleoside reverse transcriptase inhibitor
NS: normal saline
NSAID: nonsteroidal anti-inflammatory drug
### Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCLC: non-small cell lung cancer</td>
<td></td>
</tr>
<tr>
<td>NSR: normal sinus rhythm</td>
<td></td>
</tr>
<tr>
<td>NSTEMI: non-ST elevation myocardial infarction</td>
<td></td>
</tr>
<tr>
<td>N/V: nausea and vomiting</td>
<td></td>
</tr>
<tr>
<td>N/V/D: nausea, vomiting, diarrhea</td>
<td></td>
</tr>
<tr>
<td>NYHA: New York Heart Association</td>
<td></td>
</tr>
<tr>
<td>OA: osteoarthritis</td>
<td></td>
</tr>
<tr>
<td>OAB: overactive bladder</td>
<td></td>
</tr>
<tr>
<td>Obst: obstruction</td>
<td></td>
</tr>
<tr>
<td>OCD: obsessive compulsive disease</td>
<td></td>
</tr>
<tr>
<td>OCP: oral contraceptive pill</td>
<td></td>
</tr>
<tr>
<td>OD: overdose</td>
<td></td>
</tr>
<tr>
<td>ODT: orally disintegrating tablets</td>
<td></td>
</tr>
<tr>
<td>Oint: ointment</td>
<td></td>
</tr>
<tr>
<td>OK: recommended</td>
<td></td>
</tr>
<tr>
<td>ONJ: osteonecrosis of jaw</td>
<td></td>
</tr>
<tr>
<td>Opc: operative</td>
<td></td>
</tr>
<tr>
<td>Ophthal: ophthalmic</td>
<td></td>
</tr>
<tr>
<td>OSAHS: obstructive sleep apnea/hypopnea syndrome</td>
<td></td>
</tr>
<tr>
<td>OTC: over-the-counter</td>
<td></td>
</tr>
<tr>
<td>Ototox: ototoxicity</td>
<td></td>
</tr>
<tr>
<td>Oz: ounces</td>
<td></td>
</tr>
<tr>
<td>PABA: para-aminobenzoic acid (4-aminobenzoic acid)</td>
<td></td>
</tr>
<tr>
<td>PAT: paroxysmal atrial tachycardia</td>
<td></td>
</tr>
<tr>
<td>Pc: after eating (post cibum)</td>
<td></td>
</tr>
<tr>
<td>PCa: cancer of the prostate</td>
<td></td>
</tr>
<tr>
<td>PCC: Prothrombin Complex Concentrate</td>
<td></td>
</tr>
<tr>
<td>PCI: percutaneous coronary intervention</td>
<td></td>
</tr>
<tr>
<td>PCN: penicillin</td>
<td></td>
</tr>
<tr>
<td>Pcp: Pneumocystis jiroveci (formerly carinii) pneumonia</td>
<td></td>
</tr>
<tr>
<td>PCWP: pulmonary capillary wedge pressure</td>
<td></td>
</tr>
<tr>
<td>PDE: phosphodiesterase</td>
<td></td>
</tr>
<tr>
<td>PDE5: phosphodiesterase type 5</td>
<td></td>
</tr>
<tr>
<td>PDGF: platelet-derived growth factor</td>
<td></td>
</tr>
<tr>
<td>PE: pulmonary embolus, physical examination, pleural effusion</td>
<td></td>
</tr>
<tr>
<td>PEA: pulseless electrical activity</td>
<td></td>
</tr>
<tr>
<td>PEG: polyethylene glycol</td>
<td></td>
</tr>
<tr>
<td>Perf: perforation</td>
<td></td>
</tr>
<tr>
<td>PFT: pulmonary function test</td>
<td></td>
</tr>
<tr>
<td>Pg: picogram(s)</td>
<td></td>
</tr>
<tr>
<td>PGE-1: prostaglandin E-1</td>
<td></td>
</tr>
<tr>
<td>P-gp: P-glycoprotein (membrane drug transporter)</td>
<td></td>
</tr>
<tr>
<td>PGTC: primary generalized tonic-clonic (PGTC)</td>
<td></td>
</tr>
<tr>
<td>Ph: Philadelphia chromosome</td>
<td></td>
</tr>
<tr>
<td>Pheo: pheochromocytoma</td>
<td></td>
</tr>
<tr>
<td>Photosens: photosensitivity</td>
<td></td>
</tr>
<tr>
<td>PI: product insert (package label)</td>
<td></td>
</tr>
<tr>
<td>PID: pelvic inflammatory disease</td>
<td></td>
</tr>
<tr>
<td>Pkg: package</td>
<td></td>
</tr>
<tr>
<td>PKU: phenylketonuria</td>
<td></td>
</tr>
<tr>
<td>Plt: platelet</td>
<td></td>
</tr>
<tr>
<td>PMDD: premenstrual dysphoric disorder</td>
<td></td>
</tr>
<tr>
<td>PML: progressive multifocal leukoencephalopathy</td>
<td></td>
</tr>
<tr>
<td>PMS: premenstrual syndrome</td>
<td></td>
</tr>
<tr>
<td>PO: by mouth (per os)</td>
<td></td>
</tr>
<tr>
<td>POME: pulmonary microembolism</td>
<td></td>
</tr>
<tr>
<td>PPD: purified protein derivative</td>
<td></td>
</tr>
<tr>
<td>PPI: proton pump inhibitor</td>
<td></td>
</tr>
<tr>
<td>Pr: by rectum</td>
<td></td>
</tr>
<tr>
<td>PrEP: pre-exposure prophylaxis; a safer sex practice to reduce the risk of sexually acquired HIV-1 in adults at high risk</td>
<td></td>
</tr>
<tr>
<td>PR: by rectum</td>
<td></td>
</tr>
<tr>
<td>PRG: pregnancy</td>
<td></td>
</tr>
<tr>
<td>PRN: as often as needed (pro re nata)</td>
<td></td>
</tr>
<tr>
<td>PSA: prostate-specific antigen</td>
<td></td>
</tr>
<tr>
<td>PSVT: paroxysmal supraventricular tachycardia</td>
<td></td>
</tr>
<tr>
<td>Pt: patient</td>
<td></td>
</tr>
<tr>
<td>PT: prothrombin time</td>
<td></td>
</tr>
<tr>
<td>PTCA: percutaneous transluminal coronary angioplasty</td>
<td></td>
</tr>
<tr>
<td>PTH: parathyroid hormone</td>
<td></td>
</tr>
<tr>
<td>PTSD: post-traumatic stress disorder</td>
<td></td>
</tr>
<tr>
<td>PTT: partial thromboplastin time</td>
<td></td>
</tr>
</tbody>
</table>
Abbreviations

PUD: peptic ulcer disease
pulm: pulmonary
PVC: premature ventricular contraction
PVD: peripheral vascular disease
PWP: pulmonary wedge pressure
Px: prevention
pyelo: pyelonephritis
q: every (quaque)
q_h: every _ hours
qd: every day
qh: every hour
qhs: every hour of sleep
   (before bedtime)
qid: four times a day (quater in die)
q other day: every other day
QRS: electrocardiogram complex
QT: time from the start of QRS
   complex to the end of T wave on an
electrocardiogram
QTc: QT interval on ECG
RA: rheumatoid arthritis
RAS: renin-angiotensin system
RBC: red blood cell(s) (count)
RCC: renal cell carcinoma
RDA: recommended dietary allowance
RDS: respiratory distress syndrome
rec: recommends
REMS: risk evaluation and mitigation
   strategy; FDA plan to help ensure
   that the drug’s benefits outweigh
   its risks. As part of that plan, the
   company must conduct educational
   outreach
resp: respiratory
RHuAb: recombinant human antibody
RIA: radioimmune assay
RLS: restless leg syndrome
R/O, r/o: rule out
RPLS: reversible posterior
   leukoencephalopathy syndrome
RR: respiratory rate
RSI: rapid sequence intubation
RSV: respiratory syncytial virus
RT: reverse transcriptase
RTA: renal tubular acidosis
Rx: prescription or therapy
Rxn: reaction
s: second(s)
SAD: social anxiety disorder or
   seasonal affective disorder
SAE: serious adverse event
SBE: subacute bacterial
   endocarditis
SBP: systolic blood pressure
SCLC: small cell lung cancer
SCr: serum creatinine
SDV: single-dose vial
SE: side effect(s)
SGLT2: sodium-glucose
   co-transporter 2
SIADH: syndrome of inappropriate
   antidiuretic hormone
sig: significant
SIRS: systemic inflammatory
   response syndrome/capillary leak
   syndrome
SJIA: systemic juvenile idiopathic
   arthritis
SJS: Stevens-Johnson syndrome
SL: sublingual
SLE: systemic lupus
   erythematosus
SLUDGE: mnemonic for: Salivation,
   Lacrimation, Urination,
   Diaphoresis, GI motility, Emesis
SMX: sulfmethoxazole
SNRIs: serotonin-norepinephrine
   reuptake inhibitors
SOB: shortness of breath
soin: solution
sp: species
SPAG: small particle aerosol generator
SQ: subcutaneous
SR: sustained release
SSRI: selective serotonin reuptake
   inhibitor
SSS: sick sinus syndrome
S/Sxs: signs & symptoms
stat: immediately (statim)
STD: sexually transmitted disease
STEMI: ST elevation myocardial infarction
subs: substances
supl: supplement
supp: suppository
susp: suspension
SVT: supraventricular tachycardia
SWFI: sterile water for injection
SWSD: shift work sleep disorder
Sx: symptom
synth: synthesis
synd: syndrome
Sz: seizure
tab/tabs: tablet/tablets
TB: tuberculosis
TCA: tricyclic antidepressant
TE: thromboembolic event
TEN: toxic epidermal necrolysis
TFT: thyroid function test
TG: triglycerides
TIA: transient ischemic attack
tid: three times a day (ter in die)
TIV: trivalent influenza vaccine
TKI: tyrosine kinase inhibitors
TMP: trimethoprim
TMP-SMX: trimethoprim-sulfamethoxazole
TNF: tumor necrosis factor
TOUCH: Tysabri Outreach Unified Commitment to Health
tox: toxicity
TPA: tissue plasminogen activator
TRALI: transfusion-related acute lung injury
tri: trimester
TSH: thyroid-stimulating hormone
TTP: thrombotic thrombocytopenic purpura
TTS: transdermal therapeutic system
Tx: treatment
UC: ulcerative colitis
UGT: uridine 5’diphosphoglucuronosyl transferase
ULN: upper limits of normal
uncomp: uncomplicated
URI: upper respiratory infection
US: United States
UTI: urinary tract infection
V: vomiting
VAERS: Vaccine Adverse Events Reporting System
Vag: vaginal
VAP: Ventilator-associated pneumonia.
VEGF: vascular endothelial growth factor
VF: ventricular fibrillation
vit: vitamin
VKA: vitamin K antagonist
VLDL: very-low-density lipoprotein
VOD: venoocclusive disease
vol: volume
VPA: valproic acid
VRE: vancomycin-resistant Enterococcus
VT: ventricular tachycardia
VTE: venous thromboembolism
w/: with
WBC: white blood cell(s) (count)
WHI: Women’s Health Initiative
WHIMS: Women’s Health Initiative Memory Study
w/in: within
wk: week(s)
WNL: within normal limits
w/o: without
W/P: warnings and precautions
WPW: Wolff–Parkinson–White syndrome
Wt: weight
XR: extended release
ZE: Zollinger–Ellison (syndrome)
<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>(Generic and common brand names)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ALLERGY</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Antihistamines</strong></td>
<td></td>
</tr>
<tr>
<td>Azelastine (Astelin, Optivar)</td>
<td>Clemastine fumarate (Tavist)</td>
</tr>
<tr>
<td>Cetirizine (Zyrtec, Zyrtec-D)</td>
<td>Cyproheptadine (Periactin)</td>
</tr>
<tr>
<td>Chlorpheniramine (Chlor-Trimeton)</td>
<td>Desloratadine (Clarinex)</td>
</tr>
<tr>
<td></td>
<td>Diphenhydramine (Benadryl)</td>
</tr>
<tr>
<td></td>
<td>Fexofenadine (Allegra, Allegra-D, generic)</td>
</tr>
<tr>
<td></td>
<td>Hydroxyzine (Atarax, Vistaril)</td>
</tr>
<tr>
<td></td>
<td>Levocetirizine (Xyzal)</td>
</tr>
<tr>
<td></td>
<td>Loratadine (Alavert, Claritin)</td>
</tr>
<tr>
<td><strong>Miscellaneous Antiallergy Agents</strong></td>
<td></td>
</tr>
<tr>
<td>Cromolyn sodium (Intal, NasalCrom, Opticrom)</td>
<td>Montelukast (Singulair, generic)</td>
</tr>
<tr>
<td></td>
<td>Phenylephrine, oral (Sudafed, others [OTC])</td>
</tr>
<tr>
<td><strong>ANTIDOTES</strong></td>
<td></td>
</tr>
<tr>
<td>Acetylcysteine (Acetadote, Mucomyst)</td>
<td>CharcoCaps, EZ Char, Kerr Insta-Char, Requa Activated Charcoal</td>
</tr>
<tr>
<td>Amifostine (Ethyl)</td>
<td>Deferasirox (Exjade)</td>
</tr>
<tr>
<td>Atropine, systemic (AtroPen Auto-Injector)</td>
<td>Dexrazoxane (Totect, Zinecard)</td>
</tr>
<tr>
<td>Atropine/pralidoxime (DuoDote Auto-Injector)</td>
<td>Digoxin immune Fab (Digibind, DigiFab)</td>
</tr>
<tr>
<td>Centruroides (scorpion) immune F(ab’)2 (Anascorp)</td>
<td>Flumazenil (Romazicon, generic)</td>
</tr>
<tr>
<td>Charcoal, activated (Actidose-Aqua,</td>
<td>Glucarpidase (Voraxaze)</td>
</tr>
<tr>
<td></td>
<td>Hydroxocobalamin (Cyanokit)</td>
</tr>
<tr>
<td></td>
<td>Iodine [potassium iodide] (Lugol’s Solution, SSKI, Thyro-Block, ThyroSafe, ThyroShield) [OTC]</td>
</tr>
<tr>
<td></td>
<td>Mesna (Mesnex [oral], generic [inf])</td>
</tr>
<tr>
<td></td>
<td>Methylene blue (Urolene Blue, various)</td>
</tr>
<tr>
<td></td>
<td>Narloxe (Evzio, generic)</td>
</tr>
<tr>
<td></td>
<td>Physostigmine (generic)</td>
</tr>
<tr>
<td></td>
<td>Succimer (Chemet)</td>
</tr>
</tbody>
</table>
### ANTIMICROBIAL AGENTS

#### Antibiotics

**AMINOGLYCOSIDES**

- Amikacin (Amikin)
- Gentamicin, injectable (generic)
- Neomycin sulfate (Neo-Fradin, generic)
- Streptomycin (generic)
- Tobramycin (Nebcin)
- Tobramycin, inhalation (TOBI, TOBI Podhaler)

**CARBAPENEMS**

- Doripenem (Doribax)
- Ertapenem (Invanz)
- Imipenem-cilastatin (Primaxin, generic)
- Meropenem (Merrem, generic)

**CEPHALOSPORINS, FIRST-GENERATION**

- Cefadroxil (Duricef, Ultracef)
- Cefazolin (Ancef, Kefzol)
- Cephalexin (Keflex, generic)

**CEPHALOSPORINS, SECOND-GENERATION**

- Cefaclor (Ceclor, Raniclor)
- Cefoxitin (Mefoxin)
- Cefprozil (Cefzil)

**CEPHALOSPORINS, THIRD-GENERATION**

- Cefdinir (Omnicef)
- Cefditoren (Spectracef)
- Cefotaxime (Claforan)
- Cefpodoxime (Vantin)
- Ceftriaxone (Rocephin, Ceftazidime (Fortaz, Ceptaz, Tazidime, Tazicef)
- Cefixime (Cedax)
- Cefixime (Vantin, Ceftibuten (Cedax)

**CEPHALOSPORINS, FOURTH-GENERATION**

- Cefepime (Maxipime)

**CEPHALOSPORINS, UNCLASSIFIED (“FIFTH-GENERATION”)**

- Ceftaroline (Teflaro)

**CYCLIC LIPOPEPTIDE**

- Daptomycin (Cubicin)

**FLUOROQUINOLONES**

- Ciprofloxacin (Cipro, Cipro XR)
- Gemifloxacin (Factive)
- Levofloxacin (Levaquin, generic)
<table>
<thead>
<tr>
<th>Classification</th>
<th>Example Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLYCOPEPTIDE</td>
<td>Dalbavancin (Dalvance) Telavancin (Vibativ) Vancomycin (Vancocin, generic)</td>
</tr>
<tr>
<td>GLYCYLCYCLINE</td>
<td>Tigecycline (Tygacil)</td>
</tr>
<tr>
<td>MACROLIDES</td>
<td>Azithromycin (Zithromax) Erythromycin (E-Mycin, E.E.S., Ery-Tab, EryPed, Ilotycin) Erythromycin and sulfisoxazole (E.S.P.)</td>
</tr>
<tr>
<td>KETOLIDE</td>
<td>Telithromycin (Ketek)</td>
</tr>
<tr>
<td>OXAZOLIDINONE</td>
<td>Linezolid (Zyvox) Tedizolid (Sivextro)</td>
</tr>
<tr>
<td>PENICILLINS</td>
<td>Amoxicillin (Amoxil, Moxatag) Dicloxacillin (Dynapen, Dycill) Penicillin G benzathine (Bicillin)</td>
</tr>
<tr>
<td></td>
<td>Amoxicillin and clavulanate potassium (Augmentin, Augmentin ES-600, Augmentin XR) Nafcillin (Nallpen, generic) Penicillin G procaine (Wycillin, others)</td>
</tr>
<tr>
<td></td>
<td>Ampicillin Oxacillin (generic) Penicillin V (Pen-Vee K, Veetids, others)</td>
</tr>
<tr>
<td></td>
<td>Ampicillin/sulbactam (Unasyn) Piperacillin/tazobactam (Zosyn, generic)</td>
</tr>
<tr>
<td></td>
<td>Penicillin G, aqueous (potassium or sodium) (Pfizerpen, Pentids)</td>
</tr>
<tr>
<td>STREPTOGRAMIN</td>
<td>Quinupristin/dalfopristin (Synercid)</td>
</tr>
<tr>
<td></td>
<td>Quinupristin/dalfopristin (Synercid)</td>
</tr>
</tbody>
</table>
**Tetracyclines**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doxycycline</td>
<td>Adoxa, Oracea, Periostat, Vibramycin, Vibra-Tabs</td>
</tr>
<tr>
<td>Minocycline</td>
<td>Dynacin, Minocin, Solody, Solodyn</td>
</tr>
<tr>
<td>Tetracycline (generic)</td>
<td></td>
</tr>
</tbody>
</table>

**Miscellaneous Antibiotic Agents**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aztreonam (Azactam)</td>
<td>[Neosporin ointment; bacitracin/neomycin/ polymyxin B/ hydrocortisone, topical [Cortisporin])</td>
</tr>
<tr>
<td>Clindamycin (Cleocin, Cleocin T, others)</td>
<td></td>
</tr>
<tr>
<td>Fosfomycin (Monojul)</td>
<td>Nitrofurantoin</td>
</tr>
<tr>
<td>Metronidazole (Flagyl, MetroGel)</td>
<td></td>
</tr>
<tr>
<td>Mupirocin (Bactroban, Bactroban Nasal)</td>
<td></td>
</tr>
<tr>
<td>Neomycin topical (See bacitracin/neomycin/ polymyxin B, topical)</td>
<td>Rifaximin (Xifaxan)</td>
</tr>
</tbody>
</table>

**Antifungals**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amphotericin B (Fungizone)</td>
<td>Econazole (Ecoza, Spectazole, generic)</td>
</tr>
<tr>
<td>Amphotericin B cholesteryl (Amphotec)</td>
<td>Fluconazole (Diflucan, generic)</td>
</tr>
<tr>
<td>Amphotericin B lipid complex (Abelcet)</td>
<td>Itraconazole (Onmel, Sporanox, generic caps)</td>
</tr>
<tr>
<td>Amphotericin B liposomal (AmBisome)</td>
<td>Ketoconazole, oral (Nizoral)</td>
</tr>
<tr>
<td>Anidulafungin (Eraxis)</td>
<td>Ketoconazole, topical (Extina, Kuric, Xolegel, Nizoral A-D shampoo) [shampoo OTC]</td>
</tr>
<tr>
<td>Caspofungin (Cancidas)</td>
<td>Luliconazole (Luzu)</td>
</tr>
<tr>
<td>Clotrimazole (Lotrimin, Mycelex, others) [OTC]</td>
<td>Miconafungin (Mycamine)</td>
</tr>
<tr>
<td>Clotrimazole/ betamethasone (Lotrisone)</td>
<td>Miconazole (Monistat 1 combination pack)</td>
</tr>
</tbody>
</table>

**Antimycobacterials**

<table>
<thead>
<tr>
<th>Drug</th>
<th>Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bedaquiline fumarate (Sirturo)</td>
<td>Dapsone, oral</td>
</tr>
<tr>
<td>Dapsone, oral</td>
<td></td>
</tr>
<tr>
<td>Ethambutol (Myambutol, generic)</td>
<td></td>
</tr>
<tr>
<td>Classification</td>
<td></td>
</tr>
<tr>
<td>----------------</td>
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</tr>
<tr>
<td>Isoniazid (INH)</td>
<td>Rifampin (Rifadin, Rimactane, generic)</td>
</tr>
<tr>
<td>Pyrazinamide (generic)</td>
<td>Streptomycin</td>
</tr>
<tr>
<td>Rifabutin (Mycobutin)</td>
<td>Rifapentine (Priftin)</td>
</tr>
</tbody>
</table>

**Antiparasitics**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Benzyl alcohol (Ulesfia)</td>
<td>Ivermectin, topical (Sklice)</td>
</tr>
<tr>
<td>Ivermectin, oral (Stromectol)</td>
<td>Spinosad (Natroba)</td>
</tr>
<tr>
<td></td>
<td>Lindane (Kwell, others)</td>
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</tbody>
</table>

**Antiprotozoals**

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<table>
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<th></th>
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<tbody>
<tr>
<td>Artemether/lumefantrine (Coartem)</td>
<td>Hydroxychloroquine (Plaquenil, generic)</td>
</tr>
<tr>
<td>Atovaquone (Mepron)</td>
<td>Nitazoxanide (Alinia)</td>
</tr>
<tr>
<td>Atovaquone/proguanil (Malarone)</td>
<td>Pentamidine (Pentam 300, NebuPent)</td>
</tr>
</tbody>
</table>

**Antiretrovirals**

<p>| | |</p>
<table>
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<tr>
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<tbody>
<tr>
<td>Abacavir (Ziagen)</td>
<td>Indinavir (Crixivan)</td>
</tr>
<tr>
<td>Atazanavir (Reyataz)</td>
<td>Lamivudine (Epivir, Epivir-HBV, 3TC [many combo regimens])</td>
</tr>
<tr>
<td>Darunavir (Prezista)</td>
<td>Nelfinavir (Viracept)</td>
</tr>
<tr>
<td>Delavirdine (Rescriptor)</td>
<td>Nevirapine (Viramune, Viramune XR, generic)</td>
</tr>
<tr>
<td>Didanosine [ddI] (Videx)</td>
<td></td>
</tr>
<tr>
<td>Dolutegravir (Tivicay)</td>
<td>Lopinavir/ritonavir (Kaletra)</td>
</tr>
<tr>
<td>Efavirenz (Sustiva)</td>
<td>Maraviroc (Selzentry)</td>
</tr>
<tr>
<td>Efavirenz/emtricitabine/tenofovir (Atripla)</td>
<td>NVP (Viracept)</td>
</tr>
<tr>
<td>Emtricitabine (Emtriva)</td>
<td></td>
</tr>
<tr>
<td>Enfuvirtide (Fuzeon)</td>
<td></td>
</tr>
<tr>
<td>Etravirine (Intelegence)</td>
<td></td>
</tr>
<tr>
<td>Fosamprenavir (Lexiva)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Raltegravir (Isentress)</td>
</tr>
</tbody>
</table>

**Antivirals**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Acyclovir (Zovirax)</td>
<td>Foscarnet (Foscavir, generic)</td>
</tr>
<tr>
<td>Adefovir (Hepsera)</td>
<td>Ganciclovir (Cytovene, Virasert)</td>
</tr>
<tr>
<td>Amantadine (Symmetrel)</td>
<td>Oseltamivir (Tamiflu)</td>
</tr>
<tr>
<td>Boceprevir (Victrelis)</td>
<td>Palivizumab (Synagis)</td>
</tr>
<tr>
<td>Cidofovir (Vistide)</td>
<td>Peginterferon alpha-2b (PegIntron)</td>
</tr>
<tr>
<td>Famiclovir (Famvir, generic)</td>
<td>Peginterferon alpha-2b (PegIntron)</td>
</tr>
<tr>
<td></td>
<td>Penciclovir (Denavir)</td>
</tr>
<tr>
<td></td>
<td>Ribavirin (Copegis, Rebetol, Virazole, generic)</td>
</tr>
<tr>
<td></td>
<td>Rimantadine (Flumadine, generic)</td>
</tr>
<tr>
<td></td>
<td>Sofosbuvir (Sovaldi)</td>
</tr>
<tr>
<td></td>
<td>Telaprevir (Incivek)</td>
</tr>
</tbody>
</table>
### ANTINEOPLASTIC AGENTS

#### Alkylating Agents

- Altretamine (Hexalen)
- Bendamustine (Treanda)
- Busulfan (Myleran, Busulfex)
- Carboplatin (Paraplatin)
- Carmustine [BCNU] (BiCNU, Gliadel)
- Chlorambucil (Leukeran)
- Cisplatin (Platinol, Platinol-AQ)
- Cyclophosphamide (Cytoxan, Neosar)
- Dacarbazine (DTIC)
- Ifosfamide (Ifex, generic)
- Mechlorethamine (Mustargen)
- Mechlorethamine gel (Valchlor)
- Melphalan [L-PAM] (Alkeran, generic)
- Oxaliplatin (Eloxatin, generic)
- Procarbazine (Matulane)
- Streptozocin (Zanosar)
- Temozolomide (Temodar, generic)
- Triethylenethio-phosphoramide (Thiotepa, Thioplex, Tespa, TSPA)

#### Antibiotics

- Bleomycin sulfate (generic)
- Dactinomycin (Cosmegen)
- Daunorubicin (Cerubidine)
- Doxorubicin (Adriamycin, Rubex)
- Epirubicin (Ellence)
- Idarubicin (Idamycin, generic)
- Mitomycin (Mitosol [topical], generic)

#### Antimetabolites

- Cladribine (Leustatin)
- Clofarabine (Clolar)
- Cytarabine [Ara-C] (Cytosar-U)
- Cytarabine liposome (DepoCyt)
- Decitabine (Dacogen)
- Floxuridine (generic)
- Fludarabine phosphate (Fludara)
- Fluorouracil [5-FU] (generic)
- Fluorouracil, topical [5-FU] (Carac, Efudex, Fluoroplex, generic)
- Gemcitabine (Gemzar, generic)
- Mercaptopurine [6-MP] (Purinethol, generic)
- Methotrexate (Otrexup, Rheumatrex Dose Pack, Trexall)
- Nelarabine (Arranon)
- Omacetaxine (Synribo)
- Pemetrexed (Alimta)
- Pralatrexate (Folotyn)
- Thioguanine (Tabloid)
## Classification

### Hedgehog Pathway Inhibitor

Vismodegib (Erivedge)

### Hormones

<table>
<thead>
<tr>
<th>Hormone</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abiraterone (Zytiga)</td>
<td>Fulvestrant (Faslodex)</td>
</tr>
<tr>
<td>Anastrozole (Arimidex)</td>
<td>Goserelin (Zoladex)</td>
</tr>
<tr>
<td>Bicalutamide (Casodex)</td>
<td>Histerelin acetate</td>
</tr>
<tr>
<td>Degarelix (Firmagon)</td>
<td>(Supprelin LA, Vantas)</td>
</tr>
<tr>
<td>Enzalutamide (Xtandi)</td>
<td>Leuprolide (Eligard, Lupon, Lupon DEPOT, Lupon DEPOT-Ped, generic)</td>
</tr>
<tr>
<td>Estramustine phosphate (Emcyt)</td>
<td>Megestrol acetate (Megace, Megace ES)</td>
</tr>
<tr>
<td>Exemestane (Aromasin, generic)</td>
<td>Nilutamide (Nilandron)</td>
</tr>
<tr>
<td>Flutamide (generic)</td>
<td>Tamoxifen</td>
</tr>
<tr>
<td></td>
<td>Triptorelin (Trelstar 3.75, Trelstar 11.25, Trelstar 22.5).</td>
</tr>
</tbody>
</table>

### Immunotherapy/Immunomodulator

<table>
<thead>
<tr>
<th>Immunotherapy/Immunomodulator</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG [Bacillus Calmette-Guérin]</td>
<td>Belimumab (Benlysta)</td>
</tr>
<tr>
<td>(TheraCys, Tice BCG)</td>
<td>Interferon alpha (Roferon-A, Intr A)</td>
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<tr>
<td></td>
<td>Sipuleucel-T (Provenge)</td>
</tr>
</tbody>
</table>

### Mitotic Inhibitors (Vinca Alkaloids)

<table>
<thead>
<tr>
<th>Mitotic Inhibitors (Vinca Alkaloids)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vinblastine (generic)</td>
<td>Vincristine (Marqibo, Vincasar, generic)</td>
</tr>
<tr>
<td>Vincristine (Marqibo, Vincasar, generic)</td>
<td>Vinorelbine (Navelbine, generic)</td>
</tr>
</tbody>
</table>

### Monoclonal Antibodies

<table>
<thead>
<tr>
<th>Monoclonal Antibodies</th>
<th>Description</th>
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<tbody>
<tr>
<td>Ado-trastuzumab emtansine (Kadcyla)</td>
<td>Bevacizumab (Avastin)</td>
</tr>
<tr>
<td>Alemtuzumab (Campath relaunch as Lemtrada)</td>
<td>Cetuximab (Eribitux)</td>
</tr>
<tr>
<td>Brentuximab vedotin (Adcetris)</td>
<td>Ipilimumab (Yervoy)</td>
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<td>Obinutuzumab (Gazyva)</td>
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<td>Ofatumumab (Arzerra)</td>
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<td></td>
<td>Panitumumab (Vectibix)</td>
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<td></td>
<td>Pertuzumab (Perjeta)</td>
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<td></td>
<td>Rituximab (Rituxan)</td>
</tr>
<tr>
<td></td>
<td>Trastuzumab (Herceptin)</td>
</tr>
</tbody>
</table>

### Proteasome Inhibitor

Bortezomib (Velcade)
**Taxanes**

Cabazitaxel (Jevtana)  
Docetaxel (Taxotere)  
Paclitaxel (Abraxane, Taxol, generic)

**Topoisomerase Inhibitors**

Etoposide [VP-16]  
(Itopophosphor, Toposar, Vepesid, generic)  
Irinotecan (Camptosar, generic)  
Topotecan (Hycamtin, generic)

**Tyrosine Kinase Inhibitors (TKIs)**

Afatinib (Gilotrif)  
Axitinib (Inlyta)  
Bosutinib monohydrate (Bosulif)  
Cabozanitinib (Cometriq)  
Crizotinib (Xalkori)  
Dabrafenib (Tafinlar)  
Dasatinib (Sprycel)  
Erlotinib (Tarceva)  
Everolimus (Afinitor)  
Ibrutinib (Imbruvica)  
Imatinib (Gleevec)  
Lapatinib (Tykerb)  
Nilotinib (Tasigna)  
Pazopanib (Votrient)  
 Ponatinib (Iclusig)  
Regorafenib (Stivarga)  
Ruxolitinib (Jakafi)  
Sorafenib (Nexavar)  
Sunitinib (Sutent)  
Temsirolimus (Torisel)  
Trametinib (Mekinist)  
Vandetanib (Caprelsa)

**Miscellaneous Antineoplastic Agents**

Aldesleukin  
(Interleukin-2, IL-2)  
(Proleukin)  
Aminoglutethimide (Cytadren)  
1-Asparaginase (Elspar)  
Carfilzomib (Kyprolis)  
Eribulin (Halaven)  
Hydroxyurea (Droxia, Hydrea, generic)  
Ixabepilone (Ixempra Kit)  
Leucovorin (generic)  
Lenalidomide (Revlimid)  
Mitoxantrone (generic)  
Pomalidomide (Pomalyst)  
Radium-223 dichloride (Xofigo)  
Rasburicase (Elitek)  
Romidespin (Istodax)  
Thalidomide (Thalomid)  
Tretinoin, topical [retinoic acid]  
(Retin-A, Avita, Renova, Retin-A)  
Micro)  
Vorinostat (Zolinza)  
Ziv-Aflibercept (Zaltrap)

**CARDIOVASCULAR (CV) AGENTS**

**Aldosterone Antagonists**

Eplerenone (Inspra)  
Spironolactone (Aldactone)
### Classification

#### Alpha<sub>1</sub>-Adrenergic Blockers
- Doxazosin (Cardura, Cardura XL)
- Prazosin (Minipress, generic)
- Terazosin (Hytrin, generic)

#### Angiotensin-Converting Enzyme (ACE) Inhibitors
- Benazepril (Lotensin)
- Captopril (Capoten, others)
- Enalapril (Enalaprilat, Epaned Kit, Vasotec)
- Fosinopril (Monopril, generic)
- Lisinopril (Prinivil, Zestril)
- Moexipril (Univasc, generic)
- Perindopril erbumine (Aceón, generic)
- Quinapril (Accupril, generic)
- Ramipril (Altace, generic)
- Trandolapril (Mavik, generic)

#### Angiotensin II Receptor Antagonists/Blockers (ARBs)
- Azilsartan (Edarbi)
- Candesartan (Atacand)
- Eprosartan (Teveten)
- Irbesartan (Avapro)
- Losartan (Cozaar)
- Olmesartan (Benicar)
- Telmisartan (Micardis)
- Valsartan (Diovan)

#### Antiarrhythmic Agents
- Adenosine (Adenocard, Adenoscan)
- Amiodarone (Cordarone, Nexterone, Pacerone)
- Atropine, systemic (AtroPen Auto-Injector, generic)
- Digoxin (Digitek, Lanoxin, Lanoxicaps)
- Disopyramide (Norpace, Norpace CR)
- Dronedarone (Multaq)
- Dofetilide (Tikosyn)
- Esmolol (Brevibloc, generic)
- Flecaïnide (Tambocor, generic)
- Ibutilide (Corvert, generic)
- Lidocaine, systemic (Xylocaine, others)
- Mexiletine (generic)
- Procainamide (generic)
- Propafenone (Rythmol, Rhythmol SR, generic)
- Quinidine (generic)
- Sotalol (Betapace, Sorine, generic)

#### Beta-Adrenergic Blockers
- Acebutolol (Sectral)
- Atenolol (Tenormin)
- Betaxolol (Kerlone)
- Bisoprolol (Zebeta)
- Carvedilol (Coreg, Coreg CR)
- Labetalol (Trandate, Normodyne)
- Metoprolol succinate (Toprol XL, generic)
- Metoprolol tartrate (Lopressor, generic)
- Nadolol (Corgard, generic)
- Nebivolol (Bystolic)
- Pindolol (generic)
- Propranolol (Inderal LA, Innopran XL, generic)
- Timolol (generic)
- Penbutolol (Levatol)
Calcium Channel Antagonists/Blockers (CCBs)

Amlodipine (Norvasc)
Clevidipine (Cleviprex)
Diltiazem (Cardizem, Cardizem CD, Cardizem LA, Cardizem SR, Cartia XT, Dilacor XR, Diltia XT, Taztia XT, Tiazate, Tiazac)
Felodipine (Plendil, generic)
Isradipine (DynaCirc, generic)
Nicardipine (Cardene, Cardene SR, generic)
Nifedipine (Adalat CC, Afeditab CR, Procardia, Procardia XL, generic)
Nimodipine (Nymalize, generic)
Nisoldipine (Sular, generic)
Verapamil (Calan, Covera HS, Isoptin, Verelan, generic)

Centrally Acting Antihypertensive Agents

Clonidine, oral (Catapres)
Clonidine, transdermal (Catapres-TTS)
Guanfacine (Tenex)
Methyldopa (generic)

Combination Antihypertensive Agents

Aliskiren/amlodipine (Tekamlo)
Aliskiren/amlodipine/hydrochlorothiazide (Amturnide)
Aliskiren/hydrochlorothiazide (Tekturna HCT)
Amlodipine/olmesartan (Azor)
Amlodipine/valsartan/hydrochlorothiazide (Exforge HCT)
Amlodipine/valsartan (Exforge)
Atenolol/chlorthalidone (Tenoretic)
Azilsartan/chlorthalidone (Edarbyclor)
Lisinopril/hydrochlorothiazide
(Prinzide, Zestoretic, generic)
Olmesartan/hydrochlorothiazide (Benicar HCT)
Olmesartan/amlodipine/hydrochlorothiazide (Tribenzor)
Telmisartan/amlodipine (Twynsta)

Diuretics

Acetazolamide (Diamox)
Amiloride (Midamor)
Bumetanide (Bumex)
Chlorothiazide (Diuril)
Chlorthalidone
Furosemide (Lasix, generic)
Hydrochlorothiazide (HydroDIURIL, Esidrix, others)
Hydrochlorothiazide/amiloride (Moduretic)
Hydrochlorothiazide/spironolactone (Aldactazide)
Hydrochlorothiazide/triamterene (Dyazide, Maxzide)
Indapamide (Lozol)
Mannitol, intravenous (generic)
Metolazone (Zaroxolyn, generic)
### Classification

**Inotropic/Pressor Agents**

- Spironolactone (Aldactone, generic)
- Torsemide (Demadex, generic)
- Triamterene (Dyrenium)
- Digoxin (Digitek, Lanoxin, Lanoxicaps)
- Dobutamine (Dobutrex)
- Dopamine (Intropin)
- Droxidopa (Northera)
- Epinephrine (Adrenalin, EpiPen, EpiPen Jr, others)
- Inamrinone [amrinone] (Inocor)
- Isoproterenol (Isuprel)
- Midodrine (Proamatine)
- Milrinone (Primacor, generic)
- Nesiritide (Natrecor)
- Norepinephrine (Levophed)
- Phenylephrine, systemic (generic)

**Lipid-Lowering Agents**

- Colesevelam (WelChol)
- Colestipol (Colestid)
- Cholestyramine (Questran, Questran Light, Prevalite)
- Ezetimibe (Zetia)
- Ezetimibe/atorvastatin (Liptruzet)
- Fenofibrate (Antara, Lipofen, Lofibra, generic)
- Fenofibric acid (Fibricor, Trilipix, generic)
- Gemfibrozil (Lopid, generic)
- Icosapent ethyl (Vascepa)
- Icosapent ethyl (Vascepa)
- Lomitapide (Juxtapid)
- Mipomersen (Kynamro)
- Omega-3 fatty acid [fish oil] (Lovaza)
- Niacin [nicotinic acid] (Niaspan, Slo-Niacin, Niacor, Nicolar) [OTC forms]
- Niacin/lovastatin (Advicor)
- Niacin/simvastatin (Simcor)

**Statins**

- Atorvastatin (Lipitor)
- Fluvastatin (Lescol, generic)
- Lovastatin (Mevacor, Altoprev)
- Pravastatin (Pravachol, generic)
- Rosuvastatin (Crestor)
- Simvastatin (Zocor)

**Statin/Antihypertensive Combinations**

- Amlodipine/atorvastatin (Caduet)

**Vasodilators**

- Alprostadil [prostaglandin E₁] (Prosttin VR)
- Ambrisentan (Letairis)
- Epoprostenol (Veletri, Flolan)
- Fenoldopam (Corlopam, generic)
- Hydralazine (Apresoline, others)
- Iloprost (Ventavis)
<table>
<thead>
<tr>
<th>Cardiovascular Agents</th>
<th>Miscellaneous Cardiovascular Agents</th>
<th>CENTRAL NERVOUS SYSTEM (CNS) AGENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isosorbide dinitrate</td>
<td>Nitroglycerin (Nitrostat, Nitrolingual, Nitro-Bid Ointment, Nitro-Bid IV, Nitrodisc, Transderm-Nitro, NitroMist, others)</td>
<td>Alzheimer Agents</td>
</tr>
<tr>
<td>(Dilatrate-SR, Isordil, Sorbitrate, generic)</td>
<td>Nitroprusside (Nitropress)</td>
<td><strong>Alzheimer Agents</strong></td>
</tr>
<tr>
<td>Isosorbide mononitrate</td>
<td>Treprostinil, extended release (Orenitram)</td>
<td>Memantine (Namenda)</td>
</tr>
<tr>
<td>(Ismo, Imdur, Monoket, generic)</td>
<td>Treprostinil sodium (Remodulin, Tyvaso)</td>
<td>Rivastigmine</td>
</tr>
<tr>
<td>Minoxidil, oral (generic)</td>
<td></td>
<td>Rivastigmine, transdermal (Exelon Patch, generic)</td>
</tr>
<tr>
<td>Nitroglycerin (Nitrostat, Nitrolingual, Nitro-Bid Ointment, Nitro-Bid IV, Nitrodisc, Transderm-Nitro, NitroMist, others)</td>
<td></td>
<td><strong>Antianxiety Agents</strong></td>
</tr>
<tr>
<td>Nitroprusside (Nitropress)</td>
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<td>Alprazolam (Xanax, Niravam)</td>
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<tr>
<td>Treprostinil, extended release (Orenitram)</td>
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<td>Diazepam (Diastat, Valium)</td>
</tr>
<tr>
<td>Treprostinil sodium (Remodulin, Tyvaso)</td>
<td></td>
<td>Lorazepam (Ativan, others)</td>
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<tr>
<td></td>
<td></td>
<td>Meprobamate (generic) [C-IV]</td>
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<tr>
<td></td>
<td></td>
<td>Oxazepam (generic) [C-IV]</td>
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<td><strong>Anticonvulsants</strong></td>
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<tr>
<td></td>
<td></td>
<td>Carbamazepine (Carbatrol, Epitol, Equetro, Tegretol XR)</td>
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<td>Ethosuximide (Zarontin)</td>
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<td>Lamotrigine, extended-release (Lamictal XR)</td>
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<td></td>
<td>Levetiracetam (Keppra, Keppra XR)</td>
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<td></td>
<td>Lorazepam (Ativan, others)</td>
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<td></td>
<td>Magnesium sulfate (various)</td>
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<tr>
<td></td>
<td></td>
<td>Clonazepam (Klonopin)</td>
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<tr>
<td></td>
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<td>Ezogabine (Potiga)</td>
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<td>Gabapentin (Neurontin, generic)</td>
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<td>Lamotrigine (Lamictal)</td>
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<td>Gabapentin (Neurontin, generic)</td>
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<td>Magnesium sulfate (various)</td>
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<td>Clobazam (Onfi)</td>
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<td>Fosphenytoin (Cerebyx, generic)</td>
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<td>Lamotrigine, extended-release (Lamictal XR)</td>
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<td>Levetiracetam (Keppra, Keppra XR)</td>
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<td>Lorazepam (Ativan, others)</td>
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<td>Magnesium sulfate (various)</td>
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<td>Eslicarbazepine (Aptiom)</td>
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<td>Gabapentin (Neurontin, generic)</td>
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<tr>
<td></td>
<td></td>
<td>Magnesium sulfate (various)</td>
</tr>
</tbody>
</table>
Classification

Oxcarbazepine (Oxtellar XR, Trileptal, generic)
Pentobarbital (Nembutal) [C-II]
Perampanel (Fycompa)
Phenobarbital (generic) [C-IV]
Phenytoin (Dilantin, generic)
Rufinamide (Banzel)
Tiagabine (Gabitril, generic)
Topiramate (Topamax, Trokendi XR, generic)
Valproic acid (Depakene, Depakote, Stavzor, generic)
Vigabatrin (Sabril)
Zonisamide (Zonegran, generic)

Antidepressants

SELECTIVE SEROTONIN REUPTAKE INHIBITORS (SSRIs)
Citalopram (Celexa)
Escitalopram (Lexapro, generic)
Fluoxetine (Gaboxetine, Prozac, Paxil, generic)
Sertraline (Zoloft)
Vortioxetine (Brintellix)

SEROTONIN-NOREPINEPHRINE REUPTAKE INHIBITORS (SNRIs)
Desvenlafaxine (Khedezla, Pristiq, generic)
Duloxetine (Cymbalta)

TRICYCLIC ANTIDEPRESSANTS (TCAs)
Amitriptyline (Elavil)
Desipramine (Norpramin)
Nortriptyline (Aventyl, Pamelor)

MONOAMINE OXIDASE INHIBITORS (MAOIs)
Phenelzine (Nardil, generic)
Selegiline, oral (Eldepryl, Zelapar, generic)
Selegiline, transdermal (Emsam)
Tranylcypromine (Parnate)

MISCELLANEOUS ANTIDEPRESSANTS
Bupropion hydrochloride (Aplenzin, Wellbutrin, Wellbutrin SR, Wellbutrin XL, Zyban)
Mirtazapine (Remeron, Remeron SolTab, generic)
Nefazodone (generic)
Trazodone (Olepto, generic)
Vilazodone (Viibryd)
Antiparkinson Agents

Amantadine (Symmetrel) Pramipexole (Mirapex, Mirapex ER, generic) Rotigotine (Neupro)
Apomorphine (Apokyn) Rasagiline (Azilect) Selegiline (Eldepryl, Zelapar)
Benztropine (Cogentin) Rivastigmine (Exelon Patch) Tolcapone (Tasmar)
Bromocriptine (Parlodel) Entacapone (Comtan) Trihexyphenidyl (generic)
Carbidopa/levodopa (Parcopa, Sinemet) Pramipexole (Mirapex, Mirapex ER, generic) Rotigotine (Neupro)
Entacapone (Comtan) Pramipexole (Mirapex, Mirapex ER, generic) Rotigotine (Neupro)
Rasagiline (Azilect) Selegiline (Eldepryl, Zelapar)
Rivastigmine (Exelon Patch) Tolcapone (Tasmar)
Entacapone (Comtan) Pramipexole (Mirapex, Mirapex ER, generic) Rotigotine (Neupro)
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Rivastigmine (Exelon Patch) Tolcapone (Tasmar)
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Rasagiline (Azilect) Selegiline (Eldepryl, Zelapar)
Rivastigmine (Exelon Patch) Tolcapone (Tasmar)

Antipsychotics

Aripiprazole (Abilify, Abilify Discmelt, Abilify Maintena kit) Olanzapine (Zyprexa, Zyprexa Zydis, generic) Quetiapine (Seroquel, Seroquel XR, generic)
Asenapine (Saphris) Olanzapine, LA parenteral (Zyprexa Relprevv) Risperidone, oral (Risperdal, Risperdal M-Tab, generic)
Clozapine (Clozaril, FazaClo, Versacloz) Paliperidone (Invega, Invega Sustenna) Risperidone, parenteral (Risperdal Consta)
Haloperidol (Haldol, generic) Perphenazine (generic) Thiothixene (generic)
Iloperidone (Fanapt) Pimozide (Orap) Trifluoperazine (generic)
Lithium carbonate, citrate (generic) Prochlorperazine (Compro, Procomp, generic) Ziprasidone (Geodon)
Lurasidone (Latuda)

Sedative Hypnotics

BENZODIAZEPINE HYPNPOTICS

Alprazolam (Xanax) Lorazepam (Ativan) Temazepam (Restoril, generic) [C-IV]
Estazolam (ProSom, generic) [C-IV] Midazolam (generic) [C-IV] Triazolam (Halcion, generic)
Flurazepam (Dalmane) [C-IV] Oxazepam (generic)

NON-BENZODIAZEPINE HYPNPOTICS

Dexmedetomidine (Precedex) Doxepin (Silenor) Pentobarbital
Diphenhydramine (Benadryl OTC) Eszopiclone (Lunesta) (Nembutal, others)
Etomidate (Amidate) Phenobarbital
## Classification

<table>
<thead>
<tr>
<th>Stimulants</th>
<th>Miscellaneous CNS Agents</th>
<th>Dermatologic Agents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propofol (Diprivan, generic)</td>
<td>Clomipramine (Anafranil)</td>
<td>Acitretin (Soriatane)</td>
</tr>
<tr>
<td>Ramelteon (Rozerem)</td>
<td>Clonidine, oral, extended-release (Kapvay)</td>
<td>Acyclovir (Zovirax)</td>
</tr>
<tr>
<td>Secobarbital (Seconal)</td>
<td>Dalfampridine (Amrya)</td>
<td>Adapalene (Differin)</td>
</tr>
<tr>
<td>Suvorexant (Belsomra)</td>
<td>Fingolimod (Gilenya)</td>
<td>Adapalene/benzoyl peroxide (Epiduo Gel)</td>
</tr>
<tr>
<td>Zaleplon (Sonata)</td>
<td>Gabapentin enacarbil (Horizant)</td>
<td>Botulinum toxin type A [onabotulinumtoxin A]</td>
</tr>
<tr>
<td>Zolpidem (Ambien IR, Ambien CR, Edluar,</td>
<td>Interferon beta-1a (Avonex, Rebif)</td>
<td>(Botox, Botox Cosmetic)</td>
</tr>
<tr>
<td>ZolpiMist, generic [C-IV]</td>
<td>Meclizine (Antivert, Dramamine) [OTC]</td>
<td>Brimonidine topical (Mirvaso)</td>
</tr>
<tr>
<td>Methylenphenidate, transdermal (Daytrana)</td>
<td>Natalizumab (Tysabri)</td>
<td>Calcipotiroyl (Dovonex)</td>
</tr>
<tr>
<td>Modafinil (Provigil, generic) [C-IV]</td>
<td>Nimodipine (Nimotop)</td>
<td>Calcitriol ointment (Vectical)</td>
</tr>
<tr>
<td>Guanfacine (Intuniv)</td>
<td>Sodium oxybate (Xyrem)</td>
<td>Capsaicin (Capsin, Zostrix, others)</td>
</tr>
<tr>
<td>Guanfacine (Intuniv)</td>
<td>Tarsimeleto (Hetioz)</td>
<td>Ciclopiorox (Ciclodan, CNL8, Loprox, Pedipirox-4 nail kit, Penlac)</td>
</tr>
<tr>
<td>Guanfacine (Intuniv)</td>
<td>Teriflunomide (Aubagio)</td>
<td></td>
</tr>
</tbody>
</table>
Clindamycin (Cleocin, Cleocin T, others)
Clindamycin/benzoyl peroxide (Benzaclin)
Clindamycin/tretinoin (Veltin Gel)
Clotrimazole/betamethasone (Lotrisone)
Dapsone, topical (Aczone)
Dibucaine (Nupercainal)
Diclofenac, topical (Solaraze)
Doxepin, topical (Zonalon, Prudoxin)
Econazole (Spectazole)
Erythromycin, topical (Akne-Mycin, Ery, Erythra-Derm, generic)
Erythromycin/benzoyl peroxide (Benzamycin)
Finasteride (Propecia)
Fluorouracil, topical [5-FU] (Efudex)
Gentamicin, topical (generic)
Imiquimod cream (Aldara, Zyclara)
Ingenol mebutate (Picato)
Isotretinoin (Amnesteem, Claravis, Myorisan, Sotret, Zentane, generic)
Ketoconazole (Nizoral, generic)
Ketoconazole, topical (Extina, Nizoral A-D Shampoo, Xolegel) [shampoo OTC]
Kunecatechins [sinecatechins] (Veregen)
Lactic acid/ammonium hydroxide [ammonium lactate] (Lac-Hydrin)
Lindane (generic)
Metronidazole (Flagyl, Flagyl ER, MetroCream, MetroGel, MetroLotion)
Miconazole (Monistat 1 combination pack, Monistat 3, Monistat 7) [OTC], (Monistat-Derm)
Miconazole/zinc oxide/petrolatum (Vusion)
Minocycline (Arestin, Dynacin, Minocin, Solodyn, generic)
Minoxidil, topical (Teroxidil, Rogaine) [OTC]
Mupirocin (Bactroban, Bactroban Nasal)
Naftifine (Naftin)
Nystatin (Mycostatin)
Oxiconazole (Oxistat)
Penciclovir (Denavir)
Permethrin (Elimite, Nix, generic, [OTC])
Pimecrolimus (Elidel)
Podophyllin (Condylox, Condylox Gel 0.5%, Podocon-25)
Pramoxine (Anusol Ointment, ProctoFoam NS)
Pramoxine and hydrocortisone (Proctofoam-HC)
Selenium sulfide (Selsun, Generic, Head & Shoulders Clinical Strength Dandruff Shampoo Selsun Blue Shampoo, others [OTC])
Silver sulfadiazine (Silvadene, Thermazene, generic)
Steroids, topical (See Table 3, p 320)
Tacrolimus, ointment (Protopic)
Tazarotene (Avage, Fabior, Tazorac)
Terbinafine (Lamisil, Lamisil AT [OTC])
Tolnaftate (Tinactin, generic [OTC])
Tretinoin, topical [retinoic acid] (Avita, Retin-A, Retin-A Micro, Renova)
Ustekinumab (Stelara)
### DIETARY SUPPLEMENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium acetate (Calphron, Phos-Ex, PhosLo)</td>
<td>Ferrous gluconate ([OTC], [generic])</td>
</tr>
<tr>
<td>Calcium glubionate (Calcionate)</td>
<td>Ferrous sulfate</td>
</tr>
<tr>
<td>Calcium salts [chloride, gluconate, gluceptate]</td>
<td>Fish oil (Lovaza, others [OTC])</td>
</tr>
<tr>
<td>Cholecalciferol [vitamin D₃] (Delta-D)</td>
<td>Folic acid, injectable, oral (generic)</td>
</tr>
<tr>
<td>Cyanocobalamin [vitamin B₁₂] (Nascobal)</td>
<td>Iron dextran (Dexferrum, INFeD)</td>
</tr>
<tr>
<td>Ferric carboxymaltose (Injectafer) Ferric gluconate complex (Ferrlecit)</td>
<td>Iron sucrose (Venofer)</td>
</tr>
<tr>
<td></td>
<td>Magnesium oxide (Mag-Ox 400, others [OTC])</td>
</tr>
<tr>
<td></td>
<td>Magnesium sulfate (various)</td>
</tr>
<tr>
<td></td>
<td>Multivitamins, oral [OTC] (See Table 12, p 349)</td>
</tr>
<tr>
<td></td>
<td>Phytonadione [vitamin K₁] (Mephyton, generic)</td>
</tr>
<tr>
<td></td>
<td>Potassium supplements (See Table 6, p 349)</td>
</tr>
<tr>
<td></td>
<td>Pyridoxine [vitamin B₆] (generic)</td>
</tr>
<tr>
<td></td>
<td>Sodium bicarbonate [NaHCO₃] (generic)</td>
</tr>
<tr>
<td></td>
<td>Thiamine [vitamin B₁] (generic)</td>
</tr>
</tbody>
</table>

### EAR (OTIC) AGENTS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetic acid/aluminum acetate, otic (Domeboro Otic)</td>
<td>Ciprofloxacin/ hydrocortisone, otic (Cipro HC Otic)</td>
</tr>
<tr>
<td>Benzocaine/antipyrine (Aurodex, generic)</td>
<td>Neomycin/colistin/ hydrocortisone (Cortisporin-TC Otic Drops)</td>
</tr>
<tr>
<td>Ciprofloxacin, otic (Cetraxal)</td>
<td>Neomycin/colistin/ hydrocortisone/ thonzionium (Ciprodex)</td>
</tr>
</tbody>
</table>

### ENDOCRINE SYSTEM AGENTS

#### Antidiabetic Agents

**ALPHA-GlUCOSIDASE INHIBITORS**

- Acarbose (Precose)
- Miglitol (Glyset)

**COMBINATION ANTIDIABETIC AGENTS**

- Alogliptin/metformin (Kazano)
- Alogliptin/pioglitazone (Oseni)
- Canagliflozin/ metformin (Invokamet)
Glyburide/metformin (Glucovance, generic)  ACTOplus MET XR, generic  Sitagliptin/metformin (Janumet, Janumet XR)
Linagliptin/metformin (Jentadueto)  Repaglinide/metformin (PrandiMet)  Sitagliptin/simvastatin (Juvisync)
Pioglitazone/metformin (ACTOplus Met, generic)  Saxagliptin/metformin (Kombiglyze XR)

BIGUANIDES
Metformin (Fortmet, Glucophage, Glucophage XR, generic)  Glumetza, Riomet, generic

DIPEPTIDYL PEPTIDASE-4 (DPP-4) INHIBITORS
Alogliptin (Nesina)  Saxagliptin (Onglyza)
Linagliptin (Tradjenta)  Sitagliptin (Januvia)

GLUCAGON-LIKE PEPTIDE-1 (GLP-1) RECEPTOR AGONISTS
Exenatide (Byetta)  Exenatide ER (Bydureon, Bydureon Pen)  Liraglutide recombinant (Victoza)

INSULINS
Insulin, human inhalation powder (Afrezza)  Insulin, injectable (See Table 4, p 322)

MEGLITINIDES
Nateglinide (Starlix, generic)  Repaglinide (Prandin)

SULFONYLUREAS
Chlorpropamide (Diabinese)  Glimepiride/ pioglitazone (Duetact)  Glyburide (DiaBeta, Glynase, generic)
Glimepiride (Amaryl, generic)  Glipizide (Glucotrol, Glucotrol XL, generic)  Tolazamide (generic)
Tolbutamide (generic)
Classification

**SODIUM-GLUCOSE CO-TRANSPORTER 2 (SGLT2) INHIBITORS**
Canagliflozin (Invokana)  
Empagliflozin  
Dapagliflozin (Farxiga)  
(Jardiance)

**THIAZOLIDINEDIONES**
Pioglitazone (Actos,  
generic)  
Rosiglitazone (Avandia)

**MISCELLANEOUS ANTI-DIABETIC AGENTS**
Bromocriptine mesylate  
(Cycloset)

**Hormone and Synthetic Substitutes**
Calcitonin (Fortical,  
Miacalcin)  
Calcitriol (Calcijex,  
Rocaltrol)  
Cortisone, systemic and  
topical (See Table 2,  
p 319, and Table 3,  
p 320)  
Desmopressin (DDAVP,  
Stimate)  
Dexamethasone,  
 systemic and topical  
(Decadron)  
Fludrocortisone  
(Florinef, generic)  
Fluoxymesterone  
(Androxy) [C-III]  
Glucagon, recombinant  
(GlucaGen)  
Hydrocortisone, topical/  
 systemic (Cortef,  
Solu-Cortef, generic)  
Methylprednisolone  
(A-Methapred, Depo-  
Medrol, Medrol,  
Medrol Dosepak,  
Solu-Medrol,  
generic) [See  
Steroids, p 272, and  
Table 2, p 319]  
Prednisolone (Flo-Pred,  
Omnipred, Orapred,  
Pediapred, generic)  
(See Steroids,  
p 272, and  
Table 2, p 319)  
Prednisone (generic)  
(See Steroids,  
p 272, and  
Table 2, p 319)  
Testosterone, implant  
(Testopel) [C-III]  
Testosterone, nasal gel  
(Natesto) [C-III]  
Testosterone, topical  
(AndroGel 1%,  
AndroGel 1.62%  
Androderm, Axiron,  
Fortesta, Striant,  
Testim, Vogelxo)  
[C-III]  
Testosterone  
undecanoate,  
injectable (Aveed)  
[C-III]  
Vasopressin  
[antidiuretic  
hormone, ADH]  
(Pitressin)

**Hypercalcemia/Osteoporosis Agents**
Alendronate (Fosamax,  
Fosamax Plus D)  
Denosumab (Prolia,  
Xgeva)  
Etidronate (Didronel)  
Gallium nitrate (Ganite)  
Ibandronate (Boniva,  
generic)
Pamidronate (generic)  
Raloxifene (Evista)  
Risedronate (Actonel, Actonel w/ Calcium, generic)  
Risedronate, delayed-release (Atelvia)  
Teriparatide (Forteo)  
Zoledronic acid (Reclast, Zometa, generic)  

**Obesity**

Lorcaserin (Belviq)  
Orlistat (Xenical, Alli [OTC])  
Phentermine (Adipex-P, Suprenza, generic)  
Phentermine/topiramate (Qsymia) [C-IV]

**Thyroid/Antithyroid**

Levothyroxine (Synthroid, Levoxyl, others)  
Liothyronine [T₃] (Cytomel, Triostat)  
Methimazole (Tapazole, generic)  
Potassium iodide (Lugol’s Solution, Iosat, SSKI, Thyro-Block, ThyroSafe, ThyroShield) [OTC]  
Propylthiouracil (generic)

**Miscellaneous Endocrine Agents**

Cinacalcet (Sensipar)  
Demeclocycline (Declomycin)  
Diazoxide (Proglycem)  
Mifepristone (Korlym)  
Pasireotide (Signifor)  
Somatropin (Genotropin)  
Nutropin AQ, Omnitrope, Saizen, Serostim, Zortibve, Tesamorelin (Egrifta)

**EYE (OPHTHALMIC) AGENTS**

**Glaucoma Agents**

Acetazolamide (Diamox)  
Apraclonidine (lopidine)  
Betaxolol, ophthalmic (Betoptic)  
Brimonidine (Alphagan P)  
Brimonidine/timolol (Combigan)  
Brinzolamide (Azopt)  
Brinzolamide/brimonidine (Simbrinza)  
Carteolol, ophthalmic (Zioptan)  
Dipivefrin (Propine)  
Dorzolamide (Trusopt)  
Dorzolamide/timolol (Cosopt)  
Echotothiophate iodide, ophthalmic (Phospholine Iodide)

Latanoprost (Xalatan)  
Levobunolol (AK-Beta, Betagan)  
Tafluprost (Zioptan)  
Timolol, ophthalmic (Betimol, Timoptic, Timoptic XE, generic)
### Classification

#### Ophthalmic Antibiotics

<table>
<thead>
<tr>
<th>Antibiotic Description</th>
<th>Commonly Used Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Azithromycin, ophthalmic, 1% (AzaSite)</td>
<td></td>
</tr>
<tr>
<td>Bacitracin, ophthalmic (AK-Tracin Ophthalmic)</td>
<td></td>
</tr>
<tr>
<td>Bacitracin/polymyxin B, ophthalmic (AK-PolyBac Ophthalmic, Polysporin Ophthalmic)</td>
<td></td>
</tr>
<tr>
<td>Bacitracin/neomycin/ polymyxin B (Neo-polycin, Neosporin Ophthalmic)</td>
<td></td>
</tr>
<tr>
<td>Bacitracin/neomycin/ polymyxin B/hydrocortisone (Neo-polycin HC Cortisporin Ophthalmic)</td>
<td></td>
</tr>
<tr>
<td>Besifloxacin (Besivance)</td>
<td></td>
</tr>
<tr>
<td>Ciprofloxacin, ophthalmic (Ciloxan)</td>
<td></td>
</tr>
<tr>
<td>Erythromycin, ophthalmic (Iloycin)</td>
<td></td>
</tr>
<tr>
<td>Gentamicin, ophthalmic (Garamycin, Genoptic, Gentak, generic)</td>
<td></td>
</tr>
<tr>
<td>Gentamicin/ prednisolone, ophthalmic (Pred-G Ophthalmic)</td>
<td></td>
</tr>
<tr>
<td>Levofoxacin, ophthalmic (Quixin, Iquix)</td>
<td></td>
</tr>
<tr>
<td>Moxifloxacin, ophthalmic (Vigamox)</td>
<td></td>
</tr>
<tr>
<td>Neomycin/polymyxin B/hydrocortisone (Cortisporin Ophthalmic)</td>
<td></td>
</tr>
<tr>
<td>Neomycin/dexamethasone (AK-Neo-Dex Ophthalmic, NeoDecadron Ophthalmic)</td>
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</tr>
<tr>
<td>Neomycin/polymyxin B/dexamethasone, ophthalmic (Maxitrol)</td>
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</tr>
<tr>
<td>Neomycin/polymyxin B/prednisolone, ophthalmic (Poly-Pred Ophthalmic)</td>
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</tr>
<tr>
<td>Neomycin/polymyxin B/prednisolone, ophthalmic (Chibroxin)</td>
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</tr>
<tr>
<td>Ofloxacin, ophthalmic (Ocuflon)</td>
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</tr>
<tr>
<td>Sulfacetamide, ophthalmic (Bleph-10, Celamide, Sodium Sulamyd)</td>
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</tr>
<tr>
<td>Sulfacetamide/ prednisolone, ophthalmic (Blephamide, others)</td>
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</tr>
<tr>
<td>Tobramycin, ophthalmic (AKTob, Tobrex, generic)</td>
<td></td>
</tr>
<tr>
<td>Tobramycin/ dexamethasone, ophthalmic (TobraDex)</td>
<td></td>
</tr>
</tbody>
</table>

#### Miscellaneous Ophthalmic Agents

<table>
<thead>
<tr>
<th>Agent Description</th>
<th>Commonly Used Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aflibercept (Eylea)</td>
<td></td>
</tr>
<tr>
<td>Alcaftadine, ophthalmic (Lastacaft)</td>
<td></td>
</tr>
<tr>
<td>Artificial tears (Tears Naturale) [OTC]</td>
<td></td>
</tr>
<tr>
<td>Atropine (Isopto Atropine, generic)</td>
<td></td>
</tr>
<tr>
<td>Bepotastine besilate (Bepreve)</td>
<td></td>
</tr>
<tr>
<td>Bromfenac (Prolensa)</td>
<td></td>
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<tr>
<td>Cidofovir (Vistide)</td>
<td></td>
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<tr>
<td>Cromolyn sodium (Opticrom)</td>
<td></td>
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<tr>
<td>Cyclopentolate (Cyclogyl, Cyclate)</td>
<td></td>
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<tr>
<td>Cyclopentolate/ phenylephrine (Cyclomydri)</td>
<td></td>
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<tr>
<td>Cyclosporine (Restasis)</td>
<td></td>
</tr>
<tr>
<td>Dexamethasone, ophthalmic (AK-Dex Ophthalmic, Decadron Ophthalmic, Maxidex)</td>
<td></td>
</tr>
<tr>
<td>Diclofenac (Voltaren)</td>
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<tr>
<td>Emepaftine (Emadine)</td>
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</tr>
<tr>
<td>Epinastine (Elestat)</td>
<td></td>
</tr>
<tr>
<td>Ganciclovir, ophthalmic gel (Zirgan)</td>
<td></td>
</tr>
<tr>
<td>Ketotifen (Alaway, Claritin Eye, Zaditor, Zyrtec Itchy Eye) [OTC]</td>
<td></td>
</tr>
<tr>
<td>Ketorolac (Acular, Acular LS, Acular PF)</td>
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</tr>
<tr>
<td>Lodoxamide (Alomide)</td>
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</tr>
<tr>
<td>Drug Name</td>
<td>Chemist Code</td>
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<tr>
<td>-----------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Loteprednol (Alrex, Lotemax)</td>
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</tr>
<tr>
<td>Naphazoline (Albalon, Naphcon, generic)</td>
<td></td>
</tr>
<tr>
<td>Naphazoline/pheniramine (Naphcon A, Visine A, generic)</td>
<td></td>
</tr>
<tr>
<td>Nepafenac (Nevanac)</td>
<td></td>
</tr>
<tr>
<td>Olopatadine (Patanol, Pataday)</td>
<td></td>
</tr>
<tr>
<td>Pemirolast (Alamast)</td>
<td></td>
</tr>
<tr>
<td>Phenylephrine (Neo-Synephrine Ophthalmic,</td>
<td></td>
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<tr>
<td>Phenylephrine Ophthalmic,</td>
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<tr>
<td>Phenylephrine (Neo-Synephrine Ophthalmic,</td>
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<tr>
<td>Phenylephrine</td>
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<tr>
<td>Nepafenac (Nevanac)</td>
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<tr>
<td>Olopatadine (Patanol, Pataday)</td>
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<tr>
<td>Pemirolast (Alamast)</td>
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<tr>
<td>Phenylephrine (Neo-Synephrine Ophthalmic,</td>
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<tr>
<td>Phenylephrine Ophthalmic,</td>
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<tr>
<td>Phenylephrine</td>
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<tr>
<td>AK-Dilate, Zincfrin (OTC)</td>
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<tr>
<td>Ranibizumab (Lucentis)</td>
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</tr>
<tr>
<td>Rimexolone (Vexol)</td>
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</tr>
<tr>
<td>Trifluridine, ophthalmic (Viroptic)</td>
<td></td>
</tr>
</tbody>
</table>

**GASTROINTESTINAL (GI) AGENTS**

**Antacids**

- Alginic acid/aluminum hydroxide/magnesium trisilicate (Gaviscon) [OTC]
- Aluminum hydroxide (Amphojel, AlternaGEL, DermaGran) [OTC]
- Aluminum hydroxide/magnesium carbonate (Gaviscon Extra) [OTC]
- Aluminum hydroxide/magnesium hydroxide (Maalox) [OTC]
- Aluminum hydroxide/magnesium hydroxide/simethicone (Mylanta, Mylanta II, Maalox Plus) [OTC]
- Calcium carbonate (Tums, Alka-Mints) [OTC]
- Magaldrate (Riopan Plus) [OTC]
- Calcium carbonate (Tums, Alka-Mints) [OTC]
- Magaldrate (Riopan Plus) [OTC]

**Antidiarrheals**

- Bismuth subsalicylate (Pepto-Bismol) [OTC]
- Diphenoxylate/atropine (Lomotil, Lonox)
- Lactobacillus (Lactinex Granules) [OTC]
- Loperamide (Diamode, Imodium) [OTC]
- Octreotide (Sandostatin, Sandostatin LAR, generic)
- Paregoric [camphorated tincture of opium]
- Octreotide (Sandostatin, Sandostatin LAR, generic)
- Paregoric [camphorated tincture of opium]

**Antiemetics**

- Aprepitant (Emend)
- Chlorpromazine (Thorazine)
- Dimenhydrinate (Dramamine, others) [OTC]
- Dolasetron (Anzemet)
- Dronabinol (Marinol [C-III])
- Droperidol (Inapsine)
- Fosaprepitant (Emend, Injection)
- Granisetron (Kytril, generic)
- Meclizine (Antivert, Bonine, Dramamine [OTC])
- Metoclopramide (Reglan, Clopra, Octamide)
- Nabilone (Cesamet)
**Classification**

Ondansetron (Zofran, Zofran ODT)  
Ondansetron, oral soluble film (Zuplenz)  
Palonosetron (Aloxi)

**Antiemetics**

- Prochlorperazine (Compazine)
- Promethazine (Promethegan, generic)
- Scopolamine (Transderm Scop)
- Trimethobenzamide (Tigan, generic)

**Antiulcer Agents**

- Bismuth subcitrate/metronidazole/tetracycline (Pylera)
- Cimetidine (Tagamet, Tagamet HB 200 [OTC])
- Dexlansoprazole (Dexilant)
- Famotidine (Pepcid, Pepcid AC, generic, [OTC])
- Lansoprazole (Prevacid, Prevacid 24HR [OTC])
- Nizatidine (Axid, Axid AR [OTC], generic)
- Omeprazole (Prilosec, Prilosec [OTC], generic)
- Omeprazole, sodium bicarbonate (Zegerid, Zegerid [OTC])
- Omeprazole, sodium bicarbonate, magnesium hydroxide (Zegerid w/ Magnesium Hydroxide)
- Pantoprazole (Protonix, generic)
- Rabeprazole (AcipHex)
- Ranitidine (Zantac, Zantac EFFERDose [OTC], generic)
- Sucralfate (Carafate, generic)

**Cathartics/Laxatives**

- Bisacodyl (Dulcolax [OTC])
- Citric acid/magnesium oxide/sodium picosulfate (Prepopik)
- Docusate calcium (Surfak)
- Docusate potassium (Dialose)
- Docusate sodium (DOSS, Colace)
- Glycerin suppository
- Lactulose (Constulose, Enulose, Generlac, others)
- Magnesium citrate (Citroma, others) [OTC]
- Magnesium hydroxide (Milk of Magnesia) [OTC]
- Mineral oil [OTC]
- Polyethylene glycol-electrolyte solution [PEG-ES] (GoLYTELY, CoLyte)
- Polyethylene glycol [PEG] 3350 (MiraLAX) [OTC]
- Psyllium (Konsyl, Metamucil, generic) [OTC]
- Sodium phosphate (OsmoPrep, Visicol)
- Sorbitol (generic)

**Enzymes**

Pancrelipase (Creon, Pancreaze, Panakare Plus, Pertzye, Ultresa, Voikace, Zenpep, generic)
Miscellaneous GI Agents

Alosetron (Lotronex)  
Alvimopan (Entereg)  
Budesonide, oral  
(Brentocort EC)  
Balsalazide (Colazal)  
Certolizumab pegol  
(Cimzia)  
Crofelemer (Fulyzaq)  
Dexpanthenol (Ilopan-Choline Oral, Ilopan)  
Dibucaine (Nupercainal)  
Dicyclomine (Bentyl)  
Fidaxomicin (Dificid)  
Hydrocortisone, rectal  
(Anusol-HC Suppository, Cortifoam Rectal, Proctocort, others, generic)  
Hyoscyamine (Anaspaz, Cystospaz, Levsin, others, generic)  
Hyoscyamine/atropine/scopolamine/phenobarbital (Donnatal, others)  
Infliximab (Remicade)  
Linaclotide (Linzess)  
Lubiprostone (Amitiza)  
Mesalamine (Apriso Asacol, Asacol HD, Canasa, Lialda, Pentasa, Rowasa, generic)  
Methylnaltrexone bromide (Relistor)  
Metoclopramide (Reglan, Clopra, Octamide)  
Mineral oil/pramoxine HCl/zinc oxide (Tucks Ointment) [OTC]  
Misoprostol (Cytotec, generic)  
Natalizumab (Tysabri)  
Neomycin (Neo-Fradin, generic)  
Olsalazine (Dipentum)  
Oxandroline (Oxandrin, generic) [C-III]  
Pramoxine (Anusol Ointment, ProctoFoam NS, others)  
Pramoxine/hydrocortisone (Enzone, Proctofoam-HC)  
Propanetheline (Pro-Banthine, generic)  
Simethicone (generic [OTC])  
Starch, topical, rectal (Tucks Suppositories) [OTC]  
Sulfasalazine (Azulfidine, Azulfidine EN, generic)  
Teduglutide [rDNA origin] (Gattex)  
Witch hazel (Tucks Pads, others) [OTC]

HEMATOLOGIC AGENTS

Anticoagulants

Antithrombin, recombinant (ATryn)  
Apixaban (Eliquis)  
Argatroban (generic)  
Bivalirudin (Angiomax)  
Dabigatran (Pradaxa)  
Dalteparin (Fragmin)  
Desirudin (Iprivask)  
Enoxaparin (Lovenox)  
Fondaparinux (Arixtra, generic)  
Heparin (generic)  
Lepirudin (Refludan)  
Protamine (generic)  
Rivaroxaban (Xarelto)  
Warfarin (Coumadin, Jantoven, generic)

Antiplatelet Agents

Abciximab (ReoPro)  
Aspirin (Bayer, Ecotrin, St. Joseph’s generic) [OTC]  
Cilostazol (Pletal)  
Clopidogrel (Plavix)  
Dipyridamole (Persantine)  
Dipyridamole/aspirin (Aggrenox)  
Eptifibatide (Integrelin)  
Prasugrel (Effient)
## Classification

<table>
<thead>
<tr>
<th>Ticagrelor (Brilinta)</th>
<th>Tirofiban (Aggrastat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ticlopidine (Ticlid)</td>
<td></td>
</tr>
</tbody>
</table>

### Antithrombotic Agents

- **Alteplase**, recombinant [tPA] (Activase)
- **Reteplase** (Retavase)
- **Tenecteplase** (TNKase)

- **Streptokinase** (generic)

### Hematopoietic Agents

- **Darbepoetin alfa** (Aranesp)
- **Filgrastim** [G-CSF] (Neupogen)
- **Sargramostim** [GM-CSF] (Leukine)

- **Epoetin alfa** (Erythropoietin [EPO])
- **Opelvexin** (Neumega)
- **Pegfilgrastim** (Neulasta)

- **Eltrombopag** (Promacta)
- **Plerixafor** (Mozobil)
- **Romiplostim** (Nplate)

### Volume Expanders

- **Albumin** (Albuked, Albuminar 20, AlbuRx 25, Albutein, Buminate, Kedbumin, Plasbumin)
- **Buminate** (Kedbumin, Plasbumin)
- **Dextran 40** (Gentran 40, Rheomacrodex)
- **Hetastarch** (Hespan)
- **Plasma protein fraction** (Plasmanate)

### Miscellaneous Hematologic Agents

- **Aminocaproic acid** (Amicar)
- **Antihemophilic factor VIII** (Monoclate-P)
- **Antihemophilic factor [recombinant]**

- **Deferiprone** (Ferriprox)
- **Desmopressin** (DDAVP, Stimate)
- **Pentoxifylline** (Trental, generic)
- **Prothrombin complex concentrate** (human)

### IMMUNE SYSTEM AGENTS

#### Immunomodulators

- **Dimethyl fumarate** (Tecfidera)
- **Icatibant** (Firazyr)
- **Interferon alpha** (Roferon-A, Intron A)
- **Interferon alphacon-1** (Infergen)
- **Interferon beta-1a** (Rebif)
- **Interferon beta-1b** (Betaseron, Extavia)
- **Interferon gamma-1b** (Actimmune)
- **Interferon gamma-2b** (Intefil)
- **Interferon gamma-2a** (Remscimab)
- **Peginterferon alpha-2a** (Pegasys)
- **Peginterferon alpha-2b** (PegIntron)
Short ragweed pollen allergen extract (Ragwitek)
Sweet vernal, orchard, perennial rye, Timothy

Immunomodulators: Disease-Modifying Antirheumatic Drugs (DMARDs)

Abatacept (Orencia)
Adalimumab (Humira)
Anakinra (Kineret)
Apremilast (Otezla)
Certolizumab pegol (Cimzia)
Etanercept (Enbrel)
Golimumab (Simponi)
Infliximab (Remicade)
Leflunomide (Arava)
Methotrexate (Otrexup, Rheumatrex Dose Pack, Trexall, generic)
Tocilizumab (Actemra)
Tofacitinib (Xeljanz)

Immunosuppressive Agents

Azathioprine (Imuran)
Basiliximab (Simulect)
Belatacept (Nulojix)
Cyclosporine (Gengraf, Neoral, Sandimmune)
Daclizumab (Zenapax)
Everolimus (Zortress)
Lymphocyte immune globulin [antithymocyte globulin (ATG)]
Mycophenolic acid
Mycophenolate mofetil (CellCept, generic)
Sirolimus [rapamycin] (Rapamune)
Steroids, systemic (See Table 2, p 319)
Tacrolimus, immediate release (Prograf, generic)
Tacrolimus, extended release (Astragraf XL)

MUSCULOSKELETAL AGENTS

Antigout Agents

Allopurinol (Zyloprim, Lopurin, Aloprim)
Colchicine
Febuxostat (Uloric)
Pegloticase (Krystexxa)
Probenecid (Probalan, generic)

Muscle Relaxants

Baclofen (Lioresal Intrathecal, Gablofen)
Carisoprodol (Soma)
Chlorzoxazone (Parafon Forte DSC, others)
Cyclobenzaprine (Flexeril)
Cyclobenzaprine, extended-release (Amrix)
Dantrolene (Dantrium, Revonto)
Diazepam (Diastat, Valium)
Metaxalone (Skelaxin)
Methocarbamol (Robaxin, generic)
Orphenadrine (Norflex, generic)
Classification

**Neuromuscular Blockers**

Atracurium (Tracrium)  
Botulinum toxin type A  
[incobotulinum-toxinA] (Xeomin)  
Botulinum toxin type A  
[onabotulinumtoxinA] (Botox, Botox Cosmetic)

Botulinum toxin type B  
[rimabotulinum-toxinB] (Myobloc)  
Pancuronium (generic)  
Rocuronium (Zemuron, generic)

Succinylcholine  
(Anectine, Quelicin, generic)  
Vecuronium (generic)

**Miscellaneous Musculoskeletal Agents**

Edrophonium (Enlon)  
Tizanidine (Zanaflex, generic)

**OB/GYN AGENTS**

**Contraceptives**

Copper intrauterine device (IUD)  
(ParaGard T 380A)  
Ethinyl estradiol/norelgestromin (Ortho Evra)  
Etonogestrel, implant (Implanon)

Etonogestrel/ethinyl estradiol, vaginal insert (NuvaRing)  
Levonorgestrel intrauterine device (IUD) (Mirena)  
Medroxyprogesterone (Provera, Depo)

Provera, Depo-Sub Q  
Provera, generic  
Oral contraceptives (See Table 5, p 325)

**Emergency Contraceptives**

Levonorgestrel (Next Choice, Plan B One-Step, generic [OTC])  
Ulipristal acetate (Ella)

**Estrogen Supplementation**

**ESTROGEN ONLY**

Estradiol, oral  
(Delestrogen, Estrace, Femtrace, others)  
Estradiol, metered gel  
(Elestrin, Estrogel)  
Estradiol, spray  
(Evamist)

Estradiol, transdermal  
(Alora, Climara, Estraderm, Vivelle Dot)  
Estradiol, vaginal  
(Estring, Femring, Vagifem)

Estrogen, conjugated  
(Premarin)  
Estrogen, conjugated-synthetic (Cenestin, Enjuvia)  
Esterified estrogens  
(Menest)
**COMBINATION ESTROGEN/PROGESTIN**

| Estrogen, conjugated/medroxyprogesterone (Prempro, Premphase) | Estradiol/levonorgestrel, transdermal (Climara Pro) | Estradiol/norethindrone (Activella, generic) |

**COMBINATION ESTROGEN/ESTROGEN ANTAGONIST**

| Conjugated estrogens/bazedoxifene | (Duavee) |

**Vaginal Preparations**

| Amino-Cerv pH 5.5 Cream | Nystatin (Mycostatin) |
| Miconazole (Monistat combination pack, Monistat 3, Monistat 7) [OTC], (Monistat-Derm) | Terconazole (Terazol 3, Terazol 7, generic) |
| | Tioconazole (generic [OTC]) |

**Miscellaneous OB/GYN Agents**

| Clomiphene (Clomid) | Tranexamic acid (Lysteda, generic) | Mifepristone [RU 486] (Mifeprex) |
| Dinoprostone (Cervidil Vaginal Insert, Prepil Gel, Prostin E2) | Magnesium sulfate (various) | Nafarelin, metered spray (SYNAREL) |
| Doxylamine & pyridoxine (Diclegis) | Medroxyprogesterone (Provera, Depo-Provera, Depo-SubQ Provera) | Ospemifene (Osphena) |
| Leuprolide (Lupron) | Methylergonovine (Methergine) | Oxytocin (Pitocin, generic) |
| Leuprolide acetate and norethindrone acetate kit (Luponeta Pack) | Tranexamic acid (Lysteda) |

**PAIN MEDICATIONS**

**Antimigraine Agents**

| Acetaminophen/butalbital, w/ and w/o caffeine (Fioricet, Margesic, Esgic, Dologic Plus, Bupap, Sedapap, Phrenilin) Almotriptan (Axert) | Aspirin/butalbital/caffeine compound (Fiorinal) | Frovatriptan (Frova) |
| | Aspirin/butalbital/caffeine/codeine (Fiorinal w/ Codeine) | Naratriptan (Amerge, generic) |
| | | Sumatriptan (Alsuma, Imitrex, Imitrex) |
| | | Statdose, Imitrex |
| | | Nasal Spray, generic |
Classification

Local/Topical (See also Local Anesthetics Table 1, p 318)

Benzocaine (Americaine, Lanacane, Hurricane, various [OTC])
Benzocaine/antipyrine (Auralgan)
Bupivacaine (Marcaine)
Capsaicin (Capsin, Zostrix, others) [OTC]
Cocaine
Dibucaine (Nupercainal)

Lidocaine, lidocaine/epinephrine (Anestacon)
Topical, Xylocaine, Xylocaine Viscous, Xylocaine MPF, others)
Lidocaine/prilocaine (EMLA, ORAQIX)

Lidocaine/tetracaine transdermal patch (Synera) and cream (Plaiglis)
Mepivacaine (Carbocaine)
Procaine (Novocaine)
Pramoxine (Anusol Ointment, ProctoFoam NS, others)

Narcotic Analgesics

Acetaminophen/codeine (Tylenol 2, 3, 4) [C-III, C-IV]
Alfentanil (Alfenta)
Buprenorphine (Buprenex) (C-III)
Buprenorphine/naloxone (Suboxone, Zubsolv) (C-III)
Buprenorphine, transdermal (Butrans)
Butorphanol (Stadol) [C-IV]
Codeine [C-II]
Fentanyl (Sublimaze) [C-II]
Fentanyl, transdermal (Duragesic, generic) [C-II]

Fentanyl, transmucosal
(Astral, Actiq, Fentora, Lazanda, Onsolis, generic) [C-II]
Hydrocodone, extended-release (Zohydro) [C-II]
Hydrocodone/acetaminophen (Lorcet, Vicodin, Hycet, others) [C-II]
Hydrocodone/ibuprofen (Vicoprofen, generic) [C-II]
Hydromorphone (Dilaudid, Dilaudid HP, generic) [C-II]
Hydromorphone, extended-release (Exalго) [C-II]
Levorphanol (Levo-Dromoran)
Meperidine (Demerol, Meperitab, generic) [C-II]
Methadone (Dolophine, Methadose, generic) [C-II]
Morphine (Avinza XR, Astramorph/PF, Duramorph, Infumorph, MS Contin, Kadian SR, Oramorph SR, Roxanol) [C-II]
Morphine/naltrexone (Embeda) [C-II]
### Nonnarcotic Analgesics

<table>
<thead>
<tr>
<th>Nonnarcotic Analgesics</th>
<th>Nonnarcotic Analgesics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen, oral</td>
<td>Acetaminophen/</td>
</tr>
<tr>
<td>[N-acetyl-p-</td>
<td>butalbital/±</td>
</tr>
<tr>
<td>aminophenol</td>
<td>caffeine</td>
</tr>
<tr>
<td>(APAP) (Acephen,</td>
<td>(Fioricet, Medigesic,</td>
</tr>
<tr>
<td>Tylenol, other</td>
<td>Repan, Sedapap-10,</td>
</tr>
<tr>
<td>generic)</td>
<td>Two-Dyne, Triapin,</td>
</tr>
<tr>
<td>Acetaminophen,</td>
<td>Axocet, Phrenilin</td>
</tr>
<tr>
<td>injection (Ofirmev)</td>
<td>Forte)</td>
</tr>
</tbody>
</table>

### Nonsteroidal Anti-inflammatory Agents (NSAIDs)

<table>
<thead>
<tr>
<th>Nonsteroidal Anti-inflammatory Agents (NSAIDs)</th>
<th>Nonsteroidal Anti-inflammatory Agents (NSAIDs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celecoxib (Celebrex, generic)</td>
<td>Nabumetone (Relafen, generic)</td>
</tr>
<tr>
<td>Diclofenac/misoprostol (Arthrotec)</td>
<td>Naproxen (Aleve [OTC], Anaprox, Anaprox</td>
</tr>
<tr>
<td>Diclofenac, oral (Cataflam, Voltaren, Voltaren-XR, Zorvolex)</td>
<td>DS, EC-Naprosyn, Naprelan, Naprosyn, generic</td>
</tr>
<tr>
<td>Diclofenac, topical (Flector Patch, Pennsaid, Voltaren gel)</td>
<td>Naproxen/esomeprazole (Vimovo)</td>
</tr>
<tr>
<td>Diflunisal (Dolobid)</td>
<td>Oxaprozin (Daypro, Daypro ALTA)</td>
</tr>
<tr>
<td>Etodolac</td>
<td>Piroxicam (Feldene, generic)</td>
</tr>
<tr>
<td>Fenoprofen (Nalfon, generic)</td>
<td>Sulindac (Clinoril, generic)</td>
</tr>
<tr>
<td></td>
<td>Tolmetin (generic)</td>
</tr>
</tbody>
</table>

### Miscellaneous Pain Medications

<table>
<thead>
<tr>
<th>Miscellaneous Pain Medications</th>
<th>Miscellaneous Pain Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amitriptyline (Elavil)</td>
<td>Imipramine (Tofranil)</td>
</tr>
<tr>
<td>Clonidine, epidural (Duraclon)</td>
<td>Pregabalin (Lyrica, generic)</td>
</tr>
<tr>
<td></td>
<td>Ziconotide (Prialt)</td>
</tr>
</tbody>
</table>
Classification

**RESPIRATORY AGENTS**

**Antitussives, Decongestants, and Expectorants**

<table>
<thead>
<tr>
<th>Bronchodilators</th>
<th>Bronchodilators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylcysteine</td>
<td>Guaifenesin (Robitussin, others, generic) [OTC]</td>
</tr>
<tr>
<td>(Acetadote, Mucomyst)</td>
<td>Guaifenesin/codeine</td>
</tr>
<tr>
<td>Benzonatate</td>
<td>(Robafen AC, others, generic) [C-V]</td>
</tr>
<tr>
<td>(Tessalon, Zonatuss)</td>
<td>Guaifenesin/dextromethorphan (many OTC bands)</td>
</tr>
<tr>
<td>Codeine</td>
<td>Hydrocodone/homatropine</td>
</tr>
<tr>
<td>Dextromethorphan</td>
<td>(Hycodan, Hydromet, others, generic) [C-II]</td>
</tr>
<tr>
<td>(Benylin DM, Delsym, Mediquell, PediaCare 1, others)</td>
<td>[OTC]</td>
</tr>
<tr>
<td>Codeine</td>
<td>Hydrocodone</td>
</tr>
<tr>
<td>Dextromethorphan</td>
<td>(Foradil, Perforomist)</td>
</tr>
<tr>
<td>(Benylin DM, Delsym, Mediquell, PediaCare 1, others)</td>
<td>Indacaterol (Arcapta Neohaler)</td>
</tr>
<tr>
<td>Codeine</td>
<td>Isoproterenol (Isuprel)</td>
</tr>
<tr>
<td>Dextromethorphan</td>
<td>Levalbuterol (Xopenex, Xopenex HFA)</td>
</tr>
<tr>
<td>(Benylin DM, Delsym, Mediquell, PediaCare 1, others)</td>
<td>Fluticasone furoate, nasal (Veramyst)</td>
</tr>
<tr>
<td>Codeine</td>
<td>Metaproterenol (Alupent, Metaprel)</td>
</tr>
<tr>
<td>Dextromethorphan</td>
<td></td>
</tr>
<tr>
<td>(Benylin DM, Delsym, Mediquell, PediaCare 1, others)</td>
<td></td>
</tr>
</tbody>
</table>

**Respiratory Inhalants**

<table>
<thead>
<tr>
<th>Respiratory Inhalants</th>
<th>Respiratory Inhalants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetylcysteine</td>
<td>Ciclesonide, inhaled (Alvesco)</td>
</tr>
<tr>
<td>(Acetadote, Mucomyst)</td>
<td>Ciclesonide, nasal (Omnaris, Zettona)</td>
</tr>
<tr>
<td>Aztreonam, inhaled</td>
<td>Cromolyn sodium (NasalCrom, Opticrom, others generic)</td>
</tr>
<tr>
<td>Beclomethasone (QVAR)</td>
<td>Dornase alfa (Pulmozyme, DNase)</td>
</tr>
<tr>
<td>Beclomethasone, nasal (Beconase AQ)</td>
<td>Fluticasine/vilanterol (Breo Ellipta)</td>
</tr>
</tbody>
</table>
Formoterol fumarate (Foradil Aerolizer, Perforomist)
Ipratropium (Atrovent HFA, Atrovent Nasal, generic)
Mannitol, inhalation (Aridol)
Mometasone/formoterol (Dulera)

Surfactants
Beractant (Survanta) Calfactant (Infasurf) Lucinactant (Surfaxin)

Miscellaneous Respiratory Agents
Alpha-1-protease inhibitor (Glassia, Prolastin C)
Montelukast (Singulair)

Bladder Agents
Belladonna/opium, suppositories (B&O) (generic)
Bethanechol (Urecholine)
Butabarbital/hyoscyamine/phenazopyridine (Pyridium Plus)
Darifenacin (Enablex)
Fesoterodine (Toviaz)
Flavoxate (generic)
Hyoscyamine (Anaspaz, Cystospaz, Levsin)

Hyoscyamine/atropine/scopolamine/phenobarbital (Donnatal, others, generic)
Methenamine hippurate (Hiprex), nethenamine mandelate (Urex, Uroquid-Acid No.2)
Mirabegron (Myrbetriq)
Oxybutynin (Ditropan, Ditropan XL, generic)

Oxybutynin transdermal system (Oxytrol)
Oxybutynin, topical (Gelnique)
Phenazopyridine (Pyridium, Azo-Standard, Urogescic, many others [OTC])
Solifenacin (VESIcare)
Tolterodine (Detrol, Detrol LA, generic)
Trospium (Sanctura, Sanctura XR, generic)
Classification

Erectile Dysfunction

- Alprostadil, intracavernosal (Caverject, Edex)
- Alprostadil, urethral suppository (Muse)
- Avandafil (Stendra)
- Sildenafil (Viagra)
- Tadalafil (Cialis)
- Vardenafil (Levitra, Stayxn)
- Yohimbine (Yocon, Yohimex)

Urolithiasis

- Potassium citrate (Urocit-K, generic)
- Sodium citrate/citric acid (Bicitra, Oracit)

Benign Prostatic Hyperplasia

- Alfuzosin (Uroxatral)
- Doxazosin (Cardura, Cardura XL)
- Dutasteride (Avodart)
- Dutasteride and tamsulosin (Jalyn)
- Finasteride (Proscar, generic)
- Silodosin (Rapaflo)
- Tamsulosin (Flomax, generic)
- Terazosin (Hytrin, generic)

Miscellaneous Urology Agents

- Ammonium aluminum sulfate (Alum [OTC])
- BCG [Bacillus Calmette-Guérin] (TheraCys, Tice BCG)
- Methenamine, phenyl salicylate, methylene blue, benzoic acid, hyoscyamine (Prosed)
- Dimethyl sulfoxide [DMSO] (Rimso-50)
- Neomycin/polymyxin bladder irrigant (Neosporin GU Irrigant)
- Nitrofurantoin (Furadantin, Macrobid, Macrodantin, generic)
- Pentosan polysulfate sodium (Elmiron)
- Trimethoprim (Trimpex, Proloprim)

VACCINES/SERUMS/TOXOIDS

- Cytomegalovirus immune globulin [CMV-IG IV] (CytoGam)
- Diphtheria/tetanus toxoids (Td) (Decavac, Tenivac for > 7 y)
- Diphtheria/tetanus toxoids [DT] (generic only, for < 7y)
Diphtheria/tetanus toxoids/acellular pertussis, adsorbed [DTaP; for < 7 y] (Daptacel, Infanrix, Tripedia)
Diphtheria/tetanus toxoids/acellular pertussis, adsorbed [Tdap; for > 10–11 y] (Boosters: Adacel, Boostrix)

Diphtheria/Tetanus Toxoids/ Acellular Pertussis, Adsorbed (DTaP) (Ages < 7 y) (Daptacel, Infanrix, Tripedia)

Diphtheria/tetanus toxoids/acellular pertussis, adsorbed/ inactivated poliovirus vaccine [IPV]/ Haemophilus b conjugate vaccine combined (Pentacel)

Diphtheria/tetanus toxoids/acellular pertussis, adsorbed, hepatitis B [recombinant], and inactivated poliovirus vaccine [IPV] combined (Pediarix)

Haemophilus B conjugate vaccine (ActHIB, HibTITER, PedvaxHIB, others)

Hepatitis A [inactivated] and hepatitis B [recombinant] vaccine (Twinrix)
Hepatitis A vaccine (Havrix, Vaqta)
Hepatitis B immune globulin (HyperHep B, HepaGam B, Nabi-HB, H-BIG)
Hepatitis B vaccine (Engerix-B, Recombivax HB)
Human papillomavirus recombinant vaccine (Cervarix [Types 16, 18], Gardasil [Types 6, 11, 16, 18])
Immune globulin, IV (Gammimune N, Gammaplax, Gamma IV, Sandoglobulin, others)
Immune globulin, subcutaneous (Vivaglobin)
Influenza vaccine, inactivated, trivalent (IIV3) (Afluria, Fluarix, Flucelvax, FluLaval, Fluvirin, Fluzone, Fluzone High Dose, Fluzone Intradermal)
Influenza vaccine, inactivated, quadrivalent (IIV4) (Fluarix Quadrivalent, Fluzone Quadrivalent)
Influenza vaccine, live-attenuated, quadrivalent (LAIV4) (FluMist)
Influenza vaccine, recombinant, trivalent (RIV3) (Flublok)
Measles/mumps/rubella vaccine, live [MMR] (M-M-R II)
Measles/mumps/rubella/varicella virus vaccine, live [MMRV] (ProQuad)
Meningococcal conjugate vaccine [quadrivalent, MCV4] (Menactra, Menevo)
Meningococcal groups C and Y and Haemophilus b tetanus toxoid conjugate vaccine (Menhibrix)
Meningococcal polysaccharide vaccine [MPSV4] (Menomune A/C/ Y/W-135)
Pneumococcal 13-valent conjugate vaccine (Pneumovax-23)
Pneumococcal vaccine, polyvalent (Pneumovax-23)
Rotavirus vaccine, live, oral, monovalent (Rotarix)
Classification

Rotavirus vaccine, live, oral, pentavalent (RotaTeq)
Smallpox vaccine (ACAM2000)
Tetanus immune globulin (generic)

Tetanus toxoid (TT) (generic)
Varicella immune globulin (VarZIG)
Varicella virus vaccine (Varivax)

Zoster vaccine, live (Zostavax)

WOUND CARE

Becaplermin (Regranex Gel)

MISCELLANEOUS THERAPEUTIC AGENTS

Acamprosate (Campral)
Alglucosidase alfa (Lumizyme, Myozyme)
C1 esterase inhibitor [human] (Berinert, Cinryze)
Dextrose 50%/25%
Ecallantide (Kalbitor)
Eculizumab (Soliris)
Ivacaftor (Kalydeco)
Ketamine (Ketalar, generic) [C-III]
Lanthanum carbonate (Fosrenol)
Megestrol acetate (Megace, Megace-ES, generic)
Mecasermin (Increlex)
Methylene blue (Urolene Blue, various)
Naltrexone (ReVia, Vivitrol, generic)
Nicotine, gum (Nicorette, others [OTC])
Nicotine, nasal spray (Nicotrol NS)
Nicotine, transdermal (Habitrol, NicoDerm CQ [OTC], others)
Palifermin (Kepivance)
Potassium iodide (Lugol’s Solution, SSKI, Thyro-Block, ThyroSafe, ThyroShield) [OTC]
Sevelamer hydrochloride (Renagel)
Sevelamer carbonate (Renvela)
Sodium polystyrene sulfonate (Kayexalate, Kionex, generic)
Talc (Sterile Talc Powder)
Taliglucerase alfa (Elelyso)
Varenicline (Chantix)

NATURAL AND HERBAL AGENTS

Black cohosh
Chamomile
Cranberry (Vaccinium macrocarpon)
Dong quai (Angelica polymorpha, sinensis)
Echinacea (Echinacea purpurea)
Ephedra/ma huang
Evening primrose oil
Feverfew (Tanacetum parthenium)
Fish oil supplements (omega-3 polyunsaturated fatty acid)
Garlic (Allium sativum)
Ginger (Zingiber officinale)
Ginkgo biloba
Ginseng
Glucosamine sulfate (chitosamine) and chondroitin sulfate
| Kava kava (kava kava root extract, *Piper methysticum*) |
|------------------|------------------|
| Melatonin        | Saw palmetto (*Serenoa repens*) |
| Milk thistle (*Silybum marianum*) | St John’s wort (*Hypericum perforatum*) |
| Red yeast rice   | Valerian (*Valeriana officinalis*) |
| Resveratrol      | Yohimbine (*Pausinystalia yohimbe*) (Yocon, Yohimex) |
Abacavir (Ziagen)  BOX: Allergy (fever, rash, fatigue, GI, resp) reported; stop drug immediately & do not rechallenge; lactic acidosis & hepatomegaly/steatosis reported  Uses: *HIV Infxn in combo w/ other antiretrovirals*  Acts: NRTI  **Dose:** *Adults.* 300 mg PO bid or 600 mg PO daily  **Peds.** 8 mg/kg bid 16–20 mg/kg daily (stable CD4, undetect VRL) 300 mg bid max  **W/P:** [C, –] CDC rec: HIV-infected mothers not breast-feed (transmission risk)  **Disp:** Tabs 300 mg; soln 20 mg/mL  **CI:** Mod–severe hepatic impair hypersens  **SE:** See Box, ↑ LFTs, fat redistribution, N, V, HA, chills  **Notes:** Many drug interactions; HLA-B*5701 ↑ risk for fatal hypersens Rxn, genetic screen before use

Abatacept (Orencia)  **Uses:** *Mod–severe RAs, juvenile idiopathic arthritis*  **Acts:** Selective costimulation modulator, ↓ T-cell activation  **Dose:** *Adults.* Initial 500 mg (< 60 kg), 750 mg (60–100 kg); 1 g (> 100 kg) IV over 30 min; repeat at 2 and 4 wk, then q4wk; SQ regimen: after IV dose, 125 mg SQ w/in 24 h of Inf, then 125 SQ weekly  **Peds** 6–17 y. 10 mg/kg (< 75 kg), 750 mg (75–100 kg), IV over 30 min; repeat at 2 and 4 wk then q4wk (> 100 kg, adult dose)  **W/P:** [C; ?/−] w/ TNF blockers, anakinra; COPD; Hx predisposition to Infxn; w/ immunosuppressants  **CI:** w/ Live vaccines w/in 3 mo of D/C abatacept  **Disp:** IV soln 125 mg/mL  **SE:** HA, URI, N, nasopharyngitis, Infxn, malignancy, Inf Rxns/hypersens (dizziness, HA, HTN), COPD exacerbations, cough, dyspnea  **Notes:** Screen for TB before use

Abciximab (ReoPro)  **Uses:** *Prevent acute ischemic comps in PCP*, MI  **Acts:** ↓ Plt aggregation (glycoprotein IIb/IIIa inhib)  **Dose:** *ECC 2010.* ACS w/ immediate PCI: 0.25 mg/kg IV bolus 10–60 min before PCI, then 0.125 mcg/kg/min max 10 mcg/min IV for 12 h; w/ heparin. ACS w/ planned PCI w/in 24 h: 0.25 mg/kg IV bolus, then 10 mcg/min IV over 18–24 h concluding 1 h post-PCI; *PCI:* 0.25 mg/kg bolus 10–60 min pre-PTCA, then 0.125 mcg/kg/min (max = 10 mcg/min) cont Inf for 12 h  **W/P:** [C, ?/−]  **CI:** Active/recent (w/in 6 wk) internal hemorrhage, CVA w/in 2 y or CVA w/ sig neuro deficit, bleeding diathesis or PO anticoagulants w/in 7 d (unless PT < 1.2 × control), ↓ plt (< 100,000 cells/mcL), recent trauma or major surgery (w/in 6 wk), CNS tumor, AVM, aneurysm, severe uncontrolled HTN, vasculitis, dextran use w/ PTCA, murine protein allergy, w/ other glycoprotein IIb/IIIa inhib  **Disp:** Inj 2 mg/mL  **SE:** Back pain, ↓ BP, CP, allergic Rxns, bleeding, ↓ plt  **Notes:** Use w/ heparin/ASA

Abiraterone (Zytiga)  **Uses:** *Castrate-resistant metastatic PCa*  **Acts:** CYP17 inhibitor; ↓ testosterone precursors  **Dose:** 1000 mg PO qd w/ 5 mg prednisone bid; w/o food 2 h ac and 1 h pc; ↓ w/ hepatic impair  **W/P:** [X, N/A] w/ Severe CHF, monitor for adrenocortical Insuff/excess, w/ CYP2D6 substrate/CYP3A4 inhib or inducers  **CI:** PRG  **Disp:** Tabs 250 mg SE: ↑ LFTs, jt swell, ↑ TG, ↓ K⁺,
PO$_4^{-3}$ edema, muscle pain, hot flush, D, UTI, cough, ↑ BP, ↑ URI, urinary frequency, dyspepsia Notes: ✓ LFTs, K$^+$; CYP17 inhib may ↑ mineralocorticoid SEs; prednisone ↓ ACTH limiting SEs

**Acamprosate (Campral)**

**Uses:** *Maintain abstinence from EtOH*

**Acts:** ↓ Glutamatergic transmission; ↓ NMDA receptors; related to GABA

**Dose:** 666 mg PO tid; CrCl 30–50 mL/min: 333 mg PO tid

**W/P:** [C; ?/−] CI: CrCl < 30 mL/min

**Disp:** Tabs 333 mg EC SE: N/D, depression, anxiety, insomnia Notes: Does not eliminate EtOH withdrawal Sx; continue even if relapse occurs

**Acarbose (Precose)**

**Uses:** *Type 2 DM*

**Acts:** α-Glucosidase inhib; delays carbohydrate digestion to ↓ glucose

**Dose:** 25–100 mg PO tid w/ 1st bite each meal; 50 mg tid (< 60 kg); 100 mg tid (> 60 kg); usual maint 50–100 mg PO tid

**W/P:** [B, ?] w/ Scr > 2 mg/dL; can affect digoxin levels CI: IBD, colonic ulceration, partial intestinal obst; cirrhosis

**Disp:** Tabs 25, 50, 100 mg SE: Abd pain, D, flatulence, ↑ LFTs, hypersens Rxns Notes: OK w/ sulfonylureas; ✓ LFTs q3mo for 1st y

**Acebutolol (Sectral)**

**Uses:** *HTN, arrhythmias* chronic stable angina

**Acts:** Blocks β-adrenergic receptors, β$_1$, & ISA

**Dose:** HTN: 400–800 mg/d 2 ÷ doses

**Arrhythmia:** 400–1200 mg/d 2 ÷ doses; ↓ 50% w/ CrCl < 50 mL/min, elderly; max 800 mg/d ↓ 75% w/ CrCl < 25 mL/min; max 400 mg/d

**W/P:** [B, + M] Can exacerbate ischemic heart Dz, do not D/C abruptly CI: 2nd-/3rd-degree heart block, cardiac failure, cardiogenic shock

**Disp:** Caps 200, 400 mg SE: Fatigue, HA, dizziness, ↓ HR

**Acetaminophen [APAP, N-acetyl-p-Aminophenol] (Acephen, Ofirmev, IV [Rx], Tylenol, Other Generic) [OTC]**

**Uses:** *Mild–mod pain, HA, fever*

**Acts:** Nonnarcotic analgesic; ↓ CNS synth of prostaglandins & hypothalamic heat-regulating center

**Dose:** Adults. 325–650 mg PO or PR q4–6h or 1000 mg PO 3–4 x/d; max 4 g/d IV: < 50 kg: 15 mg/kg IV q6h or 12.5 mg/kg IV q4h; max 75 mg/kg/d; ≥ 50 kg: 650 mg IV q4h or 1000 mg IV q6h; max 4 g/d

**Peds.** < 12 y. 10–15 mg/kg/dose PO or PR q4–6h; max 5 doses/24 h. Administer q6h if CrCl 10–50 mL/min & q8h if CrCl < 10 mL/min IV: 15 mg/kg IV q6h or 12.5 mg/kg IV q4h; max 75mg/kg/d

**W/P:** [C, +] w/ Hepatic/renal impair in elderly & w/ EtOH use (> 3 drinks/d); w/ > 4 g/d; EtOH liver Dz, G6PD deficiency; w/ warfarin; serious skin Rxns (SJS, TEN, AGEP) CI: Hypersens

**Disp:** Tabs melt away/dissolving 80, 160 mg; tabs 325, 500, 650 mg; chew tabs 80, 160 mg; gel caps 500 mg; liq 160 mg/5 mL, 500 mg/15 mL; drops 80 mg/0.8 mL; Acephen supp 80, 120, 325, 650 mL; Inj 10 mg/ml SE: hepatox; OD hepatox at 10 g; 15 g can be lethal; Rx w/ N-acetylcysteine Notes: No anti-inflammatory or plt-inhib action; avoid EtOH; 2014 MedWatch Safety Alert: FDA recommends stop using combo products w/ > 325 mg APAP/dosage unit. No data that > 325 mg APAP/dose is beneficial and this ↑ liver injury risk; ↓ dose also ↓ risk of APAP overdose. Most manufacturers have complied w/ 2011 FDA request to limit APAP to 325 mg/dosage unit;
some Rx combos w/ > 325 mg of APAP/dosage unit remain available; FDA advisory has rec ↓ in max dose to 3000 mg/d

**Acetaminophen, Injection (Ofirmev)** BOX: Avoid dosing errors (accidental overdose/death). Acetaminophen associated w/acute liver failure; most injury d/t dose above recommended max daily limits, and more than one acetaminophen-containing product

Uses: *Mild–mod pain, fever*

Acts: Nonnarcotic analgesic; CNS synth of prostaglandins & hypothalamic heat-regulating center

Dosages:
- **Adults & Peds > 50 kg.** 1000 mg q6h or 650 mg q4h IV; 4000 mg max/d. < 50 kg: 15 mg/kg q6h or 12.5 mg/kg q4h, 75 mg/kg/d max
- **Peds ≥ 2–12 y:** 15 mg/kg q6h or 12.5 mg/kg q4h IV, 75 mg/kg/d max. Min. interval of 4 h

W/P: [C, +] Excess dose can cause hepatic injury; caution w/ liver Dz, alcoholism, malnutrition, hypovolemia, CrCl < 30 g/min

Cl: Hypersens to components, severe/active liver Dz

Disp: IV 1000 mg (10 mg/mL) SE: N/V, HA, insomnia (adults); N/V, constipation, pruritus, agitation, atelectasis (peds)

Notes: Min. dosing interval 4 h; infuse over 15 min. No anti-inflammatory or plt-inhibiting action

**Acetaminophen + Butalbital ± Caffeine (Fioricet, Margesic, Esgic, Repan, Sedapap, Dolgie Plus, Bupap, Phrenilin Forte) [C-III]** BOX: Acetaminophen hepatotoxicity (acute liver failure; liver transplant; death) reported. Often d/t acetaminophen > 4000 mg/day or more than one acetaminophen product

Uses: *Tension HA*, mild pain

Acts: Nonnarcotic analgesic w/ barbiturate

Dosages:
- 1–2 tabs or caps PO q4–6h PRN; ↓ in renal/hepatic impair; 3 g/24 h APAP max
- **W/P:** [C, ?/–] Alcoholic liver Dz, G6PD deficiency

Cl: Hypersens

Disp: Caps Dolgie Plus: ↑ butalbital 50 mg, caffeine 40 mg, APAP 750 mg; Caps Margesic, Esgic: butalbital 50 mg, caffeine 40 mg, APAP 325 mg; Caps Phrenilin Forte: butalbital 50 mg + APAP 650 mg; Caps: Esgic-Plus, Zebutal: butalbital 50 mg, caffeine 40 mg, APAP 500 mg; liq Dolgie LQ: butalbital 50 mg, caffeine 40 mg, APAP 325 mg/15 mL. Tabs: Medigesic, Fioricet, Repan: butalbital 50 mg, caffeine 40 mg, APAP 325 mg; Phrenilin: butalbital 50 mg + APAP 325 mg; Sedapap: butalbital 50 mg + APAP 650 mg

SE: Drowsiness, dizziness, “hangover” effect, N/V

Notes: Butalbital habit forming; avoid EtOH

**Acetaminophen + Codeine (Tylenol No. 2, 3, and 4) [C-III, C-V]** BOX: Acetaminophen hepatotoxicity (acute liver failure, liver transplant, death) reported. Often d/t acetaminophen > 4000 mg/day or more than one acetaminophen product

Uses: *Ultra-rapid metabolism of codeine to morphine; resp depression/death reported in children who received codeine after tonsillectomy/adenoidectomy w/ evidence of ultra-rapid metabolizers of codeine due to a CYP2D6 polymorphism*

Acts: Combined APAP & narcotic analgesic

Dosages:
- **Adults.** 1–2 tabs q4–6h PRN or 30–60 mg/codeine q4–6h based on codeine content (max dose APAP = 4 g/d)
- **Peds.** APAP 10–15 mg/kg/dose; codeine 0.5–1 mg/kg dose q4–6h (guide: 3–6 y, 5 mL/dose; 7–12 y, 10 mL/dose) max 2.6 g/d if < 12 y; ↓ in renal/hepatic impair

W/P: [C, ?] Alcoholic liver Dz; G6PD deficiency
**Acetazolamide (Diamox)**

**Uses:** *Diuresis, drug and CHF edema, glaucoma, prevent high-altitude sickness, refractory epilepsy*, metabolic alkalosis, resp stimulant in COPD

**Acts:** Carbonic anhydrase inhib; ↓ renal excretion of hydrogen & ↑ renal excretion of Na⁺, K⁺, HCO₃⁻, & H₂O

**Dose:**
- *Adults.* Diuretic: 250–375 mg IV or PO q24h
- Glaucoma: 250–1000 mg PO q24h in ÷ doses
- Epilepsy: 8–30 mg/kg/d PO in ÷ doses
- Altitude sickness: 500–1000 mg/d ÷ dose q8–12h or SR q12–24h start 24 h before & 48–72 h after highest ascent
- Metabolic alkalosis: 500 mg IV × 1 Resp stimulant: 25 mg bid
- Peds. Epilepsy: 8–30 mg/kg/24 h PO in ÷ doses; max 1 g/d
- Diuretic: 5 mg/kg/24 h PO or IV
- Alkalization of urine: 5 mg/kg/dose PO bid-tid
- Glaucoma: 8–30 mg/kg/24 h PO in 3 ÷ doses; max 1 g/d; ↓ dose w/ CrCl 10–50 mL/min; avoid if CrCl < 10 mL/min

**W/P:** [C, +/−] CI: Renal/hepatic/adrenal failure, sulfra allergy, hyperchloremic acidosis

**Disp:** Tabs 125, 250 mg; ER caps 500 mg; Inj 500 mg/vial; Inj 500 mg/vial

**SE:** Malaise, metallic taste, drowsiness, photosens, hyperglycemia

**Notes:** Follow Na⁺ & K⁺; watch for metabolic acidosis; ✓ CBC & plts; SR forms not for epilepsy

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**Acetic Acid & Aluminum Acetate (Otic Domeboro)**

**Uses:** *Otitis externa*

**Acts:** Anti-infective

**Dose:** 4–6 gtt in ear(s) q2–3h

**W/P:** [C, ?] CI: Perforated tympanic membranes

**Disp:** 2% otic soln

**SE:** Local irritation

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**Acetylcysteine (Acetadote, Mucomyst)**

**Uses:** *Mucolytic, antidote to APAP hepatotox/OD*, adjuvant Rx chronic bronchopulmonary Dzs & CF* prevent contrast-induced renal dysfunction

**Acts:** Splits mucoprotein disulfide linkages; restores glutathione in APAP OD to protect liver

**Dose:**
- Adults & Peds. Nebulizer: 3–5 mL of 20% soln diluted w/ equal vol of H₂O or NS tid-qid
- Antidote: PO or NG: 140 mg/kg load, then 70 mg/kg q4h × 17 doses (dilute 1:3 in carbonated beverage or OJ), repeat if emesis w/in 1 h of dosing
- Acetadote: 150 mg/kg IV over 60 min, then 50 mg/kg over 4 h, then 100 mg/kg over 16 h

**Prevent renal dysfunction:** 600–1200 mg PO bid × 2 d

**W/P:** [B, ?] CI: Soln, inhaled and oral 10%, 20%; Acetadote IV soln 20% SE: Bronchospasm (inhaled), N/V, drowsiness, anaphylactoid Rxns w/ IV

**Notes:** Activated charcoal adsorbs PO acetylcysteine for APAP ingestion; start Rx for APAP OD w/in 6–8 h

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**Acitretin (Soriatane)**

**BOX:** Not to be used by females who are PRG or who intend to become PRG during/for 3 y following drug D/C; no EtOH during/2 mo following D/C; no blood donation for 3 y following D/C; hepatotoxic

**Uses:** *Severe psoriasis*; other keratinization Dz (lichen planus, etc)

**Acts:** Retinoid-like activity

**Dose:** 25–50 mg/d PO, w/ main meal;

**W/P:** [X, ?−] Renal/hepatic impair; in women of reproductive potential

**CI:** See Box; ↑ serum lipids; w/ MTX or tetracyclines

**Disp:** Caps 10, 17.5, 25 mg

**SE:** Hyperesthesia, cheilitis, skin peeling, alopecia, pruritus, rash, arthralgia, GI upset, photosens, thrombocytosis, ↑ triglycerides, ↑ Na⁺, K⁺, PO₄²⁻
Adapalene

**Notes:** ✓ LFTs/lytes/lipids; response takes up to 2–3 mo; informed consent & FDA guide w/ each Rx required

**Acidimium Bromide (Tudorza Pressair)**

*Uses:* Bronchospasm w/ COPD*  
*Acts:* LA anticholinergic, blocks ACH receptors  
*Dose:* 400 mcg/inhal, 1 inhal bid  
**W/P:** [C, ?] w/ Atropine hypersens, NAG, BPH, or MG; avoid w/ milk allergy  
**CI:** None  
**Disp:** Inhal powder, 30/60 doses  
**SE:** HA, D, nasopharyngitis, cough  
**Notes:** Not for acute exacerbation; lactose in powder, avoid w/ milk allergy; OK w/ renal impair

**Aclidinium Bromide (Tudorza Pressair)**

*Uses:* Bronchospasm w/ COPD*  
*Acts:* LA anticholinergic, blocks ACH receptors  
*Dose:* 400 mcg/inhal, 1 inhal bid  
**W/P:** [C, ?] w/ Atropine hypersens, NAG, BPH, or MG; avoid w/ milk allergy  
**CI:** None  
**Disp:** Inhal powder, 30/60 doses  
**SE:** HA, D, nasopharyngitis, cough  
**Notes:** Not for acute exacerbation; lactose in powder, avoid w/ milk allergy; OK w/ renal impair

**Acyclovir (Zovirax)**

*Uses:* Herpes simplex (HSV) (genital/mucocutaneous, encephalitis, keratitis), Varicella zoster, Herpes zoster (shingles)  
*Acts:* Interferes w/ viral DNA synth  
*Dose:* Adults. Dose on IBW if obese (> 125% IBW)  
**PO:** Initial genital HSV: 200 mg PO q4h while awake (5 caps/d) × 10 d or 400 mg PO tid × 7–10 d  
Chronic HSV suppression: 400 mg PO bid Intermittent HSV Rx: As initial, except Rx × 5 d, or 800 mg PO bid at prodrome  
**Topical:** Initial herpes genitalis: Apply q3h (6×/d) for 7 d  
Herpes zoster: 800 mg PO 5×/d for 7–10 d IV: 10 mg/kg/dose IV q8h × 7 d  
**Peds.** Genital HSV: 3 mo–12 y: 40–80 mg/kg/d ÷ 3–4 doses (max 1 g); ≥ 12 y: 200 mg 5×/d or 400 mg 3×/d × 5–10 d; IV: 5 mg/kg/dose q8h × 5–7 d  
**Herpes encephalitis:** 3 mo–12 y: 60 mg/kg/d IV + q8h × 14–21 d > 12 y: 30 mg/kg/d IV + q8h × 14–21 d  
Chickenpox: ≥2 y: 20 mg/kg/dose PO qid × 5 d  
Shingles: < 12 y: 30 mg/kg/d PO or 1500 mg/m²/d IV + q8h × 7–10 d; ↓ w/ CrCl < 50 mL/min  
**W/P:** [B, +]  
**CI:** Component hypersens  
**Disp:** Caps 200 mg; tabs 400, 800 mg; susp 200 mg/5 mL;  
Inj 500 & 1000 mg/vial; Inj soln, 50 mg/mL oint 5% and cream 5%  
**SE:** Dizziness, lethargy, malaise, confusion, rash, IV site inflammation; transient ↑ Cr/BUN  
**Notes:** PO better than topical for herpes genitalis

**Adalimumab (Humira)**

*Uses:* Mod–severe RA w/ an inadequate response to one or more DMARDs, psoriatic arthritis (PA), juvenile idiopathic arthritis (JIA), plaque psoriasis, ankylosing spondylitis (AS), Crohn Dz, ulcerative colitis Crohns Dz in peds*  
*Acts:* TNF-α inhib  
*Dose:* RA, PA, AS: 40 mg SQ q other wk; may ↑ 40 mg qwk if not on MTX. JIA 15–30 kg 20 mg q other wk  
**Crohn Dz/ ulcerative colitis:** 160 mg d 1, 80 mg 2 wk later, then 2 wk later start maint 40 mg q other wk  
**W/P:** [B, ?/–]  
**CI:** None  
**Disp:** Prefilled 0.4 mL (20 mg) & 0.8 mL (40 mg) syringe  
**SE:** Inj site Rxns, HA, rash, ↑ CHF, anaphylaxis, pancytopenia (aplastic anemia) demyelinating Dz, new onset psoriasis  
**Notes:** Refrigerate prefilled syringe, rotate Inj sites, OK w/ other DMARDs

**Adapalene (Differin)**

*Uses:* Acne vulgaris*  
*Acts:* Retinoid-like, modulates cell differentiation/keratinization/inflammation  
*Dose:* Adults & Peds > 12 y. Apply 1x/d to clean/dry skin QHS  
**W/P:** [C, ?/–] products w/ sulfur/resorcinol/salicylic acid  
**CI:** Component hypersens  
**Disp:** Top lotion, gel, cream 0.1%;
Adapalene & Benzoyl Peroxide
gel 0.3% SE: Skin redness, dryness, burning, stinging, scaling, itching, sunburn
Notes: Avoid exposure to sunlight/sunlamps; wear sunscreen

Adapalene & Benzoyl Peroxide (Epiduo) Uses: *Acne vulgaris*
Acts: Retinoid-like, modulates cell differentiation, keratinization, and inflammation w/ antibacterial
Dose: Adults & Peds > 12 y. Apply 1 x daily to clean/dry skin
W/P: [C, ?/–] Bleaching effects, photosensitivity
CI: Component hypersens
Disp: Topical gel: adapalene 0.1% and benzoyl peroxide 2.5% (45g)
SE: Local irritation, dryness
Notes: Vit A may ↑ SE

Adefovir (Hepsera) BOX: Acute exacerbations of hep B seen after D/C Rx (monitor LFTs); nephrotoxic w/ underlying renal impair w/ chronic use (monitor renal Fxn); HIV resistance/unrecognized may emerge; lactic acidosis & severe hepatomegaly w/ steatosis reported
Uses: *Chronic active hep B*
Acts: Nucleotide analog
Dose: CrCl > 50 mL/min: 10 mg PO daily; CrCl 20–49 mL/min: 10 mg PO q48h; CrCl 10–19 mL/min: 10 mg PO q72h; HD: 10 mg PO q7d postdialysis;
W/P: [C, ?/–]
Disp: Tabs 10 mg
SE: Asthenia, HA, D, hematuria Abd pain; see Box
Notes: ✓ HIV status before use

Adenosine (Adenocard, Adenoscan) Uses: *PSVT*;
including w/ WPW; Adenoscan (pharmacologic stress testing) Acts: Class IV anti-arrhythmic; slows AV node conduction
Dose: Stress test. 140 mcg/kg/min × 6 min cont Inf
Adults. ECC 2010. 6-mg rapid IV push, then 20-mL NS bolus. Elevate extremity; repeat 12 mg in 1–2 min PRN
Peds. ECC 2010. Symptomatic SVT: 0.1 mg/kg rapid IV/IO push (max dose 6 mg); can follow w/ 0.2 mg/kg rapid IV/IO push (max dose 12 mg); follow each dose w/ ≥ 5 mL NS flush
W/P: [C, ?/–]
Disp: 0.1 mg/kg rapid IV/IO push (max dose 6 mg); can follow w/ 0.2 mg/kg rapid IV/IO push (max dose 12 mg); follow each dose w/ ≥ 5 mL NS flush
CI: 2nd-/3rd-degree A V block or SSS (w/o pacemaker); Afib/flutter w/ WPW, V tachycardia, recent MI or CNS bleed, asthma
Disp: Inj 3 mg/mL
SE: Facial flushing, HA, dyspnea, chest pressure, ↓ BP, pro-arrhythmic
Notes: Doses > 12 mg not OK; can cause momentary asystole w/ use; caffeine, theophylline antagonize effects

Ado-trastuzumab emtansine (Kadcyla) BOX: Do not substitute for trastuzumab; hepatotox (liver failure & death) reported (monitor LFTs/bili prior to & w/ each dose); cardiac tox: may ↓ LVEF (✓ LVEF prior to/ during Tx); embryofetal tox
Uses: *Tx of HER2-positive, met breast CA previously treated w/ trastuzumab and/or taxane*
Acts: HER2-targeted Ab/microtubule inhibitor conjugate
Dose: 3.6 mg/kg IV inf q3 wk until progression or toxicity; do not use dextrose 5% soln; see label for tox dosage mods
W/P: [D, –]
Disp: Lyoph powder 100, 160 mg/vial
SE: See Box, fatigue, N/V/D, constipation, HA, ↑ LFTs, ↓ plts, ↓ WBC, musculoskeletal pain, Inf-related Rxns, hypersens
Notes: Monitor for tox; counsel on PRG prevention/planning (MotHER Pregnancy Registry)

Afatinib (Gilotrif) Uses: *Tx NSCLC w/ EGFR exon 19 del or exon 21 (L858R) subs*
Acts: TKI
Dose: 40 mg PO 1 ×/d; 1 h ac or 2 h pc; see label for tox
Alcaftadine

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dosage modifications W/P: [D, –] embryo-fetal tox; severe D, interstitial lung Dz, hepatotoxic, keratitis, bullous & exfoliative skin disorders; interruption of Tx, ↓ dose, or Tx D/C may be necessary due to ADRs; w/ P-gp inhibitors/inducers (adjust dose) CI: None Disp: Tabs 20, 30, 40 mg SE: V/D, rash/dermatitis acniform, pruritus, stomatitis, paronychia, dry skin, ↓ appetite, ↓ Wt, conjunctivitis, epistaxis, rhinorrhea, dyspnea, fatigue, ↓ LVEF, pyrexia, cystitis

Aflibercept (Eylea) Uses: *Neovascular age-related macular degeneration* Acts: Binds VGEF-A & placental growth factor; ↓ neovascularization & vascular permeability Dose: Adults. 2 mg (0.05 mL) intravitreal Inj q4wk × 3 mo, then q8wk W/P: [C, ?] may cause endophthalmitis or retinal detachment CI: Ocular or periocular Infxn, active intraocular inflammation, hypersens Disp: Inj 40 mg/mL/vial SE: Blurred vision, eye pain, conjunctival hemorrhage, cataract, ↑ IOP, vitreous detachment, floaters, arterial thrombosis Notes: For ophthalmic intravitreal Inj only

Albumin (Albuked, Albuminar 20, AlbuRx 25, Albutein, Buminate, Kedbumin, Plasbumin) Uses: *Plasma vol expansion for shock (eg, burns, hemorrhage),* others based on specific product label: ovarian hyperstimulation synd, CABG support, hypoalbuminemia Acts: ↑ intravascular oncotic pressure Dose: Adults. Initial 25 g IV; then based on response; 250 g/48 h max Peds. 0.5–1 g/kg/d W/P: [C, ?] Severe anemia; cardiac, renal, or hepatic Insuff d/t protein load & hypervolemia avoid 25% albumin in preterm infants CI: CHF, severe anemia Disp: Soln 5%, vials 20%, 25% SE: Chills, fever, CHF, ↑↓ BP, hypervolemia Notes: Contains 130–160 mEq Na+/L; may cause pulm edema; max Inf rates: 25% vial: 2–3 mL/min; 5% soln: 5–10 mL/min

Albuterol (Proventil, Ventolin, ProAir) Uses: *Asthma, COPD, prevent exercise-induced bronchospasm* Acts: β-Adrenergic sympathomimetic bronchodilator; relaxes bronchial smooth muscle Dose: Adults. Inhaler: 2 Inh q4–6h PRN; q4–6h PO: 2–4 mg PO tid-qid Nebulizer: 1.25–5 mg (0.25–1 mL of 0.5% soln in 2–3 mL of NS) q4–8h PRN Prevent exercise-induced asthma: 2 puffs 5–30 min prior to activity Peds. Inhaler: 2 Inh q4–6h PO: 0.1–0.2 mg/kg/dose PO; max 2–4 mg PO tid Nebulizer: 0.63–5 mg in 2–3 mL of NS q4–8h PRN W/P: [C, ?] Disp: Tabs 2, 4 mg; XR tabs 4, 8 mg; syrup 2 mg/5 mL; 90 mcg/dose metered-dose inhaler; soln for nebulizer 0.083, 0.5% SE: Palpitations, tachycardia, nervousness, GI upset

Albuterol & Ipratropium (Combivent, DuoNeb) Uses: *COPD* Acts: Combo of β-adrenergic bronchodilator & quaternary anticholinergic Dose: 2 Inh qid; nebulizer 3 mL q6h; max 3 mL q4h W/P: [C, ?] CI: Peanut/soybean allergy Disp: Metered-dose inhaler, 18 mcg ipratropium & 90 mcg albuterol/puff (contains ozone-depleting CFCs; will be gradually removed from US market); nebulization soln (DuoNeb) ipratropium 0.5 mg & albuterol 2.5 mg/3 mL SE: Palpitations, tachycardia, nervousness, GI upset, dizziness, blurred vision

Alcaftadine (Lastacaft) Uses: *Allergic conjunctivitis* Acts: Histamine H1-receptor antag Dose: 1 gtt in eye(s) daily W/P: [B, ?] Disp: Ophth soln 0.25% SE: Eye irritation Notes: Remove contacts before use
**Aldesleukin (IL-2) (Proleukin)**

**BOX:** Restrict to pts w/ nl cardiac/pulmonary Fxns as defined by formal testing. Caution w/ Hx of cardiac/pulmonary Dz. Administer in hospital setting w/ physician experienced w/ anticancer agents. Assoc w/ capillary leak syndrome (CLS) characterized by ↓ BP and organ perfusion w/ potential for cardiac/respiratory tox, GI bleed/infarction, renal insufficiency, edema, and mental status changes. Increased risk of sepsis and bacterial endocarditis. Treat bacterial Infxn before use. Pts w/ central lines are at ↑ risk for Infxn. Prophylaxis w/ oxacillin, nafcillin, ciprofloxacin, or vancomycin may reduce staphylococcal Infxn. Hold w/ mod–severe severe lethargy or somnolence; continued use may result in coma

**Uses:** *Met RCC & melanoma*

**Acts:** Acts via IL-2 receptor; many immunomodulatory effects

**Dose:** 600,000 Int units/kg q8h × max 14 doses d 1–5 and d 15–19 of 28-d cycle (FDA-dose/schedule for RCC); other schedules (eg, “high dose” 720,000 Int units/kg IV q8h up to 12 doses, repeat 10–15 d later)

**W/P:** [C, ?/–] CI: Organ allografts; abnormal thallium stress test or PFT

**Disp:** Powder for recons 22 × 10^6 Int units, when reconstituted 18 mill Int units/mL = 1.1 mg/mL

**SE:** Flu-like synd (malaise, fever, chills), N/V/D, ↑ bili; capillary leak synd; ↓ BP, tachycardia, pulm & periph edema, fluid retention, & Wt gain; renal & mild hematologic tox (↓ Hgb, plt, WBC), eosinophilia; cardiac tox (ischemia, atrial arrhythmias); neurotox (CNS depression, somnolence, delirium, rare coma); pruritic rashes, urticaria, & erythroderma common

**Alefacept (Amevive)**

**Uses:** *Mod-severe chronic plaque psoriasis*

**Acts:** Binds CD2, ↓ T-lymphocyte activation

**Dose:** 7.5 mg IV or 15 mg IM once/wk × 12 wk; may repeat course 12 wk later if CD4 OK

**W/P:** [B, ?/–] PRG registry; associated w/ serious Infxn; CD4 before each dose; w/ hold if < 250; D/C if < 250 × 1 mo

**Disp:** 15-mg powder vial

**SE:** Pharyngitis, myalgia, Inj site Rxn, malignancy, Infxn, ↑ LFT (monitor for liver damage)

**Notes:** Immunizations up to date before use

**Alemtuzumab (Campath relaunch as Lemtrada)**

**BOX:** Serious, including fatal, cytopenias, Inf Rxns, and Infxns can occur; limit dose to 30 mg (single) & 90 mg (weekly), higher doses ↑ risk of pancytopenia; ↑ dose gradually & monitor during Inf, D/C for Grade 3 or 4 Inf Rxns; give prophylaxis for PCP & herpes virus Infxn

**Uses:** *B-cell CLL*

**Acts:** CD52-directed cytolytic Ab

**Dose:** Adults. 3 mg d 1, then ↑ dose to 30 mg/d IV 3×/wk for 12 wk (see label for escalation strategy); infuse over 2 h; premedicate w/ oral antihistamine & APAP

**W/P:** [C, ?/–] Do not give live vaccines; D/C for autoimmune/severe hematologic Rxns

**Disp:** Inj 30 mq/mL (1 mL) SE: Cytopenias, InfRxns, Inf Rxns, ↓/↑ BP, Inj site Rxn N/V/D, insomnia, anxiety

**Notes:** CBC & plt weekly & CD4 counts after Rx until > 200 cells/µL; Campath Distribution Program to provide patients with drug after commercial withdrawal; new approval for Lemtrada as an MS drug is pending as of late 2014

**Alendronate (Fosamax, Fosamax Plus D)**

**Uses:** *Rx & prevent osteoporosis male & postmenopausal female, Rx steroid-induced osteoporosis, Paget*
**Aliskiren & Amlodipine**

* **Dz* Acts: ↓ N1 & abnormal bone resorption, ↓ osteoclast action**  
  **Dose:** Osteoporosis: Rx: 10 mg/d PO or 70 mg qwk; Fosamax plus D 1 tab qwk  
  Steroid-induced osteoporosis: Rx: 5 mg/d PO, 10 mg/d postmenopausal not on estrogen  
  Prevention: 5 mg/d PO or 35 mg qwk  
  *Paget Dz:* 40 mg/d PO  
  * W/P: [C, ?] Not OK if CrCl < 35 mL/min, w/ NSAID use  
  * CI: Esophageal anomalies, inability to sit/stand upright for 30 min, ↓ Ca2+  
  * Disp: Tabs 5, 10, 35, 40, 70 mg, Fosamax plus D: Alendronate 70 mg w/ cholecalciferol (vit D3) 2800 or 5600 Int units  
  * SE: Abd pain, acid regurgitation, constipation, D/N, dyspepsia, musculoskeletal pain, jaw osteonecrosis (w/ dental procedures, chemo)  
  **Notes:** Take 1st thing in am w/ H2O (8 oz) > 30 min before 1st food/beverage of day; do not lie down for 30 min after. Use Ca2+ & vit D supl w/ regular tab; may ↑ atypical subtrochanteric femur fractures

**Alfentanil (Alfenta) [C-II]**  
* Uses: *Adjunct in maint of anesthesia; analgesia*  
  **Acts:** Short-acting narcotic analgesic  
  **Dose:** Adults & Peds > 12 y. 3–75 mcg/kg (IBW) IV Inf; total depends on duration of procedure  
  * W/P: [C, −] ↑ ICP, resp depression  
  * Disp: Inj 500 mcg/mL  
  * SE: ↓ HR, ↓ BP arrhythmias, peripheral vasodilatation, ↑ ICP, drowsiness, resp depression, N/V/constipation, ADH release

**Alfuzosin (Uroxatral)**  
* Uses: *Symptomatic BPH*  
  **Acts:** α-Blocker  
  **Dose:** 10 mg PO daily immediately after the same meal  
  * W/P: [B, ?/] w/ any Hx ↓ BP; use w/ PDE5 inhibitors may ↓ BP; may ↑ QTc interval; IFIS during cataract surgery  
  * CI: w/ CYP3A4 inhib; mod–severe hepatic impair; protease inhibitors for HIV  
  * Disp: Tabs 10 mg ER  
  * SE: Postural ↓ BP, dizziness, HA, fatigue  
  **Notes:** Do not cut or crush

**Alginic Acid + Aluminum Hydroxide & Magnesium Trisilicate (Gaviscon) [OTC]**  
* Uses: *Heartburn*  
  **Acts:** Protective layer blocks gastric acid  
  **Dose:** Chew 2–4 tabs or 15–30 mL PO qid followed by H2O  
  * W/P: [C, ?] Avoid w/ renal impair or Na+ -restricted diet  
  * Disp: Chew tabs, susp SE: D, constipation

**Alglucosidase Alfa (Lumizyme, Myozyme)**  
* BOX: Life-threatening anaphylactic Rxns seen w/ Inf; medical support measures should be immediately available; caution w/ ↓ CV/resp Fxn  
  **Uses:** *Rx Pompe DZ*  
  **Acts:** Recombinant acid α-glucosidase; degrades glycogen in lysosomes  
  **Dose:** Peds 1 mo–3.5 y. 20 mg/kg IV q2wk over 4 h (see PI)  
  * W/P: [B, ?/] Illness at time of Inf may ↑ Inf Rxns  
  * Disp: Powder 50 mg/vial limited distribution SE: Hypersens, fever, rash, D, V, gastroenteritis, pneumonia, URI, cough, resp distress/failure, Infxns, cardiac arrhythmia, ↑/↓ HR, flushing, anemia, pain, constipation

**Aliskiren (Tekturna)**  
* BOX: May cause injury and death to a developing fetus; D/C immediately when PRG detected  
  **Uses:** *HTN*  
  **Acts:** 1st direct renin inhib  
  **Dose:** 150–300 mg/d PO W/P: [D, ?/−]  
  * Avoid w/ CrCl < 30 mL/min; ketoconazole and other CYP3A4 inhib may ↑ aliskiren levels  
  * CI: Anuria, sulfur sensitivity  
  * Disp: Tabs 150, 300 mg SE: D, Abd pain, dyspepsia, GERD, cough, ↑ K+, angioedema, ↓ BP, dizziness, ↑ BUN, ↑ SCr

**Aliskiren & Amlodipine (Tekamlo)**  
* BOX: May cause fetal injury & death; D/C immediately when PRG detected  
  **Uses:** *HTN*  
  **Acts:** Renin inhib w/ dihydropyridine
Aliskiren, Amlodipine, Hydrochlorothiazide

**CCB**

**Dose:** Adult. 150/5 mg PO 1×/d; max 300/10 mg/d; max effect in 2 wk

**W/P:** [D, ?/−] do not use w/ cyclosporine/itraconazole avoid CrCl < 30 mL/min

**Disp:** Tabs (aliskiren mg/amlodipine mg) 150/5, 150/10, 300/5, 300/10

**SE:** ↓ BP, ↑ K⁺, angioedema, peripheral edema, D, dizziness, angina, MI, ↑ SCR, ↑ BUN

**Aliskiren, Amlodipine, Hydrochlorothiazide (Amturnide) BOX:** May cause fetal injury & death; D/C immediately when PRG detected

**Uses:** *HTN*

**Acts:** Renin inhib, dihydropyridine CCB, & thiazide diuretic

**Dose:** Adult. Titrate q2wk PRN to 300/10/25 mg PO max/d

**W/P:** [D, ?/−] Avoid w/ CrCl ≤ 30 mL/min; avoid w/ CYP3A4 inhib (Li, ketoconazole, etc) may ↑ aliskiren levels; ↓ BP in salt/volume depleted pts; sulfonamide allergy

**Disp:** Tabs (aliskiren mg/amlodipine mg/HCTZ mg) 150/5/12.5, 300/5/12.5, 300/5/25, 300/10/12.5, 300/10/25

**SE:** ↓ BP, ↑ K⁺, hyperuricemia, angioedema, peripheral edema, D, HA, dizziness, angina, MI, nasopharyngitis

**Aliskiren/Hydrochlorothiazide (Tekturna HCT) BOX:** May cause injury and death to a developing fetus; D/C immediately when PRG detected

**Uses:** *HTN*

**Acts:** Renin inhib w/ thiazide diuretic

**Dose:** 150 mg/12.5 mg PO qd; may ↑ after 2–4 wk up to max 300 mg/25 mg

**W/P:** [D, −] Avoid w/ CrCl ≤ 30 mL/min; avoid w/ CYP3A4 inhib (Li, ketoconazole, etc) may ↑ aliskiren levels; ↓ BP in salt/volume depleted pts; sulfonamide allergy HCTZ may exacerbate/activate SLE

**Disp:** Tabs (aliskiren mg/HCTZ mg) 150/12.5, 150/25, 300/12.5, 300/25

**SE:** Dizziness, influenza, D, cough, vertigo, asthenia, arthralgia, angioedema, ↑ BUN

**Allopurinol (Zyloprim, Aloprim) Uses:** *Gout, hyperuricemia of malignancy, uric acid urolithiasis*

**Acts:** Xanthine oxidase inhib; ↓ uric acid production

**Dose:** Adults. PO: Initial 100 mg/d; usual 300 mg/d; max 800 mg/d; + dose if > 300 mg/d IV: 200–400 mg/m²/d (max 600 mg/24 h); (after meal w/ plenty of fluid)

**Peds.** Only for hyperuricemia of malignancy if < 10 y: 10 mg/kg/d PO (max 800 mg) or 50–100 mg/m² q8h (max 300 mg/m²/d); 200–400 mg/m²/d IV (max 600 mg) ↓ in renal impair

**W/P:** [C, M] Disp: Tabs 100, 300 mg; Inj 500 mg/30 mL (Aloprim) SE: Rash, N/V, renal impair, angioedema

**Notes:** Aggravates acute gout; begin after acute attack resolves; IV dose of 6 mg/mL final conc as single daily Inf or ± 6-, 8-, or 12-h intervals

**Almotriptan (Axert) Uses:** *Rx acute migraine*

**Acts:** Vascular serotonin receptor agonist

**Dose:** Adults. PO: 6.25–12.5 mg PO, repeat in 2 h PRN; 2 dose/24 h max PO dose; w/ hepatic/renal impair, w/ potent CYP3A4 6.25-mg single dose (max 12.5 mg/d)

**W/P:** [C, ?/−] CI: Angina, ischemic heart Dz, coronary artery vasospasm, hemiplegic or basilar migraine, uncontrolled HTN, ergot use, w/ sulfonamide allergy MAOI use w/in 14 d

**Disp:** Tabs 6.25, 12.5 mg SE: N, somnolence, paresthesias, HA, dry mouth, weakness, numbness, coronary vasospasm, HTN

**Alogliptin (Nesina) Uses:** *Monotherapy type 2 DM*

**Acts:** DDP-4 inhib, ↑ insulin synth/release

**Dose:** 25 mg/d PO; if CrCl 30–60 mL/min 12.5 mg/d; CrCl < 30 mL/min 6.25 mg/d

**W/P:** [B, M] 0.2% pancreatitis risk, hepatic failure,
Alprazolam (Xanax, Niravam) [C-IV] Uses: *Anxiety & panic disorders*, anxiety w/ depression* Acts: Benzodiazepine; antianxiety agent Dose: Anxiety: Initial, 0.25–0.5 mg tid; ↑ to 4 mg/d max + doses Panic: Initial, 0.5 mg tid; may gradually ↑ to response; ↓ in elderly, debilitated, & hepatic impair W/P: [D, –] CI: NAG, concomitant itra-/ketocnazole Disp: Tabs 0.25, 0.5, 1, 2 mg; Xanax XR 0.5, 1, 2, 3 mg; Niravam (ODTs) 0.25, 0.5, 1, 2 mg; soln 1 mg/mL SE: Drowsiness, fatigue, irritability, memory impair, sexual dysfunction, paradoxical Rxns Notes: Avoid abrupt D/C after prolonged use

Alosetron (Lotronex) BOX: Serious GI SEs, some fatal, including ischemic colitis reported. Prescribed only through participation in the prescribing program Uses: *Severe D/predominant IBS in women who fail conventional Rx* Acts: Selective 5-HT₃ receptor antagonist Dose: Adults. 0.5 mg PO bid; ↑ to 1 mg bid max after 4 wk; D/C after 8 wk not controlled W/P: [C, ?–] CI: Hx chronic/severe constipation, GI obst, strictures, toxic megacolon, GI perforation, adhesions, ischemic/UC, Crohn Dz, diverticulitis, thrombophlebitis, hypercoagulability Disp: Tabs 0.5, 1 mg SE: Constipation, Abd pain, N, fatigue, HA Notes: D/C immediately if constipation or Sxs of ischemic colitis develop; informed consent prior to use

Alpha-1-Protease Inhibitor (Glassia, Prolastin C) Uses: *α₁-Antitrypsin deficiency* Acts: Replace human α₁-protease inhib Dose: 60 mg/kg IV once/wk W/P: [C, ?] CI: Selective IgA deficiencies w/ IgA antibodies Disp: Inj 500, 1000 mg powder; 1000 mg soln vial for Inj SE: HA, CP, edema, MS discomfort, fever, dizziness, flu-like Sxs, allergic Rxns, ↑ AST/ALT

Alogliptin/Metformin (Kazano) BOX: Lactic acidosis w/ metformin accumulation; ↑ risk w/ sepsis, vol depletion, CHF, renal/hepatic impair, excess alcohol; w/ lactic acidosis suspected D/C and hospitalize Uses: *Combo type 2 DM* Acts: DDP-4 inhib; ↑ insulin synth/release w/ biguanide; ↓ hepatic glucose prod & absorption; ↑ insulin sens Dose: Max daily 25 mg alogliptin, 2000 mg metformin W/P: [B, M] may cause lactic acidosis, pancreatitis, hepatic failure, hypersens Rxn, vit B₁₂ def CI: hx of hypersens, renal impair (♀ SCr ≥ 1.4 mg/dL or ♂ ≥ 1.5 mg/dL), metabolic acidosis Disp: Tabs (alogliptin mg/metformin mg): 12.5/500, 12.5/1000 SE: ↓ glucose, HA, nasopharyngitis, D, ↑ BP, back pain, URI Notes: Warn against excessive EtOH intake, may ↑ metformin lactate effect; temp D/C w/ surgery or w/ iodinated contrast studies

Alogliptin/Pioglitazone (Oseni) BOX: May cause/worsen CHF Uses: *Combo type 2 DM* Acts: DDP-4 inhibitor, ↑ insulin synth/release w/ thiazolidinedione; ↑ insulin sens Dose: 25 mg alogliptin/15 mg pioglitazone or 25 mg/30 mg/d; NYHA Class I/II, start 25 mg/15 mg W/P: [C, –] CI: CHF NYHA Class III/IV, hx of hypersens Disp: Tabs (alogliptin mg/pioglitazone mg): 25/15, 25/30, 25/45, 12.5/15, 12.5/30, 12.5/45 SE: Back pain, nasopharyngitis, URI Notes: 25 mg/15 mg max w/ strong CYP2C8 inhib; may ↑ bladder CA risk (~3/10,000)

Alphalnol (Xanax, Niravam) [C-IV] Uses: *Anxiety & panic disorders*, anxiety w/ depression* Acts: Benzodiazepine; antianxiety agent Dose: Anxiety: Initial, 0.25–0.5 mg tid; ↑ to 4 mg/d max + doses Panic: Initial, 0.5 mg tid; may gradually ↑ to response; ↓ in elderly, debilitated, & hepatic impair W/P: [D, –] CI: NAG, concomitant itra-/ketocnazole Disp: Tabs 0.25, 0.5, 1, 2 mg; Xanax XR 0.5, 1, 2, 3 mg; Niravam (ODT) 0.25, 0.5, 1, 2 mg; soln 1 mg/mL SE: Drowsiness, fatigue, irritability, memory impair, sexual dysfunction, paradoxical Rxns Notes: Avoid abrupt D/C after prolonged use
Alprostadil [Prostaglandin E₁] (Prostin VR)  BOX: Apnea in up to 12% of neonates especially < 2 kg at birth  Uses: *Conditions where ductus arteriosus flow must be maintained*, sustain pulm/systemic circulation until OR (eg, pulm atresia/stenosis, transposition)  Acts: Vasodilator (ductus arteriosus very sensitive), plt inhib  Dose: 0.05–0.1 mcg/kg/min IV; ↓ to response  ECC 2010: Maintain ductus patency: 0.01–0.4 mcg/kg/min  W/P: [X, –] CI: Neonatal resp distress synd  Disp: Inj 500 mcg/mL  SE: Cutaneous vasodilation, Sz-like activity, jitteriness, ↑ temp, ↓ K⁺, thrombocytopenia, ↓ BP; may cause apnea  Notes: Keep intubation kit at bedside

Alprostadil, Intracavernosal (Caverject, Edex)  Uses: *ED*  Acts: Relaxes smooth muscles, dilates cavernosal arteries, ↑ lacunar spaces w/ blood entrapment  Dose: 2.5–60 mcg intracavernosal; titrate in office  W/P: [X, –] CI: ↑ risk of priapism (eg, sickle cell); penile deformities/implants; men in whom sexual activity inadvisable  Disp: Caverject: 5-, 10-, 20-, 40-mcg powder for Inj vials ± diluent syringes 10-, 20-, 40-mcg amp  Caverject Impulse: Self-contained syringe (29 gauge) 10 & 20 mcg  Edex: 10-, 20-, 40-mcg cartridges  SE: Local pain w/ Inj  Notes: Counsel about priapism, penile fibrosis, & hematoma risks, titrate dose in office

Alprostadil, Urethral Suppository (Muse)  Uses: *ED*  Acts: Urethral absorption; vasodilator, relaxes smooth muscle of corpus cavernosa  Dose: 125–250 mcg PRN to achieve erection (max 2 systems/24 h) duration 30–60 min  W/P: [X, –] CI: ↑ Priapism risk (especially sickle cell, myeloma, leukemia) penile deformities/implants; men in whom sex inadvisable  Disp: 125, 250, 500, 1000 mcg w/ transurethral system  SE: ↓ BP, dizziness, syncope, penile/testicular pain, urethral burning/bleeding, priapism  Notes: Titrate dose in office

Alteplase, Recombinant [tPA] (Activase)  Uses: *AMI, PE, acute ischemic stroke, & CV cath occlusion*  Acts: Thrombolytic; binds fibrin in thrombus, initiates fibrinolysis  Dose:  ECC 2010. STEMI: 15-mg bolus; then 0.75 mg/kg over 30 min (50 mg max); then 0.50 mg/kg over next 60 min (35 mg max; max total dose 100 mg) Acute ischemic stroke: 0.9 mg/kg IV (max 90 mg) over 60 min; give 10% of total dose over 1 min; remaining 90% over 1 h (or 3-h Inf)  PE: 100 mg over 2 h (submassive PE: can administer 10-mg bolus, then 90 mg over 2 h)  Cath occlusion: 10–29 kg 1 mg/mL; ≥ 30 kg 2 mg/L  W/P: [C, ?] CI: Active internal bleeding; uncontrolled HTN (SBP > 185 mm Hg, DBP > 110 mm Hg); recent (w/in 3 mo) CVA, GI bleed, trauma; intracranial or intraspinal surgery or Dzs (AVM/aneurysm/subarachnoid hemorrhage/neoplasm), prolonged cardiac massage; suspected aortic dissection, w/ anticoagulants or INR > 1.7, heparin w/in 48 h, plts < 100,000, Sz at the time of stroke, significant closed head/facial trauma  Disp: Powder for Inj 2, 50, 100 mg  SE: Bleeding, bruising (eg, venipuncture sites), ↓ BP  Notes: Give heparin to prevent reocclusion; in AMI, doses of > 150 mg associated w/ intracranial bleeding

Altretamine (Hexalen)  BOX: BM suppression, neurotox common should be administered by experienced chemo MD  Uses: *Palliative Rx persistent or recurrent
ovarian CA*  
**Acts:** Unknown; ? cytotoxic/alkylating agent; ↓ nucleotide incorporation  

**Dose:** 260 mg/m²/d in 4 ÷ doses for 14–21 d of a 28-d Rx cycle; after meals and hs  

**W/P:** [D, ?–]  

**CI:** Preexisting BM depression or neurologic tox  

**Disp:** Gel caps 50 mg SE: N/V/D, cramps; neurotoxic (neuropathy, CNS depression); myelosuppression, anemia, ↓ PLT, ↓ WBC  

**Notes:** ✓ CBC, routine neurologic exams  

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**Aluminum Hydroxide**  

*(Amphojel, AlternaGEL, Dermagran) [OTC]*  

**Uses:**  

*Heartburn, upset or sour stomach, or acid indigestion*; supl to Rx of ↑ PO₄²⁻;  

*minor cuts, burns (Dermagran)*  

**Acts:** Neutralizes gastric acid  

**Dose:**  

**Adults.** 10–30 mL or 300–1200 mg PO q4–6h  

**Peds.** 5–15 mL PO q4–6h or 50–150 mg/kg/24 h PO + q4–6h (hyperphosphatemia)  

**W/P:** [C, ?]  

**Disp:** Tabs 300, 600 mg; susp 320, 600 mg/5 mL; oint 0.275% (Dermagran)  

**SE:** Constipation  

**Notes:** OK w/ renal failure; topical ointment for cuts/burns  

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**Aluminum Hydroxide + Alginic Acid + Magnesium Carbonate** *(Gaviscon Extra Strength, Liquid) [OTC]*  

**Uses:**  

*Heartburn, acid indigestion*  

**Acts:** Neutralizes gastric acid  

**Dose:**  

**Adults.** 15–30 mL PO pc & hs; 2–4 chew tabs up to qid.  

**W/P:** [C, ?] ↑ Mg²⁺, avoid w/in renal impair  

**Disp:** Liq w/ AlOH 95 mg/Mg carbonate 358 mg/15 mL; Extra Strength liq AlOH 254 mg/Mg carbonate 237 mg/15 mL; chew tabs AlOH 160 mg/Mg carbonate 105 mg  

**SE:** Constipation, D  

**Notes:** Qid doses best pc & hs; may ↓ absorption of some drugs, take 2–3 h apart to ↓ effect  

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**Aluminum Hydroxide + Magnesium Hydroxide** *(Maalox, Mylanta Ultimate Strength) [OTC]*  

**Uses:**  

*Hyperacidity* (peptic ulcer, hiatal hernia, etc)  

**Acts:** Neutralizes gastric acid  

**Dose:**  

**Adults.** 10–20 mL or 1–2 tabs PO qid or PRN  

**W/P:** [C, ?]  

**Disp:** Chew tabs, susp  

**SE:** May ↑ Mg²⁺ w/ renal Insuff, constipation, D  

**Notes:** Doses qid best pc & hs  

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**Aluminum Hydroxide + Magnesium Hydroxide & Simethicone** *(Mylanta Regular Strength, Maalox Advanced) [OTC]*  

**Uses:**  

*Hyperacidity w/ bloating*  

**Acts:** Neutralizes gastric acid & defoaming  

**Dose:**  

**Adults.** 10–20 mL or 1–2 tabs PO qid or PRN, avoid in renal impair  

**W/P:** [C, ?]  

**Disp:** Tabs, susp, liq  

**SE:** ↑ Mg²⁺ in renal Insuff, D, constipation  

**Notes:** Mylanta II contains twice Al & Mg hydroxide of Mylanta; may affect absorption of some drugs  

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**Aluminum Hydroxide + Magnesium Trisilicate** *(Gaviscon, Regular Strength) [OTC]*  

**Uses:**  

*Relief of heartburn, upset or sour stomach, or acid indigestion*  

**Acts:** Neutralizes gastric acid  

**Dose:** Chew 1–2 tabs qid; avoid in renal impair  

**W/P:** [C, ?]  

**CI:** Mg²⁺, sensitivity  

**Disp:** AlOH 80 mg/Mg trisilicate 20 mg/tab  

**SE:** ↑ Mg²⁺ in renal Insuff, constipation, D  

**Notes:** May affect absorption of some drugs  

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**Alvimopan** *(Entereg)*  

**BOX:** For short-term hospital use only (max 15 doses)  

**Uses:**  

↓ Time to GI recovery w/ bowel resection and primary anastomosis*  

**Acts:** Opioid (µ) receptor antagonist; selectively binds GI receptors, antagonizes effects of opioids on GI motility/secretion  

**Dose:** 12 mg 30 min–5 h preop PO, then 12 mg bid up to 7 d; max 15 doses  

**W/P:** [B, ?–] Not rec in complete bowel obstruction surgery, hepatic/renal impair  

**CI:** Therapeutic opioids > 7 consecutive
Amantadine

Uses: *Rx/prophylaxis influenza A (no longer recommended d/t resistance), Parkinsonism, & drug-induced EPS*  
Acts: Prevents infectious viral nucleic acid release into host cell; releases dopamine and blocks reuptake of dopamine in presynaptic nerves  
Dose:  
**Adults. Influenza A:** 200 mg/d PO or 100 mg PO bid w/in 48 h of Sx  
**EPS:** 100 mg PO bid (up to 300 mg/d ÷ doses)  
**Parkinsonism:** 100 mg PO daily-bid (up to 400 mg/d)  
**Peds**  
1–9 y. 4.4–8.8 mg/kg/24 h to 150 mg/24 h max ÷ doses daily  
10–12 y. 100–200 mg/d in 2 ÷ doses; ↓ in renal impair  

W/P: [C, ?/−]  
Disp: Caps 12 mg SE: ↓ K⁺, dyspepsia, urinary retention, anemia, back pain  
Notes: Hospitals must be registered to use

Ambrisentan (Letairis)  
BOX: CI in PRG; ✓ monthly PRG tests; limited access program  
Uses: *Pulm arterial HTN*  
Acts: Endothelin receptor antagonist  
Dose:  
**Adults.** 5 mg PO/d, max 10 mg/d; not OK w/ hepatic impair  

W/P: [X, −] w/ Cyclosporine, strong CYP3A or 2C19 inhib, inducers of P-glycoprotein, CYPs and UGTs  
CI: PRG  
Disp: Tabs 5, 10 mg SE: Edema, ↓ Hct/Hgb nasal congestion, sinusitis, dyspnea, flushing, constipation, HA, palpitations, hepatotoxic  
Notes: Available only through the Letairis Education and Access Program (LEAP); D/C AST/ALT > 5× ULN or bili > 2× ULN or S/Sx of liver dysfunction; childbearing females must use 2 methods of contraception

Amifostine (Ethyol)  
Uses: *Xerostomia prophylaxis during RT (head, neck, etc) where parotid is in radiation field; ↓ renal tox w/ repeated cisplatin*  
Acts: Prodrug, dephosphorylated to active thiol metabolite, free radical scavenger binds cisplatin metabolites  
Dose:  
**Chemo prevent:** 910 mg/m²/d 15-min IV Inf 30 min pre-chemo;  
**Xerostomia Px:** 200 mg/m² over 2 min 1×/d 15 min pre-rad  

W/P: [C, ?/−]  
Disp: 500-mg vials powder, reconstitute in NS SE: Transient ↓ BP (> 60%), N/V, flushing w/ hot or cold chills, dizziness, ↓ Ca²⁺, somnolence, sneezing, serious skin Infxn  
Notes: Does not ↓ effectiveness of cyclophosphamide + cisplatin chemotherapy

Amikacin (Amikin)  
BOX: May cause nephrotoxicity, neuromuscular blockade, & respiratory paralysis  
Uses: *Serious gram(−) bacterial Infxns* & mycobacteria  
Acts: Aminoglycoside; ↓ protein synth  
Spectrum: Good gram(−) bacterial coverage: *Pseudomonas & Mycobacterium* sp  
Dose:  
**Adults & Peds. Conventional:**  
5–7.5 mg/kg/dose q8h; once daily; 15–20 mg/kg q24h; ↑ interval w/ renal impair  
**Neonates < 1200 g, 0–4 wk:** 7.5 mg/kg/dose q18h–24h  
**Age < 7 d, 1200–2000 g:** 7.5 mg/kg/dose q12h > 2000 g: 7.5–10 mg/kg/dose q12h  
**Age > 7 d, 1200–2000 g:** 7.5–10 mg/kg/dose q8–12h > 2000 g: 7.5–10 mg/kg/dose q8h  

W/P: [O, +/−] Avoid w/ diuretics  
Disp: Inj 50 & 250 mg/mL SE: Renal impairment, oto  
Notes: May be effective in gram(−) resistance to gentamicin & tobramycin; follow Cr; Levels: Peak:
Amiodarone

30 min after Inf. Trough < 0.5 h before next dose. Therapeutic: Peak 20–30 mcg/mL, Trough: < 8 mcg/mL. Toxic peak > 35 mcg/mL; half-life: 2 h

**Amiloride (Midamor)**

**BOX:** ↑ K⁺ esp renal Dz DM, elderly

**Uses:** *HTN, CHF, & thiazide or loop diuretic induced ↓ K⁺*

**Acts:** K⁺-sparing diuretic; interferes w/ K⁺/Na⁺ exchange in distal tubule & collecting duct

**Dose:** Adults. 5–10 mg PO daily (max 20 mg/d) Peds. 0.4–0.625 mg/kg/d; ↓ w/ renal impair

**W/P:** [B, ?] avoid CrCl < 10 mL/min

**CI:** ↑ K⁺, acute or chronic renal Dz, diabetic neuropathy, w/ other K⁺-sparing diuretics

**Disp:** Tabs 5 mg SE: ↑ K⁺; HA, dizziness, dehydration, impotence

**Notes:** ✓ K⁺

**Aminocaproic Acid (Amicar)**

**Uses:** *Excessive bleeding from systemic hyperfibrinolysis & urinary fibrinolysis*

**Acts:** ↓ Fibrinolysis; inhibits TPA, inhibits conversion of plasminogen to plasmin

**Dose:** Adults. 4–5 g IV or PO (1st h) then 1 g/h IV or 1.25 g/h PO × 8 h or until bleeding controlled; 30 g/d max Peds. 100 mg/kg IV (1st h) then 1 g/m²/h; max 18 g/m²/d; ↓ w/ renal Insuff

**W/P:** [C, ?] Not for upper urinary tract bleeding

**CI:** DIC

**Disp:** Tabs 500 mg, syrup 1.25 g/5 mL; Inj 250 mg/mL

**SE:** ↓ BP, ↓ HR, dizziness, HA, fatigue, rash, GI disturbance, skeletal muscle weakness, ↓ plt Fxn

**Notes:** Administer × 8 h or until bleeding controlled

**Aminophylline (Generic)**

**Uses:** *Asthma, COPD*, & bronchospasm

**Acts:** Relaxes smooth muscle (bronchi, pulm vessels); stimulates diaphragm

**Dose:** Adults. Acute asthma: Load 5.7 mg/kg IV, then 0.38–0.51 mg/kg/h (900 mg/d max) Chronic asthma: 380 mg/d PO ÷ q6–8h; maint ↑ 760 mg/d

**Peds.** Load 5.7 mg/kg/dose IV; 1 ≤ 9 y: 1.01 mg/kg/h; 9 ≤ 12 y: 0.89 mg/kg/h; w/ hepatic Insuff & w/ some drugs (macrolide & quinolone antib, cimetidine, propranolol) W/P: [C, +] Uncontrolled arrhythmias, HTN, Sz disorder, hyperthyroidism, peptic ulcers

**Disp:** Tabs 100, 200 mg; PR tabs 100, 200 mg, soln 105 mg/5 mL, Inj 25 mg/mL SE: N/V, irritability, tachycardia, ventricular arrhythmias, Szs

**Notes:** Individualize dosage Level: 10–20 mcg/mL, toxic > 20 mcg/mL; aminophylline 85% theophylline; erratic rectal absorption

**Amiodarone (Cordarone, Nexterone, Pacerone)**

**BOX:** Liver tox, exacerbation of arrhythmias and lung damage reported

**Uses:** *Recurrent VF or unstable VT*, supraventricular arrhythmias, AF

**Acts:** Class III antiarrhythmic inhibits alpha/beta adrenergic system (Table 9, p 345)

**Dose:** Adults. Ventricular arrhythmias: IV: 15 mg/min × 10 min, then 1 mg/min × 6 h, maint 0.5-mg/min cont Inf or PO: Load: 800–1600 mg/d PO × 1–3 wk Maint: 600–800 mg/d PO for 1 mo, then 200–400 mg/d

**Supraventricular arrhythmias:** IV: 300 mg IV over 1 h, then 20 mg/kg for 24 h, then 600 mg PO daily for 1 wk, maint 100–400 mg daily or PO: Load 600–800 mg/d PO for 1–4 wk Maint: Slow ↓ to 100–400 mg daily

**ECC 2010.** VF/VT cardiac arrest refractory to CPR, shock and pressor: 300 mg IV/IO push; can give additional 150 mg IV/IO once; Life-threatening arrhythmias: Max dose: 2.2 g IV/24 h; rapid Inf: 150 mg IV over first 10 min (15 mg/min); can
Amitriptyline

repeat 150 mg IV q10min PRN; slow Inf: 360 mg IV over 60 min (1 mg/min); maint: 540 mg IV over 18 h (0.5 mg/min) Peds. 10–15 mg/kg/24 h + q12h PO for 7–10 d, then 5 mg/kg/24 h + q12h or daily (infants require ↑ loading) ECC 2010. Pulseless VT/Refractory VF: 5 mg/kg IV/IO bolus, repeat PRN to 15 mg/kg (2.2 g in adolescents)/24 h; max single dose 300 mg; Perfusing SVT/Ventricular arrhythmias: 5 mg/kg IV/IO load over 20–60 min; repeat PRN to 15 mg/kg (2.2 g in adolescents)/24h W/P: [D, –] May require ↓ digoxin/warfarin dose, ↓ w/ liver Insuff; many drug interactions CI: Sinus node dysfunction, 2nd-/3rd-degree A V block, sinus brady (w/o pacemaker), iodine sensitivity Disp: Tabs 100, 200, 400 mg; Inj 50 mg/mL; Premixed Inf 150, 360 mg SE: Pulm fibrosis, exacerbation of arrhythmias, ↑ QT interval; CHF, hypo-/hyperthyroidism, ↑ LFTs; liver failure, ↓ BP/ ↓ HR (Inf related) dizziness, HA, corneal microdeposits, optic neuropathy/ neuritis, peripheral neuropathy, photosens; blue skin Notes: IV conc > 2.0 mg/mL central line only Levels: Trough: just before next dose Therapeutic: 0.5–2.5 mcg/mL Toxic: > 2.5 mcg/mL Half-life: 40–55 d (↓ peds)

Amitriptyline (Elavil) BOX: Antidepressants may ↑ suicide risk; consider risks/benefits of use. Monitor pts closely Uses: *Depression (not bipolar depression)* peripheral neuropathy, chronic pain, tension HAs, migraine HA prophylaxis PTSD* Acts: TCA; ↓ reuptake of serotonin & norepinephrine by presynaptic neurons Dose: Adults. Initial: 25–150 mg PO hs; may ↑ to 300 mg hs Peds. Not OK < 12 y unless for chronic pain Initial: 0.1 mg/kg PO hs, ↑ over 2–3 wk to 0.5–2 mg/ kg PO hs; taper to D/C W/P: CV Dz, Szs [D, +/-] NAG, hepatic impair CI: w/ MAOIs or w/in 14 d of use, during AMI recovery Disp: Tabs 10, 25, 50, 75, 100, 150 mg; Inj 10 mg/mL SE: Strong anticholinergic SEs; OD may be fatal; urine retention, sedation, ECG changes BM suppression, orthostatic ↓ BP, photosens Notes: Levels: Therapeutic: 100–250 ng/mL Toxic: > 500 ng/mL; levels may not correlate w/ effect

Amlodipine (Norvasc) Uses: *HTN, stable or unstable angina* Acts: CCB; relaxes coronary vascular smooth muscle Dose: 2.5–10 mg/d PO; ↓ w/ hepatic impair W/P: [C, ?] Disp: Tabs 2.5, 5, 10 mg SE: Edema, HA, palpitations, flushing, dizziness Notes: Take w/o regard to meals

Amlodipine/Atorvastatin (Caduet) Uses: *HTN, chronic stable/vasospastic angina, control cholesterol & triglycerides* Acts: CCB & HMG-CoA reductase inhibit Dose: Amlodipine 2.5–10 mg w/ atorvastatin 10–80 mg PO daily W/P: [X, –] CI: Active liver Dz, ↑ LFTs Disp: Tabs amlodipine/atorvastatin: 2.5/10, 2.5/20, 2.5/40, 5/10, 5/20, 5/40, 5/80, 10/10, 10/20, 10/40, 10/80 mg SE: Edema, HA, palpitations, flushing, myopathy, arthralgia, myalgia, GI upset, liver failure Notes: ✓ LFTs; instruct pt to report muscle pain/weakness

Amlodipine/Olmesartan (Azor) BOX: Use of renin-angiotensin agents in PRG can cause injury and death to fetus, D/C immediately when PRG detected Uses: *Hypertension* Acts: CCB w/ angiotensin II receptor blocker Dose: Adults.
Amoxicillin & Clavulanic Acid

Initial 5 mg/20 mg, max 10 mg/40 mg qd  
W/P: [D, −] w/ K⁺ supl or K⁺-sparing diuretics, renal impair, RAS, severe CAD, AS  
C/CI: PRG  
Disp: Tabs amlopidine/olmesartan 5 mg/20 mg, 10/20, 5/40, 10/40  
SE: Edema, vertigo, dizziness, ↓BP

Amlodipine/Valsartan (Exforge)  
BOX: Use of renin-angiotensin agents in PRG can cause fetal injury and death, D/C immediately when PRG detected  
Uses: *HTN*  
Acts: CCB w/ angiotensin II receptor blocker  
Dose: Adults. Initial 5 mg/160 mg, may ↑ after 1–2 wk, max 10 mg/320 mg qd, start elderly at 1/2 initial dose  
W/P: [D, −] w/ K⁺ supl or K⁺-sparing diuretics, renal impair, RAS, severe CAD  
C/CI: PRG, Disp: Tabs amlopidine/valsartan 5/160, 10/160, 5/320, 10 mg/320 mg  
SE: Edema, vertigo, nasopharyngitis, URI, dizziness, ↓BP

Amlodipine/Valsartan/HCTZ (Exforge HCT)  
BOX: Use of renin-angiotensin agents in PRG can cause fetal injury and death, D/C immediately when PRG detected  
Uses: *Hypertension (not initial Rx)*  
Acts: CCB, angiotensin II receptor blocker, & thiazide diuretic  
Dose: 5–10/160/320/12.5–25 mg 1 tab 1×d may ↑ dose after 2 wk; max dose 10/320/25 mg  
W/P: [D, −] w/ Severe hepatic or renal impair  
C/CI: Anuria, sulfonamide allergy  
SE: edema, dizziness, HA, fatigue, ↑↓K⁺ ↑ BUN, ↑ SCR, nasopharyngitis, dyspepsia, N, back pain, muscle spasm, ↓BP

Ammonium Aluminum Sulfate [Alum] [OTC]  
Uses: *Hemorrhagic cystitis when saline bladder irrigation fails*  
Acts: Astringent  
Dose: 1–2% soln w/ constant NS bladder irrigation  
W/P: [+/−]  
Disp: Powder for recons SE: Encephalopathy possible; ✓ aluminum levels, especially w/ renal Insuff; can precipitate & occlude catheters  
Notes: Safe w/o anesthesia & w/ vesicoureteral reflux

Amoxicillin (Amoxil, Moxatag)  
Uses: *Ear, nose, & throat, lower resp, skin, urinary tract Infxns from susceptible gram(+) bacteria* endocarditis prophylaxis, H. pylori eradication w/ other agents (gastric ulcers)  
Acts: β-Lactam antibiotic; ↓ cell wall synth  
Spectrum: Gram(+) (Streptococcus sp, Enterococcus sp); some gram(−) (H. influenzae, E. coli, N. gonorrhoeae, H. pylori, & P. mirabilis)  
Dose: Adults. 250–500 mg PO tid or 500–875 mg bid ER 775 mg 1×d  
Peds. 25–100 mg/kg/24 h PO + q8h, ↓ in renal impair  
W/P: [B, +]  
Disp: Caps 250, 500 mg; chew tabs 125, 200, 250, 400 mg; susp 50, 125, 200, 250 mg/mL & 400 mg/5 mL; tabs 500, 875 mg; tab ER 775 mg  
SE: D; rash  
Notes: Cross hypersens w/ PCN; many E. coli strains resistant; chew tabs contain phenylalanine

Amoxicillin & Clavulanic Acid (Augmentin, Augmentin 600 ES, Augmentin XR)  
Uses: *Ear, lower resp, sinus, urinary tract, skin Infxns caused by β-lactamase–producing H. influenzae, S. aureus, & E. coli*  
Acts: β-Lactam antibiotic w/ β-lactamase inhibit  
Spectrum: Gram(+) same as amoxicillin
alone, MSSA; gram(−) as w/ amoxicillin alone, β-lactamase–producing H. influenzae, Klebsiella sp, M. catarrhalis **Dose**: **Adults**: 250–500 mg PO q8h or 875 mg XR 2000 mg PO q12h; **Peds.**: 20–40 mg/kg/d as amoxicillin PO + q8h or 45–90 mg/kg/d + q12h; ↓ in renal impair; take w/ food **W/P**: [B, enters breast milk] **Disp**: (amoxicillin/clavulanic): Tabs 250/125, 500/125, 875/125 mg; chew tabs 125/31.25, 200/28.5, 400/57 mg/mg; susp 125/31.25, 250/62.5, 200/28.5, 400/57 mg/5 mL; XR tab 1000/62.5 mg/mg **SE**: Abd discomfort, N/V/D, allergic Rxn, vaginitis **Notes**: Do not substitute two 250-mg tabs for one 500-mg tab (possible OD of clavulanic acid); max clavulanic acid 125 mg/dose

**Amphotericin B (Fungizone)** **Uses**: *Severe, systemic fungal Infxns; oral & cutaneous candidiasis* **Acts**: Binds ergosterol in the fungal membrane to alter permeability **Dose**: **Adults & Peds.**: 0.25–1.5 mg/kg/24 h IV over 2–6 h (25–50 mg/d or q other day). Total varies w/ indication ↑ PR, N/V/W/P: [B, ?] **Disp**: Powder (Inj) 50 mg/vial **SE**: ↓ K+/Mg2+ from renal wasting; anaphylaxis, HA, fever, chills, nephrotox, ↓ BP, anemia, rigors **Notes**: ✓ Cr/LFTs/K+/Mg2+; ↓ in renal impair; pretreatment w/ APAP & diphenhydramine ± hydrocortisone, ↓ SE

**Amphotericin B Cholesteryl (Amphotec)** **Uses**: *Aspergillosis if intolerant/refractory to conventional amphotericin B*, systemic candidiasis **Acts**: Binds ergosterol in fungal membrane, alters permeability **Dose**: **Adults & Peds.**: 3–4 mg/kg/d; 1 mg/kg/h Inf, 7.5 mg/kg/d max; ↓ w/ renal Insuff **W/P**: [B, ?] **Disp**: Powder for Inj 50, 100 mg/vial **SE**: Anaphylaxis; fever, chills, HA, ↓ PLT, N/V, ↑ HR, ↓ K+, ↓ Mg2+, nephrotox, ↓ BP, infusion Rxns, anemia **Notes**: Do not use in-line filter; ✓ LFTs/lytes

**Amphotericin B Lipid Complex (Abelcet)** **Uses**: *Refractory invasive fungal Infxn in pts intolerant to conventional amphotericin B*, systemic candidiasis **Acts**: Binds ergosterol in fungal membrane, alters membrane permeability **Dose**: **Adults & Peds.**: 2.5–5 mg/kg/d IV × 1 daily **W/P**: [B, ?] **Disp**: Inj 5 mg/mL SE: Anaphylaxis; fever, chills, HA, ↓ K+, ↑ SCr ↓ Mg2+, nephrotox, ↓ BP, anemia **Notes**: Filter w/ 5-micron needle; do not mix in electrolyte containing solns; if Inf > 2 h, manually mix bag

**Amphotericin B Liposomal (AmBisome)** **Uses**: *Refractory invasive fungal Infxn w/ intolerance to conventional amphotericin B; cryptococcal meningitis in HIV; empiric for febrile neutropenia; visceral leishmaniasis* **Acts**: Binds ergosterol in fungal membrane, alters membrane permeability **Dose**: **Adults & Peds.**: 3–6 mg/kg/d, Inf 60–120 min; varies by indication; ↓ in renal Insuff **W/P**: [B, ?] **Disp**: Powder Inj 50 mg **SE**: Anaphylaxis, fever, chills, HA, ↓ K+, ↓ Mg2+, peripheral edema, insomnia, rash, ↑ LFTs, nephrotox, ↓ BP, anemia **Notes**: Do not use < 1-micron filter

**Ampicillin** **Uses**: *Resp, GU, or GI tract Infxns, meningitis d/t gram(−) & (+) bacteria; SBE prophylaxis* **Acts**: β-Lactam antibiotic; ↓ cell wall synth **Spectrum**: Gram(+) (*Streptococcus* sp, *Staphylococcus* sp, *Listeria*); gram(−) (*Klebsiella* sp, *E. coli, H. influenzae, P. mirabilis, Shigella* sp, *Salmonella* sp) **Dose**:...
Anthralin

**Adults.** 1000 mg–2 g IM or IV q4–6h or 250–500 mg PO q6h; varies by indication

**Peds Neonates < 7 d.** 50–100 mg/kg/24 h IV + q8h

**Term infants.** 75–150 mg/kg/24 h + q6–8h IV or PO

**Children > 1 mo.** 200 mg/kg/24 h + q6h IM or IV; 50–100 mg/kg/24 h + q6h PO up to 250 mg/dose

**Meningitis:** 200–400 mg/kg/24 h; ↓ w/ renal impair; take on empty stomach

**W/P:** [B, M] Cross-hypersens w/ PCN

**Disp:** Caps 250, 500 mg; susp, 125 mg/5 mL, 250 mg/5 mL; powder (Inj) 125, 250, 500 mg, 1, 2, 10 g/vial

**SE:** D, rash, allergic Rxn

**Notes:** Many *E. coli* resistant

**Ampicillin-Sulbactam (Unasyn)**

**Uses:** *Gynecologic, intra-Abd, skin Infxns d/t β-lactamase–producing S. aureus, Enterococcus, H. influenzae, P. mirabilis, & Bacteroides sp*

**Acts:** β-Lactam antibiotic & β-lactamase inhib

**Spectrum:** Gram(+) & (−) as for amp alone; also Enterobacter, Acinetobacter, Bacteroides

**Dose:**

- **Adults.** 1.5–3 g IM or IV q6h
- **Peds.** 100–400 mg ampicillin/kg/d (150–300 mg Unasyn) q6h; ↓ w/ renal Insuff

**W/P:** [B, M]

**Disp:** Powder for Inj 1.5, 3 g/vial, 15 g bulk package

**SE:** Allergic Rxns, rash, D, Inj site pain

**Notes:** A 2:1 ratio ampicillin:sulbactam

**Anakinra (Kineret)**

**Uses:** *Reduce S/Sxs of mod–severe active RA, failed 1 or more DMARDs*

**Acts:** Human IL-1 receptor antagonist

**Dose:** 100 mg SQ daily; w/ CrCl < 30 mL/min, q other day

**W/P:** [B, ?] Only > 1% y avoid in active Inf

**CI:** PRG

**Disp:** 100-mg prefilled syringes; 100 mg (0.67 mL/vial)

**SE:** ↓ WBC especially w/ TNF-blockers, Inj site Rxn (may last up to 28 d), Infxn, N/D, Abd pain, flu-like sx, HA

**Notes:** ✓ immunization up to date prior to starting Rx

**Anastrozole (Arimidex)**

**Uses:** *Breast CA: postmenopausal w/ metastatic breast CA, adjuvant Rx postmenopausal early hormone-receptor(+) breast CA*

**Acts:** Selective nonsteroidal aromatase inhib, ↓ circulatory estradiol

**Dose:** 1 mg/d

**W/P:** [X, ?/–] CI: PRG

**Disp:** Tabs 1 mg

**SE:** May ↑ cholesterol; N/V/D, HTN, flushing, ↑ bone/tumor pain, HA, somnolence, mood disturbance, depression, rash, fatigue, weakness

**Notes:** No effect on adrenal steroids or aldosterone

**Anidulafungin (Eraxis)**

**Uses:** *Candidemia, esophageal candidiasis, other Candida Infxn (peritonitis, intra-Abd abscesses)*

**Acts:** Echinocandin; ↓ cell wall synth

**Spectrum:** C. albicans, C. glabrata, C. parapsilosis, C. tropicalis

**Dose:** Candidemia, others: 200 mg IV × 1, then 100 mg IV daily [Tx ≥ 14 d after last (+)culture]; Esophageal candidiasis: 100 mg IV × 1, then 50 mg IV daily (Tx > 14 d and 7 d after resolution of Sx); 1.1 mg/min max Inf rate

**W/P:** [B, ?/–] CI: Echinocandin hypersens

**Disp:** Powder 50, 100 mg/vial

**SE:** Histamine-mediated Inf Rxns (urticaria, flushing, ↓ BP, dyspnea, etc), fever, N/V/D, ↓ K⁺, HA, ↑ LFTs, hep, worsening hepatic failure

**Notes:** ↓ Inf rate to < 1.1 mg/min w/ Inf Rxns

**Anthralin (Dritho, Zithranol, Zithranol-RR)**

**Uses:** *Psoriasis*

**Acts:** Keratolytic

**Dose:** Apply daily

**W/P:** [C, ?] CI: Acutely inflamed psoriatic eruptions, erythroderma

**Disp:** Cream, 0.5, 1, 1.2%; shampoo

**SE:** Irritation; hair/fingernails/skin discoloration, erythema
Antihemophilic Factor [AHF, Factor VIII (Monoclate)]

**Uses:** *Classic hemophilia A*

**Acts:** Provides factor VIII needed to convert prothrombin to thrombin

**Dose:**
- **Adults & Peds.** 1 AHF unit/kg ↑ factor VIII level by 2 Int unit/dL; units required = (Wt in kg) (desired factor VIII ↑ as % nl) × (0.5); minor hemorrhage = 20–40% nl; mod hemorrhage/minor surgery = 30–50% nl; major surgery, life-threatening hemorrhage = 80–100% nl

**W/P:** [C, ?]

**Disp:** ✓ each vial for units contained, powder for recons

**SE:** Rash, fever, HA, chills, N/V

**Notes:** Determine % nl factor VIII before dosing

Antihemophilic Factor (Recombinant) (Advate, Helixate FS, Kogenate FS, Recombinate, Xyntha)

**Uses:** *Control/prevent bleeding & surgical prophylaxis in hemophilia A*

**Acts:** Levels of factor VIII

**Dose:**
- **Adults.** Required units = body Wt (kg) × desired factor VIII rise (Int units/dL or % of nl) × 0.5 (Int units/kg per Int units/dL); frequency/duration determined by type of bleed (see PI)

**W/P:** [C, ?/−] Severe hypersens Rxn possible

**CI:** None

**Disp:** ✓ each vial for units contained, powder for recons

**SE:** HA, fever, N/V/D, weakness, allergic Rxn

**Notes:** Monitor for the development of factor VIII neutralizing antibodies

Antithrombin, Recombinant (Atryn)

**Uses:** *Prevent periop/peripartum thromboembolic events w/ hereditary antithrombin (AT) deficiency*

**Acts:** Inhibits thrombin and factor Xa

**Dose:**
- **Adults.** Based on pre-Rx AT level, BW (kg) and drug monitoring; see package. Goal AT levels 0.8–1.2 Int units/mL

**W/P:** [C, +/−] Hypersensitivity Rxns; ↑ effect of heparin/LMWH

**CI:** pathological bleeding & apixaban hypersens

**Disp:** Powder 1750 Int units/vial

**SE:** Bleeding, infusion site Rxn

**Notes:** ✓ aPTT and anti-factor Xa; monitor for bleeding or thrombosis

Antithymocyte Globulin (See Lymphocyte Immune Globulin, p 190)

**Apixaban (Eliquis)**

**BOX:** ↑ Risk of spinal/epidural hematoma w/ paralysis & ↑ thrombotic events w/ D/C in afib pts; monitor closely

**Uses:** *Prevent CVA/TE in nonvalvular afib and hip/knee replacement surgery; Rx DVT and PE*

**Acts:** Factor Xa inhib

**Dose:** 5 mg bid; 2.5 mg w/2 of the following: ≥ 80 y, Wt ≤ 60 kg, SCr ≥ 1.5; 2.5 mg w/ strong dual inhibit of CYTP3A4 and P-glycoprotein; if on 2.5 mg do NOT use w/ strong dual inhibit of CYTP3A4 and P-glycoprotein hip/knee 2.5 mg po bid

**W/P:** [B, −] Do not use w/ prosthetic valves

**CI:** Pathological bleeding & apixaban hypersens

**Disp:** Tabs 2.5, 5 mg

**SE:** Bleeding

**Notes:** If missed dose, do NOT double next dose; no antidote to reverse; anticoagulant effect can last 24 h after dose

**Apomorphine (Apokyn)**

**Uses:** *Acute, intermittent hypomobility (“off”) episodes of Parkinson Dz*

**Acts:** Dopamine agonist

**Dose:**
- **Adults.** 0.2 mL SQ supervised test dose; if BP OK, initial 0.2 mL (2 mg) SQ during “off” periods; only 1 dose per “off” period; titrate dose; 0.6 mL (6 mg) max single doses; use w/ antiemetic; ↓ in renal impair

**W/P:** [C, ?] Avoid EtOH; antihypertensives, vasodilators, cardio-/cerebrovascular Dz, hepatic impair

**CI:** IV administration 5-HT3, antagonists, sulfite allergy

**Disp:** Inj 10 mg/mL, 3-mL pen cartridges

**SE:** Emesis, syncope,
Aripiprazole

↑ QT, orthostatic ↓ BP, somnolence, ischemia, Inj site Rxn, edema, N/V, hallucination abuse potential, dyskinesia, fibrotic conditions, priapism, CP/angina, yawning, rhinorrhea Notes: Daytime somnolence may limit activities; trimethobenzamide 300 mg tid PO or other non–5-HT₃ antagonist antiemetic given 3 d prior to & up to 2 mo following initiation

**Apraclonidine (lollipop)** Uses: *Control, postop intraocular HTN* Acts: α₂-Adrenergic agonist Dose: 1–2 gtt of 0.5% tid; 1 gtt of 1% before and after surgical procedure W/P: [C, ?] CI: w/in 14 d of or w/ MAOI Disp: 0.5, 1% soln SE: Ocular irritation, lethargy, xerostomia, blurred vision

**Apremilast (Otezla)** Uses: *Tx psoriatic arthritis* Acts: PDE4 inhib Dose: Adults. Titrate to 30 mg 2 ×/d (day 1: 10 mg A.M., day 2: 10 mg A.M. & P.M., day 3: 10 mg A.M. & 20 mg P.M., day 4: 20 mg A.M. & P.M., day 5: 20 mg A.M. & 30 mg P.M., day 6 and after: 30 mg bid); CrCl < 30 ml/min: ↓ to 30 mg qd; do not crush/split/chew tab W/P: [C, ?–] may cause/worsen depression or sig ↓ Wt (monitor Wt); ↓ effect w/ strong CYP450 enzyme inducers (eg, rifampin, phenobarbital, carbamazepine, phenytoin) CI: Apremilast/component hypersens Disp: Tabs 10, 20, 30 mg SE: N/V/D, HA, Wt loss, URI

**Aprepitant (Emend, Oral)** Uses: *Prevents N/V associated w/ emetogenic CA chemotherapy (eg, cisplatin) (use in combo w/ other antiemetics)*, postop N/V* Acts: Substance P/neurokinin 1 (NK₁) receptor antagonist Dose: 125 mg PO day 1, 1 h before chemotherapy, then 80 mg PO qam days 2 & 3; postop N/V: 40 mg w/in 3 h of induction W/P: [B, ?–]; substrate & mod CYP3A4 inhib; CYP2C9 inducer (Table 10, p 346); ↓ Effect OCP and warfarin CI: Use w/ pimozide or cisapride Disp: Caps 40, 80, 125 mg SE: Fatigue, asthenia, hiccups Notes: See also fosaprepitant (Emend, Injection)

**Arformoterol (Brovana)** BOX: Long-acting β₂-adrenergic agonists may increase the risk of asthma-related death. Use only for pts not adequately controlled on other asthma-controller meds; safety + efficacy in asthma not established Uses: *Maint in COPD* Acts: Selective LA β₂-adrenergic agonist Dose: Adults. 15 mcg bid nebulization W/P: [C, ?] CI: Hypersens Disp: Soln 15 mcg/2 mL SE: Pain, back pain, CP, D, sinusitis, nervousness, palpitations, allergic Rxn, peripheral edema, rash, leg Notes: Not for acute bronchospasm. Refrigerate, use immediately after opening

**Argatroban (Generic)** Uses: *Prevent/Tx thrombosis in HIT, PCI in pts w/ HIT risk* Acts: Anticoagulant, direct thrombin inhib Dose: 2 mcg/kg/min IV; adjust until aPTT 1.5–3 × baseline not to exceed 100 s; 10 mcg/kg/min max; ↓ w/ hepatic impair W/P: [B, ?] Avoid PO anticoagulants, ↑ bleeding risk; avoid use w/ thrombolytics in critically ill pts CI: Overt major bleed Disp: Inf 100 mg/mL, Premixed Inf*: 50, 125 mg SE: AF, cardiac arrest, cerebrovascular disorder, ↓ BP, VT, N/V/D, sepsis, cough, renal tox, ↓ Hgb Notes: Steady state in 1–3 h; ✓ aPTT w/ Inf start and after each dose change

**Aripiprazole (Abilify, AbilifyDiscmelt, Abilify Maintena kit)** BOX: Increased mortality in elderly w/ dementia-related psychosis; ↑ suicidal thinking in
Armodafinil

Uses: *Schizophrenia adults and peds 13–17 y, mania or mixed episodes associated w/ bipolar disorder, MDD in adults, agitation w/ schizophrenia*

Acts: Dopamine & serotonin antagonist

Dose: Adults. Schizophrenia: 10–15 mg PO/d Acute agitation: 9.75 mg/1.3 mL IM Bipolar: 15 mg/d; MDD adjunct w/ other antidepressants initial 2 mg/d Peds. Schizophrenia: 13–17 y: Start 2 mg/d, usual 10 mg/d; max 30 mg/d for all adult and peds uses; ↓ dose w/ CYP3A4/CYP2D6 inhib (Table 10, p 346); ↑ dose w/ CYP3A4 inducer W/P: [C, –] w/ Low WBC, CV Dz, irritability in 16-17 yo; possible autistic disorder assn

Disp: Tabs 2, 5, 10, 15, 20, 30 mg; Discmelt (disintegrating tabs 10, 15 mg), soln 1 mg/mL, Inj 9.75 mg/1.3 mL; Maintena kit 300/400 mg vial/ w/ inj suppl

SE: Neuroleptic malignant synd, tardive dyskinesia, orthostatic ↓ BP, cognitive & motor impair, ↑ glucose, leukopenia, neutropenia, and agranulocytosis

Notes: Discmelt contains phenylalanine; monitor CBC

Armodafinil (Nuvigil)

Uses: *Narcolepsy, SWSD, and OSAHS**

Acts: ?; binds dopamine receptor, ↓ dopamine reuptake

Dose: Adults. OSAHS/narcolepsy: 150 or 250 mg PO daily in a.m. SWSD: 150 mg PO qd 1 h prior to start of shift; ↓ w/ hepatic impair; monitor for interactions w/ substrates CYP3A4/5, CYP7C19

W/P: [C, ?]

CI: Hypersens to modafinil/armodafinil

Disp: Tabs 50, 150, 250 mg

SE: HA, N, dizziness, insomnia, xerostomia, rash including SJS, angioedema, anaphylactoid Rxns, multiorgan hypersens Rxns

Artemether & Lumefantrine (Coartem)

Uses: *Acute, uncomplicated malaria (P. falciparum)*

Acts: Antiprotozoal/Antimalarial

Dose: Adults > 16 y. 25–< 35 kg: 3 tabs hour 0 & 8 day 1, then 3 tabs bid day 2 & 3 (18 tabs/course) ≥ 35 kg: 4 tabs hour 0 & 8 day 1, then 4 tabs bid day 2 & 3 (24 tabs/course) Peds 2 mo–< 16 y. 5–< 15 kg: 1 tab at hour 0 & 8 day 1, then 1 tab bid day 2 & 3 (6 tabs/course) 15–< 25 kg: 2 tabs hour 0 & 8 day 1, then 2 tabs bid day 2 & 3 (12 tabs/course) 25–< 35 kg: 3 tabs at hour 0 & 8 day 1, then 3 tabs bid on day 2 & 3 (18 tabs/course) ≥ 35 kg: See Adult dose W/P: [C, ?] ↑ QT, hepatic/renal impair, CYP3A4 inhib/substrate/inducers, CYP2D6 substrates CI: Component hypersens

Disp: Tabs artemether 20 mg/lumefantrine 120 mg SE: Palp, HA, dizziness, chills, sleep disturb, fatigue, anorexia, N/V/D, Abd pain, weakness, arthralgia, myalgia, cough, splenomegaly, fever, anemia, hepatomegaly, ↑ AST, ↑ QT

Notes: Not rec w/ other agents that ↑ QT

Artificial Tears (Tears Naturale) [OTC]

Uses: *Dry eyes* Acts: Ocular lubricant

Dose: 1–2 gtt PRN Disp: OTC soln SE: Mild stinging, temp blurred vision

Asenapine Maleate (Saphris)

BOX: ↑ Mortality in elderly w/ dementia-related psychosis

Uses: *Schizophrenia; manic/mixed bipolar disorder* Acts: Dopamine-serotonin antagonist

Dose: Adults. Schizophrenia: 5 mg twice daily; max 20 mg/d Bipolar disorder: 5–10 mg twice daily W/P: [C, ?/–] Disp: SL tabs 5, 10 mg SE: Dizziness, insomnia, ↑ TG, edema, ↑↓ BP, somnolence, akathisia, oral hypoesthesias, EPS, ↑ weight, ↑ glucose, ↑ QT interval, hyperprolactinemia, ↓ WBC, neuroleptic malignant syndrome, severe allergic Rxns Notes: Do not swallow/crush/chew tab; avoid eating/drinking 10 min after dose
**Atazanavir (Reyataz)**

**Uses:** *HIV-1 Infxn*

**Acts:** Protease inhib

**Dose:** Antiretroviral naïve 300 mg PO daily w/ ritonavir 100 mg or 400 mg PO daily; experienced pts 300 mg w/ ritonavir 100 mg; when given w/ efavirenz 600 mg, administer atazanavir 400 mg + ritonavir 100 mg once/d; separate doses from didanosine; ↓ w/ hepatic impair

**W/P:** CDC rec: HIV-infected mothers not...
Atenolol

breast-feed [B, −]; ↑ levels of statins sildenafil, antiarrhythmics, warfarin, cyclosporine, TCAs; ↓ w/ St. John’s wort, PPIs H 2-receptor antagonists; do not use w/ salmeterol, colchicine (w/renal/hepatic failure); adjust dose w/ bosentan, taladafil for PAH CI: w/ Midazolam, triazolam, ergots, pimozide, simvastatin, lovastatin, cisapride, etravirine, indinavir, irinotecan, rifampin, alpha 1-adrenoreceptor antagonist (alfuzosin), PDE5 inhibitor sildenafil

Disp: Caps 100, 150, 200, 300 mg

SE: HA, N/V/D, Bilirubin, rash, Abd pain, DM, photosens, ↑ PR interval

Notes: Administer w/ food; may have less-adverse effect on cholesterol; if given w/ H 2 blocker, separate by 10 h H 2; if given w/ proton pump inhib, separate by 12 h; concurrent use not OK in experienced pts

Atenolol (Tenormin) BOX: Avoid abrupt withdrawl (esp CAD pts), gradual taper to ↓, acute ↑ HR, HTN +/− ischemia

Uses: *HTN, angina, post-MI* Acts: selective β-adrenergic receptor blocker

Dose: HTN & angina: 25–100 mg/d PO ECC 2010. AMI: 5 mg IV over 5 min; in 10 min, 5 mg slow IV; if tolerated in 10 min, start 50 mg PO, titrate; ↓ in renal impair W/P: [D, M] DM, bronchospasm; abrupt D/C can exacerbate angina & ↑ MI risk

CI: ↓ HR, cardiogenic shock, cardiac failure, 2nd-/3rd-degree AV block, sinus node dysfunction, pulm edema

Disp: Tabs 25, 50, 100 mg

SE: ↓ HR, ↓ BP, 2nd-/3rd-degree AV block, dizziness, fatigue

Atenolol & Chlorthalidone (Tenoretic) Uses: *HTN* Acts: β-Adrenergic blockade w/ diuretic

Dose: 50–100 mg/d PO based on atenolol; ↓ dose w/ CrCl < 35 mL/min

W/P: [D, ?/−] DM, bronchospasm

CI: See atenolol; anuria, sulfonamide, cross-sensitivity

Disp: Atenolol 50 mg/chlorthalidone 25 mg, atenolol 100 mg/chlorthalidone 25 mg

SE: ↓ HR, ↓ BP, 2nd-/3rd-degree AV block, dizziness, fatigue, ↓ K +, photosens

Atomoxetine (Strattera) BOX: ↑ Frequency of suicidal thinking; monitor closely especially in peds pts.

Uses: *ADHD* Acts: Selective norepinephrine reuptake inhib

Dose: Adults & Peds > 70 kg. 40 mg PO/d, after 3 d minimum, ↑ to 80–100 mg + daily-bid Peds < 70 kg. 0.5 mg/kg × 3 d, then ↑ 1.2 mg/kg daily or bid (max 1.4 mg/kg or 100 mg); ↓ dose w/ hepatic Insuff or in combo w/ CYP2D6 inhib (Table 10, p 346) W/P: [C, ?/−] w/ Known structural cardiac anomalies, cardiac Hx hepatoxicity

CI: NAG, w/in 2 wk of D/C an MAOI

Disp: Caps 10, 18, 25, 40, 60, 80, 100 mg SE: HA, insomnia, dry mouth, Abd pain, N/V, anorexia ↑ BP, tachycardia, Wt loss, somnolence, sexual dysfunction, jaundice, ↑ LFTs

Notes: AHA rec: All children receiving stimulants for ADHD receive CV assessment before Rx initiated; D/C immediately w/ jaundice

Atorvastatin (Lipitor) Uses: dyslipidemia, primary prevention CV Dz

Acts: HMG-CoA reductase inhib

Dose: Initial 10–20 mg/d, may ↑ to 80 mg/d W/P: [X, −]

CI: Active liver Dz, unexplained ↑ LFTs

Disp: Tabs 10, 20, 40, 80 mg SE: Myopathy, HA, arthralgia, myalgia, GI upset, CP, edema, insomnia dizziness, liver failure

Notes: Monitor LFTs, instruct pt to report unusual muscle pain or weakness

Atovaquone (Mepron) Uses: *Rx & prevention PCP*, Toxoplasma gondii encephalitis, babesiosis (w/ azithromycin)

Acts: ↓ Nucleic acid & ATP synth
Atropine/Pralidoxime

**Dose:** Rx: 750 mg PO bid for 21 d. Prevention: 1500 mg PO once/d (w/ meals). **W/P:** [C, ?] **Disp:** Susp 750 mg/5 mL. **SE:** Fever, HA, anxiety, insomnia, rash, N/V, cough, pruritus, weakness

**Atovaquone/Proguanil (Malarone)**

**Uses:** *Prevention or Rx P. falciparum malaria*.

**Acts:** Antimalarial

**Dose:** Adults. Prevention: 1 tab PO 1–2 d before, during, & 7 d after leaving endemic region. Rx: 4 tabs PO single dose daily × 3 d. **Peds.** See PI. **W/P:** [C, ?] CI: Prophylactic use when CrCl < 30 mL/min. **Disp:** Tabs atovaquone 250 mg/proguanil 100 mg; peds 62.5/25 mg. **SE:** HA, fever, myalgia, Abd pain dizziness, weakness

**Atracurium (Tracrium)**

**Uses:** *Anesthesia adjunct to facilitate ET intubation, facilitate ventilation in ICU pts*.

**Acts:** Nondepolarizing neuromuscular blocker

**Dose:** Adults & Peds > 2 y. 0.4–0.5 mg/kg IV bolus, then 0.08–0.1 mg/kg q20–45min PRN; ICU: 0.4–0.5 mg/kg/min titrated. **W/P:** [C, ?] **Disp:** Inj 10 mg/mL. **SE:** Flushing

**Notes:** Pt must be intubated & on controlled ventilation; use adequate amounts of sedation & analgesia

**Atropine, Ophthalmic (Isopto Atropine, Generic)**

**Uses:** *Mydriasis, cycloplegia, uveitis*.

**Acts:** Antimuscarinic; cycloplegic, dilates pupils

**Dose:** Adults. Refraction: 1–2 gtt 1 h before. Uveitis: 1–2 gtt daily-qid. CI: NAG, adhesions between iris and lens. **Disp:** 1% ophthal soln, 1% oint. **SE:** Local irritation, burning, blurred vision, light sensitivity

**Notes:** Compress lacrimal sac 2–3 min after instillation; effects can last 1–2 wk

**Atropine, Systemic (AtroPen Auto-Injector)**

**Uses:** *Preanesthetic; symptomatic ↓ HR & asystole, AV block, organophosphate (insecticide) and acetylcholinesterase (nerve gas) inhibit antidote; cycloplegic*.

**Acts:** Antimuscarinic; blocks acetylcholine at parasympathetic sites, cycloplegic

**Dose:** Adults. ECC 2010. Asystole or PEA: Routine use for asystole or PEA no longer recommended; Bradycardia: 0.5 mg IV q3–5min as needed; max 3 mg or 0.04 mg/kg. Preanesthetic: 0.4–0.6 mg IM/IV. Poisoning: 1–2 mg IV bolus, repeat q3–5min PRN to reverse effects. **Peds. ECC 2010.** Symptomatic bradycardia: 0.02 mg/kg IV/IO (min dose 0.1 mg, max single dose 0.5 mg); repeat PRN X1; max total dose 1 mg or 0.04 mg/kg child, 3 mg adolescent. **W/P:** B/[C, +] CI: NAG, adhesions between iris and lens, pyloric stenosis, prostatic hypertrophy. **Disp:** Inj 0.05, 0.1, 0.4, 1 mg/mL. AtroPen Auto-injector: 0.25, 0.5, 1, 2 mg/dose. **SE:** Flushing, mydriasis, tachycardia, dry mouth & nose, blurred vision, urinary retention, constipation, psychosis. **Notes:** SLUDGE are Sx of organophosphate poisoning; Auto-injector limited distribution; see ophthal forms below

**Atropine/Pralidoxime (DuoDote)**

**Uses:** *Nerve agent (tabun, sarin, others), or organophosphate insecticide poisoning*. **Acts:** Atropine blocks effects of excess acetylcholine; pralidoxime reactivates acetylcholinesterase inactivated by poisoning

**Dose:** 1 Inj midlateral thigh; 10–15 min for effect; w/ severe Sx, give 2 additional Inj; if alert/oriented no more doses. **W/P:** [C, ?] **Disp:** Auto-injector 2.1 mg atropine/600 mg pralidoxime. **SE:** Dry mouth, blurred vision, dry eyes, photophobia, confusion, HA, tachycardia, ↑ BP, flushing, urinary retention, constipation,
Abd pain N, V, emesis **Notes:** See “SLUDGE” under Atropine, Systemic; limited distribution; for use by personnel w/ appropriate training; wear protective garments; do not rely solely on medication; evacuation and decontamination ASAP

**Avanafil (Stendra)**  
**Uses:** *ED*  
**Acts:** ↓ Phosphodiesterase type 5 (PDE5) (responsible for cGMP breakdown); ↑ cGMP activity to relax smooth muscles to ↑ flow to corpus cavernosum  
**Dose:** (men only) 100 mg PO 30 min before sex activity, no more than 1X/d; ↑/↓ dose 50–200 mg based on effect; do not use w/ strong CYP3A4 inhib; use 50 mg w/ mod CYP3A4 inhib; w/ or w/o food  
**W/P:** [C, ?]  
**Priapism risk; hypotension w/ BP meds or substantial alcohol; seek immediate attention w/ hearing loss or acute vision loss (may be NAION); w/ CYP3A4 inhib (eg, ketoconazole, ritonavir, erythromycin) ↑ effects; do not use w/ severe renal/hepatic impair  
**CI:** w/ Nitrates or if sex not advised  
**Disp:** Tabs 50, 100, 200 mg  
**SE:** HA, flushing, nasal congestion, nasopharyngitis back pain  
**Notes:** More rapid onset than sildenafil (15–30 min)

**Axitinib (Inlyta)**  
**Uses:** *Advanced RCC*  
**Acts:** TKI inhibitor  
**Dose:** Adults. 5 mg PO q12h; if tolerated > 2 wk, ↑ to 7 mg q12h, then 10 mg q12h; w/ or w/o food; swallow whole; ↓ dose by ½ w/ moderate hepatic impair; avoid w/ or ↓ dose by ½ if used w/ strong CYP3A4/5 inhib  
**W/P:** [D, ?] w/ brain mets, recent GI bleed  
**Disp:** Tabs 1, 5 mg  
**SE:** N/V/D/C, HTN, fatigue, asthenia, ↓ appetite, ↓ Wt, ↑ LFTs, hand-foot synd, venous/arterial thrombosis; hemorrhage, ↓ thyroid, GI perf/fistula, proteinuria, hypertensive crisis, impaired wound healing, reversible posterior leukoencephalopathy synd  
**Notes:** Hold 24 h prior to surgery

**Azathioprine (Imuran, Azasan)**  
**BOX:** May ↑ neoplasia w/ chronic use; mutagenic and hematologic tox possible  
**Uses:** *Adjunct to prevent renal transplant rejection, RA*, SLE, Crohn Dz, UC  
**Acts:** Immunosuppressive; antagonizes purine metabolism  
**Dose:** Adults. Crohn and UC: Start 50 mg/d, ↑ 25 mg/d q1–2wk, target dose 2–3 mg/kg/d. Adults & Peds. Renal transplant: 3–5 mg/kg/d IV/PO single daily dose, then 1–3 mg/kg/d maint; RA: 1 mg/kg/d once daily or + bid × 6–8 wk, ↑ 0.5 mg/kg/d q4wk to 2.5 mg/kg/d; ↓ w/ renal Insuff  
**W/P:** [D, ?/–] CI: PRG  
**Disp:** Tabs 50, 75, 100 mg; powder for Inj 100 mg  
**SE:** GI intolerance, fever, chills, leukopenia, ↑ LFTs, bilirubin, ↑ risk Infxns, thrombocytopenia  
**Notes:** Handle Inj w/ cytotoxic precautions; interaction w/ allopurinol; do not administer live vaccines on drug; √ CBC and LFTs; dose per local transplant protocol, usually start 1–3 d pretransplant

**Azelastine (Astelin, Astepro, Optivar)**  
**Uses:** *Allergic rhinitis (rhinorhea, sneezing, nasal pruritus), vasomotor rhinitis; allergic conjunctivitis*  
**Acts:** Histamine H1-receptor antagonist  
**Dose:** Adults & Peds > 12 y. Nasal: 1–2 sprays/nostril bid. Ophth: 1 gtt in each affected eye bid. Peds 5–11 y. 1 spray/nostril 1× d  
**W/P:** [C, ?/–] CI: Component sensitivity  
**Disp:** Nasal 137 mcg/spray; ophthal soln 0.05%  
**SE:** Somnolence, bitter taste, HA, colds Sx (rhinitis, cough)

**Azilsartan (Edarbi)**  
**BOX:** Use in 2nd/3rd trimester can cause fetal injury and death; D/C when PRG detected  
**Uses:** *HTN*  
**Acts:** ARB  
**Dose:** Adults. 80 mg
Aztreonam, Inhaled

PO 1 × d; consider 40 mg PO 1 × d if on high dose diuretic W/P: [D, ?] correct vol/salt depletion before Disp: Tabs 40, 80 mg SE: D, ↓ BP, N, asthenia, fatigue, dizziness, cough

Azilsartan & Chlorthalidone (Edarbyclor) BOX: Use in 2nd/3rd trimester can cause fetal injury and death; D/C when PRG detected Uses: *HTN* Acts: ARB w/ thiazide diuretic Dose: Adults. 40/12.5 mg–40/25 mg PO 1 × d W/P: [D, ?] Correct vol/salt depletion prior to use; use w/ lithium, NSAIDs CI: Anuria Disp: Tabs (azilsartan/chlorthalidone) 40/12.5, 40/25 mg SE: N/D, ↓ BP, asthenia, fatigue, dizziness, cough, ↓ K+, hyperuricemia, photosens, ↑ glucose

Azithromycin (Zithromax) Uses: *Community-acquired pneumonia, pharyngitis, otitis media, skin Infxns, nongonococcal (chlamydial) urethritis, chancroid & PID; Rx & prevention of MAC in HIV* Acts: Macrolide antibiotic; bacteriostatic; ↓ protein synth Spectrum: Chlamydia, H. ducreyi, H. influenzae, Legionella, M. catarrhalis, M. pneumoniae, M. hominis, N. gonorrhoeae, S. aureus, S. agalactiae, S. pneumoniae, S. pyogenes Dose: Adults. Resp tract Infxns: PO: Caps 500 mg day 1, then 250 mg/d PO × 4 d Sinusitis: 500 mg/d PO × 3 d IV: 500 mg × 2 d, then 500 mg PO × 7–10 d Nongonococcal urethritis: 1 g PO × 1 Gonorrhea, uncomplicated: 2 g PO × 1 Prevent MAC: 1200 mg PO once/wk Peds. Otitis media: 10 mg/kg PO day 1, then 5 mg/kg/d days 2–5 Pharyngitis (≥ 2 y): 12 mg/kg/d PO × 5 d; take susp on empty stomach; tabs OK w/o food; ↓ w/ CrCl < 10 mL/mg W/P: [B, +] May ↑ QTc w/ arrhythmias Disp: Tabs 250, 500, 600 mg; Z-Pack (5-d, 250 mg); Tri-Pack (500-mg tabs × 3); susp 2 g; single-dose packet (Zmax) ER susp (2 g); susp 100, 200 mg/5 mL; Inj powder 500 mg; 2.5 mL SE: GI upset, metallic taste

Azithromycin Ophthalmic 1% (AzaSite) Uses: *Bacterial conjunctivitis* Acts: Bacteriostatic Dose: Adults & Peds ≥ 1 y. 1 gtt bid, q8–12 h × 2 d, then 1 gtt qd × 5 d W/P: [↑ B, ?] CI: None Disp: 1% in 2.5-mL bottle SE: Irritation, burning, stinging, contact dermatitis, corneal erosion, dry eye, dysgeusia, nasal congestion, sinusitis, ocular discharge, keratitis

Aztreonam (Azactam) Uses: *Aerobic gram(−) UTIs, lower resp, intra-Abd, skin, gynecologic Infxns & septicemia* Acts: Monobactam: ↓ Cell wall synth Spectrum: Gram(−) (Pseudomonas, E. coli, Klebsiella, H. influenzae, Serratia, Proteus, Enterobacter, Citrobacter) Dose: Adults. 1–2 g IV/IM q6–12h UTI: 500 mg–1 g IV q8–12h Meningitis: 2 g IV q6–8h Peds. 90–120 mg/kg/d × q6–8h ↓ in renal impair W/P: [B, +] Disp: Inj (sln), 1 g, 2 g/50 mL Inj powder for recons 1 g, 2 g SE: N/V/D, rash, pain at Inj site Notes: No gram(+) or anaerobic activity; OK in PCN-allergic pts

Aztreonam, Inhaled (Cayston) Uses: *Improve respiratory Sx in CF pts w/ P. aeruginosa* Acts: Monobactam: ↓ cell wall synth Dose: Adults & Peds ≥ 7 y. One dose 3x/d × 28 d (space doses q4h) W/P: [B, +] w/ Beta-lactam allergy CI: Allergy to aztreonam Disp: Lyophilized SE: Allergic Rxn, bronchospasm, cough, nasal congestion, wheezing, pharyngolaryngeal pain, V, Abd pain, chest
discomfort, pyrexia, rash **Notes:** Use immediately after reconstitution, use only w/ Altera Nebulizer System; bronchodilator prior to use

**Bacitracin & Polymyxin B, Ophthalmic (AK-Poly-Bac Ophthalmic, Polysporin Ophthalmic); Bacitracin, Neomycin, & Polymyxin B, Ophthalmic (Neo-Polycin Neosporin Ophthalmic); Bacitracin, Neomycin, Polymyxin B, & Hydrocortisone, Ophthalmic (Neo-Polycin HC Cortisporin Ophthalmic)**  
**Uses:** *Steroid-responsive inflammatory ocular conditions*  
**Acts:** Topical antibiotic w/ anti-inflammatory  
**Dose:** Apply q3–4h into conjunctival sac  
**W/P:** [C, ?]  
**CI:** Viral, mycobacterial, fungal eye Infxn  
**Disp:** See Bacitracin, topical equivalents, next listing

**Bacitracin, Topical (Baciguent); Bacitracin & Polymyxin B, Topical (Polysporin); Bacitracin, Neomycin, & Polymyxin B, Topical (Neosporin); Bacitracin, Neomycin, Polymyxin B, & Hydrocortisone, Topical (Cortisporin)**  
**Uses:** Prevent/Rx of *minor skin Infxn*s  
**Acts:** Topical antibiotic w/ added components (anti-inflammatory & analgesic)  
**Dose:** Apply sparingly bid-qid  
**W/P:** [C, ?] Not for deep wounds, puncture, or animal bites  
**Disp:** Bacitracin 500 units/g oint; bacitracin 500 units/polymyxin B sulfate 10,000 units/g oint & powder; bacitracin 400 units/neomycin 3.5 mg/polymyxin B 5000 units/g oint; bacitracin 400 units/neomycin 3.5 mg/polymyxin B 5000 units/hydrocortisone 10 mg/g oint; Bacitracin 500 units/neomycin 3.5 mg/polymyxin B 5000 units/lidocaine 40 mg/g oint  
**Notes:** Ophthal, systemic, & irrigation forms available, not generally used d/t potential tox

**Baclofen (Lioresal Intrathecal, Gablofen)**  
**BOX:** Abrupt discontinuation especially IT use can lead to organ failure, rhabdomyolysis, and death  
**Uses:** *Spasticity d/t severe chronic disorders (eg, MS, amyotrophic lateral sclerosis, or spinal cord lesions)*, trigeminal neuralgia, intractable hiccups  
**Acts:** Centrally acting skeletal muscle relaxant; ↓ transmission of monosynaptic & polysynaptic cord reflexes  
**Dose:** Adults. Initial, 5 mg PO tid; ↑ q3d to effect; max 80 mg/d  
**IT:** Via implantable pump (see PI)  
**Peds**  
2–7 y. 20–30 mg ÷ q8h (max 60 mg)  
> 8 y: Max 120 mg/d  
**IT:** Via implantable pump (see PI); ↓ in renal impair; take w/ food or milk  
**W/P:** [C, +] Epilepsy, neuropsychological disturbances;  
**Disp:** Tabs 10, 20 mg; IT Inj 50, 500, 1000, 2000 mcg/mL  
**SE:** Dizziness, drowsiness, insomnia, rash, fatigue, ataxia, weakness, ↓ BP

**Balsalazide (Colazal)**  
**Uses:** *Ulcerative colitis*  
**Acts:** 5-ASA derivative, anti-inflammatory  
**Dose:** 2.25 g (3 caps) tid × 8–12 wk  
**W/P:** [B, ?–]  
**CI:** Severe renal failure  
**Disp:** Caps 750 mg  
**SE:** Dizziness, HA, N, Abd pain, agranulocytosis, renal impair, allergic Rxns  
**Notes:** Daily dose of 6.75 g = 2.4 g mesalamine, UC exacerbation upon initiation of Rx

**Basiliximab (Simulect)**  
**BOX:** Use only under the supervision of a physician experienced in immunosuppression Rx in an appropriate facility  
**Uses:** *Prevent acute transplant rejection*  
**Acts:** IL-2 receptor antagonists  
**Dose:** Adults & Peds
Beclomethasone Nasal

> 35 kg. 20 mg IV 2 h before transplant, then 20 mg IV 4 d posttransplant. *Peds* < 35 kg. 10 mg 2 h prior to transplant; same dose IV 4 d posttransplant W/P: [B, ?–]

**CI:** Hypersens to murine proteins **Disp:** Inj powder 10, 20 mg SE: Edema, ↓ BP, HTN, HA, dizziness, fever, pain, Infxn, GI effects, electrolyte disturbances **Notes:** A murine/human MoAb

**BCG [Bacillus Calmette-Guérin] (TheraCys, Tice BCG)** **BOX:** Contains live, attenuated mycobacteria; transmission risk; handle as biohazard; nosocomial & disseminated Infxns reported in immunosuppressed; **Uses:** *Bladder CA (superficial)*, TB prophylaxis; Routine US adult BCG immunization not recommended. Children who are PPD(−) and continually exposed to untreated/ineffectively treated adults or whose TB strain is INH/rifampin resistant. Healthcare workers in high-risk environments **Acts:** Attenuated live BCG culture, immunomodulator **Dose:** Bladder CA, 1 vial prepared & instilled in bladder for 2 h. Repeat once/wk × 6 wk; then 1 Tx at 3, 6, 12, 18, & 24 mo after W/P: [C, ?] Asthma w/ TB immunization **CI:** Immunosuppression, PRG, steroid use, febrile illness, UTI, gross hematuria, w/ traumatic catheterization **Disp:** Powder 81 mg (TheraCys), 50 mg (Tice BCG) SE: Intravesical: Hematuria, urinary frequency, dysuria, bacterial UTI, rare BCG sepsis malaise, fever, chills, pain, N/V, anorexia, anemia **Notes:** PPD is not CI in BCG vaccinated persons; intravesical use, dispose/void in toilet w/ chlorine bleach

**Becaplermin (Regranex Gel)** **BOX:** Increased mortality d/t malignancy reported; use w/ caution in known malignancy **Uses:** Local wound care adjunct w/ *diabetic foot ulcers* **Acts:** Recombinant PDGF, enhances granulation tissue **Dose:** Adults. Based on lesion: Calculate the length of gel, measure the greatest length of ulcer by the greatest width; tube size and measured result determine the formula used in the calculation. Recalculate q1–2wk based on change in lesion size. 15-g tube: [length × width] × 0.6 = length of gel (in inches) or for 2-g tube: [length × width] × 1.3 = length of gel (in inches) Peds. See PI W/P: [C, ?] CI: Neoplasmatic site **Disp:** 0.01% gel in 2-, 15-g tubes SE: Rash **Notes:** Use w/ good wound care; wound must be vascularized; reassess after 10 wk if ulcer not ↓ by 30% or not healed by 20 wk

**Beclomethasone (QVAR)** **Uses:** Chronic *asthma* **Acts:** Inhaled corticosteroid **Dose:** Adults & Peds 5–11 y. 40–160 mcg 1–4 Inhs bid; initial 40–80 mcg Inh bid if on bronchodilators alone; 40–160 mcg bid w/ other inhaled steroids; 320 mcg bid max; taper to lowest effective dose bid; rinse mouth/throat after W/P: [C, ?] CI: Acute asthma **Disp:** PO metered-dose inhaler; 40, 80 mcg/Inh SE: HA, cough, hoarseness, oral candidiasis **Notes:** Not effective for acute asthma; effect in 1–2 d or as long as 2 wk; rinse mouth after use

**Beclomethasone Nasal (Beconase AQ)** **Uses:** *Allergic rhinitis, nasal polyps* **Acts:** Inhaled steroid **Dose:** Adults & Peds. Aqueous inhaler: 1–2 sprays/ nostril bid W/P: [C, ?] **Disp:** Nasal metered-dose inhaler 42 mcg/spray SE: Local irritation, burning, epistaxis **Notes:** Effect in days to 2 wk
Bedaquiline Fumarate (Sirturo) **BOX:** ↑ QT can occur and may be additive w/ other QT-prolonging drugs; ↑ risk of death vs placebo, only use when an effective TB regimen cannot be provided **Uses:** *Tx of MDR TB* **Acts:** Diarylquinoline antimycobacterial **Dose:** 400 mg/d × 2 wk, then 200 mg 3 ×/wk for 22 wk **W/P:** [B, –] ↑ QT, ✓ ECG freq; D/C if ventricular arrhythmias or QTc > 500 ms; hepatic Rxn, ✓ LFTs, D/C w/ AST/ALT > 8× ULN, T bili > 2× ULN or LFTs persist > 2 wk; w/ renal failure **CI:** w/ drugs that ↑ QTc **Disp:** Tabs 100 mg **SE:** HA, N, arthralgias, hemoptysis, CP **Notes:** Frequent ✓ ECG; ✓ LFTs, D/C w/ AST/ALT > 8× ULN, T bili > 2× ULN or LFTs persist > 2 wk; w/ renal failure **CI:** w/ drugs that ↑ QTc

Belatacept (Nulojix) **BOX:** May ↑ risk of posttransplant lymphoproliferative disorder (PTLD) mostly CNS; ↑ risk of Infxns; for use by physicians experienced in immunosuppressive therapy; ↑ risk of malignancies; not for liver transplant **Uses:** *Prevention rejection in EBV positive kidney transplant recipients* **Acts:** T-cell costimulation blocker **Dose:** Day 1 (transplant day, preop) & day 5 10 mg/kg; end of wk 2, wk 4, wk 8, wk 12 after transplant 10 mg/kg; Maint: End of wk 16 after transplant 4 wk 5 mg/kg **W/P:** [C, –] w/ CYP3A4 inhib/inducers, other anticoagulants or plt inhib **CI:** EBV seronegative or unknown EBV status **Disp:** 250 mg Inj **SE:** anemia, N/V/D, UTI, edema, constipation, ↑ BP, pyrexia, graft dysfunction, cough, HA, ↑↓ K+, ↓ WBC **Notes:** REMS; use in combo w/ basiliximab, mycophenolate mofetil (MMF), & steroids; PML w/ excess belatacept dosing

Belimumab (Benlysta) **Uses:** *SLE* **Acts:** B-lymphocyte inhib **Dose:** Adults. 10 mg/kg IV q2wk × 3 doses, then q4wk; Inf over 1 h; premed against Inf & hypersens Rxns **W/P:** [C, ?–] h/o active or chronic Infxns; possible ↑ mortality **CI:** Live vaccines, hypersens **Disp:** Inj powder 120, 400 mg/vial **SE:** N/D, bronchitis, nasopharyngitis, pharyngitis, insomnia, extremity pain, pyrexia, depression, migraine, serious/fatal, hypersens, anaphylaxis **Notes:** Not for severe active lupus nephritis or CNS lupus or w/ other biologics or IV cyclophosphamide

Belladonna & Opium Suppositories (Generic) [C-II] **Uses:** *Mod–severe pain associated w/ bladder spasms* **Acts:** Antispasmodic, analgesic **Dose:** 1 supp PR 1–2/d (up to 4 doses/d) **W/P:** [C, ?] CI: Glaucoma, resp depression, severe renal or hepatic dz, convulsive disorder, acute alcoholism **Disp:** 30 mg opium/16.2 mg belladonna extract; 60 mg opium/16.2 mg belladonna extract **SE:** Anticholinergic (eg, sedation, urinary retention, constipation)

Benazepril (Lotensin) **BOX:** PRG avoid use **Uses:** *HTN* **Acts:** ACE inhib **Dose:** 10–80 mg/d PO **W/P:** [D, –] CI: Angioedema **Disp:** Tabs 5, 10, 20, 40 mg **SE:** Symptomatic ↓ BP w/ diuretics; dizziness, HA, ↑ K+, nonproductive cough, ↑ SCr

Bendamustine (Treanda) **Uses:** *CLL B-cell NHL* **Acts:** Mechlorethamine derivative; alkylating agent **Dose:** Adults. 100 mg/m² IV over 30 min on days 1 & 2 of 28-d cycle, up to 6 cycles (w/ tox see PI for dose changes); NHL: 120 mg/m² IV over 30 min d 1 & 2 of 21-d tx cycle up to 8 cycles; do not use w/ CrCl < 40 mL/min, severe hepatic impair **W/P:** [D, ?–] Do not use w/ CrCl < 40 mL/min, severe hepatic impair **CI:** Hypersens to bendamustine or mannitol **Disp:** Inj
Bepotastine Besilate powder, 25 mg, 100 mg SE: Pyrexia, N/V, dry mouth, fatigue, cough, stomatitis, rash, myelosuppression, Infxn, Inf Rxns & anaphylaxis, tumor lysis synd, skin Rxns, extravasation Notes: Consider use of allopurinol to prevent tumor lysis synd

Benzocaine (Americaine, Hurricane Lanacane, Various [OTC]) BOX: Do not use for infant teething Uses: *Topical anesthetic, lubricant on ET tubes, catheters, etc; pain relief in external otitis, cerumen removal, skin conditions, sunburn, insect bites, mouth and gum irritation, hemorrhoids* Acts: Topical local anesthetic Dose: Adults & Peds > 1 y. Anesthetic lubricant: Apply evenly to tube/instrument; other uses per manufacturer instructions W/P: [C, –] Do not use on broken skin; see provider if condition does not respond; avoid in infants and those w/ pulmonary Dzs Disp: Many site-specific OTC forms creams, gels, liquids, sprays, 2–20% SE: Itching, irritation, burning, edema, erythema, pruritus, rash, stinging, tenderness, urticaria; methemoglobinemia (infants or in COPD) Notes: Use minimum amount to obtain effect; risk of methemoglobinemia S/Sxs: HA, lightheadedness, SOB, anxiety, fatigue, pale, gray or blue colored skin, and tachycardia

Benzocaine/Antipyrine (Aurodex, Generic) Uses: *Analgesia in severe otitis media* Acts: Anesthetic w/ local decongestant Dose: Fill ear & insert a moist cotton plug; repeat 1–2 h PRN W/P: [C, ?] CI: w/ Perforated eardrum Disp: Soln 5.4% antipyrine, 1.4% benzocaine SE: Local irritation, methemoglobinemia, ear discharge

Benzonatate (Tessalon, Zonatuss) Uses: Symptomatic relief of *nonproductive cough* Acts: Anesthetizes the stretch receptors in the resp passages Dose: Adults & Peds > 10 y. 100 mg PO tid (max 600 mg/d) W/P: [C, ?] Disp: Caps 100, 150, 200 mg SE: Sedation, dizziness, GI upset Notes: Do not chew or puncture the caps; deaths reported in peds < 10 y w/ ingestion

Benztropine (Cogentin) Uses: *Parkinsonism & drug-induced extrapyramidal disorders* Acts: Anticholinergic & antihistaminic effects Dose: Adults. Parkinsonism: initial 0.5–1 mg PO/IM/IV qhs, ↑ q 5–6 d PRN by 0.5 mg, usual dose 1–2 mg/d, 6 mg/d max. Extrapyramidal: 1–4 mg PO/IV/IM qd -bid. Peds > 3 y. 0.02–0.05 mg/kg/dose 1–2/d W/P: [C, ?] w/ Urinary Sxs, NAG, hot environments, CNS or mental disorders, other phenothiazines or TCA CI: < 3 y pyloric/duodenal obstruction, myasthenia gravis Disp: Tabs 0.5, 1, 2 mg; Inj 1 mg/mL SE: Anticholinergic (tachycardia, ileus, N/V, etc), anhidrosis, heat stroke

Benzyl Alcohol (Ulesfia) Uses: *Head lice* Acts: Pediculicide Dose: Apply volume for hair length to dry hair; saturate the scalp; leave on 10 min; rinse w/ water; repeat in 7 d; Hair length 0–2 in: 4–6 oz; 2–4 in: 6–8 oz; 4–8 in: 8–12 oz; 8–16 in: 12–24 oz; 16–22 in: 24–32 oz; > 22 in: 32–48 oz W/P: [B, ?] Avoid eyes CI: none Disp: 5% lotion 4-, 8-oz bottles SE: Pruritus, erythema, irritation (local, eyes) Notes: Use fine-tooth/nit comb to remove nits and dead lice; no ovocidal activity.

Bepotastine Besilate (Bepreve) Uses: *Allergic conjunctivitis* Acts: H1-receptor antagonist Dose: Adults. 1 gtt into affected eye(s) twice daily W/P:
[C, ?/-] Do not use while wearing contacts 
Disp: Soln 1.5% 
SE: Mild taste, eye irritation, HA, nasopharyngitis

**Beractant (Survanta)** 
Uses: *Prevention & Rx RDS in premature infants* 
Acts: Replaces pulm surfactant 
Disp: Soln 1.5% 
SE: Mild taste, eye irritation, HA, nasopharyngitis

**Besifloxacin (Besivance)** 
Uses: *Bacterial conjunctivitis* 
Acts: Inhibits DNA gyrase & topoisomerase IV. 
Disp: 0.6% susp 
SE: HA, redness, blurred vision, irritation

**Betaxolol (Kerlone)** 
Uses: *HTN* 
Acts: Competitively blocks β-adrenergic receptors, β1, W/P: [C, ?/-] CI: Sinus ↓ HR, AV conduction abnormalities, uncompensated cardiac failure 
Disp: 10, 20 mg SE: Dizziness, HA, ↓ HR, edema, CHF, fatigue, lethargy

**Betaxolol, Ophthalmic (Betoptic)** 
Uses: Open-angle glaucoma 
Acts: Competitively blocks β1-adrenergic receptors, 
Disp: 1–2 gtt bid W/P: [C, ?/-] Disp: Soln 0.5%; susp 0.25% SE: Local irritation, photophobia

**Bethanechol (Urecholine)** 
Uses: *Acute postop/postpartum nonobstructive urinary retention; neurogenic bladder w/ retention* 
Acts: Stimulates cholinergic smooth muscle in bladder & GI tract 
Disp: Adults. Initial 5–10 mg PO, then repeat qh until response or 50 mg, typical 10–50 mg tid-qid; 200 mg/d max tid-qid; 2.5–5 mg SQ tid-qid & PRN. 
Peds. 0.3–0.6 mg/kg/24 h PO ÷ tid-qid; take on empty stomach W/P: [C, –] CI: BOO, PUD, epilepsy, hyperthyroidism, ↓ HR, COPD, AV conduction defects, Parkinsonism, ↓ BP, vasomotor instability 
Disp: Tabs 5, 10, 25, 50 mg SE: Abd cramps, D, salivation, ↓ BP

**Bevacizumab (Avastin)** 
BOX: Associated w/ GI perforation, wound dehiscence, & fatal hemoptysis 
Uses: *Met colorectal CA w/5-FU, NSCLC w/ paclitaxel and carboplatin; glioblastoma; metastatic RCC w/ IFN-alpha, cervical Ca w/ paclitaxel and platinum or topotecan* 
Acts: Vascular endothelial GF inhibitor 
Disp: Adults. Colon: 5 mg/kg or 10 mg/kg IV q14d; NSCLC: 15 mg/kg q21d; 1st dose over 90 min; 2nd over 60 min, 3rd over 30 min if tolerated; RCC: 10 mg/kg IV q2wk w/ IFN-α W/P: [C, –] Do not use w/in 28 d of surgery if time for separation of drug & anticipated surgical procedures is unknown; D/C w/ serious adverse effects CI: None 
Disp: 100 mg/4 mL, 400 mg/16 mL vials SE: Wound dehiscence, GI perforation, tracheoesophageal fistula, arterial thrombosis, hemoptysis, hemorrhage, HTN, proteinuria, CHF, Inf Rxns, D, leukopenia Notes: Monitor for ↑ BP & proteinuria

**Bicalutamide (Casodex)** 
Uses: *Advanced PCa w/ GnRH agonists (eg, leuprolide, goserelin)* 
Acts: Nonsteroidal antiandrogen 
Disp: Caps 50 mg SE: Hot flashes, ↓ loss of libido, impotence, edema, pain, D/N/V, gynecomastia, ↑ LFTs
Bicarbonate (See Sodium Bicarbonate, p 268)
Bisacodyl (Dulcolax) [OTC]  Uses: *Constipation; preop bowel prep*  Acts: Stimulates peristalsis  Dose: Adults. 5–15 mg PO or 10 mg PR PRN. Peds < 2 y. 5 mg PR PRN. > 2 y: 5 mg PO or 10 mg PR PRN (do not chew tabs or give w/in 1 h of antacids or milk)  W/P: [C, ?]  CI: Abd pain or obstruction; N/V  Disp: EC tabs 5, 10 mg supp 10 mg, enema soln 10 mg/30 mL  SE: Abd cramps, proctitis, & inflammation w/ supps

Bismuth Subcitrate/Metronidazole/Tetracycline (Pylera)  Uses: *H. pylori Infxn w/ omeprazole*  Acts: Eradicates H. pylori, see agents  Dose: 3 caps qid w/ omeprazole 20 mg bid for × 10 d  W/P: [D, —]  CI: PRG, peds < 8 y (tetracycline during tooth development causes teeth discoloration), w/ renal/hepatic impair, component hypersens  Disp: Caps w/ 140-mg bismuth subcitrate potassium, 125-mg metronidazole, & 125-mg tetracycline hydrochloride  SE: Stool abnormality, N, anorexia, D, dyspepsia, Abd pain, HA, flu-like synd, taste perversion, vaginitis, dizziness; see SE for each component  Notes: Metronidazole carcinogenic in animals

Bismuth Subsalicylate (Pepto-Bismol) [OTC]  Uses: Indigestion, N, & *D*; combo for Rx of *H. pylori Infxn*  Acts: Antisecretory & anti-inflammatory  Dose: Adults. 2 tabs or 30 mL PO PRN (max 8 doses/24 h). Peds. (For all max 8 doses/24 h). 3–6 y: 1/3 tab or 5 mL PO PRN. 6–9 y: 2/3 tab or 10 mL PO PRN. 9–12 y: 1 tab or 15 mL PO PRN  W/P: [C, D (3rd tri), —]  CI: h/o severe GI bleeding or coagulopathy, ASA allergy  Disp: Chew tabs, caplets 262 mg; liq 262, 525 mg/15 mL; susp 262 mg/15 mL  SE: May turn tongue & stools black

Bisoprolol (Zebeta)  Uses: *HTN*  Acts: Competitively blocks β₁-adrenergic receptors  Dose: 2.5–10 mg/d (max dose 20 mg/d); ↓ w/ renal impair  W/P: [C, —]  CI: Sinus bradycardia, AV conduction abnormalities, uncompensated cardiac failure  Disp: Tabs 5, 10 mg  SE: Fatigue, lethargy, HA, ↓ HR, edema, CHF  Notes: Not dialyzed

Bivalirudin (Angiomax)  Uses: *Anticoagulant w/ ASA in unstable angina undergoing PTCA, PCI, or in pts undergoing PCI w/ or at risk for HIT/HITTS*  Acts: Anticoagulant, thrombin inhib  Dose: 0.75 mg/kg IV bolus, then 1.75 mg/kg/h for duration of procedure and up to 4 h postprocedure; ✓ ACT 5 min after bolus, may repeat 0.3 mg/kg bolus if necessary (give w/ aspirin ASA 300–325 mg/d; start pre-PTCA)  W/P: [B, ?]  CI: Major bleeding  Disp: Powder 250 mg for Inj  SE: ↓ BP, bleeding, back pain, N, HA

Bleomycin Sulfate (Generic)  BOX: Idiopathic Rxn (↓ BP, fever, chills, wheezing) in lymphoma pts; pulm fibrosis; should be administered by chem-experienced physician  Uses: *Testis CA; Hodgkin Dz & NHLs; cutaneous lymphomas; & squamous cell CA (head & neck, larynx, cervix, skin, penis); malignant pleural effusion sclerosing agent*  Acts: Induces DNA breakage (scission)  Dose: (per protocols); ↓ w/ renal impair  W/P: [D, ?]  CI: w/ Hypersens, idiosyncratic  Rxn  Disp: Powder (Inj) 15, 30 units  SE: Hyperpigmentation & allergy (rash to
anaphylaxis); fever in 50%; lung tox (idiosyncratic & dose related); pneumonitis w/ fibrosis; Raynaud phenomenon, N/V Notes: Test dose 1 unit, especially in lymphoma pts; lung tox w/ total dose > 400 units or single dose > 30 units; avoid high FiO₂ in general anesthesia to ↓ tox

**Boceprevir (Victrelis)**

**Uses:** *Chronic hep C, genotype 1, w/ compensated liver Dz, including naïve to Tx or failed Tx w/ peginterferon and ribavirin*  
**Acts:** Hep C antiviral  
**Dose:** Adults. After 4 wk of peginterferon and ribavirin, then 800 mg tid w/ food for 44 wk w/ peginterferon and ribavirin; must be used w/ peginterferon and ribavirin  
**W/P:** [B, X w/ peginterferon and ribavirin, –] (X because must be used w/ peginterferon and ribavirin, class B by itself)  
**CI:** All CIs to peginterferon and ribavirin; men if PRG female partner; drugs highly dependent on CYP3A4/5 including alfuzosin, sildenafil, tadalafil, lovastatin, simvastatin, ergotamines, cisapride, triazolam, midazolam, rifampin, St. John’s wort, phenytoin, carmazepine, phenobarbital, drosperinone strong inhib CYP3A4/5 Disp: Caps 200 mg SE: Anemia, ↓ WBCs, neutrophils, fatigue, insomnia, HA, anorexia, N/V/D, dysgeusia, alopecia Notes: (NS3/4A protease inhib); ✓ HCV-RNA levels wk 4, 8, 12, 24, end of Tx; ✓ WBC w/ diff at wk 4, 8, 12

**Bortezomib (Velcade)**

**Uses:** *Rx multiple myeloma or mantel cell lymphoma w/ one failed previous Rx*  
**Acts:** Proteasome inhibit  
**Dose:** Per protocol or PI, ↓ dose w/ hematologic tox, neuropathy  
**W/P:** [D, ?/–] w/ Drugs CYP450 metabolized (Table 10, p 346)  
**Disp:** 3.5 mg vial Inj powder  
**SE:** Asthenia, GI upset, anorexia, dyspnea, HA, orthostatic ↓ BP, edema, insomnia, dizziness, rash, pyrexia, arthralgia, neuropathy

**Bosutinib Monohydrate (Bosulif)**

**Uses:** *Ph+ CML intol/resist to prior therapy*  
**Acts:** TKI  
**Dose:** 500 mg/d, ↑ dose to 600 mg/d by wk 8 w/ incomplete reponse, or by wk 12 w/ cytogenetic incomplete response and no grade 3/ greater adverse Rxn; w/ hepatic impair 200 mg/d  
**W/P:** [D, –] GI toxicity; ↓ BM, ✓ CBC/LFTs q mo; fluid retention; hold/↓ dose or D/C w/ toxicity  
**CI:** Hypersens  
**Disp:** Tabs 100, 500 mg SE: N, V, D, Abd pain, fever, rash, fatigue, anemia, ↓ plts  
**Notes:** Avoid w/ mod/strong CYP3A inhib & inducers; avoid use of PPIs

**Botulinum Toxin Type A [abobotulinumtoxinA] (Dysport)**

**BOX:** Effects may spread beyond Tx area leading to swallowing and breathing difficulties (may be fatal); Sxs may occur hours to weeks after Inj  
**Uses:** *Cervical dystonia (adults), glabellar lines (cosmetic)*  
**Acts:** Neurotoxin, ↓ ACH release from nerve endings, ↓ neuromuscular transmission  
**Dose:** *Cervical dystonia:* 500 units IM + dose units into muscles; retreat no less than 12–16 wk PRN dose range 250–100 units based on response.  
**Glabellar lines:** 50 units + in 10 units/Inj into muscles, do not administer at intervals < q3mo repeat no less than q3mo W/P: [C, ?] Sedentary pt to resume activity slowly after Inj; aminoglycosides and nondepolarizing muscle blockers may ↑↑ effects; do not exceed dosing  
**CI:** Hypersens to components (cow milk), Infxn at Inj site  
**Disp:** 300, 500 units, Inj
SE: Anaphylaxis, erythema multiforme, dysphagia, dyspnea, syncope, HA, NAG, Inj site pain

Notes: Botulinum toxin products not interchangeable

Botulinum Toxin Type A [incobotulinumtoxinA] (Xeomin) BOX:
Effects may spread beyond Tx area leading to swallowing and breathing difficulties (may be fatal); Sxs may occur hours to weeks after Inj

Uses: *Cervical dystonia (adults), glabellar lines*

Acts: Neurotoxin, ↓ ACH release from nerve endings, ↓ neuromuscular transmission

Dose: Cervical dystonia: 120 units IM ÷ dose into muscles; Glabellar lines: 4 units into each of the 5 sites (total = 20 units) do not administer at intervals < q3mo

W/P: [C, ?] Sedentary pt to resume activity slowly after Inj; aminoglycosides and nondepolarizing muscle blockers may ↑↑ effects; do not exceed dosing

CI: Hypersens to components (cow milk), infect at Inj site

Disp: 50, 100 units, Inj

Notes: Botulinum toxin products not interchangeable

Botulinum Toxin Type A [onabotulinumtoxinA] (Botox, Botox Cosmetic) BOX:
Effects may spread beyond Tx area leading to swallowing/breathing difficulties (may be fatal); Sxs may occur hours to weeks after Inj

Uses: *Glabellar lines (cosmetic) < 65 y, blepharospasm, cervical dystonia, axillary hyperhidrosis, strabismus, chronic migraine, upper limb spasticity, incontinence in OAB due to neurologic Dz*

Acts: Neurotoxin, ↓ ACH release from nerve endings; denervates sweat glands/muscles

Dose: Adults. Glabellar lines (cosmetic): 0.1 mL IM × 5 sites q3–4mo; Blepharospasm: 1.25–2.5 units IM/site q3mo; max 200 units/30 d total; Cervical dystonia: 198–300 units IM ÷ < 100 units into muscle; Hyperhidrosis: 50 units intradermal/each axilla; Strabismus: 1.25–2.5 units IM/site q3mo; inject eye muscles w/ EMG guidance; Chronic migraine: 155 units total, 0.1 mL (5 unit) Inj ÷ into 7 head/neck muscles; Upper limb spasticity: Dose based on Hx use EMG guidance

W/P: [C, ?] w/ Neurologic Dz; do not exceed rec doses; sedentary pt to resume activity slowly after Inj; aminoglycosides and nondepolarizing muscle blockers may ↑↑ effects; Do not exceed dosing

CI: Hypersens to components, Infxn at Inj site

Disp: Inj powder, single-use vial (dilute w/ NS); (Botox cosmetic) 50, 100 units; (Botox) 100, 200 unit vials; store 2–8°C

SE: Anaphylaxis, erythema multiforme, dysphagia, dyspnea, syncope, HA, NAG, Inj site pain

Notes: Botulinum toxin products not interchangeable; do not exceed total dose of 360 units q12–16wk

Botulinum Toxin Type B [rimabotulinumtoxinB] (Myobloc) BOX:
Effects may spread beyond Tx area leading to swallowing and breathing difficulties (may be fatal); Sxs may occur hours to weeks after Inj

Uses: *Cervical dystonia (adults)*

Acts: Neurotoxin, ↓ ACH release from nerve endings, ↓ neuromuscular transmission

Dose: Cervical dystonia: 2500–5000 units IM ÷ dose units into muscles; lower dose if näive

W/P: [C, ?] Sedentary pt to resume activity slowly after Inj; aminoglycosides and nondepolarizing muscle blockers may ↑↑ effects; do not exceed dosing

CI: Hypersens to components, Infxn at Inj site

Disp: Inj 5000 units/mL

SE: Anaphylaxis, erythema multiforme, dysphagia, dyspnea, syncope, HA, NAG, Inj site pain
**Brentuximab Vedotin (Adcetris)**

**BOX:** JC virus Infxn leading to PML and death may occur

**Uses:** *Hodgkin lymphoma, systemic anaplastic large cell lymphoma*

**Acts:** CD30-directed antibody-drug conjugate

**Dose:** *Adult.* 1.8 mg/kg IV over 30 min q 3 wk; max 16 cycles; pts > 100 kg, dose based on Wt of 100 kg; ↓ dose w/ periph neuropathy & neutropenia (see label)

**W/P:** [D, ?/–] w/ Strong CYP3A4 inhib/inducers

**Disp:** Inj (powder) 50 mg/vial

**SE:**Periph neuropathy, ↓ WBC/Hgb/plt, N/V/D, HA, dizziness, pain, arthralgia, myalgia, insomnia, anxiety, alopecia, night sweats, URI, fatigue, pyrexia, rash, cough, dyspnea, Inf Rxns, tumor lysis synd, PML, SJS, pulmonary tox

**Notes:** Effect 12–16 wk w/ 5000–10,000 units; botulinum toxin products not interchangeable

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**Brimonidine, Ophthalmic (Alphagan P)**

**Uses:** *Open-angle glaucoma, ocular HTN*

**Acts:** α₂-Adrenergic agonist

**Dose:** 1 gtt in eye(s) tid (wait 15 min to insert contacts)

**W/P:** [B, ?/–] CI: MAOI Rx

**Disp:** 0.15, 0.1, 0.2%, soln

**SE:** Local irritation, HA, fatigue

**Notes:** Instill other ophthalm products 5 min apart

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**Brimonidine/Timolol (Combigan)**

**Uses:** *↓ IOP in glaucoma or ocular HTN*

**Acts:** Selective α₂-adrenergic agonist and nonselective β-adrenergic antagonist

**Dose:** *Adults & Peds ≥ 2 y.* 1 gtt bid

**W/P:** [C, –] CI: Asthma, severe COPD, sinus brady, 2nd-/3rd-degree AV block, CHF cardiac failure, cardiogenic shock, component hypersens

**Disp:** Sln: (2 mg/mL brimonidine, 5 mg/mL timolol) 5, 10, 15 mL

**SE:** Allergic conjunctivitis, conjunctival folliculosis, conjunctival hyperemia, eye pruritus, ocular burning & stinging

**Notes:** Do not apply to eyes/lips

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**Brimonidine, topical (Mirvaso)**

**Uses:** *Tx of rosacea*

**Acts:** α₂-adrenergic agonist

**Dose:** *Adults.* Apply pea-size quantity to forehead, chin, nose, & cheeks qd

**W/P:** [B, ?/–] w/ h/o depression, orthostatic ↓ BP, severe CV Dz, cerebral or coronary insuff, scleroderma, thromboangiitis obliterans, Sjögren synd., Raynaud (may potentiate vascular insufficiency)

**Disp:** Gel 0.33% CI: None

**SE:** Flushing, erythema, skin burning sensation, contact dermatitis, acne, HA, nasopharyngitis, ↑ IOP

**Notes:** Do not apply to eyes/lips

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**Brinzolamide (Azopt)**

**Uses:** *Open-angle glaucoma, ocular HTN*

**Acts:** Carbonic anhydrase inhib

**Dose:** 1 gtt in eye(s) tid

**W/P:** [C, ?/–] CI: Sulfonamide allergy

**Disp:** 1% susp

**SE:** Blurred vision, dry eye, blepharitis, taste disturbance, HA

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**Brinzolamide/Brimonidine (Simbrinza)**

**Uses:** *↓ IOP in open-angle glaucoma or ocular HTN*

**Acts:** Carbonic anhydrase inhib and α₂-adrenergic agonist

**Dose:** *Adults.* 1 gtt in eye(s) tid

**W/P:** [C, ?/–] sulfonamide hypersens Rxn (brinzolamide); corneal endothelium cell loss; not rec if CrCl < 30 ml/min

**Disp:** Ophthal susp (brinzolamide/brimonidine) 10 /2 mg/mL

**SE:** Eye irritation/ allergy, blurred vision, dysgeusia, dry mouth, HA, fatigue

**Notes:** Shake well before use; remove contacts during admin, reinsert after 15 min; separate other topical eye meds by 5 min
Bromocriptine (Parlodel)  Uses: *Parkinson Dz, hyperprolactinemia, acromegaly, pituitary tumors*  Acts: Agonist to striatal dopamine receptors; ↓ prolactin secretion  Dose: Initial, 1.25 mg PO bid; titrate to effect, w/ food  W/P: [B, –]  CI: uncontrolled HTN, PRG, severe CAD or CVS Dz  Disp: Tabs 2.5 mg; caps 5 mg  SE: ↓ BP, Raynaud phenomenon, dizziness, N, GI upset, hallucinations

Bromocriptine Mesylate (Cyloset)  Uses: *Improve glycemic control in adults w/ type 2 DM*  Acts: Dopamine receptor agonist; ? DM mechanism  Dose: Initial: 0.8 mg PO daily, ↑ weekly by 1 tab; usual dose 1.6–4.8 mg 1×/d; w/in 2 h after waking w/ food  W/P: [B, –] May cause orthostatic ↓ BP, psychotic disorders; not for type 1 DM or DKA; w/ strong inducers/inhib of CYP3A4, avoid w/ dopamine antagonists/receptor agonists  CI: Hypersens to ergots drugs, w/ syncopal migraine, nursing mothers  Disp: Tabs 0.8 mg

Bromfenac (Prolensa)  Uses: *Inflam & ocular pain post cataract surgery*  Acts: NSAID  Dose: Adults. 1 gtt in eye(s) 1 day prior & 14 days post-surgery  W/P: [C, ?/] sulfite hypersens; may delay healing, keratitis, ↑ bleeding time  CI: None  Disp: Ophthal soln 0.07%  SE: Eye pain, blurred vision, photophobia, anterior chamber inflammation, foreign body sensation  Notes: Shake well before use; remove contacts during admin, reinset after 10 min; separate other topical eye meds by 5 min

Budesonide (Rhinocort Aqua, Pulmicort)  Uses: *Allergic & nonallergic rhinitis, asthma*  Acts: Steroid  Dose: Adults. Rhinocort Aqua: 1 spray each nostril/d; Pulmicort Flexhaler: 1–2 Inh bid  Peds. Rhinocort Aqua intranasal: 1 spray each nostril/d; Pulmicort flexhaler 1–2 Inh bid; Respules: 0.25–0.5 mg daily or bid (rinse mouth after PO use)  W/P: [B, ?/] CI: w/ Acute asthma  Disp: Flexhaler: 90, 180 mcg/Inh; Respules: 0.25, 0.5, 1 mg/2 mL; Rhinocort Aqua: 32 mcg/spray  SE: HA, N, cough, hoarseness, Candida Infxn, epistaxis  Notes: Do not cut/crush/chew; taper on D/C

Budesonide, Oral (Entocort EC)  Uses: *Mild–mod Crohn Dz*  Acts: Steroid, anti-inflammatory  Dose: Adults. Initial: 9 mg PO q a.m. to 8 wk max: maint 6 mg PO q a.m. taper by 3 mo; avoid grapefruit juice  CI: Hypensens W/P: [C, ?/] DM, glaucoma, cataracts, HTN, CHF  Disp: Caps 3 mg ER  SE: HA, N, ↑ Wt, mood change, Candida Infxn, epistaxis  Notes: Do not cut/crush/chew; taper on D/C

Budesonide/Formoterol (Symbicort)  BOX: Long-acting β₂-adrenergic agonists may ↑ risk of asthma-related death. Use only for pts not adequately controlled on other meds  Uses: *Rx of asthma, main in COPD (chronic bronchitis and emphysema)*  Acts: Steroid w/ LA β₂-adrenergic agonist  Dose: Adults & Peds > 12 y. 2 Inh bid (use lowest effective dose), 640/18 mcg/d max  W/P: [C, ?/] CI: Status asthmaticus/acute asthma  Disp: Inh (budesonide/formoterol): 80/4.5 mcg, 160/4.5 mcg  SE: HA, GI discomfort, nasopharyngitis, palpitations, tremor, nervousness, URI, paradoxical bronchospasm, hypokalemia, cataracts, glaucoma  Notes: Not for acute bronchospasm; not for transferring pt from chronic systemic steroids; rinse & spit w/ water after each dose
**Bumetanide** (Bumex) **Box:** Potent diuretic, may result in profound fluid & electrolyte loss. **Uses:** *Edema from CHF, hepatic cirrhosis, & renal Dz* **Acts:** Loop diuretic; ↓ reabsorption of Na⁺ & Cl⁻, in ascending loop of Henle & the distal tubule. **Dose:** **Adults.** 0.5–2 mg/d PO; 0.5–1 mg IV/IM q8–24h (max 10 mg/d). **Peds.** 0.015–0.1 mg/kg PO q6–24h (max 10 mg/d) **W/P:** [C, ?/–] **Cl:** Anuria, hepatic coma, severe electrolyte depletion **Disp:** Tabs 0.5, 1, 2 mg; Inj 0.25 mg/mL **Se:** ↓ K⁺, ↓ Na⁺, ↑ Cr, ↑ uric acid, dizziness, ototoxic **Notes:** Monitor fluid & lytes

**Bupivacaine** (Marcaine) **Box:** Avoid 0.75% for OB anesthesia d/t reports of cardiac arrest and death. **Uses:** *Local, regional, & spinal anesthesia, obstetrical procedures* **Acts:** Local anesthetic **Dose:** Adults & Peds. Dose dependent on procedure (tissue vascularity, depth of anesthesia, etc) (Table 1, p 318) **W/P:** [C, –] Severe bleeding, ↓ BP, shock & arrhythmias, local Infxns at site, septicemia **Cl:** Obstetrical paracervical block anesthesia **Disp:** Inj 0.25, 0.5, 0.75% **Se:** ↓ BP, ↓ HR, dizziness, anxiety

**Buprenorphine** (Buprenex) [C-III] **Uses:** *Mod–severe pain* **Acts:** Opiate agonist-antagonist **Dose:** 0.3–0.6 mg IM or slow IV push q6h PRN **W/P:** [C, –] **Cl:** Hypersens **Disp:** 0.3 mg/mL **Se:** Sedation, ↓ BP, resp depression **Notes:** Not for analgesia; limited distribution under the Drug Addiction Treatment Act

**Buprenorphine/Naloxone** (Suboxone, Zubsolv) [C-III] **Uses:** *Maint opioid withdrawal* **Acts:** Opioid agonist-antagonist + opioid antagonist **Dose:** Usual: Suboxone 4–24 mg/d SL; ↑/↓ by 2/0.5 mg or 4/1 mg to effect; Zubsolv 11.4 mg /2.8 mg buprenorphine and naloxone **W/P:** [C, +/-] **Cl:** Hypersens **Disp:** Suboxone: SL film buprenorphine/naloxone: 2/0.5, 8/2 mg; Zubsolv: SL tablet buprenorphine/naloxone 1.4/0.36, 5.7/1.4 mg **Se:** Oral hypoparesthesia, HA, V, pain, constipation, diaphoresis **Notes:** Not for analgesia; limited distribution under the Drug Addiction Treatment Act

**Bupropion** (Aplenzin XR, Wellbutrin, Wellbutrin SR, Wellbutrin XL, Zyban) **Box:** All pts being treated w/ bupropion for smoking cessation Tx should be observed for neuropsychiatric S/Sxs (hostility, agitation, depressed mood, and suicide-related events); most during/after Zyban; Sxs may persist following D/C; closely monitor for worsening depression or emergence of suicidality, increased suicidal behavior in young adults. **Uses:** *Depression, smoking cessation*
C1 Esterase Inhibitor

adjunct*, ADHD, not for peds use **Acts:** Weak inhib of neuronal uptake of serotonin & norepinephrine; ↓ neuronal dopamine reuptake **Dose:** Depression: 100–450 mg/d ÷ bid-tid; SR 150–200 mg bid; XL 150–450 mg daily. **Smoking cessation** (Zyban, Wellbutrin XR): 150 mg/d × 3 d, then 150 mg bid × 8–12 wk, last dose before 6 p.m.; ↓ dose w/ renal/hepatic impair **W/P:** [C, ?/−] **CI:** Sz disorder, Hx anorexia nervosa or bulimia, MAOI w/in 14 d; abrupt D/C of EtOH or sedatives; inhibitors/inducers of CYP2B6 (Table 10, p 30) **Disp:** Tabs 75, 100 mg; SR tabs 100, 150, 200 mg; XL tabs 150, 300 mg; Zyban tabs 150 mg; Aplenzin XR tabs: 175, 348, 522 mg **SE:** Xerostomia, dizziness, Szs, agitation, insomnia, HA, tachycardia, ↓ Wt **Notes:** Avoid EtOH & other CNS depressants, SR & XR do not cut/chew/crush, may ↑ adverse events including Szs

**Buspirone** **Uses:** *Generalized anxiety disorder* **Acts:** Antianxiety; antagonizes CNS serotonin and dopamine receptors **Dose:** Initial: 7.5 mg PO bid; ↑ by 5 mg q2–3d to effect; usual 20–30 mg/d; max 60 mg/d **CI:** Hypersens **W/P:** [B, ?/−] Avoid w/ severe hepatic/renal Insuff w/ MAOI **Disp:** Tabs 5, 7.5, 10, 15, 30 mg **SE:** Drowsiness, dizziness, HA, N, EPS, serotonin synd, hostility, depression **Notes:** No abuse potential or physical/psychological dependence

**Busulfan (Myleran, Busulfex)** **BOX:** Can cause severe bone marrow suppression, should be administered by an experienced physician **Uses:** *CML*, preparative regimens for allogeneic & ABMT in high doses **Acts:** Alkylating agent **Dose:** (per protocol) **W/P:** [D, ?] **Disp:** Tabs 2 mg, Inj 60 mg/10 mL **SE:** Bone marrow suppression, ↑ BP, pulm fibrosis, N (w/ high dose), gynecomastia, adrenal Insuff, skin hyperpigmentation, ↑ HR, rash, weakness, Sz

**Butabarbital, Hyoscyamine Hydrobromide, Phenazopyridine (Pyridium Plus)** **Uses:** *Relieve urinary tract pain w/ UTI, procedures, trauma* **Acts:** Phenazopyridine (topical anesthetic), hyoscyamine (parasympatholytic, ↓ spasm), & butabarbital (sedative) **Dose:** 1 PO qid, pc & hs; w/ antibiotic for UTI, 2 d max **W/P:** [C, ?] **Disp:** Tab butabarbital/hyoscyamine/phenazopyridine, 15 mg/0.3 mg/150 mg **SE:** HA, rash, itching, GI distress, methemoglobinemia, hemolytic anemia, anaphylactoid-like Rxns, dry mouth, dizziness, drowsiness, blurred vision **Notes:** Colors urine orange, may tint skin, sclera; stains clothing/contacts

**Butorphanol (Stadol)** [C-IV] **Uses:** *Anesthesia adjunct, pain & migraine HA* **Acts:** Opiate agonist-antagonist w/ central analgesic actions **Dose:** 0.5–4 mg IM or IV q3–4h PRN. **Migraine:** 1 spray in 1 nostril, repeat × 1 60–90 min, then q3–4h; ↓ in renal impair **W/P:** [C, +] **Disp:** Inj 1, 2 mg/mL; nasal 1 mg/spray (10 mg/mL) **SE:** Drowsiness, dizziness, nasal congestion **Notes:** May induce withdrawal in opioid dependency

**C1 Esterase Inhibitor [Human] (Berinert, Cinryze)** **Uses:** *Berinert:* Rx acute Abd or facial attacks of HAE*, *Cinryze:* Prophylaxis of HAE* **Acts:** ↓ complement system by ↓ factor XIIa and kallikrein activation **Dose:** Adults & Adolescents. **Berinert:** 20 units/kg IV × 1; **Cinryze:** 1000 units IV q3–4d **W/P:** [C, ?/−] Hypersens Rxns, monitor for thrombotic events, may contain infectious agents
Cabazitaxel

CI: Hypersens Rxns to C1 esterase inhibitor preparations
Disp: 500 units/vial
SE: HA, Abd pain, N/V/D, muscle spasms, pain, subsequent HAE attack, anaphylaxis, thromboembolism

**Cabazitaxel (Jevtana)**

**BOX:** Neutropenic deaths reported; ✓ CBCs, CI w/ ANC ≤ 1500 cells/mm³; severe hypersens (rash/erythema, ↓ BP, bronchospasm) may occur, D/C drug & Tx; CI w/ Hx of hypersens to cabazitaxel or others formulated w/ polysorbate 80

**Uses:** *Hormone refractory metastatic PCa after taxotere*

**Acts:** Microtubule inhib

**Dose:** 25 mg/m² IV Inf (over 1 h) w/ prednisone 10 mg PO daily; premed w/ antihistamine, corticosteroid, H₂ antagonist; do not use w/ bili ≥ ULN, AST/ALT ≥ 1.5 × ULN

**W/P:** [D, –] D/C w/ arterial thromboembolic events; dehiscence; ↑ BP, ONJ; palmar-plantar erythrodysesthesia synd; proteinuria; reversible posterior leukoencephalopathy

**CI:** w/ Severe bleed

**Disp:** 40 mg/mL Inj

**SE:** ↓ WBC, ↓ Hgb, ↓ plt, sepsis, N/V/D, constipation, Abd/back/jt pain, dysgeusia, fatigue, hematuria, neuropathy, anorexia, cough, dyspnea, alopecia, pyrexia, hypersens Rxn, renal failure

**Notes:** Monitor closely pts > 65 y

Cabozantinib (Cometriq)

**BOX:** GI perf/fistulas, severe and sometimes fatal hemorrhage (3%) including GI bleed/hemoptysis

**Uses:** *Metastatic medullary thyroid CA*

**Acts:** Multi TKI

**Dose:** 140 mg/d, do NOT eat 2 h ac or 1 h pc

**W/P:** [D, –] D/C w/ arterial thromboembolic events; dehiscence; ↑ BP, ONJ; palmar-plantar erythrodysesthesia synd; proteinuria; reversible posterior leukoencephalopathy

**CI:** w/ Severe bleed

**Disp:** Caps 20, 80 mg

**SE:** N, V, Abd pain, constipation, stomatitis, oral pain, dysgeusia, fatigue, ↓ Wt, anorexia, ↑ BP, ↑ AST/ALT, ↑ alk phos, ↑ bili, ↓ Ca, ↓ PO₄, ↓ plt, ↓ lymphocytes, ↓ neutrophils

**Notes:** A CYP3A4 subs, w/ strong CYP3A4 inducers; ✓ for hemorrhage

Calcipotriene (Dovonex)

**Uses:** *Plaque psoriasis*

**Acts:** Synthetic vitamin D₃ analog

**Dose:** Apply bid

**W/P:** [C, ?] CI: ↑ Ca²⁺; vit D tox; do not apply to face

**Disp:** Cream; foam oint; soln 0.005%

**SE:** Skin irritation, dermatitis

Calcitonin (Fortical, Miacalcin)

**Uses:** *Miacalcin:* Paget Dz, emergent Rx hypercalcemia, postmenopausal osteoporosis*

**Acts:** *Fortical:* Postmenopausal osteoporosis

**Dose:** Paget Dz: 100 units/d IM/SQ initial, 50 units/d or 50–100 units q1–3d maint. Hypercalcemia: 4 units/kg IM/SQ q12h; ↑ to 8 units/kg q12h, max q6h. Osteoporosis: 100 units/q other day IM/SQ; intranasal 200 units = 1 nasal spray/d

**Disp:** Fortical, Miacalcin nasal spray 200 Int units/activation; Inj, Miacalcin 200 units/mL (2 mL)

**SE:** Facial flushing, N, Inj site edema, nasal irritation, polypuria, may ↑ granular casts in urine

**Notes:** For nasal spray alternate nostrils daily; ensure adequate calcium and vit D intake; Fortical is rDNA derived from salmon

Calcitriol (Calcijex, Rocaltrol)

**Uses:** *Predialysis reduction of ↑ PTH levels to treat bone Dz; ↑ Ca²⁺ on dialysis*

**Acts:** 1,25-Dihydroxycholecalciferol (vit D analog); ↑ Ca²⁺ and phosphorus absorption; ↑ bone mineralization

**Dose:**

- **Adults. Renal failure:** 0.25 mcg/d PO, ↑ 0.25 mcg/d q4–8wk PRN; 0.5–4 mcg 3×/wk IV, ↑ PRN
- **Hypoparathyroidism:** 0.5–2 mcg/d

**Peds. Renal failure:** 15 ng/
**Calcium Salts**

kg/d, ↑ PRN; maint 30–60 ng/kg/d. *Hypoparathyroidism:* < 5 y: 0.25–0.75 mcg/d. > 6 y: 0.5–2 mcg/d *W/P:* [C, ?] ↑ Mg2+ possible w/ antacids *CI:* ↑ Ca2+; vit D tox

**Disp:** Inj 1 mcg/mL (in 1 mL); caps 0.25, 0.5 mcg; soln 1 mcg/mL *SE:* ↑ Ca2+ possible *Notes:* ✓ To keep Ca2+ WNL; use nonaluminum phosphate binders and low-phosphate diet to control serum phosphate

**Calcitriol, Ointment (Vectical)**

*Uses:* *Mild–moderate plaque psoriasis* *Acts:* Vitamin D3 analog **Dose:** Adults. Apply to area BID; max 200 g/wk *W/P:* [C, ?] Avoid excess sunlight *CI:* None **Disp:** Oint 3 mcg/g (5-, 100-g tube) *SE:* Hypercalcemia, hypercalciuria, nephrolithiasis, worsening psoriasis, pruritus, skin discomfort

**Calcium Acetate (PhosLo)**

*Uses:* *ESRD-associated hyperphosphatemia* *Acts:* Ca2+ supl w/o aluminum to ↓ PO42− absorption **Dose:** 2–4 tabs PO w/ meals usual 2001–2668 mg PO w/ meals *W/P:* [C, +] *CI:* ↑ Ca2+, renal calculi **Disp:** Gel-Cap 667 mg [C, ?] Can ↑ Ca2+, hypophosphatemia, constipation *Notes:* Monitor Ca2+ **Disp:** Chew tabs 350, 420, 500, 550, 750, 850 mg; susp SE; ↑ Ca2+, ↓ PO4−, constipation

**Calcium Carbonate (Tums, Alka-Mints) [OTC]**

*Uses:* *Hyperacidity-associated w/ peptic ulcer Dz, hiatal hernia, etc* **Acts:** Neutralizes gastric acid **Dose:** 500 mg–2 g PO PRN, 7 g/d max; ↓ w/ renal impair *W/P:* [C, ?] CI: ↑ CA, ↓ phos, renal calculi, suspected digoxin tox **Disp:** Chew tabs 350, 420, 500, 550, 750, 850 mg; susp SE; ↑ Ca2+, ↓ PO4−, constipation

**Calcium Glubionate (Calcionate) [OTC]**

*Uses:* *Rx & prevent calcium deficiency* **Dose:** Adults. 1000–1200 mg/d +/− doses. Peds. 200–1300 mg/d *W/P:* [C, ?] *Disp:* OTC syrup 1.8 g/5 mL = elemental Ca 115 mg/5 mL *SE:* ↑ Ca2+, ↓ PO4−, constipation

**Calcium Salts (Chloride, Gluconate, Gluceptate)**

*Uses:* *Ca2+ replacement*, VF, Ca2+ blocker tox (CCB), *severe ↑ Mg2+ tetany*, *hyperphosphatemia in ESRD* **Acts:** Ca2+ supl/replacement **Dose:** Adults. Replacement: 1–2 g/d PO. *Tetany:* 1 g CaCl over 10–30 min; repeat in 6 h PRN; *ECC 2010.* Hyperkalemia/ hypermagnesemia/CCB OD: 500–1000 mg (5–10 mL of 10% soln) IV; repeat PRN; comparable dose of 10% calcium gluconate is 15–30 mL Peds. Tetany: 10 mg/kg CaCl over 5–10 min; repeat in 6–8 h or use Inf (200 mg/kg/d max). *ECC 2010.* Hypocalcemia/hyperkalemia/hypermagnesemia/CCB OD: Calcium chloride or gluconate 20 mg/kg (0.2 mL/kg) slow IV/IO, repeat PRN; central venous route preferred **Adults & Peds.** ▼ Ca2+ d/t citrated blood Inf: 0.45 mEq Ca/100 mL citrated blood Inf (▼ in renal impair) *W/P:* [C, ?] CI: ↑ Ca2+, suspected digoxin tox **Disp:** CaCl Inj 10% = 100 mg/mL = Ca 27.2 mg/mL = 10-mL amp; Ca gluconate Inj 10% = 100 mg/mL = Ca 9 mg/mL; tabs 500 mg = 45-mg Ca, 650 mg = 58.5-mg Ca, 975 mg = 87.75-mg Ca, 1 g = 90-mg Ca; Ca gluceptate Inj 220 mg/mL = 18-mg/mL Ca SE: ▼ HR, cardiac arrhythmias, ↑ Ca2+, constipation 

**Notes:** CaCl 270 mg (13.6 mEq) elemental Ca/g & calcium gluconate 90 mg (4.5 mEq) Ca/g. RDA for Ca intake: Peds < 6 mo. 200 mg/d; 6 mo–1 y: 260 mg/d; 1–3 y: 700 mg/d; 4–8 y: 1000 mg/d; 10–18 y: 1300 mg/d. Adults. 1000 mg/d; > 50 y: 1200 mg/d
Calfactant (Infasurf)  Uses: *Prevention & Rx of RSD in infants*  Acts: Exogenous pulm surfactant  Dose: 3 mL/kg instilled into lungs. Can repeat 3 total doses given 12 h apart  W/P: [?, ?]  Disp: Intratracheal susp 35 mg/mL  SE: Monitor for cyanosis, airway obst, ↓ HR during administration

Canagliflozin (Invokana)  Uses: *Type 2 DM*  Acts: Sodium-glucose co-transporter 2 (SGLT2) inhib  Dose: Adults. Start 100 mg/d; ↑ to 300 mg PRN w/ GFR > 60 mL/min  W/P: [C, –] ↓ BP from ↓ vol from glucosuria; ↑ K⁺; ↑ Cr, ✓ renal Fxn; genital mycotic infections; hypoglycemia lower risk than insulin & sulfonylureas; hypersens CI: Hypersens reaction, severe renal impairment (GFR < 45 mL/min)  Disp: Tabs 100, 300 mg  SE: Monitor/correct volume esp in elderly; ✓ Cr, K, CBC (may ↓ B12), dig levels; temp D/C with IV contrast or surgery w/ ↓ PO intake; ↓ insulin or insulin secretagogue to limit hypoglycemia risk  CI: Hypersens, severe renal impair, dialysis, ESRD, acidosis, DKA  Disp: Tabs (mg canagliflozin/mg metformin) 50/500, 50/1000, 150/500, 150/1000  SE: canagliflozin: female genital mycotic infections, UTI, ↑ urination; metformin N/V/D, flatulence, asthenia, indigestion, abd pain, H/A

Canagliflozin/Metformin (Invokamet)  BOX: Lactic acidosis d/t metformin; risk w/renal impair, sepsis, dehydration, excess EtOH, hepatic impair, CHF. Sx include malaise, myalgia, resp distress, abd distress, low pH, ↑ anion gap, ↑ lactate; if acidosis suspected, D/C and hospitalize  Uses: *Adjuvant to diet/exercise w/type 2 DM; not for type 1 DM or DKA*  Acts: SGLT2 inhibitor (↑ urinary glucose excretion) w/ a biguanide  Dose: Individualize; take BID w/meals, ↑ dose slowly to ↓ GI effects; ↓ w/ renal impair; max/day: metformin 2,000 mg, canagliflozin 300 mg w/ eGFR 45-60 limit canagliflozin to 50 mg BID; ✓ Cr, do not start if >1.5 (♂) or 1.4 (♀)  W/P: [C, –] monitor/correct volume esp in elderly; ✓ Cr, K, CBC (may ↓ B12), dig levels; temp D/C with IV contrast or surgery w/ ↓ PO intake; ↓ insulin or insulin secretagogue to limit hypoglycemia risk  CI: Hypersens, severe renal impair, dialysis, ESRD, acidosis, DKA  Disp: Tabs (mg canagliflozin/mg metformin) 50/500, 50/1000, 150/500, 150/1000  SE: canagliflozin: female genital mycotic infections, UTI, ↑ urination; metformin N/V/D, flatulence, asthenia, indigestion, abd pain, H/A

Candesartan (Atacand)  BOX: w/ PRG D/C immediately  Uses: *HTN, CHF*  Acts: Angiotensin II receptor antagonist  Dose: 4–32 mg/d (usual 16 mg/d)  W/P: [C(1st tri), D (2nd tri), ?–] w/ renal Dz  CI: Component hypersens  Disp: Tabs 4, 8, 16, 32 mg  SE: Dizziness, HA, flushing, angioedema, ↑ K⁺, ↑ Scr

Capsaicin (Capsin, Zostrix, Others) [OTC]  Uses: Pain d/t *posttherapeutic neuralgia*, *arthritis, diabetic neuropathy*, *minor pain of muscles & joints*  Acts: Topical analgesic  Dose: Apply tid-qid  W/P: [B, ?]  Disp: OTC creams; gel; lotions; roll-ons  SE: Local irritation, neurotox, cough  Notes: Wk to onset of action

Captopril (Capoten, Others)  Uses: *HTN, CHF, MI*, LVD, diabetic nephropathy  Acts: ACE inhib  Dose: Adults. HTN: Initial, 25 mg PO bid-tid; ↑ to maint
Carfilzomib

Uses: *Multiple myeloma w/ > 2 prior therapies and prog w/in 60 d* Acts: Proteasome inhib Dose: 20 mg/m²/d, if tolerated ↑ to 27 mg/m²/d; IV over 2–10 min; cycle = 2 consecutive d/wk × 3 wk, then 12-d rest;
Carisoprodol hydrate before and after admin, premedicate w/ dexamethasone first cycle, dose escalation or if infusion reactions W/P: [D, –] CHF, cardiac ischemia; pulm HTN, dyspnea; tumor lysis synd; ↓ plts, ✓ plts; hepatic toxicity, ✓ LFTs CI: None Disp: Vial, 60 mg powder SE: N, D, fever, fatigue, dyspnea, ARF, anemia, ↓ plts, ↓ lymphocytes, ↑ LFTs, peripheral neuropathy

**Carisoprodol (Soma)** Uses: *Acute (limit 2–3 wk) painful musculoskeletal conditions* Acts: Centrally acting muscle relaxant Dose: 250–350 mg PO tid-qid W/P: [C, M] Tolerance may result; w/ renal/hepatic impair, w/ CYP219 poor metabolizers CI: Allergy to meprobamate; acute intermittent porphyria Disp: Tabs 250, 350 mg SE: CNS depression, drowsiness, dizziness, HA, tachycardia, weakness, rare Sz Notes: Avoid EtOH & other CNS depressants; avoid abrupt D/C; available in combo w/ ASA or codeine.

**Carmustine [BCNU] (BiCNU, Gliadel)** BOX: BM suppression, dose-related pulm tox possible; administer under direct supervision of experienced physician Uses: *Primary or adjunct brain tumors, multiple myeloma, Hodgkin and non-Hodgkin lymphomas*, induction for autologous stem cell or BMT (off label) surgery & RT adjunct high-grade glioma and recurrent glioblastoma (Gliadel implant) Acts: Alkylating agent; nitrosourea forms DNA cross-links to inhibit DNA Dose: 150–200 mg/m² q6–8wk single or ÷ dose daily Inj over 2 d; 20–65 mg/m² q4–6wk; 300–600 mg/m² in BMT (per protocols); up to 8 implants in CNS op site; ↓ w/ hepatic & renal impair W/P: [D, ?/–] ↓ WBC, RBC, plt counts, renal/hepatic impair CI: ↓ BM, PRG Disp: Inj 100 mg/vial; Gliadel wafer 7.7 mg SE: Inf Rxn, ↓ BP, N/V, ↓ WBC & plt, phlebitis, facial flushing, hepatic/renal dysfunction, pulm fibrosis (may occur years after), optic neuroretinitis; heme tox may persist 4–6 wk after dose Notes: Do not give course more frequently than q6wk (cumulative tox); ✓ baseline PFTs, monitor pulm status

**Carteolol Ophthalmic (Generic)** Uses: *↑ IOP pressure, chronic open-angle glaucoma* Acts: Blocks β-adrenergic receptors (β₁, β₂), mild ISA Dose: Ophthal 1 gtt in eye(s) bid W/P: [C, ?/–] Cardiac failure, asthma CI: Sinus bradycardia; heart block > 1st degree; bronchospasm Disp: Ophthal soln 1% SE: Conjunctival hyperemia, anisocoria, keratitis, eye pain Notes: Oral forms no longer available in US

**Carvedilol (Coreg, Coreg CR)** Uses: *HTN, mild–severe CHF, LVD post-MI* Acts: Blocks adrenergic receptors, β₁, β₂, α Dose: HTN: 6.25–12.5 mg bid or CR 20–80 mg PO daily. CHF: 3.125–50 mg bid; w/ food to minimize orthostatic ↓ BP W/P: [C, ?/–] asthma, DM CI: Decompensated CHF, 2nd-/3rd-degree heart block, SSS, severe ↓ HR w/o pacemaker, acute asthma, severe hepatic impair Disp: Tabs 3.125, 6.25, 12.5, 25 mg; CR tabs 10, 20, 40, 80 mg SE: Dizziness, fatigue, hyperglycemia, may mask/potentiate hypoglycemia, ↓ HR, edema, hypercholesterolemia Notes: Do not D/C abruptly; ↑ digoxin levels

**Caspofungin (Cancidas)** Uses: *Invasive aspergillosis refractory/intolerant to standard Rx, candidemia & other candida Inf*, empiric Rx in febrile neutropenia
Cefditoren

Acts: Echinocandin; ↓ fungal cell wall synth; highest activity in regions of active cell growth
Dose: 70 mg IV load day 1, 50 mg/d IV; slow Inf over 1 h; ↓ in hepatic impair
W/P: [C, ?/]
CI: Allergy to any component
Disp: Inf 50, 70 mg powder for recons
SE: Fever, HA, N/V, thrombophlebitis at site, ↑ LFTs ↓ BP, edema, ↑ HR, rash, ↓ K, D, Inf
Rxn Notes: Monitor during Inf; limited experience beyond 2 wk of Rx

Cefadroxil (Duricef)

Spectrum: Good gram(+) bacilli & cocci (Streptococcus, Staphylococcus [except Enterococcus]); some anaerobes
Dose: Adults. 300 mg PO bid or 600 mg/d PO. Peds. 7 mg/kg PO bid or 14 mg/kg/d PO; ↓ in renal impair
W/P: [B, M] CI: Hypersens to cephalosporins
Disp: Caps 300 mg; susp 125, 250, 375 mg/5 mL SE: N/D, rash, eosinophilia, ↑ LFTs, HA, rhinitis, vaginitis
Notes: Widely used for surgical prophylaxis

Cefazolin (Ancef, Kefzol)

Spectrum: Good gram(+) bacilli & cocci (Streptococcus, Staphylococcus [except Enterococcus]); some gram(–) (E. coli, Proteus, Klebsiella)
Dose: Adults. 1–2 g/d PO, 2 + doses Peds. 30 mg/kg/d + bid; ↓ in renal impair
W/P: [B, M] CI: Cephalosporin/PCN allergy
Disp: Caps 500 mg; tabs 1 g; susp, 250, 500 mg/5 mL SE: N/V/D, rash, eosinophilia, ↑ LFTs, HA, rhinitis, vaginitis
Notes: Widely used for surgical prophylaxis

Cefdinir (Omnicef)

Uses: *Infxns of the resp tract, skin, and skin structure* Acts: 3rd-gen cephalosporin; ↓ cell wall synth.
Spectrum: Many gram(+) & (–) organisms; more active than cefaclor & cephalaxin against Streptococcus, Staphylococcus; some anaerobes
Dose: Adults. 300 mg PO bid or 600 mg/d PO. Peds. 7 mg/kg PO bid or 14 mg/kg/d PO; ↓ in renal impair
W/P: [B, M] w/ PCN-sensitive pts CI: Hypersens to cephalosporins
Disp: Caps 300 mg; susp 125, 250, 375 mg/5 mL SE: Anaphylaxis, D, rare pseudomembranous colitis, HA

Cefditoren (Spectracef)

Uses: *Acute exacerbations of chronic bronchitis, pharyngitis, tonsillitis; skin Infxns* Acts: 3rd-gen cephalosporin; ↓ cell wall synth.
Spectrum: Good gram(+) (Streptococcus & Staphylococcus); gram(–) (H. influenzae & M. catarrhalis)
Dose: Adults & Peds > 12 yr. Skin also pharyngitis, tonsillitis: 200 mg PO bid × 10 d. Chronic bronchitis: 400 mg PO bid × 10 d; avoid antacids w/in 2 h; take w/ meals; ↓ in renal impair
W/P: [B, ?] Renal/hepatic impair CI: Cephalosporin/PCN allergy, milk protein, or carnitine deficiency
Disp: Tabs 200, 400 mg SE: HA, N/V/D, colitis, nephrotox, hepatic dysfunction,
Cefepime

Notes: Causes renal excretion of carnitine; tabs contain milk protein

Cefepime (Maxipime) Uses: *Comp/uncomp UTI, pneumonia, empiric febrile neutropenia, skin/soft-tissue Infxns, comp intra-Abd Infxns* Acts: 4th-gen cephalosporin; ↓ cell wall synth. Spectrum: Gram(+) S. pneumoniae, S. aureus, gram(−) K. pneumoniae, E. coli, P. aeruginosa, & Enterobacter sp Dose: Adults. 1–2 g IV q8–12h. Peds. 50 mg/kg q8h for febrile neutropenia; 50 mg/kg bid for skin/soft-tissue Infxns; ↓ in renal impair W/P: [B, +]; Sz risk w/ CrCl < 60 mL/min; adjust dose w/ renal Insuff CI: Cephalosporin/PCN allergy Disp: Inj 500 mg, 1, 2 g SE: Rash, pruritus, N/V/D, fever, HA, (+) Coombs test w/o hemolysis Notes: Can give IM or IV; concern over ↑ death rates not confirmed by FDA

Cefixime (Suprax) Uses: *Resp tract, skin, bone, & urinary tract Infxns* Acts: 3rd-gen cephalosporin; ↓ cell wall synth. Spectrum: S. pneumoniae, S. pyogenes, H. influenzae, & enterobacteria Dose: Adults. 400 mg PO ÷ daily-bid. Peds. 8 mg/kg PO ÷ daily-bid; ↓ w/ renal impair W/P: [B, ?] CI: Cephalosporin/PCN allergy Disp: Tabs 400 mg, 100, 200 mg chew tab, susp 100, 200 mg/5 mL SE: N/V/D, flatulence, & Abd pain Notes: ✓ Renal & hepatic Fxn; use susp for otitis media

Cefotaxime (Claforan) Uses: *Infxns of lower resp tract, skin, bone & jt, urinary tract, meningitis, sepsis, PID, GC* Acts: 3rd-gen cephalosporin; ↓ cell wall synth. Spectrum: Most gram(−) (not Pseudomonas), some gram(+) cocci S. pneumoniae, S. aureus (penicillinase/nonpenicillinase producing), H. influenzae (including ampicillin-resistant), not Enterococcus; many PCN-resistant pneumo-cocci Dose: Adults. Uncomplicated Infxn: 1 g IV/IM q12h; Mod–severe Infxn: 1–2 g IV/IM q 8–12 h; Severe/septicemia: 2 g IV/IM q4–8h; GC urethritis, cervicitis, rectal in female: 0.5 g IM × 1; rectal GC men 1 g IM × 1; Peds. 50–200 mg/kg/d IV + q6–8h; ↓ w/ renal/hepatic impair W/P: [B, +] CI: Cephalosporin/PCN allergy Disp: Powder for Inj 500 mg, 1, 2, 10 g, premixed Inf 20 mg/mL, 40 mg/mL SE: D, rash, pruritus, colitis, eosinophilia, ↑ transaminases

Cefotetan Uses: *Infxns of the upper & lower resp tract, skin, bone, urinary tract, Abd, & gynecologic system* Acts: 2nd-gen cephalosporin; ↓ cell wall synth Spectrum: Less active against gram(+) anaerobes including B. fragilis; gram(−), including E. coli, Klebsiella, & Proteus Dose: Adults. 1–3 g IV q12h. Peds. 20–40 mg/kg/dose IV ÷ q12h (6 g/d max) ↓ w/ renal impair W/P: [B, +] May ↑ bleeding risk; w/ Hx of PCN allergies, w/ other nephrotoxic drugs CI: Cephalosporin/PCN allergy Disp: Powder for Inj 1, 2, 10 g SE: D, rash, eosinophilia, ↑ transaminases, hypoprothrombinemia, & bleeding (d/t MTT side chain) Notes: May interfere w/ warfarin

Cefoxitin (Mefoxin) Uses: *Infxns of the upper & lower resp tract, skin, bone, urinary tract, Abd, & gynecologic system* Acts: 2nd-gen cephalosporin; ↓ cell wall synth Spectrum: Good gram(−) against enteric bacilli (i.e., E. coli, Klebsiella, & Proteus); anaerobic: B. fragilis Dose: Adults. 1–2 g IV q6–8h. Peds. 80–160 mg/kg/d +
Ceftriaxone (Rocephin)  BOX: Avoid in hyperbilirubinemic neonates or co-infusion w/ calcium-containing products

Uses: *Resp tract (pneumonia), skin, bone, Abd & urinary tract Infxns, meningitis, septicemia, GC, PID, perioperative*

Acts: 3rd-gen cephalosporin; ↓ cell wall synth.  Spectrum: Mod gram(+) ; excellent q4–6h (12 g/d max); ↓ w/ renal impair  W/P: [B, M]  CI: Cephalosporin/PCN allergy  Disp: Powder for Inj 1, 2, 10 g  SE: D, rash, eosinophilia, ↑ transaminases  Cefpodoxime (Vantin)  Uses: *Rx resp, skin, & urinary tract Infxns*  Acts: 3rd-gen cephalosporin; ↓ cell wall synth.  Spectrum: S. pneumoniae or non-β-lactamase–producing H. influenzae; acute uncomplicated N. gonorrhoeae; some uncomplicated gram(−) (E. coli, Klebsiella, Proteus)  Dose: Adults.  100–400 mg PO q12h.  Peds.  10 mg/kg/d PO × bid; ↓ in renal impair, w/ food  W/P: [B, M]  CI: Cephalosporin/PCN allergy  Disp: Tabs 100, 200 mg; susp 50, 100 mg/5 mL  SE: D, rash, HA, eosinophilia, ↑ transaminases  Cefprozil (Cefzil)  Uses: *Rx resp tract, skin, & urinary tract Infxns*  Acts: 2nd-gen cephalosporin; ↓ cell wall synth.  Spectrum: Active against MSSA, Strep agalactiae, Strep pneumoniae;  gram(−) (E. coli, Klebsiella, P. mirabilis, H. influenzae, Moraxella)  Dose: Adults.  250–500 mg PO daily-bid.  Peds.  7.5–15 mg/kg/d PO × bid; ↓ in renal impair  W/P: [B, M]  CI: Cephalosporin/PCN allergy  Disp: Tabs 250, 500 mg; susp 125, 250 mg/5 mL  SE: D, dizziness, rash, eosinophilia, ↑ transaminases  Notes: Use higher doses for otitis & pneumonia  Ceftaroline (Teflaro)  Uses: *Tx skin/skin structure Infxn & CAP*  Acts: Unclassified (“5th gen”) cephalosporin; ↓ cell wall synthesis;  Spectrum: Gram(+) Staph aureus (MSSA/MRSA), Strep agalactiae, Strep pneumoniae; Gram(−) E. coli, K. pneumoniae, K. oxytoca, H. influenzae  Dose: Adults.  600 mg IV q12h; CrCl 30–50 mL/min: 400 mg IV q12h; CrCl 15–29 mL/min: 300 mg IV q12h; CrCl < 15 mL/min: 200 mg IV q12h; Inf over 1 h  W/P: [B, ?/–] monitor for C. difficile-associated D  CI: Cephalosporin sensitivity  Disp: Inj 600 mg  SE: Hyper-sens Rxn, D/N, rash, constipation, ↓ K+, phlebitis, ↑ LFTs  Ceftazidime (Fortaz, Tazicef)  Uses: *Rx resp tract, skin, bone, urinary tract Infxns, meningitis, & septicemia*  Acts: 3rd-gen cephalosporin; ↓ cell wall synth.  Spectrum: Gram(+) Staph aureus (MSSA/MRSA), Strep pyogenes, Strep agalactiae, Strep pneumoniae;  gram(−) E. coli, K. pneumoniae, K. oxytoca, H. influenzae  Dose: Adults.  500–2 g IV/IM q8–12h.  Peds.  30–50 mg/kg/dose IV q8h 6g/d max; ↓ renal impair  W/P: [B, +] PCN sensitivity  CI: Cephalosporin/PCN allergy  Disp: Powder for Inj 500 mg, 1, 2, 6 g  SE: D, rash, eosinophilia, ↑ transaminases  Notes: Use only for proven or strongly suspected Infxn to ↓ development of drug resistance  Ceftibuten (Cedax)  Uses: *Rx resp tract, skin, urinary tract Infxns, & otitis media*  Acts: 3rd-gen cephalosporin; ↓ cell wall synth.  Spectrum: H. influenzae & M. catarrhalis; weak against S. pneumoniae  Dose: Adults.  400 mg/d PO.  Peds.  9 mg/kg/d PO; ↓ in renal impair; take on empty stomach (susp)  W/P: [B, +/−] CI: Cephalosporin/PCN allergy  Disp: Caps 400 mg; susp 90 mg/5 mL  SE: D, rash, eosinophilia, ↑ transaminases  Ceftriaxone (Rocephin)  BOX: Avoid in hyperbilirubinemic neonates or co-infusion w/ calcium-containing products  Uses: *Resp tract (pneumonia), skin, bone, Abd & urinary tract Infxns, meningitis, septicemia, GC, PID, perioperative*  Acts: 3rd-gen cephalosporin; ↓ cell wall synth.  Spectrum: Mod gram(+) ; excellent
Cefuroxime

β-lactamase producers **Dose:** **Adults.** 1–2 g IV/IM q12–24h. **Peds.** 50–100 mg/kg/d IV/IM ÷ q12–24h **W/P:** [B, +] **Cl:** Cephalosporin allergy; hyperbilirubinemic neonates **Disp:** Powder for Inj 250 mg, 500 mg, 1, 2, 10 g; premixed 20, 40 mg/mL **SE:** D, rash, ↑ WBC, thrombocytosis, eosinophilia, ↑ LFTs

**Cefuroxime (Ceftin [PO], Zinacef [Parenteral])**  
**Uses:** *Upper & lower resp tract, skin, bone, urinary tract, Abd, gynecologic Infxns*  
**Acts:** 2nd-gen cephalosporin; ↓ cell wall synth  
**Spectrum:** Staphylococci, group B streptococci, *H. influenzae, E. coli, Enterobacter, Salmonella,* & *Klebsiella*  
**Dose:** **Adults.** 750 mg–1.5 g IV q8h or 250–500 mg PO bid **Peds.** 75–150 mg/kg/d IV ÷ q8h or 20–30 mg/kg/d PO ÷ bid; ↓ w/ renal impair; take PO w/ food **W/P:** [B, +] **Cl:** Cephalosporin/PCN allergy  
**Disp:** Tabs 250, 500 mg; susp 125, 250 mg/5 mL; powder for Inj 750 mg, 1.5, 7.5 g **SE:** D, rash, eosinophilia, ↑ LFTs  
**Notes:** Cefuroxime film-coated tabs & susp not bioequivalent; do not substitute on a mg/mg basis; IV crosses blood–brain barrier

**Celecoxib (Celebrex, Generic)**  
**BOX:** ↑ Risk of serious CV thrombotic events, MI, & stroke; can be fatal; ↑ risk of serious GI adverse events including bleeding, ulceration, & perforation of the stomach or intestines; can be fatal  
**Uses:** *OA, RA, ankylosing spondylitis, acute pain, primary dysmenorrhea, preventive in FAP*  
**Acts:** NSAID; ↓ COX-2 pathway  
**Dose:** 100–200 mg/d or bid; FAP: 400 mg PO bid; ↓ w/ hepatic impair; take w/ food/milk  
**W/P:** [C/D (3rd tri), ?] w/ Renal impair **Cl:** Sulfonamide allergy, perioperative CABG  
**Disp:** Caps 50, 100, 200, 400 mg **SE:** See Box; GI upset, HTN, edema, renal failure, HA  
**Notes:** Watch for Sxs of GI bleed; no effect on plt/bleeding time; can affect drugs metabolized by P-450 pathway

**Centruroides (Scorpion) Immune F(ab’)2 (Anascorp)**  
**Uses:** *Antivenom for scorpion envenomation w/ symptoms*  
**Acts:** IgG, bind/neutralize *Centruroides sculpturatus* toxin  
**Dose:** **Adults & Peds.** 3 vials, recons w/ 5 mL NS, combine all 3, dilute to 50 mL, Inf IV over 10 min; 1 vial q 30–60 min PRN Sx  
**W/P:** [C, M] hypersens, especially w/ Hx equine protein Rxn  
**Cl:** None  
**Disp:** Vial  
**SE:** Fever, N, V, pruritus, rash, myalgias, serum sickness  
**Notes:** Use only w/ important symptoms (loss of muscle control, abn eye movements, slurred speech, resp distress, salivation, vomiting); may contain infectious agents

**Cephalexin (Keflex, Generic)**  
**Uses:** *Skin, bone, upper/lower resp tract (streptococcal pharyngitis), otitis media, uncomp cystitis Infxns*  
**Acts:** 1st-gen cephalosporin; ↓ cell wall synth.  
**Spectrum:** *Streptococcus* (including β-hemolytic), *Staphylococcus, E. coli, Proteus,* & *Klebsiella*  
**Dose:** **Adults & Peds > 15 y.** 250–1000 mg PO qid; Rx cystitis 7–14 d (4 g/d max). **Peds < 15 y.** 25–100 mg/kg/d PO ÷ bid-qid; ↓ in renal impair; w/ or w/o food **W/P:** [B, +] **Cl:** Cephalosporin/PCN allergy  
**Disp:** Caps 250, 500 mg; susp 125, 250 mg; susp 125, 250 mg/5 mL **SE:** D, rash, eosinophilia, gastritis, dyspepsia, ↑ LFTs, *C. difficile* colitis, vaginitis

**Certolizumab Pegol (Cimzia)**  
**BOX:** Serious Infxns (bacterial, fungal, TB, opportunistic) possible. D/C w/ severe Infxn/sepsis, test and monitor for TB w/ Tx;
Charcoal, Activated

lymphoma/other CA possible in children/adolescents Uses: *Crohn Dz w/ inadequate response to conventional Tx; mod–severe RA* Acts: TNF-α blocker Dose: Crohn: Initial: 400 mg SQ, repeat 2 & 4 wk after; Maint: 400 mg SQ q4wk. RA: Initial: 400 mg SQ, repeat 2 & 4 wk after; Maint: 200 mg SQ q other wk or 400 mg SQ q4wk. W/P: [B, ?] Infxn, TB, autoimmune Dz, demyelinating CNS Dz, hep B reactivation CI: None Disp: Inj, powder for reconstitution 200 mg; Inj, soln: 200 mg/mL (1 mL) SE: HA, N, URI, serious Infxns, TB, opportunistic Infxns, malignancies, demyelinating Dz, CHF, pancytopenia, lupus-like synd, new-onset psoriasis Notes: 400 mg dose 2 Inj of 200 mg each. Monitor for Infxn. Do not give live/attenuated vaccines during Rx; avoid use w/ anakinra

Cetirizine (Zyrtec, Zyrtec D) [OTC] Uses: *Allergic rhinitis & other allergic sx*s including urticaria* Acts: Nonsedating antihistamine; Zyrtec D contains decongestant Dose: Adults & Children > 6 y: 5–10 mg/d; Zyrtec D 5/120 mg PO bid whole Peds 6–11 mo. 2.5 mg daily. 12 mo–5 y: 2.5 mg daily-bid; ↓ to qd in renal/hepatic impair W/P: [C, –]–] w/ HTN, BPH, rare CNS stimulation, DM, heart Dz CI: Allergy to cetirizine, hydroxyzine Disp: Tabs 5, 10 mg; chew tabs 5, 10 mg; syrup 5 mg/5 mL; Zyrtec D: Tabs 5/120 mg (cetirizine/pseudoephedrine) SE: HA, drowsiness, xerostomia Notes: Can cause sedation; swallow ER tabs whole

Cetuximab (Erbitux) BOX: Severe Inf Rxns including rapid onset of airway obst (bronchospasm, stridor, hoarseness), urticaria, & ↓ BP; permanent D/C required; ↑ risk sudden death and cardiopulmonary arrest Uses: *EGFR + metastatic colorectal CA w/ or w/o irinotecan, unresectable head/neck small cell carcinoma w/ RT; monotherapy in metastatic head/neck CA* Acts: Human/mouse recombinant MoAb; binds EGFR, ↓ tumor cell growth Dose: Per protocol; load 400 mg/m² IV over 2 h; 250 mg/m² given over 1 h weekly W/P: [C, –] Disp: Inj 100 mg/50 mL SE: Acneform rash, asthenia/malaise, N/V/D, Abd pain, alopecia, Inf Rxn, derm tox, interstitial lung Dz, fever, sepsis, dehydration, kidney failure, PE Notes: Assess tumor for EGFR before Rx; pretreatment w/ diphenhydramine; w/ mild SE ↓ Inf rate by 50%; limit sun exposure

Charcoal, Activated (Actidose-Aqua, CharcoCaps, EZ Char, Kerr Insta-Char, Requa Activated Charcoal) Uses: *Emergency poisoning by most drugs & chemicals (see CI)* Acts: Adsorbent detoxicant Dose: Give w/ 70% sorbitol (2 mL/kg); repeated use of sorbitol not OK Adults. Acute intoxication: 25–100 g/dose. GI dialysis: 20–50 g q6h for 1–2 d. Peds 1–12 y. Acute intoxication: 1–2 g/kg/dose. GI dialysis: 5–10 g/dose q4–8h W/P: [C, ?] May cause V (hazardous w/ petroleum & caustic ingestions); do not mix w/ dairy CI: Not effective for cyanide, mineral acids, caustic alkalis, organic solvents, iron, EtOH, methanol poisoning, Li; do not use sorbitol in pts w/ fructose intolerance, intestinal obst, nonintact GI tracts Disp: Powder, liq, caps, tabs SE: Some liq dosage forms in sorbitol base (a cathartic); V/D, black stools, constipation Notes: Charcoal w/ sorbitol not OK in children < 1 y; monitor for ↓ K⁺ & Mg²⁺; protect airway in lethargic/comatose pts
**Chlorambucil (Leukeran)**  
**Uses:** *CLL, Hodgkin Dz*, Waldenström macroglobulinemia  
**Acts:** Alkylation agent (nitrogen mustard)  
**Dose:** (per protocol) 0.1–0.2 mg/kg/d for 3–6 wk or 0.4 mg/kg/dose q2wk; ↓ w/ renal impair  
**W/P:** [D, ?] Sz disorder & BM suppression; affects human fertility  
**CI:** Previous resistance; alkylating agent allergy; w/ live vaccines  
**Disp:** Tabs 2 mg  
**SE:** ↓ BM, CNS stimulation, N/V, drug fever, rash, secondary leukemias, alveolar dysplasia, pulm fibrosis, hepatotoxic  
**Notes:** Monitor LFTs, CBC, plts, serum uric acid; ↓ dose if pt has received radiation  

**Chlordiazepoxide (Librium, Mitran, Libritabs) [C-IV]**  
**Uses:** *Anxiety, tension, EtOH withdrawal*, & preop apprehension  
**Acts:** Benzodiazepine; antianxiety agent  
**Dose:** **Adults.** Mild anxiety: 5–10 mg PO tid-qid or PRN. Severe anxiety: 25–50 mg PO q6–8h or PRN. **Peds > 6 y.** 5 mg PO q6–8h; ↓ in renal impair, elderly  
**W/P:** [D, ?] Resp depression, CNS impair, Hx of drug dependence; avoid in hepatic impair  
**CI:** Preexisting CNS depression, NAG  
**Disp:** Caps 5, 10, 25 mg  
**SE:** Drowsiness, CP, rash, fatigue, memory impair, xerostomia, Wt gain  
**Notes:** Erratic IM absorption  

**Chlorothiazide (Diuril)**  
**Uses:** *HTN, edema*  
**Acts:** Thiazide diuretic  
**Dose:** **Adults.** 500 mg–1 g PO daily-bid; 500–1000 mg/d IV (for edema only). **Peds > 6 mo.** 10–20 mg/kg/24 h PO + bid; 4 mg/kg + daily bio IV; OK w/ food  
**W/P:** [C, ?/] Safety in children < 6 mo not established; Szs, avoid w/ hepatic impair, BM suppression  
**CI:** Sensitivity to thiazides/sulfonamides, anuria  
**Disp:** Tabs 250, 500 mg; susp 250 mg/5 mL; Inj 500 mg/vial  
**SE:** ↓ K⁺, Na⁺, dizziness, hyperglycemia, hyperuricemia, hyperlipidemia, photosens  
**Notes:** Do not use IM/SQ; take early in the day to avoid nocturia; use sunblock; monitor lytes  

**Chlorpheniramine (Chlor-Trimeton, Others) [OTC]**  
**BOX:** OTC meds w/ chlorpheniramine should not be used in peds < 2 y  
**Uses:** *Allergic rhinitis*, common cold  
**Acts:** Antihistamine  
**Dose:** **Adults.** 4 mg PO q4–6h or 8–12 mg PO bid of SR 24 mg/d max. **Peds.** 0.35 mg/kg/24 h PO + q4–6h or 0.2 mg/kg/24 h SR  
**W/P:** [C, ?/–] BOO; NAG; hepatic Insuff  
**CI:** Allergy  
**Disp:** Tabs 4 mg; SR tabs 12 mg SE: Anticholinergic SE & sedation common, postural ↓ BP, QT changes, extrapyramidal Rxns, photosens  
**Notes:** Do not cut/crush/chew ER forms; deaths in pts < 2 y associated w/ cough and cold meds [MMWR 2007;56(01):1–4]  

**Chlorpromazine (Thorazine)**  
**Uses:** *Psychotic disorders, N/V*, apprehension, intractable hiccups  
**Acts:** Phenothiazine antipsychotic; antiemetic  
**Dose:** **Adults.** Psychosis: 30–800 mg/d in 1–4 + doses, start low dose, ↑ PRN; typical 200–600 mg/d; 1–2 g/d may be needed in some cases. Severe Sxs: 25 mg IM/IV initial; may repeat in 1–4 h; then 25–50 mg PO or PR tid. Hiccups: 25–50 mg PO tid-qid. **Children > 6 mo:** Psychosis & N/V: 0.5–1 mg/kg/dose PO q4–6h or IM/IV q6–8h; **W/P:** [C, ?/–] Safety in children < 6 mo not established; Szs, avoid w/ hepatic impair, BM suppression  
**CI:** Sensitivity w/ phenothiazines; NAG  
**Disp:** Tabs 10, 25, 50, 100, 200 mg; Inj 25 mg/mL SE: Extrapyramidal SE & sedation; α-adrenergic blocking properties; ↓ BP; ↑ QT interval  
**Notes:** Do not D/C abruptly
**Chlorpropamide (Diabinese)**  
**Uses:** *Type 2 DM*  
**Acts:** Sulfonylurea; ↑ pancreatic insulin release; ↑ peripheral insulin sensitivity; ↓ hepatic glucose output  
**Dose:** 100–500 mg/d; w/ food, ↓ hepatic impair  
**W/P:** [C, ?/−] CrCl < 50 mL/min; ↓ in hepatic impair  
**CI:** Cross-sensitivity w/ sulfonamides  
**Disp:** Tabs 100, 250 mg  
**SE:** HA, dizziness, rash, photosens, hypoglycemia, SIADH  
**Notes:** Avoid EtOH (disulfiram-like Rxn)

**Chlorthalidone**  
**Uses:** *HTN*  
**Acts:** Thiazide diuretic  
**Dose:** Adults. 25–100 mg PO daily.  
**Peds.** (Not approved) 0.3–2 mg/kg/dose PO 3×/wk or 1–2 mg/kg/d PO; ↓ in renal impair; OK w/ food, milk  
**W/P:** [B, +]  
**CI:** Cross-sensitivity w/ thiazides or sulfonamides; anuria  
**Disp:** Tabs 25, 50, 100 mg  
**SE:** ↓ K⁺, dizziness, photosens, ↑ glucose, hyperuricemia, sexual dysfunction

**Chlorzoxazone (Parafon Forte DSC, Others)**  
**Uses:** *Adjunct to rest & physical therapy Rx to relieve discomfort associated w/ acute, painful musculo-skeletal conditions*  
**Acts:** Centrally acting skeletal muscle relaxant  
**Dose:** Adults. 500–750 mg PO tid–qid.  
**Peds.** 20 mg/kg/d in 3–4 ÷ doses  
**W/P:** [C, ?] Avoid EtOH & CNS depressants  
**CI:** Severe liver Dz  
**Disp:** Tabs 250, 500, 750 mg  
**SE:** Drowsiness, tachycardia, dizziness, hepatotoxicity, angioedema

**Cholecalciferol [Vitamin D₃] (Delta D)**  
**Uses:** Dietary supl to Rx vit D deficiency  
**Acts:** ↑ intestinal Ca²⁺ absorption  
**Dose:** 400–1000 Int units/d PO  
**W/P:** [A (D doses above the RDA), +]  
**CI:** ↑ Ca²⁺, hypervitaminosis, allergy  
**Disp:** Tabs 400, 1000 Int units  
**SE:** Vit D tox (renal failure, HTN, psychosis)  
**Notes:** 1 mg cholecalciferol = 40,000 Int units vit D activity

**Cholestyramine (Questran, Questran Light, Prevalite)**  
**Uses:** *Hypercholesterolemia; hyperlipidemia, pruritus associated w/ partial biliary obst; D associated w/ excess fecal bile acids* pseudomembranous colitis, dig tox, hyperoxaluria  
**Acts:** Binds intestinal bile acids, forms insoluble complexes  
**Dose:** Adults. Titrated: 4 g/d-bid ↑ to max 24 g/d ÷ 1–6 doses/d.  
**Peds.** 240 mg/kg/d in 2–3 ÷ doses max 8 g/d  
**W/P:** [C, ?] Constipation, phenylketonuria, may interfere w/ other drug absorption; consider supl w/ fat-soluble vits  
**CI:** Complete biliary or bowel obst; w/ mycophenolate hyperlipoproteinemia types III, IV, V  
**Disp:** (Questran) 4 g cholestyramine resin/9 g powder; (Prevalite) w/ aspartame: 4 g resin/5.5 g powder; (Questran Light) 4 g resin/5 g powder  
**SE:** Constipation, Abd pain, bloating, HA, rash, vit K deficiency  
**Notes:** OD may cause GI obst; mix 4 g in 2–6 oz of noncarbonated beverage; take other meds 1–2 h before or 6 h after; ✓ lipids

**Ciclesonide, Inhalation (Alvesco)**  
**Uses:** *Asthma maint*  
**Acts:** Inhaled steroid  
**W/P:** [C, ?]  
**CI:** Status asthmaticus or other acute episodes of asthma, hypersens  
**Disp:** Inh 80, 160 mcg/actuation  
**60 doses**  
**SE:** HA, nasopharyngitis, sinusitis, pharyngolaryngeal pain, URI, arthralgia, nasal congestion  
**Notes:** Oral Candida risk, rinse mouth and spit after, taper
systemic steroids slowly when transferring to ciclesonide, monitor growth in pediatric pts, counsel on use of device, clean mouthpiece weekly

**Ciclesonide, Nasal (Omnaris, Zettona)**

**Uses:** Allergic rhinitis  
**Acts:** Nasal corticosteroid  
**Dose:** *Adults/Peds > 12 y.* **Omnaris** 2 sprays, **Zettona** 1 spray each nostril 1 ×/d; **W/P:** [C, ?/–] w/ ketoconazole; monitor pts for growth ↓  
**CI:** Component allergy  
**Disp:** Intrasal spray, **Omnaris** 50 mcg/spray (120 doses); **Zettona** 37 mcg/spray (60 doses)  
**SE:** Adrenal suppression, delayed nasal wound healing, URI, HA, ear pain, epistaxis ↑ risk viral Dz (eg, chickenpox), delayed growth in children

**Ciclopirox (Ciclodan, CNL8, Loprox, Pedipirox-4 Nail Kit, Penlac)**

**Uses:** *Tinea pedis, tinea cruris, tinea corporis, cutaneous candidiasis, tinea versicolor, tinea rubrum*  
**Acts:** Antifungal antibiotic; cellular depletion of essential substrates &/or ions  
**Dose:** *Adults & Peds > 10 y.* Massage into affected area bid.  
**Onychomycosis:** Apply to nails daily, w/ removal q7d  
**W/P:** [B, ?]  
**CI:** Component sensitivity  
**Disp:** Cream 0.77%, gel 0.77%, topical susp 0.77%, shampoo 1%, nail lacquer 8%  
**SE:** Pruritus, local irritation, burning  
**Notes:** D/C w/ irritation; avoid dressings; gel best for athlete’s foot

**Cidofovir (Vistide)**

**BOX:** Renal impair is the major tox. Neutropenia possible, ✓ CBC before dose. Follow administration instructions. Possible carcinogenic, teratogenic  
**Uses:** *CMV retinitis w/ HIV*  
**Acts:** Selective inhib viral DNA synth  
**Dose:** *Rx:* 5 mg/kg IV over 1 h once/wk × 2 wk w/ probenecid. **Maint:** 5 mg/kg IV once/2 wk w/ probenecid (2 g PO 3 h prior to cidofovir, then 1 g PO at 2 h & 8 h after cidofovir); ↓ w/ renal impair **W/P:** [C, –] SCR > 1.5 mg/dL or CrCl < 55 mL/min or urine protein ≥ 100 mg/dL; w/ other nephrotoxic drugs **CI:** Probenecid/sulfa allergy  
**Disp:** Inj 75 mg/mL **SE:** Renal tox, chills, fever, HA, N/V/D, ↓ plt, ↓ WBC  
**Notes:** Hydrate w/ NS prior to each Inf

**Cilostazol (Pletal)**

**BOX:** PDE III inhib have ↓ survival w/ class III/IV heart failure  
**Uses:** *↓ Sxs of intermittent claudication*  
**Acts:** Phosphodiesterase III inhib; ↑ cAMP in plts & blood vessels, vasodilation & inhibit plt aggregation  
**Dose:** *Adults.* Active ulcer: 2400 mg/d IV cont Inf or 300 mg IV q6h; 400 mg PO bid or 800 mg hs. **Maint:** 400 mg PO hs. **GERD:** 300–600 mg PO q6h; maint 800 mg PO hs. **Peds Infants:** 10–20 mg/kg/24 h PO or IV × 6–12h. **Children:** 20–40 mg/kg/24 h PO or IV × q6h; ↓ w/ renal Insuff & in elderly **W/P:** [B, +] Many drug interactions (P-450 system); do not use w/ clopidogrel (↓ effect) **CI:** Component sensitivity  
**Disp:** Tabs 50, 100 mg **SE:** HA, palpitation, D

**Cimetidine (Tagamet, Tagamet HB 200 [OTC])**

**Uses:** *Duodenal ulcer; ulcer prophylaxis in hypersecretory states (eg, trauma, burns); & GERD*  
**Acts:** H2-receptor antagonist  
**Dose:** *Adults.* Active ulcer: 2400 mg/d IV cont Inf or 300 mg IV q6h; 400 mg PO bid or 800 mg hs. **Maint:** 400 mg PO hs. **GERD:** 300–600 mg PO q6h; maint 800 mg PO hs. **Ped Infants:** 10–20 mg/kg/24 h PO or IV × q6–12h. **Children:** 20–40 mg/kg/24 h PO or IV × q6h; ↓ w/ renal Insuff & in elderly **W/P:** [B, +] Many drug interactions (P-450 system); do not use w/ clopidogrel (↓ effect) **CI:** Component sensitivity  
**Disp:** Tabs 200 (OTC), 300, 400, 800 mg; liq 300 mg/5 mL; Inj 300 mg/2 mL **SE:** Dizziness, HA, agitation, ↓ plt, gynecomastia  
**Notes:** 1 h before or 2 h after antacids; avoid EtOH
**Cinacalcet (Sensipar)** Uses: *Secondary hyperparathyroidism in CRF; ↑ Ca$^{2+}$ in parathyroid carcinoma* | Acts: ↓ PTH by ↑ calcium-sensing receptor sensitivity | Dose: *Secondary hyperparathyroidism:* 30 mg PO daily. *Parathyroid carcinoma:* 30 mg PO bid; titrate q2–4wk based on calcium & PTH levels; swallow whole; take w/ food | W/P: [C, ?/−] w/ Szs, adjust w/ CYP3A4 inhib (Table 10, p 346) | Disp: Tabs 30, 60, 90 mg | SE: N/V/D, myalgia, dizziness, ↓ Ca$^{2+}$ | Notes: Monitor Ca$^{2+}$, PO$_4^{2−}$, PTH

**Ciprofloxacin (Cipro, Cipro XR)** BOX: ↑ risk of tendonitis and tendon rupture; ↑ risk w/ age > 60, transplant pts may worsen MG Sxs | Uses: *Rx lower resp tract, sinuses, skin & skin structure, bone/joints, complex intra-Abd Infxn (w/ metronidazole), typhoid, infectious D, uncomp GC, inhal anthrax UT Infxns, including prostatisis* | Acts: Quinolone antibiotic; ↓ DNA gyrase. | Spectrum: Broad gram(+) & (−) aerobics; little Streptococcus; good Pseudomonas, E. coli, B. fragilis, P. mirabilis, K. pneumoniae, C. jejuni, or Shigella | Dose: Adults. 250–750 mg PO q12h; XR 500–1000 mg PO q24h; or 200–400 mg IV q12h; ↓ in renal impair | W/P: [C, ?/−] Children < 18 y; avoid in MG CI: Component sensitivity | Disp: Tabs 100, 250, 500, 750 mg; tabs XR 500, 1000 mg; susp 5 g/100 mL, 10 g/100 mL; Inj 200, 400 mg; premixed piggyback 200, 400 mg/100 mL | SE: Restlessness, N/V/D, rash, ruptured tendons, ↑ LFTs, peripheral neuropathy risk | Notes: Avoid antacids; reduce/restrict caffeine intake; interactions w/ theophylline, caffeine, sucralfate, warfarin, antacids, most tendon problems in Achilles, rare shoulder and hand

**Ciprofloxacin, Ophthalmic (Ciloxan)** Uses: *Rx & prevention of ocular Infxns (conjunctivitis, blepharitis, corneal abrasions)* | Acts: Quinolone antibiotic; ↓ DNA gyrase | Dose: 1–2 gtt in eye(s) q2h while awake for 2 d, then 1–2 gtt q4h while awake for 5 d, oint 1/2-in ribbon in eye tid × 2 d, then bid × 5 d | W/P: [C, ?/−] CI: Component sensitivity | Disp: Soln 3.5 mg/mL; oint 0.3%, 3.5 g | SE: Local irritation

**Ciprofloxacin, Otic (Cetraxal)** Uses: *Otitis externa* | Acts: Quinolone antibiotic; ↓ DNA gyrase. | Spectrum: P. aeruginosa, S. aureus | Dose: Adults & Peds > 1 y. 0.25 mL in ear(s) q 12 h × 7 d | W/P: [C, ?/−] CI: Component sensitivity | Disp: Soln 0.2% | SE: HA, pruritus/pain, HA, fungal superinfection

**Ciprofloxacin & Dexamethasone, Otic (Ciprodex Otic)** Uses: *Otitis externa, otitis media peds* | Acts: Quinolone antibiotic; w/ steroid | Dose: Adults. 4 gtt in ear(s) bid × 7 d. Peds > 6 mo. 4 gtt in ear(s) bid for 7 d | W/P: [C, ?/−] CI: Viral ear Infxns | Disp: Susp ciprofloxacin 0.3% & dexamethasone 1% | SE: Ear discomfort | Notes: OK w/ tympanostomy tubes

**Ciprofloxacin & Hydrocortisone, Otic (Cipro HC Otic)** Uses: *Otitis externa* | Acts: Quinolone antibiotic; ↓ DNA gyrase; w/ steroid | Dose: Adults & Peds > 1 y. 3 gtt in ear(s) bid × 7 d | W/P: [C, ?/−] CI: Perforated tympanic membrane, viral Infxns of the external canal | Disp: Susp ciprofloxacin 0.2% & hydrocortisone 1% | SE: HA, pruritus
Cisplatin (Platinol, Platinol AQ) BOX: Anaphylactic-like Rxn, ototox, cumulative renal tox; doses > 100 mg/m² q3–4wk rarely used, do not confuse w/ carboplatin Uses: *Testicular, bladder, ovarian*, SCLC, NSCLC, breast, head & neck, & penile CAs; osteosarcoma; ped’s brain tumors Acts: DNA-binding; denatures double helix; intrastrand cross-linking Dose: 10–20 mg/m²/d for 5 d q3wk; 50–120 mg/m² q3–4wk (per protocols); ↓ w/ renal impair W/P: [D, −] Cumulative renal tox may be severe; ↓ BM, hearing impair, preexisting renal Insuff CI: w/ Anthrax or live vaccines, platinum-containing compound allergy; w/ cidofovir Disp: Inj 1 mg/mL SE: Allergic Rxns, N/V, nephrotox (↑ w/ administration of other nephrotoxic drugs; minimize by NS Inf & mannitol diuresis), high-frequency hearing loss in 30%, peripheral “stocking glove”-type neuropathy, cardiotox (ST, T-wave changes), ↓ Mg²⁺, mild ↓ BM, hepatotox; renal impair dose-related & cumulative Notes: Give taxanes before platinum derivatives; ✓ Mg²⁺, lytes before & w/in 48 h after cisplatin

Citalopram (Celexa) BOX: Closely monitor for worsening depression or emergence of suicidality, particularly in pts < 24 y; not for ped’s Uses: *Depression* Acts: SSRI Dose: Initial 20 mg/d, may ↑ to 40 mg/d max dose; ↓ 20 mg/d max > 60 y, w/ cimetidine, or hepatic/renal Inf W/P: [C, +/–] Hx of mania, Szs & pts at risk for suicide, ↑ risk serotonin synd (p 32) w/ triptans, linezolid, lithium, tramadol, St. John’s wort; use w/ other SSRIs, SNRIs, or tryptophan not rec CI: MAOI or w/in 14 d of MAOI use Disp: Tabs 10, 20, 40 mg; soln 10 mg/5 mL SE: Somnolence, insomnia, anxiety, xerostomia, N, diaphoresis, sexual dysfunction; may ↑ Qt interval and cause arrhythmias; ↓ Na⁺/SIADH

Citric Acid/Magnesium Oxide/Sodium Picosulfate (Prepopik) Uses: *Colonoscopy colon prep* Acts: Stimulant/osmotic laxative Dose: Powder recons w/ 5-oz cold water; “Split Dose”: 1st dose night before and 2nd dose morning of procedure; OR “Day Before”: 1st dose afternoon/early eve day before and 2nd dose later evening; clear liquids after dose W/P: [B, ?] Fluid/electrolyte abnormalities, arrhythmias, seizures; ↑ risk in renal Inf or w/ nephrotox drugs; mucosal ulcerations; aspiration risk CI: CrCl < 30 mL/min; GI perf/obstr/ileus/gastric retention/toxic colitis/megacolon Disp: Packets, 16.1 g powder (10 mg sodium picosulfate, 3.5 g mag oxide, 12 g anhyd citric acid) w/ dosing cup SE: N, V, D, HA, Abd pain, cramping, bloating Notes: Meds taken 1 h w/in dose might not be absorbed

Cladribine (Leustatin) BOX: Dose-dependent reversible myelosuppression; neurotox, nephrotox, administer by physician w/ experience in chemotherapy regimens Uses: *HCL, CLL, NHLs, progressive MS* Acts: Induces DNA strand breakage; interferes w/ DNA repair/synth; purine nucleoside analog Dose: 0.09–0.1 mg/kg/d cont IV Inf for 1–7 d (per protocols); ↓ w/ renal impair W/P: [D, ?/–] Causes neutropenia & Infxn CI: Component sensitivity Disp: Inj 1 mg/mL SE: ↓ BM, T lymphocyte ↓ may be prolonged (26–34 wk), fever in 46%, tumor lysis synd, Infxns (especially lung & IV sites), rash (50%), HA, fatigue, N/V Notes: Consider prophylactic allopurinol; monitor CBC
**Clarithromycin (Biaxin, Biaxin XL)**

**Uses:** *Upper/lower resp tract, skin/skin structure Infxns, H. pylori Infxns, & Infxns caused by nontuberculosis (atypical) Mycobacterium; prevention of MAC Infxns in HIV Infxn*

**Acts:** Macrolide antibiotic, ↓ protein synth.

**Spectrum:** H. influenzae, M. catarrhalis, S. pneumoniae, M. pneumoniae, & H. pylori

**Dose:** Adults. 250–500 mg PO bid or 1000 mg (2 × 500 mg XL tab)/d. Mycobacterium: 500 mg PO bid. Peds > 6 mo. 7.5 mg/kg/dose PO bid; ↓ w/ renal impair

**W/P:** [C, ?] Antibiotic-associated colitis; rare ↑ QT & ventricular arrhythmias; not rec w/ PDE5 inhib

**CI:** Macrolide allergy; w/ Hx jaundice w/ Biaxin; w/ cisapride, pimozide, astemizole, terfenadine, ergotamines; w/ colchicine & renal impair; w/ statins; w/ ↑ QT or ventricular arrhythmias

**Disp:** Tabs 250, 500 mg; susp 125, 250 mg/5 mL; 500 mg XL tab

**SE:** ↑ QT interval, causes metallic taste, N/D, Abd pain, HA, rash

**Notes:** Multiple drug interactions, ↑ theophylline & carbamazepine levels; do not refrigerate susp

**Clemastine Fumarate (Tavist, Dayhist, Antihist-1) [OTC]**

**Uses:** *Allergic rhinitis & Sxs of urticaria*

**Acts:** Antihistamine

**Dose:** Adults & Peds > 12 y. 1.34 mg bid–2.68 mg tid; max 8.04 mg/d, 6–12 y: 0.67–1.34 mg bid (max 4.02/d), < 6 y: 0.335–0.67 mg/d + into 2–3 doses (max 1.34 mg/d), W/P: [B, M] BOO; Do not take w/ MAOI

**CI:** NAG

**Disp:** Tabs 1.34, 2.68 mg; syrup 0.67 mg/5 mL

**SE:** Drowsiness, dyscoordination, epigastric distress, urinary retention

**Notes:** Avoid EtOH

**Clevidipine (Cleviprex)**

**Uses:** *HTN when PO not available/desirable*

**Acts:** Dihydropyridine CCB, potent arterial vasodilator

**Dose:** 1–2 mg/h IV then maint 4–6 mg/h; 21 mg/h max W/P: [C, ?] ↓ BP, syncope, rebound HTN, reflex tachycardia, CHF

**CI:** Hypersens: component or formulation (soy, egg products); impaired lipid metabolism; severe aortic stenosis

**Disp:** Inj 0.5 mg/mL (50 mL, 100 mL)

**SE:** AF, fever, insomnia, N/V, HA, renal impair

**Clindamycin (Cleocin, Cleocin-T, Others)**

**BOX:** Pseudomembranous colitis may range from mild to lifethreatening

**Uses:** *Rx aerobic & anaerobic Infxns; topical for severe acne & Vag Infxns*

**Acts:** Bacteriostatic; interferes w/ protein synth. 

**Spectrum:** Streptococci (eg, pneumococci), staphylococci, & gram(+) & (–) anaerobes; no activity against gram(–) aerobes

**Dose:** Adults. PO: 150–450 mg PO q6–8h. IV: 300–600 mg IV q6h or 900 mg IV q8h. Vag cream: 1 applicator hs × 7 d.

**Vag supp:** Insert 1 qhs × 3 d Topical: Apply 1% gel, lotion, or soln bid. Peds Neonates. (Avoid use; contains benzyl alcohol) 10–15 mg/kg/24 h × q8–12h.

**Children > 1 mo:** 10–30 mg/kg/24 h × q6–8h, to a max of 1.8 g/d PO or 4.8 g/d IV. Topical: Apply 1%, gel, lotion, or soln bid; ↓ in severe hepatic impair W/P: [B, +] Can cause fatal colitis

**CI:** Hx pseudomembranous colitis

**Disp:** Caps 75, 150, 300 mg; susp 75 mg/5 mL; Inj 300 mg/2 mL; Vag cream 2%, topical soln 1%, gel 1%, lotion 1%, Vag supp 100 mg

**SE:** D may be C. difficile pseudomembranous colitis, rash, ↑ LFTs

**Notes:** D/C drug w/ D, evaluate for C. difficile

**Clindamycin/Benzoyl Peroxide (Benzaclin)**

**Uses:** *Topical for acne vulgaris*

**Acts:** Bacteriostatic antibiotic w/ keratolytic

**Dose:** Apply bid (A.M. & P.M.) W/P: [C, ?] Pseudomembranous colitis reported

**CI:** Component sensitivity,
Clindamycin/Tretinoin

**Uses:** *Acne vulgaris*  
**Acts:** Lincoamide abx (↓ protein synthesis) w/ a retinoid; **Spectrum:** *P. acnes*

**Dose:** Adults (>12 y). Apply pea-size amount to area qd  
**W/P:** [C, ±] do not use w/ erythromycin products

**Clindamycin/Tretinoin (Veltin Gel, Ziana)**  
**Uses:** *Acne vulgaris*  
**Acts:** Lincoamide abx (↓ protein synthesis) w/ a retinoid; **Spectrum:** *P. acnes*  
**Disp:** Top Gel (clindamycin 1.2%/tretinoin 0.025%)  
**SE:** Dryness, irritation, erythema, pruritus, exfoliation, dermatitis, sunburn  
**Notes:** Avoid eyes, lips, mucous membranes

**Clobazam (Onfi) [C-IV]**  
**Uses:** *Szs assoc w/ Lennox-Gastaut synd*  
**Acts:** Potentiates GABA neurotransmission; binds to benzodiazipine GABA_A receptor  
**Dose:** Adults & Peds. ≥ 2 y. ≤ 30 kg: 5 mg PO/d, titrate weekly 20 mg/d max; > 30 kg: 10 mg daily, titrate weekly 40 mg/d max; divide dose bid if > 5 mg/d; may crush & mix w/ applesauce; ↓ dose in geriatric pts, CYP2C19 poor metabolizers, & mild–mod hepatic impair; ↓ dose weekly by 5–10 mg/d w/ D/C

**Clomiphene (Clomid, Serophene)**  
**Uses:** *Tx ovulatory dysfunction in women desiring PRG*  
**Acts:** Nonsteroidal ovulatory stimulant; estrogen antagonist  
**Dose:** 50 mg × 5 d; if no ovulation ↑ to 100 mg × 5 d @ 30 d later; ovulation usually 5–10 d postcourse, time coitus w/ expected ovulation time  
**W/P:** [X, ?/–] R/o PRG & ovarian enlargement CI: Hypersens, uterine bleed, PRG, ovarian cysts (not due to polycystic ovary synd), liver Dz, thyroid/adrenal dysfunction

**Clomipramine (Anafranil)**  
**BOX:** Closely monitor for suicidal ideation or unusual behavior changes

**W/P:** [C, ±/–] CI: W/ MAOI, linezolid, IV methylene blue (risk serotonin synd), TCA allergy, during AMI recovery

**SE:** Ovarian enlargement, vasomotor flushes

**W/P:** [C, ±/–] CI: W/ MAOI, linezolid, IV methylene blue (risk serotonin synd), TCA allergy, during AMI recovery

**Disp:** Caps 25, 50, 75 mg SE: Anticholinergic (xerostomia, urinary retention, constipation), somnolence
Clonazepam (Klonopin) [C-IV] Uses: *Lennox-Gastaut synd, akinetic & myoclonic Szs, absence Szs, panic attacks*, RLS, neuralgia, parkinsonian dysarthria, bipolar disorder Acts: Benzodiazepine; anticonvulsant Dose: Adults. 1.5 mg/d PO in 3 doses; ↑ by 0.5–1 mg/d q3d PRN up to 20 mg/d. Peds. 0.01–0.03 mg/kg/24 h PO + tid; ↑ to 0.1–0.2 mg/kg/24 h + tid; 0.2 mg/kg/d max; avoid abrupt D/C W/P: [D, M] Elderly pts, resp Dz, CNS depression, severe hepatic impair, NAG CI: Severe liver Dz, acute NAG Disp: Tabs 0.5, 1, 2 mg, oral disintegrating tabs 0.125, 0.25, 0.5, 1, 2 mg SE: CNS (drowsiness, dizziness, ataxia, memory impair) Notes: Can cause retrograde amnesia; a CYP3A4 substrate

Clonidine, Epidural (Duraclon) BOX: Dilute 500 mcg/mL before use; not rec for OB, postpartum or periop pain management due to ↓ BP/HR Uses: *w/ Opiates for severe pain in cancer patients uncontrollable by opiates alone* Acts: Centrally acting analgesic Dose: 30 mcg/h by epidural Inf W/P: [C, ?/M] May ↓ HR/resp CI: See Box; clonidine sens, Inf site Infxn, anticoagulants, bleed diathesis, use above C4 dermatome Disp: 500 mcg/mL; dilute to 100 mcg/mL w/ NS (preservative free) SE: ↓ BP, dry mouth, N/V, somnolence, dizziness, confusion, sweating, confusion, hallucinations, tinnitus Notes: Avoid abrupt D/C; may cause nervousness, rebound ↑ BP

Clonidine, Oral (Catapres) Uses: *HTN*; opioid, EtOH, & tobacco withdrawal, ADHD Acts: Centrally α-adrenergic stimulant Dose: Adults. 0.1 mg PO bid, adjust daily by 0.1–0.2-mg increments (max 2.4 mg/d). Peds. 5–10 mcg/kg/d + q8–12h (max 0.9 mg/d); ↓ in renal impair W/P: [C, +/-] Avoid w/ β-blocker, elderly, severe CV Dz, renal impair; use w/ agents that affect sinus node may cause severe ↓ HR CI: Component sensitivity Disp: Tabs 0.1, 0.2, 0.3 mg SE: drowsiness, orthostatic ↓ BP, xerostomia, constipation, ↓ HR, dizziness Notes: More effective for HTN if combined w/ diuretics; withdraw slowly, rebound HTN w/ abrupt D/C of doses > 0.2 mg bid; ADHD use in peds needs CV assessment before starting epidural clonidine (Duraclon) used for chronic CA pain

Clonidine, Oral, Extended-Release (Kapvay) Uses: *ADHD alone or as adjunct* Acts: Central α-adrenergic stimulant Dose: Adults, Peds > 6 y. initial 0.1 mg qhs, then adjust weekly to bid; split dose based on table; do not crush/chew; do not substitute other products as mg dosing differs; > 0.4 mg/d not rec

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Clonidine, Transdermal

*HTN* Acts: Centrally acting α-adrenergic stimulant

**Dose:** 1 patch q7d to hairless area (upper arm/torso); titrate to effect; ↓ w/ severe renal impair; W/P: [C, +/−] Avoid w/ β-blocker, withdraw slowly, in elderly, severe CV Dz and w/ renal impair; use w/agents that affect sinus node may cause severe ↓ HR CI: Component sensitivity

**Disp:** TTS-1, TTS-2, TTS-3 (delivers 0.1, 0.2, 0.3 mg, respectively, of clonidine/d for 1 wk) SE: Drowsiness, orthostatic ↓ BP, xerostomia, constipation, ↓ HR Notes: Do not D/C abruptly (rebound HTN); doses > 2 TTS-3 usually not associated w/ ↑ efficacy; steady state in 2–3 d

Clomidogrel (Plavix, Generic) Uses: *Reduce atherosclerotic events*, administer ASAP in ECC setting w/ high-risk ST depression or T-wave inversion

**Acts:** ↓ Plt aggregation **Dose:** 75 mg/d; **ECC 2010. ACS:** 300–600 mg PO loading dose, then 75 mg/d PO; full effects take several days W/P: [B, ?] Active bleeding; risk of bleeding from trauma & other; TTP; liver Dz; other CYP2C19 (eg, fluconazole); OK w/ ranitidine, famotidine CI: Coagulation disorders, active/ intracranial bleeding; CABG planned w/in 5–7 d **Disp:** Tabs 75, 300 mg SE: ↑ bleeding time, GI intolerance, HA, dizziness, rash, thrombocytopenia, ↓ WBC Notes: Plt aggregation to baseline ~ 5 d after D/C, plt transfusion to reverse acutely; clinical response highly variable

Clorazepate (Tranxene) [C-IV] Uses: *Acute anxiety disorders, acute EtOH withdrawal Sxs, adjunctive therapy Rx partial Szs* **Acts:** Benzodiazepine; antianxiety agent

**Dose:** **Adults.** 15–60 mg/d PO single or + doses. Elderly & debilitated pts: Initial 7.5–15 mg/d in + doses. **EtOH withdrawal:** Day 1: Initial 30 mg; then 30–60 mg + doses; Day 2: 45–90 mg + doses; Day 3: 22.5–45 mg + doses; Day 4: 15–30 mg + doses. After day 4: 15–30 mg + doses, then 7.5–15 mg/d + doses **Peds.** 3.75–7.5 mg/dose bid to 60 mg/d max + bid-tid W/P: [D, ?/−] Elderly; Hx depression CI: NAG; Not OK < 9 y of age **Disp:** Tabs 3.75, 7.5, 15 mg SE: CNS depressant effects (drowsiness, dizziness, ataxia, memory impair), ↓ BP Notes: Monitor pts w/ renal/hepatic impair (drug may accumulate); avoid abrupt D/C; may cause dependence

Clotrimazole (Lotrimin, Mycelex, Others) [OTC] Uses: *Candidiasis & tinea Infxns* **Acts:** Antifungal; alters cell wall permeability. **Spectrum:** Oropharyngeal candidiasis, dermatophytoses, superficial mycoses, cutaneous candidiasis, & vulvovaginal candidiasis

**Dose:** **PO:** Prophylaxis: 1 troche dissolved in mouth tid Rx: 1 troche dissolved in mouth 5x/d for 14 d. Vag 1% cream: 1 applicator-full hs for 7 d. 2% cream: 1 applicator-full hs for 3 d **Tabs:** 100 mg vaginally hs for 7 d or 200 mg (2 tabs) vaginally hs for 3 d or 500-mg tabs vaginally hs once. **Topical:** Apply bid 10–14 d W/P: [B (C if PO), ?] Not for systemic fungal Infxn; safety in children < 3 y not established CI: Component allergy **Disp:** 1% cream; soln; troche
Colchicine 95

10 mg; vag cream 1%, 2% SE: Topical: Local irritation; PO: N/V, ↑ LFTs Notes: PO prophylaxis immunosuppressed pts

**Clotrimazole & Betamethasone (Lotrisone)** Uses: *Fungal skin Infections* Acts: Imidazole antifungal & anti-inflammatory. Spectrum: Tinea pedis, cruris, & corporis Dose: Children ≥ 17 y. Apply & massage into area bid for 2–4 wk W/P: [C, ?] Varicella Infection CI: Children < 12 y Disp: Cream 1/0.05% 15, 45 g; lotion 1/0.05% 30 mL SE: Local irritation, rash Notes: Not for diaper dermatitis or under occlusive dressings

**Clozapine (Clozaril, FazaClo, Versacloz)** BOX: Myocarditis, agranulocytosis, Szs, & orthostatic ↓ BP associated w/ clozapine; ↑ mortality in elderly w/ dementia-related psychosis Uses: *Refractory severe schizophrenia*; childhood psychosis; obsessive-compulsive disorder (OCD), bipolar disorder Acts: “Atypical” TCA Dose: 12.5 mg daily or bid initial; ↑ to 300–450 mg/d over 2 wk; maintain lowest dose possible; do not D/C abruptly W/P: [B, +/−] Monitor for psychosis & cholineric rebound CI: Uncontrolled epilepsy; comatose state; WBC < 3500 cells/mm³ and ANC < 2000 cells/mm³ before Rx or < 3000 cells/mm³ during Rx; Eos > 4000/mm³ Disp: Orally disintegrating tabs (ODTs) 12.5, 25, 100, 150, 200 mg; tabs 25, 100 mg; susp 50 mg/mL SE: Sialorrhea, tachycardia, drowsiness, ↑ Wt, constipation, incontinence, rash, Szs, CNS stimulation, hyperglycemia Notes: Avoid activities where sudden loss of consciousness could cause harm; benign temperature ↑ may occur during the 1st 3 wk of Rx, weekly CBC mandatory 1st 6 mo, then q other wk

**Cocaine [C-II]** Uses: *Topical anesthetic for mucous membranes* Acts: Narcotic analgesic, local vasoconstrictor Dose: Lowest topical amount that provides relief; 3 mg/kg max W/P: [C, ?] CI: PRG, ocular anesthesia Disp: Topical soln & viscous preparations 4–10%; powder SE: CNS stimulation, loss of taste/smell, chronic rhinitis, CV tox, abuse potential Notes: Use only on PO, laryngeal, & nasal mucosa; do not use on extensive areas of broken skin

**Codeine [C-II]** Uses: *Mild–mod pain; symptomatic relief of cough* Acts: Narcotic analgesic; ↓ cough reflex Dose: Adults. Analgesic: 15–60 mg PO or IM q4h PRN; 360 mg max/24 h. Antitussive: 10–20 mg PO q4h PRN; max 120 mg/d. Peds. Analgesic: 0.5–1 mg/kg/dose PO q4–6h PRN. Antitussive: 1–1.5 mg/kg/24 h PO or q4h; max 30 mg/24 h; ↓ in renal/hepatic impair W/P: [C (D if prolonged use or high dose at term), +] CNS depression, Hx drug abuse, severe hepatic impair CI: Component sensitivity Disp: Tabs 15, 30, 60 mg; soln 30 mg/5 mL; Inj 15, 30 mg/mL SE: Drowsiness, constipation, ↓ BP Notes: Usually combined w/ APAP for pain or w/ agents (eg, terpin hydrate) as an antitussive; 120 mg IM = 10 mg IM morphine

**Colchicine (Colcrys)** Uses: *Acute gouty arthritis & prevention of recurrences; familial Mediterranean fever*; primary biliary cirrhosis Acts: ↓ migration of leukocytes; ↓ leukocyte lactic acid production Dose: Acute gout: 1.2 mg load, 0.6 mg 1 h later, then prophylactic 0.6 mg/qd-bid FMF: Adult 1.2–2.4 mg/d Peds
Colesevelam

Uses: *↓ LDL & total cholesterol alone or in combo w/ an HMG-CoA reductase inhibit, improve glycemic control in type 2 DM* Acts: Bile acid sequestrant Dose: 3 tabs PO bid or 6 tabs daily w/ meals W/P: [C, +] w/ P-glycoprotein or CYP3A4 inhibit in pt w/ renal or hepatic impair, ↓ dose or avoid in elderly or w/ indinavir CI: Serious renal, GI, hepatic, or cardiac disorders; blood dyscrasias Disp: Tabs 0.6 mg SE: N/V/D, Abd pain, BM suppression, hepatotox

Colestipol (Colestid) Uses: *Adjunct to ↓ serum cholesterol in primary hypercholesterolemia, relieve pruritus associated w/ ↑ bile acids* Acts: Binds intestinal bile acids to form insoluble complex Dose: Granules: 5–30 g/d ÷ 2–4 doses; tabs: 2–16 g/d ÷ daily-bid W/P: [C, ?] Avoid w/ high triglycerides, GI dysfunction CI: Bowel obst Disp: Tabs 1 g; granules 5 g/pack or scoop SE: Constipation, Abd pain, bloating, HA, GI irritation & bleeding Notes: Do not use dry powder; mix w/ beverages, cereals, etc; may ↓ absorption of other meds and fat-soluble vits

Conivaptan HCL (Vaprisol) Uses: Euvolemic & hypervolemic hyponatremia Acts: Dual arginine vasopressin V1A/V2 receptor antagonist Dose: 20 mg IV × 1 over 30 min, then 20 mg cont IV Inf over 24 h; 20 mg/d cont IV Inf for 1–3 more d; may ↑ to 40 mg/d if Na⁺ not responding; 4 d max use; use large vein, change site q24h W/P: [C, ?/−] Rapid ↑ Na⁺ (> 12 mEq/L/24 h) may cause osmotic demyelination synd; impaired renal/hepatic Fxn; may ↑ digoxin levels; CYP3A4 inhibit (Table 10, p 346) CI: Hypovolemic hyponatremia; w/ CYP3A4 inhibit; anuria Disp: Inf 20 mg /100 mL SE: Inf site Rxns, HA, N/V/D, constipation, ↓ K⁺, orthostatic ↓ BP, thirst, dry mouth, pyrexia, pollakiuria, polyuria, Infxn Notes: Monitor Na⁺, vol and neurologic status; D/C w/ very rapid ↑ Na⁺; mix only w/ 5% dextrose

Conjugated Estrogens/Bazedoxifene (Duavee) BOX: Do not use w/ additional estrogen; ↑ risk endometrial CA; do not use to prevent CV Dz or dementia; ↑ risk of stroke & DVT in postmenopausal (50–79 y); ↑ dementia risk in postmenopausal (≥ 65 y) Uses: *Tx mod/severe menopausal vasomotor Sx; Px postmenopausal osteoporosis* Acts: Conjugated estrogens w/ estrogen agonist/antagonist Dose: Adults. One tab PO daily W/P: [X, −] w/ CYP3A4 inhibit may ↑ exposure; do not use w/ progestins, other estrogens; w/ Hx of CV Dz; ↑ risk gallbladder Dz; D/C w/ vision loss, severe ↑ TG, jaundice; monitor thyroid function if on thyroid Rx CI: Hepatic impair; deficiency of protein C or S, antithrombin, other thrombophilic Dz; AUB; Hx breast CA; estrogen-dependent neoplasia; Hx of TE; PRG, child-bearing potential, nursing mothers; component hypersens Disp: Tab (conj estrogens/bazedoxifene) 0.45/20 mg SE: N/D, dyspepsia, Abd pain,
oropharyngeal/neck pain, dizziness, muscle spasms, hot flush Notes: Use for shortest duration for benefit; not rec ≥ 75 y.

**Copper IUD Contraceptive (ParaGard T 380A)**  Uses: *Contraception, long-term (up to 10 y)*  Acts: ?, interfere w/ sperm survival/transport  Dose: Insert any time during menstrual cycle; replace at 10 y max  W/P: [C, ?] Remove w/ intrauterine PRG, increased risk of comp w/ PRG and device in place  CI: Acute PID or in high-risk behavior, postpartum endometritis, cervicitis  Disp: 309 mg IUD SE: PRG, ectopic PRG, pelvic Infxn w/o or w/o immunocompromised, embolism, perforation, expulsion, Wilson Dz, fainting w/ insert, Vag bleeding, expulsion  Notes: Counsel pt does not protect against STD/HIV; see PI for detailed instructions; 99% effective

**Corticosteroids, Systemic and Topical**  See Steroids pp 272 & 273, and Tables 2 & 3 pp 3 and 319

**Crofelemer (Fulyzaq)**  Uses: *Noninfectious diarrhea w/ HIV on anti-retrovirals*  Acts: Inhibits cAMP-stimulated CF transmembrane conductance regulator Cl⁻ channel and Ca-activated Cl⁻ channels of intestinal epithelial cells, controls Cl⁻ and fluid secretion  Dose: 125 mg bid  W/P: [C, –]  CI: None  Disp: Tab 125 mg DR SE: Flatulence, cough, bronchitis, URI, ↑ bili  Notes: r/o infectious D before; do not crush/chew tabs; minimal absorb, drug interact unlikely

**Cromolyn Sodium (NasalCrom, Opticrom, Others)**  Uses: *Adjunct to the Rx of asthma; prevent exercise-induced asthma; allergic rhinitis; ophthal allergic manifestations*; food allergy, systemic mastocytosis, IBD  Acts: Antiasthmatic; mast cell stabilizer  Dose: Adults & Children > 12 y.  **Inh:** 20 mg (as powder in caps) inhaled qid  PO: 200 mg qid 15–20 min ac, up to 400 mg qid.  **Nasal instillation:** Spray once in each nostril 2–6x/d.  **Ophthalm:** 1–2 gtt in each eye 4–6 × d.  **Peds. Inh:** 2 puffs qid of metered-dose inhaler.  **PO:** Infants < 2 y: (not OK) 20 mg/kg/d in 4 ÷ doses. 2–12 y: 100 mg qid ac  W/P: [B, ?] w/ Renal/hepatic impair  CI: Acute asthmatic attacks  Disp: PO conc 100 mg/5 mL; soln for nebulizer 20 mg/2 mL; nasal soln 40 mg/mL; ophthalm soln 4% SE: Unpleasant taste, hoarseness, coughing  Notes: No benefit in acute Rx; 2–4 wk for maximal effect in perennial allergic disorders

**Cyanocobalamin [Vitamin B₁₂] (Nascobal)**  Uses: *Pernicious anemia & other vit B₁₂ deficiency states; ↑ requirements d/t PRG; thyrotoxicosis;
Cyclobenzaprine

**Liver or kidney Dz**

**Acts:** Dietary vit B₁₂ supl

**Dose:** *Adults.* 30 mcg/d × 5–10 d intranasal: 500 mcg once/wk for pts in remission, 100 mcg IM or SQ daily for 5–10 d, then 100 mcg IM 2×/wk for 1 mo, then 100 mcg IM monthly. *Peds.* Use 0.2 mcg/kg × 2 d test dose; if OK 30–50 mcg/d for 2 or more wk (total 1000 mcg) then maint: 100 mcg/mo.

**W/P:** [A (C if dose exceeds RDA), +] **CI:** Allergy to cobalt; hereditary optic nerve atrophy; Leber Dz

**Disp:** Tabs 50, 100, 250, 500, 1000, 2500, 5000 mcg; Inj 1000 mcg/mL; intranasal (Nascobal) gel 500 mcg/0.1 mL

**SE:** Itching, D, HA, anxiety

**Notes:** PO absorption erratic; OK for use w/ hyperalimentation

**Cyclobenzaprine (Flexeril)**

**Uses:** *Relief of muscle spasm*

**Acts:** Centrally acting skeletal muscle relaxant; reduces tonic somatic motor activity

**Dose:** 5–10 mg PO bid–qid (2–3 wk max) **W/P:** [B, ?] Shares the toxic potential of the TCAs; urinary hesitancy, NAG **CI:** Do not use concomitantly or w/in 14 d of MAOIs; hyperthyroidism; heart failure; arrhythmias

**Disp:** Tabs 5, 10 mg

**SE:** Sedation & anticholinergic effects

**Notes:** May inhibit mental alertness or physical coordination

**Cyclobenzaprine, Extended-Release (Amrix)**

**Uses:** *Muscle spasm*

**Acts:** ? Centrally acting long-term muscle relaxant

**Dose:** 15–30 mg PO daily 2–3 wk; 30 mg/d max **W/P:** [B, ?/−] w/ urinary retention, NAG **CI:** MAOI w/in 14 d, elderly, arrhythmias, heart block, CHF, MI recovery phase, ↑ thyroid

**Disp:** Caps ER 15, 30 mg

**SE:** Dry mouth, drowsiness, dizziness, HA, N, blurred vision, dysgeusia

**Notes:** Avoid abrupt D/C w/ long-term use

**Cyclopentolate, Ophthalmic (Cyclogyl, Cylate)**

**Uses:** *Cycloplegia, mydriasis*

**Acts:** Cycloplegic mydriatic, anticholinergic inhibits iris sphincter and ciliary body

**Dose:** *Adults.* 1 gtt in eye 40–50 min preprocedure, may repeat × 1 in 5–10 min

**Peds.** As adult, children 0.5%; infants use 0.5% **W/P:** [C (may cause late-term fetal anoxia/↓ HR), +/-], w/ premature infants, HTN, Down synd, elderly, CI: NAG **Disp:** Ophthalm soln 0.5, 1, 2% **SE:** Tearing, HA, irritation, eye pain, photophobia, arrhythmia, tremor, ↑ IOP, confusion

**Notes:** Compress lacrimal sac for several min after dose; heavily pigmented irises may require ↑ strength; peak 25–75 min, cycloplegia 6–24 h, mydriasis up to 24 h; 2% soln may result in psychotic Rxns and behavioral disturbances in peds

**Cyclopentolate With Phenylephrine (Cyclomydril)**

**Uses:** *Mydriasis greater than cyclopentolate alone*

**Acts:** Cycloplegic mydriatic, α-adrenergic agonist w/ anticholinergic to inhibit iris sphincter

**Dose:** 1 gtt in eye q 5–10 min (max 3 doses) 40–50 min preprocedure **W/P:** [C (may cause late-term fetal anoxia/↓ HR), +/-] HTN, w/ elderly w/ CAD **CI:** NAG **Disp:** Ophthalm soln cyclopentolate 0.2%/phenylephrine 1% (2, 5 mL) **SE:** Tearing, HA, irritation, eye pain, photophobia, arrhythmia, tremor

**Notes:** Compress lacrimal sac for several min after dose; heavily pigmented irises may require ↑ strength; peak 25–75 min, cycloplegia 6–24 h, mydriasis up to 24 h
**Cyclophosphamide (Cytoxan, Neosar)**  
Uses: *Hodgkin Dz & NHLs; multiple myeloma; small cell lung, breast, & ovarian CAs; mycosis fungoides; neuroblastoma; retinoblastoma; acute leukemias; allogeneic & ABMT in high doses; severe rheumatologic disorders (SLE, JRA, Wegner granulomatosis)*

Acts: Alkylating agent  
**Dose:**  
**Adults.** (per protocol) 500–1500 mg/m²; single dose at 2- to 4-wk intervals; 1.8 g/m²–160 mg/kg (or at 12 g/m² in 75-kg individual) in the BMT setting (per protocols).  
**Peds. SLE:** 500 mg–1g/m² q mo.  
**JRA:** 10 mg/kg q 2 wk; ↓ w/ renal impair  

**W/P:** [D, –] w/ BM suppression, hepatic Insuff  
**CI:** Component sensitivity  

**Disp:** Tabs 25, 50 mg; Inj 500 mg, 1 g, 2 g  
**SE:** ↓ BM; hemorrhagic cystitis, SIADH, alopecia, anorexia; N/V; hepatotoxic; rare interstitial pneumonitis; irreversible testicular atrophy possible; cardiotoxic rare; 2nd malignancies (bladder, ALL), risk 3.5% at 8 y, 10.7% at 12 y  
**Notes:** Hemorrhagic cystitis prophylaxis: cont bladder irrigation & MESNA uroprotection; encourage hydration, long-term bladder CA screening

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**Cyclosporine (Gengraf, Neoral, Sandimmune)**  
BOX: ↑ risk neoplasms, ↑ risk skin malignancies, ↑ risk HTN and nephrotoxic  
Uses: *Organ rejection in kidney, liver, heart, & BMT w/ steroids; RA; psoriasis*  

Acts: Immunosuppressant; reversible inhibition of immunocompetent lymphocytes  
**Dose:**  
**Adults & Peds. PO:** 15 mg/kg/12h pretransplant; after 2 wk, taper by 5 mg/wk to 5–10 mg/kg/d.  
**IV:** If NPO, give 1/3 PO dose IV; ↓ in renal/hepatic impair  

**W/P:** [C, –] Dose-related risk of nephrotox/hepatotox/serious fatal Infxns; live, attenuated vaccines may be less effective; may induce fatal malignancy; many drug interactions; ↑ risk of Infxns after D/C  
**CI:** Renal impair; uncontrolled HTN; w/ lovastatin, simvastatin  

**Disp:** Caps 25, 100 mg; PO soln 100 mg/mL; Inj 50 mg/mL  
**SE:** May ↑ BUN & Cr & mimic transplant rejection; HTN; HA; hirsutism  
**Notes:** Administer in glass container; Neoral & Sandimmune not interchangeable; monitor BP, Cr, CBC, LFTs, interaction w/ St. John’s wort; Levels: Trough: Just before next dose: Therapeutic: Variable 150–300 ng/mL RIA

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**Cyclosporine, Ophthalmic (Restasis)**  
Uses: *↑ Tear production suppressed d/t ocular inflammation*  

Acts: Immune modulator, anti-inflammatory  
**Dose:**  
**1 gtt bid each eye 12 h apart; OK w/ artificial tears, allow 15 min between**  

**W/P:** [C, –] CI: Ocular Infxn, component allergy  
**Disp:** Single-use vial 0.05% SE: Ocular burning/hyperemia  
**Notes:** Mix vial well

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**Cyproheptadine (Periactin)**  
Uses: *Allergic Rxns; itching*  

Acts: Phenothiazine antihistamine; serotonin antagonist  
**Dose:**  
**Adults.** 4–20 mg PO + q8h; max 0.5 mg/kg/d.  
**Peds 2–6 y.** 2 mg bid-tid (max 12 mg/24 h).  
**7–14 y:** 4 mg bid-tid; ↓ in hepatic impair  

**W/P:** [B, ?] Elderly, CV Dz, asthma, thyroid Dz, BPH  
**CI:** Neonates or < 2 y; NAG; BOO; acute asthma; GI obst; w/ MAOI  
**Disp:** Tabs 4 mg; syrup 2 mg/5 mL  
**SE:** Anticholinergic, drowsiness  
**Notes:** May stimulate appetite

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**Cytarabine [ARA-C] (Cytosar-U)**  
BOX: Administration by experienced physician in properly equipped facility; potent myelosuppressive agent  
Uses: *Acute leukemias, CML, NHL; IT for leukemic meningitis or prophylaxis*
Cytarabine Liposome

Acts: Antimetabolite; interferes w/ DNA synth. Dose: 100–150 mg/m²/d for 5–10 d (low dose); 3 g/m² q12h for 6–12 doses (high dose); 1 mg/kg 1–2/wk (SQ maint); 5–75 mg/m² up to 3/wk IT (per protocols); ↓ in renal/hepatic impair. W/P: [D, ?] in elderly, w/ marked BM suppression, ↓ dosage by ↓ the number of days of administration. CI: Component sensitivity. Disp: Inj 100, 500 mg, 1, 2 g, also 20, 100 mg/mL. SE: ↓ BM, N/V, stomatitis, flu-like synd, rash on palms/soles, hepatic/cerebellar dysfunction w/ high doses, noncardiogenic pulm edema, neuropathy, fever. Notes: Little use in solid tumors; high-dose tox limited by corticosteroid ophthal soln.

Cytarabine Liposome (DepoCyt) Box: Can cause chemical arachnoiditis (N/V/HA, fever) ↓ severity w/ dexamethasone. Administer by experienced physician in properly equipped facility. Uses: *Lymphomatous meningitis* Acts: Antimetabolite; interferes w/ DNA synth. Dose: 50 mg IT q14d for 5 doses, then 50 mg IT q28d × 4 doses; use dexamethasone prophylaxis. W/P: [D, ?] May cause neurotox; blockage to CSF flow may ↑ the risk of neurotox; use in peds not established. CI: Active meningeal Infxn. Disp: IT Inj 50 mg/5 mL. SE: Neck pain/rigidity, HA, confusion, somnolence, fever, back pain, N/V, edema, neutropenia, ↓ plt, anemia. Notes: Cytarabine liposomes are similar in microscopic appearance to WBCs; caution in interpreting CSF studies.

Cytomegalovirus Immune Globulin [CMV-IG IV] (CytoGam) Uses: *Prophylaxis/attenuation CMV Dz w/ transplantation* Acts: IgG antibodies to CMV. Dose: 150 mg/kg/dose w/in 72 h of transplant and wk 2, 4, 6, 8; 100–150 mg/kg/dose wk 12, 16 posttransplant; 50–100 mg/kg/dose. W/P: [C, ?] Anaphylactic Rxns; renal dysfunction. CI: Allergy to immunoglobulins; IgA deficiency. Disp: Inj 50 mg/mL. SE: Flushing, N/V, muscle cramps, wheezing, HA, fever, non-cardiogenic pulm edema, renal Insuff, aseptic meningitis. Notes: IV only in separate line; do not shake.

Dabigatran (Pradaxa) BOX: Pradaxa D/C w/o adequate anticoagulation ↑ stroke risk. Uses: *↓ Risk stroke/systemic embolism w/ nonvalvular afib* Acts: Thrombin inhibitor. Dose: CrCl > 30 mL/min: 150 mg PO bid; CrCl 15–30 mL/min: 75 mg PO bid; do not chew/open caps. W/P: [C, ?/–] Avoid w/ P-glycoprotein inducers (i.e., rifampin). CI: Active bleeding, prosthetic valve. Disp: Caps 75, 150 mg. SE: Bleeding, gastritis, dyspepsia. Notes: See label to convert between anticoagulants; caps sensitive to humidity (30-d life after opening bottle); routine coags not needed; ↑ PTT/INR/PTT; w/ nl TT, no drug activity; ½ life 12–17 h.

Dabrafenib (Tafinlar) Uses: *Met melanoma (single agent) w/ BRAF V600E mut; combo w/ trametinib w/ BRAF V600E or V600K mut* Acts: TKI. Dose: Adults. As single agent: 150 mg PO twice daily; Combo: 150 mg PO 2 × daily + trametinib 2 mg PO 1 ×d; 1 h ac or 2 h pc; see label dosage mods w/tox W/P: [D, –] embryo-fetal tox; may cause new malignancies, tumor promotion in BRAF wild-type melanoma, ↑ bleeding risk, cardiomyopathy, VTE, ocular tox, skin tox, ↑ glucose, febrile Rxn; risk of hemolytic anemia w/ G6PD def; avoid w/ strong inhib/induc CYP3A4 & CYP2C8; use w/substrates of CYP3A4, CYP2C8, CYP2C9, CYP2C19,
Dalfampridine

or CYP2B6 may \(\downarrow\) efficacy of these agents CI: None Disp: Caps 50, 75 mg SE: See W/P; single agent: hyperkeratosis, pyrexia, arthralgia, papilloma, alopecia, HA, palmar-plantar erythrodynesesthesia synd; \(w/\) trametinib: N/V/D, constipation, Abd pain, pyrexia, chills, fatigue, rash, edema, cough, HA, arthralgia, night sweats, \(\downarrow\) appetite, myalgia Notes: Use non-hormonal contraception \(w/\) Tx and for 2 wk after D/C of single therapy or 4 mo after D/C \(w/\) trametinib; may \(\downarrow\) spermatogenesis

Dacarbazine (DTIC) BOX: Causes hematopoietic depression, hepatic necrosis, may be carcinogenic, teratogenic

Uses: *Melanoma, Hodgkin Dz, sarcoma*

Acts: Alkylating agent; antimitabolite as a purine precursor; \(\downarrow\) protein synth, RNA, \& especially DNA Dose: 2–4.5 mg/kg/d for 10 consecutive d or 250 mg/m\(^2\)/d for 5 d (per protocols); \(\downarrow\) in renal impair W/P: [C, –] In BM suppression; renal/hepatic impair CI: Component sensitivity Disp: Inj 100, 200 mg SE: \(\downarrow\) BM, N/V, hepatotoxic, flu-like synd, \(\downarrow\) BP, photosens, alopecia, facial flushing, facial paresthesias, urticaria, phlebitis at Inj site Notes: Avoid extrav, ✓ CBC, plt

Daclizumab (Zenapax) BOX: Administer under skilled supervision in properly equipped facility

Uses: *Prevent acute organ rejection*

Acts: IL-2 receptor antagonist Dose: 1 mg/kg/dose IV; 1st dose pretransplant, then 1 mg/kg q14d \(\times\) 4 doses W/P: [C, ?] CI: Component sensitivity Disp: Inj 5 mg/mL SE: Hyperglycemia, edema, HTN, \(\downarrow\) BP, constipation, HA, dizziness, anxiety, nephrotoxic, pulm edema, pain, anaphylaxis/hypersens Notes: Administer w/in 4 h of prep

Dactinomycin (Cosmegen) BOX: Administer under skilled supervision in properly equipped facility; powder and soln toxic, corrosive, mutagenic, carcinogenic, and teratogenic; avoid exposure and use precautions

Uses: *Choriocarcinoma, Wilms tumor, Kaposi and Ewing sarcomas, rhabdomyosarcoma, uterine and testicular CA*

Acts: DNA-intercalating agent Dose: Adults: 15 mcg/kg/d for 5 d q3–6 wk or 400–600 mcg/m\(^2\) for 5d q3–6 wk Peds. Sarcoma (per protocols); \(\downarrow\) in renal impair W/P: [D, ?] CI: Concurrent/recent chickenpox or herpes zoster; infants < 6 mo Disp: Inj 0.5 mg SE: Myelo-/immunosuppression, severe N/V/D, alopecia, acne, hyperpigmentation, radiation recall phenomenon, tissue damage \(w/\) extrav, hepatotoxic Notes: Classified as antibiotic but not used as antimicrobial

Dalbavancin (Dalvance) Uses: *Acute bacterial skin and skin structure infections*

Acts: Glycopeptide antibacterial (blocks cell wall synth) Spectrum: includes methicillin-susceptible/resistant strains and *Streptococcus pyogenes*, *enterococcus*

Dose: Two-dose regimen: 1000 mg IV followed by 500 mg 1 wk later W/P: [C, ?/–] Anaphylaxis reported; avoid rapid inf; \(\uparrow\) ALT, *Clostridium difficile*-associated diarrhea reported CI: Component hypersens Disp: 500 mg powder to reconstitute SE: N, D, HA Notes: Not approved in peds

Dalfampridine (Ampyra) Uses: *Improve walking w/ MS*

Acts: K\(^+\) channel blocker Dose: 10 mg PO q12h max dose/d 20 mg W/P: [C, ?/–] Not w/ other 4-aminopyridines CI: Hx Sz; \(w/\) CrCl \(\leq\) 50 mL/min Disp: Tab ER 10 mg SE: HA, N, constipation, dyspepsia, dizziness, insomnia, UTI, nasopharyngitis, back pain,
Dalteparin (Fragmin) BOX: ↑ Risk of spinal/epidural hematoma w/ LP

Uses: *Unstable angina, non–Q-wave MI, prevent & Rx DVT following surgery (hip, Abd), pt w/ restricted mobility, extended therapy Rx for PE DVT in CA pt*

Acts: LMW heparin

Dose: Angina/MI: 120 units/kg (max 10,000 units) SQ q12h w/ ASA.

DVT prophylaxis: 2500–5000 units SQ 1–2 h preop, then daily for 5–10 d.

Systemic anticoagulation: 200 units/kg/d SQ or 100 units/kg bid SQ. CA: 200 Int units/kg (max 18,000 Int units) SQ q24h × 30 d, mo 2–6 150 Int units/kg SQ q24h (max 18,000 Int units) W/P: [B, ?] In renal/hepatic impair, active hemorrhage, cerebrovascular Dz, cerebral aneurysm, severe HTN CI: HIT; pork product allergy; w/ mifepristone

Disp: Inj multiple ranging from 2500 units (16 mg/0.2 mL) to 25,000 units/mL (3.8 mL) prefilled vials SE: Bleeding, pain at site, ↓ plt Notes: Predictable effects eliminates lab monitoring; not for IM/IV use

Dantrolene (Dantrium, Revonto) BOX: Hepatotox reported; D/C after 45 d if no benefit observed

Uses: *Rx spasticity d/t upper motor neuron disorders (eg, spinal cord injuries, stroke, CP, MS); malignant hyperthermia*

Acts: Skeletal muscle relaxant

Dose: Adults. Spasticity: 25 mg PO daily; ↑ 25 mg to effect to 100 mg PO q8h (400 mg/d max). Peds. 0.5 mg/kg/dose/d; ↑ by 0.5 mg/kg dose tid to 2 mg/kg/dose tid (max 400 mg/d) Adults & Peds. Malignant hyperthermia: Rx: Cont rapid IV, start 1 mg/kg until Sxs subside or 10 mg/kg is reached. Postcrisis follow-up: 4–8 mg/kg/d in 3–4 doses for 1–3 d to prevent recurrence W/P: [C, ?] Impaired cardiac/pulm/hepatic Fxn CI: Active hepatic Dz; where spasticity needed to maintain posture or balance Disp: Caps 25, 50, 100 mg; powder for Inj 20 mg/vial SE: Hepatotox, ↑ LFTs, drowsiness, dizziness, rash, muscle weakness, D/N/V, pleural effusion w/ pericarditis, blurred vision, hep, photosens Notes: Monitor LFTs; avoid sunlight/EtOH/CNS depressants

Dapagliflozin (Farxiga) Uses: *Type-2 DM*

Acts: SGLT2 inhib

Dose: 5–10 mg PO q a.m.; do not use if GFR < 60 ml/min W/P: [C, −] ↓ BP due to ↓ intravascular vol; ↑ Cr, ↑ renal fxn; ↓ BS risk w/ insulin/insulin secretagogue; genital mycotic Infxn; ↑ LDL; bladder CA CI: Hypersens Rxn; severe renal impair (< 30 ml/min), end-stage renal Dz, dialysis Disp: Tabs 5, 10 mg SE: UTI, female genital mycotic Infxn, nasopharyngitis, see W/P Notes: No clinical trials to date to show ↓ in macrovascular complications

Dapsone, Oral Uses: *Rx & prevent PCP; toxoplasmosis prophylaxis; leprosy*

Acts: Unknown; bactericidal

Dose: Adults. PCP prophylaxis 50–100 mg/d PO; Rx PCP 100 mg/d PO w/ TMP 15–20 mg/kg/d for 21 d. Peds. PCP prophylaxis alternated dose: (> 1 mo) 4 mg/kg/dose once/wk (max 200 mg); Rx pcp: 1–2 mg/kg/24 h PO daily; max 100 mg/d W/P: [C, +] G6PD deficiency; severe anemia CI: Component sensitivity Disp: Tabs 25, 100 mg SE: Hemolysis, methemoglobinemia, agranulocytosis, rash, cholestatic jaundice Notes: Absorption ↑ by an acidic environment; for leprosy, combine w/ rifampin & other agents
Darunavir

**Dapsone, Topical (Aczone)**  Uses: *Topical for acne vulgaris*  Acts: Unknown; bactericidal  Dose: Apply pea-size amount and rub into areas bid; wash hands after  W/P: [C, +] G6PD deficiency; severe anemia  CI: Component sensitivity  Disp: 5% gel  SE: Skin oiliness/peeling, dryness erythema  Notes: Not for oral, ophthal, or intravag use; check G6PD levels before use; follow CBC if G6PD deficient

**Daptomycin (Cubicin)**  Uses: *Complicated skin/skin structure Infxns d/t gram(+) organisms*  Acts: Cyclic lipopeptide; rapid membrane depolarization & bacterial death.  Spectrum: *S. aureus* (including MRSA), *S. pyogenes, S. agalactiae, S. dysgalactiae subsp Equisimilis, & E. faecalis* (vancomycin-susceptible strains only)  Dose: Skin: 4 mg/kg IV daily × 7–14 d (over 2 min); Bacteremia & Endocarditis: 6 mg/kg q24h; ↓ w/ CrCl < 30 mL/min or dialysis: q48h  W/P: [B, ?] w/ HMG-CoA inhib  Disp: Inj 500 mg/10 mL  SE: Anemia, constipation, N/V/D, HA, rash, site Rxn, muscle pain/weakness, edema, cellultis, hypo-/hyperglycemia, ↑ alkaline phosphatase, cough, back pain, Abd pain, ↓ K+, anxiety, CP, sore throat, cardiac failure, confusion, Candida  Infxns  Notes: ✓ CPK baseline & weekly; consider D/C HMG-CoA reductase inhib to ↓ myopathy risk; not for Rx PNA

**Darbepoetin Alfa (Aranesp)**  BOX: Associated w/ ↑ CV, thromboembolic events and/or mortality; D/C if Hgb > 12 g/dL; may increase tumor progression and death in CA pts  Uses: *Anemia associated w/ CRF*, anemia in nonmyeloid malignancy w/ concurrent chemotherapy  Acts: ↑ Erythropoiesis, recombinant erythropoietin variant  Dose: 0.45 mcg/kg single IV or SQ qwk; titrate, do not exceed target Hgb of 12 g/dL; use lowest doses possible, see PI to convert from Epogen  W/P: [C, ?] May ↑ risk of CV &/or neurologic SE in renal failure; HTN; w/ Hx Szs  CI: Uncontrolled HTN, component allergy  Disp: 25, 40, 60, 100, 200, 300 mcg/mL, 150 mcg/0.75 mL in polysorbate or albumin excipient  SE: May ↑ cardiac risk, CP, hypo-/hypertension, N/V/D, myalgia, arthralgia, dizziness, edema, fatigue, fever, ↑ risk  Infxns  Notes: Longer half-life than Epogen; weekly CBC until stable

**Darifenacin (Enablex)**  Uses: *OAB* Urinary antispasmodic  Acts: Muscarinic receptor antagonist  Dose: 7.5 mg/d PO; 15 mg/d max (7.5 mg/d w/ mod hepatic impair or w/ CYP2C4 inhibit); w/ drugs metabolized by CYP2D (Table 10, p 346); swallow whole  W/P: [C, ?/-] w/ Hepatic impair  CI: Urinary/gastric retention, uncontrolled NAG, paralytic ileus  Disp: Tabs ER 7.5, 15 mg SE: Xerostomia/eyes, constipation, dyspepsia, Abd pain, retention, abnormal vision, dizziness, asthenia

**Darunavir (Prezista)**  Uses: *Rx HIV w/ resistance to multiple protease inhib*  Acts: HIV-1 protease inhib  Dose: Adults. Rx-naïve and w/o darunavir resistance substitutions: 800 mg w/ ritonavir 100 mg qd. Rx experienced w/ 1 darunavir resistance: 600 mg w/ ritonavir 100 mg BID w/ food.  Peds 6–18 y and > 20 kg. Dose based on body weight (see label); do not exceed the Rx experienced adult dose. Do not use qd dosing in peds; w/ food  W/P: [C, ?/-] Hx sulfa allergy,
Dasatinib (Sprycel)  Uses: CML, Ph + ALL  Acts: Multi-TKI  Dose: 100–140 mg PO day; adjust w/ CYP3A4 inhib/inducers (Table 10, p 346)  W/P: [D, ?/−]  CI: None  Disp: Tabs 20, 50, 70, 80, 100, 140 mg  SE: ↓ BM, edema, fluid retention, pleural effusions, N/V/D, Abd pain, bleeding, fever, ↑ QT  Notes: Replace K+, Mg2+ before Rx

Daunorubicin (Cerubidine)  BOX: Cardiac Fxn should be monitored d/t potential risk for cardiac tox & CHF, renal/hepatic dysfunction  Uses: *Acute leukemias*  Acts: DNA-intercalating agent; ↓ topoisomerase II; generates oxygen free radicals  Dose: 45–60 mg/m²/d for 3 consecutive d; 25 mg/m²/wk (per protocols); ↓ w/ renal/hepatic impair  W/P: [D, ?]  CI: Component sens  Disp: Inj 20, 50 mg  SE: ↓ BM, mucositis, N/V, orange urine, alopecia, radiation recall phenomenon, hepatotox (↑ bili), tissue necrosis w/ extrav, cardiotox (1–2% CHF w/ 550 mg/m² cumulative dose)  Notes: Prevent cardiotox w/ dexrazoxane (w/ >300 mg/m² daunorubicin cum dose); IV use only; allopurinol prior to ↓ hyperuricemia

Decitabine (Dacogen)  Uses: *MDS*  Acts: Inhibits DNA methyltransferase  Dose: 15 mg/m² cont Inf over 3 h; repeat q8h × 3 d; repeat cycle q6wk, min 4 cycles; delay Tx and ↓ dose if inadequate hematologic recovery at 6 wk (see PI); delay Tx w/ Cr > 2 mg/dL or bili > 2× ULN  W/P: [D, ?/−]; avoid PRG; males should not father a child during or 2 mo after; renal/hepatic impair  Disp: Powder 50 mg/vial  SE: ↓ WBC, ↓ HgB, ↓ plt, febrile neutropenia, edema, petechiae, N/V/D, constipation, stomatitis, dyspepsia, cough, fever, fatigue, ↑ LFTs/bili, hyperglycemia, Infxn, HA  Notes: ✓ CBC & plt before cycle and PRN; premedicate w/ antiemetic

Deferasirox (Exjade)  BOX: May cause renal and hepatic tox/failure, GI bleed; follow labs  Uses: *Chronic iron overload d/t transfusion in pts >2 y*  Acts: Oral iron chelator  Dose: 20 mg/kg PO/d; adjust by 5–10 mg/kg q3–6mo based on monthly ferritin; 40 mg/kg/d max; on empty stomach 30 min ac; hold dose w/ ferritin <500 mcg/L; dissolve in water/orange/apple juice (<1 g/3.5 oz; >1 g in 7 oz) drink immediately; resuspend residue and swallow; do not chew, swallow whole tabs or take w/ Al-containing antacids  W/P: [B, ?/−] Elderly, renal impair, heme disorders; ↑ MDS in pt 60 y  Disp: Tabs for oral susp 125, 250, 500 mg  SE: N/V/D, Abd pain, skin rash, HA, fever, cough, ↑ Cr & LFTs, Infxn, hearing loss, dizziness, cataracts, retinal disorders, ↑ IOP  Notes: ARF, cytopenias possible; ✓ Cr weekly 1st mo then q
Desipramine

Desipramine (Norpramin) **BOX**: Closely monitor for worsening depression or emergence of suicidality. **Uses**: Endogenous depression*, chronic pain, peripheral neuropathy. **Acts**: TCA; ↑ synaptic serotonin or norepinephrine in CNS.

mo, ✓ CBC, urine protein, LFTs; do not use w/ other iron-chelator therapies; dose to nearest whole tab; initial auditory/ophthal testing and q12mo

**Deferiprone (Ferriprox)** **BOX**: May cause neutropenia & agranulocytosis w/ Infxn & death. Monitor baseline ANC & weekly. D/C if Infxn develops. Advise pts to report any Sx of Infxn.

**Uses**: *Transfusion iron overload in thalassemia synds* **Acts**: Iron chelator. **Dose**: 25 mg/kg PO 3 × d (75 mg/kg/d); 33 mg/kg PO 3 × d (99 mg/kg/d) max round dose to nearest 1/2 tab. **W/P**: [D, –] D/C w/ ANC < 1.5 × 10^9/L. **CI**: Hypersens. **Disp**: Tabs (scored) 500 mg. **SE**: N/V, Abd pain, chromaturia, arthralgia, ↑ ALT, neutropenia, agranulocytosis, ↑ QT, HA. **Notes**: Separate by 4 h antacids & mineral supplements w/ polyvalent cations; ✓ plasma zinc.

**Degarelix (Firmagon)** **Uses**: *Advanced PCa* **Acts**: Reversible LHRH antagonist, ↓ LH and testosterone w/o flare seen w/ LHRH agonists (transient ↑ in testosterone). **Dose**: Initial 240 mg SQ in two 120 mg doses (40 mg/mL); maint 80 mg SQ (20 mg/mL) q28d. **W/P**: [Not for women] **CI**: Women. **Disp**: Inj vial 120 mg (initial); 80 mg (maint) **SE**: Inj site Rxns, hot flashes, ↑ Wt, ↑ serum GGT. **Notes**: Requires 2 Inj initial (volume); 44% testosterone castrate (< 50 ng/dL) at day 1, 96% day 3.

**Delavirdine (Rescriptor)** **Uses**: *HIV Infxn* **Acts**: Nonnucleoside RT inhib. **Dose**: 400 mg PO tid. **W/P**: [C, ?] **CI**: w/ Drugs dependent on CYP3A (Table 10, p 346). **Disp**: Tabs 100, 200 mg. **SE**: Fat redistribution, immune reconstitution synd, HA, fatigue, rash, ↑ transaminases, N/V/D. **Notes**: Avoid antacids; ↓ cytochrome P-450 enzymes; numerous drug interactions; monitor LFTs.

**Demeclocycline (Declomycin)** **Uses**: *SIADH* **Acts**: Antibiotic, antagonizes ADH action on renal tubules. **Dose**: 600–1200 mg/d PO on empty stomach; ↓ in renal failure; avoid antacids. **W/P**: [D, ?–] **CI**: Tetracycline allergy. **Disp**: Tabs 150, 300 mg. **SE**: Fat redistribution, photosens, DI. **Notes**: Avoid sunlight, numerous drug interactions; not for peds < 8 y.

**Denosumab (Prolia, Xgeva)** **Uses**: *Tx osteoporosis postmenopausal women* ↑ BMD in men on ADT (Prolia); prevent skeletal events w/ bone mets from solid tumors (Xgeva). **Acts**: RANK ligand (RANKL) inhibitor (human IgG2 MoAb); inhibits osteoclasts. **Dose**: Prolia: 60 mg SQ q6mo; Xgeva: 120 mg SQ q4wk; in upper arm, thigh, Abd. **W/P**: [X (Xgeva), D (Prolia), ?–] **CI**: Hypocalcemia. **Disp**: Inj Prolia 60 mg/mL; Xgeva 120 mg/1.7 mL. **SE**: ↓ Ca^2+^, hypophosphatemia, serious Infxns, dermatitis, rashes, eczema, jaw osteonecrosis, pancreatitis, pain (musculoskeletal, back), fatigue, asthenia, dyspnea, N, Abd pain, flatulence, hypercholesterolemia, anemia, cystitis. **Notes**: Give w/ calcium 1000 mg & vit D 400 Int units/d.

Desipramine
**Desirudin**

**Dose:** Adults. 100–200 mg/d single or + dose; usually single hs dose (max 300 mg/d); ↓ dose in elderly. **Peds 6–12 y.** 1–3 mg/kg/d + dose, 5 mg/kg/d max. **W/P:** [C, ?/−] w/ CV Dz, Sz disorder, hypothyroidism, elderly, liver impair. **CI:** MAOIs w/in 14 d; during AMI recovery phase w/ linezolid or IV methylene blue (↑ risk serotonin synd). **Disp:** Tabs 10, 25, 50, 75, 100, 150 mg. **SE:** Anticholinergic (blurred vision, urinary retention, xerostomia); orthostatic ↓ BP; ↑ QT, arrhythmias. **Notes:** Numerous drug interactions; blue-green urine; avoid sunlight.

**Desirudin (Iprivask)**

**BOX:** Recent/planned epidural/spinal anesthesia, ↑ epidural/spinal hematoma risk w/ paralysis; consider risk vs benefit before neuraxial intervention. **Uses:** *DVT Px in hip replacement* **Acts:** Thrombin inhibitor. **Dose:** Adults. 15 mg SQ q12h, initial 5–15 min prior to surgery; CrCl 31–60 mL/min: 5 mg SQ q12h; CrCl < 31 mL/min: 1.7 mg SQ q12h; ✓ aPTT & SCr daily for dosage mod. **W/P:** [C, ?/−] **CI:** Active bleeding, irreversible coags, hypersens to hirudins. **Disp:** Inj 15 mg. **SE:** Hemorrhage, N/V, Inj site mass, wound secretion, anemia, thrombophlebitis, ↓ BP, dizziness, anaphylactic Rxn, fever.

**Desloratadine (Clarinex)**

**Uses:** *Seasonal & perennial allergic rhinitis; chronic idiopathic urticaria* **Acts:** Active metabolite of Claritin, H1-antihistamine, blocks inflammatory mediators. **Dose:** Adults & Peds > 12 y. 5 mg PO daily; 5 mg PO q other day w/ hepatic/renal impair. **W/P:** [C, ?/−] **Disp:** Tabs 5 mg; RediTabs (rapid dissolving) 2.5, 5 mg, syrup 0.5 mg/mL. **SE:** Allergy, anaphylaxis, somnolence, HA, dizziness, fatigue, pharyngitis, xerostomia, N, dyspepsia, myalgia.

**Desmopressin (DDAVP, Stimate)**

**BOX:** Not for hemophilia B or w/ factor VIII antibody; not for hemophilia A w/ factor VIII levels < 5% **Uses:** *DI; bleeding d/t uremia, hemophilia A, & type I von Willebrand Dz (parenteral), nocturnal enuresis* **Acts:** Synthetic analog of vasopressin (human ADH); ↑ factor VIII. **Dose:** DI: **Intranasal:** Adults. 0.1–0.4 mL (10–40 mcg/d in 1–3 + doses). **Peds 3 mo–12 y.** 0.05–0.3 mL/d (5 mcg/d) in 1 or 2 doses. **Parenteral:** Adults. 0.5–1 mL (2–4 mcg/d in 2 + doses); converting from nasal to parenteral, use 1/10 nasal dose. **PO:** Adults. 0.05 mg bid; ↑ to max of 1.2 mg. **Hemophilia A & von Willebrand Dz** (type I): Adults & Peds > 10 kg. 0.3 mcg/kg in 50 mL NS, Inf over 15–30 min. **Peds < 10 kg.** As above w/ dilution to 10 mL w/ NS. **Nocturnal enuresis:** **Peds > 6 y.** 20 mcg intranasally hs. **W/P:** [B, M] Avoid overhydration. **CI:** Hemophilia B; CrCl < 50 mL/min, severe classic von Willebrand Dz; pts w/ factor VIII antibodies; hyponatremia. **Disp:** Tabs 0.1, 0.2 mg; Inj 4 mcg/mL; nasal spray 0.1 mg/mL (10 mcg)/spray 1.5 mg/mL (150 mcg/spray). **SE:** Facial flushing, HA, dizziness, vulval pain, nasal congestion, pain at Inj site, ↓ Na+, H2O intoxication. **Notes:** In very young & old pts, ↓ fluid intake to avoid H2O intoxication & ↓ Na+; ↓ urine output, ↑ urine osm, ↓ plasma osm.

**Desvenlafaxine (Khedezla, Pristiq, Generic)**

**BOX:** Monitor for worsening or emergence of suicidality, particularly in peds, adolescent, and young adult pts; not approved in peds. **Uses:** *MDD* **Acts:** Selective serotonin and norepinephrine inhibitors.
Dexamethasone, Ophthalmic (AK-Dex Ophthalmic, Decadron Ophthalmic, Maxidex) Uses: *Inflammatory or allergic conjunctivitis*
Acts: Anti-inflammatory corticosteroid Dose: Instill 1–2 gtt tid-qid W/P: [C, ?/−] CI: Active untreated bacterial, viral, & fungal eye Infxns Disp: Susp & soln 0.1% SE: Long-term use associated w/ cataracts

Dexamethasone, Systemic, Topical (Decadron) See Sterioids, Systemic p 272 and Steroids, Topical p 273. Peds. ECC 2010. Croup: 0.6 mg/kg IV/IM/PO once; max dose 16 mg; Asthma: 0.6 mg/kg IV/IM/PO q24h; max dose 16 mg

Dexlansoprazole (Dexilant) Uses: *Heal and maint of erosive esophagitis (EE), GERD* PUD Acts: PPI, delayed release Dose: EE: 60 mg qd up to 8 wk; maint healed EE: 30 mg qd up to 6 mo; GERD 30 mg/QD × 4 wk; ↓ w/ hepatic impair W/P: [B, +/−] do not use w/ clopidogrel/atazanavir or drugs w/ pH based absorption (eg, ampicillin, iron salts, ketoconazole); may alter warfarin and tacrolimus levels CI: Component hypersensitivity Disp: Caps 30, 60 mg SE: N/V/D, flatulence, Abd pain, URI Notes: w/ or w/o food; take whole or sprinkle on tsp applesauce; clinical response does not r/o gastric malignancy; see also lansoprazole; ? ↑ risk of fractures w/ all PPI; risk of hypomagnesemia w/ long-term use, monitor

Dexmedetomidine (Precedex) Uses: *Sedation in intubated & nonintubated pts* Acts: Sedative; selective α2-agonist Dose: Adults. ICU Sedation: 1 mcg/kg IV over 10 min then 0.2–0.7 mcg/kg/h; Procedural sedation: 0.5–1 mcg/kg IV over 10 min then 0.2–1 mcg/kg/h; ↓ in elderly, liver Dz W/P: [C, ?/−] CI: None Disp: Inj 200 mcg/2 mL SE: Hypotension, bradycardia Notes: Tachyphylaxis & tolerance assoc w/ exposure > 24 h

Dexamethasone (Focalin, Focalin XR)[C-II] BOX: Caution w/ Hx drug dependence/alcoholism. Chronic abuse may lead to tolerance, psychological dependence & abnormal behavior; monitor closely during withdrawal Uses: *ADHD* Acts: CNS stimulant, blocks reuptake of norepinephrine & DA Dose: Adults. Focalin: 2.5 mg PO twice daily, ↑ by 2.5–5 mg weekly; max 20 mg/d Focalin XR: 10 mg PO daily, ↑ 10 mg weekly; max 40 mg/d Peds ≥ 6 y. Focalin: 2.5 mg PO bid, ↑ 2.5–5 mg weekly; max 20 mg/d Focalin XR: 5 mg PO daily, ↑ 5 mg weekly; max 30 mg/d; if already on methylphenidate, start w/ half of current total daily dose W/P: [C, ?/−] Avoid w/ known cardiac abnorm; may ↓ metabolism of warfarin/anticonvulsants/antidepressants CI: Agitation, anxiety, tension, glaucoma, Hx motor tic, fam Hx/dx Tourette's w/in 14 d of MAOI;
Dexpanthenol (Ilopan-Choline [Oral], Ilopan) Uses: *Minimize paralytic ileus, Rx postop distention* Acts: Cholinergic agent Dose: Adults. Relief of gas: 2–3 tabs PO tid. Prevent postop ileus: 250–500 mg IM stat, repeat in 2 h, then q6h PRN. Ileus: 500 mg IM stat, repeat in 2 h, then q6h, PRN W/P: [C, ?] Cl: Hemophilia, mechanical bowel obst Disp: Inj 250 mg/mL; cream 2% (Panthoderm Cream [OTC]) SE: GI cramps

Dexrazoxane (Zinecard, Totect) Uses: *Prevent anthracycline-induced (eg, doxorubicin) cardiomyopathy (Zinecard), extrav of anthracycline chemotherapy (Totect)* Acts: Chelates heavy metals; binds intracellular iron & prevents anthracycline-induced free radicals Dose: Systemic for cardiomyopathy (Zinecard): 10:1 ratio dexrazoxane: doxorubicin 30 min before each dose, 5:1 ratio w/ CrCl < 40 mL/min Extrav (Totect): IV Inf over 1–2 h qd × 3 d, w/in 6 h of extrav. Day 1: 1000 mg/m² (max 2000 mg); Day 2: 1000 mg/m² (max 2000 mg); Day 3: 500 mg/m² (max: 1000 mg); w/ CrCl < 40 mL/min, ↓ dose by 50% W/P: [D, –] Cl: Component sensitivity Disp: Inj powder 250, 500 mg (10 mg/mL) SE: ↓ BM, fever, Infxn, stomatitis, alopecia, N/V/D; ↑ LFTs, Inj site pain

Dextran 40 (Gentran 40, Rheomacrodex) Uses: *Shock, prophylaxis of DVT & thromboembolism, adjunct in peripheral vascular surgery* Acts: Expands plasma vol; ↓ blood viscosity Dose: Shock: 10 mL/kg Inf rapidly; 20 mL/kg max 1st 24 h; beyond 24 h 10 mL/kg max; D/C after 5 d. Prophylaxis of DVT & thromboembolism: 10 mL/kg IV day of surgery, then 500 mL/d IV for 2–3 d, then 500 mL IV q2–3d based on risk for up to 2 wk W/P: [C, ?] Inf Rxns; w/ corticosteroids Cl: Major hemostatic defects; cardiac decompensation; renal Dz w/ severe oliguria/anuria Disp: 10% dextran 40 in 0.9% NaCl or 5% dextrose SE: Allergy/ anaphylactoid Rxn (observe during 1st min of Inf), arthralgia, cutaneous Rxns, ↓ BP, fever Notes: Monitor Cr & lytes; keep well hydrated

Dextroamphetamine (Dexedrine, Procentra) [C-II] BOX: Amphetamines have a high potential for abuse. Long-term use may lead to dependence. Serious CV events, including death, w/ preexisting cardiac cond. Uses: *ADHD, narcolepsy* Acts: CNS stimulant; ↑ DA & norepinephrine release Dose: ADHD ≥ 6 y: 5 mg daily-bid, ↑ by 5 mg/d weekly PRN, max 60 mg/d + bid-tid; Peds 3–5 y. 2.5 mg PO daily, ↑ 2.5 mg/d weekly PRN to response; Peds < 3 y. Not recommended; Narcolepsy 6–12 y: 5 mg daily, ↑ by 5 mg/d weekly PRN max 60 mg/d + bid-tid; ≥ 12 y: 10-60 mg/d + bid-tid; ER caps once daily W/P: [C, +/-] Hx drug abuse; separate 14 d from MAOIs Cl: Advanced arteriosclerosis, CVD, mod–severe HTN, hyperthyroidism, glaucoma Disp: Tabs 5, 10 mg; ER capsules 5, 10, 15 mg; soln 5 mg/5 mL SE: HTN, ↓ appetite, insomnia Notes: May open ER capsules, do not crush beads
**Diazoxide**  
Uses: *Hypoglycemia d/t hyperinsulinism*  
Acts: ↓ Pancreatic insulin release; antihypertensive  
Dose: Repeat in 5–15 min until BP controlled; repeat q4–24 h; monitor BP closely.  
Hypoglycemia: Adults & Peds. 3–8 mg/kg/24 h PO + q8–12 h. Neonates. 8–10 mg/kg/24 h PO in 2–3 equal doses  
W/P: [C, ?] ↓ Effect w/ phenytoin; ↑ effect w/ diuretics, warfarin  
CI: Allergy to thiazides or other sulfonamide-containing products; HTN associated w/ aortic
Dibucaine (Nupercainal) Uses: *Hemorrhoids & minor skin conditions* Acts: Topical anesthetic Dose: Insert PR w/ applicator bid & after each bowel movement; apply sparingly to skin W/P: [C, ?] Topical use only CI: Component sensitivity Disp: 1% oint w/ rectal applicator SE: Local irritation, rash Notes: Do not crush tabs; watch for GI bleed; ✓CBC, LFTs; PRG test females before use

Diclofenac/Misoprostol (Arthrotec) BOX: May induce abortion, birth defects; do not take if PRG; may ↑ risk of CV events & GI bleeding; CI in postop CABG Uses: *OA and RA w/ ↑ risk GI bleed* Acts: NSAID w/ GI protective PGE₁ Dose: OA: 50–75 mg PO bid-tid; RA 50 mg bid-qid or 75 mg bid; w/ food or milk W/P: [X, ?] CHF, HTN, renal/hepatic dysfunction, & Hx PUD, asthma; avoid w/ porphyria CI: PRG; GI bleed; renal/hepatic failure; severe CHF; NSAID/aspirin ASA allergy; following CABG Disp: Tabs Arthrotec 50: 50 mg diclofenac w/ 0.2 mg misoprostol; Arthrotec: 75 mg diclofenac w/ 0.2 mg misoprostol SE: Oral: Abd cramps, heartburn, GI ulcers, rash, interstitial nephritis Notes: Do not crush tabs; watch for GI bleed; ✓CBC, LFTs; PRG test females before use

Diclofenac, Ophthalmic (Voltaren Ophthalmic) Uses: *Inflammation postcataract or pain/photophobia post corneal refractive surgery* Acts: NSAID Dose: Postop cataract: 1 gtt qid, start 24 h postop × 2 wk. Postop refractive: 1–2 gtt w/in 1 h preop and w/in 15 min postop then qid up to 3 d W/P: [C, ?] May ↑ bleed risk in ocular tissues CI: NSAID/ASA allergy Disp: Ophthal soln 0.1% 2.5-mL bottle SE: Burning/stinging/itching, keratitis, ↑ IOP, lacrimation, abnormal vision, conjunctivitis, lid swelling, discharge, iritis

Diclofenac, Oral (Cataflam, Voltaren, Voltaren-XR, Zorvolex) BOX: May ↑ risk of CV events & GI bleeding; CI in postop CABG Uses: *Arthritis (RA/OA) & pain, oral and topical, actinic keratosis* Acts: NSAID Dose: RA/OA: 150–200 mg/d ÷ 2–4 doses DR; 100 mg/d XR; Zorvolex: 18 or 35 mg PO tid w/ food or milk W/P: [C (avoid after 30 wk), ?] CHF, HTN, renal/hepatic dysfunction, & Hx PUD, asthma; different forms not interchangeable CI: NSAID/aspirin ASA allergy; porphyria; following CABG Disp: Tabs 50 mg; tabs DR 25, 50, 75, 100 mg; XR tabs 100 mg; Zorvolex 18, 35 mg caps SE: Oral: Abd cramps, heartburn, GI ulceration, rash, interstitial nephritis Notes: Do not crush tabs; watch for GI bleed; ✓CBC, LFTs

Diclofenac, Topical (Flector Patch, Pennsaid, Solaraze, Voltaren Gel) BOX: May ↑ risk of CV events & GI bleeding; CI in postop CABG Uses: *Arthritis of the knee (Penssaid); arthritis of knee/hands (Voltaren Gel); pain due to strain, sprain, and contusions (Flector Patch); actinic keratosis (Solaraze)* Acts: NSAID Dose: Flector Patch: 1 patch to painful area bid Pennsaid: 10 drops spread around knee; repeat until 40 drops applied; usual dose 40 drops/knee qid; wash hands; wait until dry before dressing. Solaraze: 0.5 g to each 5 × 5 cm lesion 60–90 d; apply bid; Voltaren Gel: upper extremity 2 g qid (max 8 g/d); lower
Digoxin

extremity 4 g qid (max 16 g/d) W/P: [C < 30 wk gest; D > 30 wk; ?] avoid nonintact skin; CV events possible w/ CHF, ↑ BP, renal/hepatic dysfunct, w/ Hx PUD, asthma; avoid w/ PO NSAID CI: NSAID/ASA allergy; following CABG; component allergy Disp: Flector Patch: 180 mg (10 × 14 cm); Voltaren Gel 1%; Solaraze 3%; Pennsaid 2% soln SE: Pruritus, dermatitis, burning, dry skin, N, HA Notes: Do not apply patch/gel to damaged skin or while bathing; ✓ CBC, LFTs periodically; no box warning on Solaraze

Dicloxacillin (Dynapen, Dycill) Uses: *Rx of pneumonia, skin, & soft-tissue Infxns, & osteomyelitis caused by penicillinase-producing staphylococci* Acts: Bactericidal; ↓ cell wall synth. Spectrum: S. aureus & Streptococcus Dose: Adults. 150–500 mg qid (2 g/d max) Peds < 40 kg. 12.5–100 mg/kg/d ÷ qid; take on empty stomach W/P: [B, ?] CI: Component or PCN sensitivity Disp: Caps 125, 250, 500 mg SE: N/D, Abd pain Notes: Monitor PTT if pt on warfarin

Dicyclomine (Bentyl) Uses: *Functional IBS* Acts: Smooth-muscle relaxant Dose: Adults. 20 mg PO qid; ↑ to 160 mg/d max or 20 mg IM q6h, 80 mg/d ÷ qid then ↑ to 160 mg/d, max 2 wk W/P: [B, −] CI: Infants < 6 mo, NAG, MyG, severe UC, BOO, GI obst, reflux esophagitis Disp: Caps 10 mg; tabs 20 mg; syrup 10 mg/5 mL; Inj 10 mg/mL SE: Anticholinergic SEs may limit dose Notes: Take 30–60 min ac; avoid EtOH, do not administer IV

Didanosine [ddI] (Videx) BOX: Allergy manifested as fever, rash, fatigue, GI/resp Sxs reported; stop drug immediately & do not rechallenge; lactic acidosis & hepatomegaly/steatosis reported Uses: *HIV Infxn in zidovudine-intolerant pts* Acts: NRTI Dose: Adults. > 60 kg: 400 mg/d PO or 200 mg PO bid. < 60 kg: 250 mg/d PO or 125 mg PO bid; adults should take 2 tabs/administration. Peds 2 wk–8 mo. 100 mg/m² bid > 8 mo: 120 mg/m² PO bid; on empty stomach; ↓ w/ renal impair W/P: [B, −] CDC rec: HIV-infected mothers not breast-feed CI: Component sensitivity Disp: Chew tabs 100, 150, 200 mg; DR caps 125, 200, 250, 400 mg; powder for soln 2, 4 g SE: Pancreatitis, peripheral neuropathy, D, HA Notes: Do not take w/ meals; thoroughly chew tabs, do not mix w/ fruit juice or acidic beverages; reconstitute powder w/ H₂O, many drug interactions

Diflunisal (Dolobid) BOX: May ↑ risk of CV events & GI bleeding; CI in postop CABG Uses: *Mild–mod pain; OA* Acts: NSAID Dose: Pain: 500 mg PO bid. OA: 500–1000/mg/d PO bid (max 1.5 g/d); ↓ in renal impair, take w/ food/milk W/P: [C (D 3rd tri or near delivery), ?] CHF, HTN, renal/hepatic dysfunction, & Hx PUD CI: Allergy to NSAIDs or ASA, active GI bleed, post-CABG Disp: Tabs 500 mg SE: May ↑ bleeding time; HA, Abd cramps, heartburn, GI ulceration, rash, interstitial nephritis, fluid retention

Digoxin (Digitek, Lanoxin) Uses: *CHF, AF & A flutter, & PAT* Acts: Positive inotrope; AV node refractory period Dose: Adults. PO digitalization: 0.5–0.75 mg PO, then 0.25 mg PO q6–8h to total 1–1.5 mg. IV or IM digitalization: 0.25–0.5 mg IM or IV, then 0.25 mg q4–6h to total 0.125–0.5 mg/d PO, IM, or IV (average daily dose 0.125–0.25 mg). Peds. Preterm infants: Digitalization:
Digoxin Immune Fab

30 mcg/kg PO or 25 mcg/kg IV; give 1/2 of dose initial, then 1/4 of dose at 8–12 h intervals for 2 doses. **Maint:** 5–7.5 mcg/kg/24 h PO or 4–6 mcg/kg/24 h IV ÷ q12h.

**Term infants:** **Digitalization:** 25–35 mcg/kg PO or 20–30 mcg/kg IV; give 1/2 the initial dose, then 1/3 of dose at 8–12 h. **Maint:** 7.5–10 mcg/kg/24 h PO or 6–9 mcg/kg/24 h ÷ q12h.

**2–5 yo:** **Digitalization:** 25–35 mcg/kg PO or 20–30 mcg/kg IV; give 1/2 the initial dose, then 1/3 of dose at 8–12 h. **Maint:** 6–10 mcg/kg/24 h PO or 4–8 mcg/kg/24 h ÷ q12h.

**5–10 y:** **Digitalization:** 25–35 mcg/kg PO or 15–30 mcg/kg IV; give 1/2 the initial dose, then 1/3 of dose at 8–12 h. **Maint:** 5–10 mcg/kg/24 h PO or 4–8 mcg/kg/24 h ÷ q12h.

**>10 y:** 10–15 mcg/kg PO or 8–12 mcg/kg IV. **Maint:** 2.5–5 mcg/kg PO or 2–3 mcg/kg IV q 24 h; ↓ in renal impair **W/P:** [C, +] w/ K+, Mg2+, renal failure

**CI:** AV block; IHSS; constrictive pericarditis **Disp:** Tabs 0.125, 0.25 mg; elixir 0.05 mg/mL; Inj 0.1, 0.25 mg/mL

**SE:** Can cause heart block; ↓ K+ potentiates tox; N/V, HA, fatigue, visual disturbances (yellow-green halos around lights), cardiac arrhythmias

**Notes:** Multiple drug interactions; IM Inj painful, has erratic absorption & should not be used. **Levels:** **Trough:** Just before next dose. **Therapeutic:** 0.8–2 ng/mL; **Toxic:** > 2 ng/mL; **Half-life:** 36 h

Digoxin Immune Fab (DigiFab) **Uses:** *Life-threatening digoxin intoxication*. **Acts:** Antigen-binding fragments bind & inactivate digoxin **Dose:** Adults & Peds. Based on serum level & pt’s Wt; see charts provided w/ drug **W/P:** [C, ?] **CI:** Sheep product allergy **Disp:** Inj 40 mg/vial

**SE:** Worsening of cardiac output or CHF, ↓ K+, facial swelling, & redness **Notes:** Each vial binds ~ 0.5 mg of digoxin; renal failure may require redosing in several days

Diltiazem (Cardizem, Cardizem CD, Cardizem LA, Cardizem SR, Cartia XT, Dilacor XR, Diltia XT, Taztia XT, Tiazac) **Uses:** *Angina, prevention of reinfarction, HTN, AF or A flutter, & PAT*. **Acts:** CCB **Dose:** Stable angina PO: Initial, 30 mg PO qid; ↑ to 120–320 mg/d in 3–4 ÷ doses PRN; XR 120 mg/d (540 mg/d max), LA: 180–360 mg/d. **HTN:** SR: 60–120 mg PO bid; ↑ to 360 mg/d max. CD or XR: 120–360 mg/d (max 540 mg/d) or LA 180–360 mg/d. A-Fib, A-Flutter, PSVT: 0.25 mg/kg IV bolus over 2 min; may repeat in 15 min at 0.35 mg/kg; begin Inf 5–15 mg/h. **ECC 2010. Acute rate control:** 0.25 mg/kg (15–20 mg) over 2 min, followed in 15 min by 0.35 mg/kg (20–25 mg) over 2 min; maint Inf 5–15 mg/h **W/P:** [C, +] ↑ Effect w/ amiodarone, cimetidine, fentanyl, Li, cyclosporin, digoxin, β-blockers, theophylline **CI:** SSS, AV block, ↓ BP, AMI, pulm congestion **Disp:** Cardizem CD: Caps 120, 180, 240, 300, 360, 420 mg; Cardizem LA: Tabs 120, 180, 240, 300, 360, 420 mg; Cardizem SR: Caps 60, 90, 120 mg; Cardizem: Tabs 30, 60, 90, 120 mg; Cartia XT: Caps 120, 180, 240, 300 mg; Dilacor XR: Caps 120, 180, 240 mg; Diltia XT: Caps 120, 180, 240 mg; Tiazac: Caps 120, 180, 240, 300, 360, 420 mg; Inj 5 mg/mL; Taztia XT: 120, 180, 240, 300, 360 mg

**SE:** Gingival hyperplasia, ↓ HR, AV block, ECG abnormalities, peripheral edema, dizziness, HA **Notes:** Cardizem CD, Dilacor XR, Tiazac not interchangeable

Dimenhydrinate (Dramamine, Others) **Uses:** *Prevention & Rx of N/V, dizziness, or vertigo of motion sickness*. **Acts:** Antiemetic, action unknown **Dose:**
**Diphenoxylate/atropine**

**Adults.** 50–100 mg PO q4–6h, max 400 mg/d; 50 mg IM/IV PRN. **Peds 2–6 y.** 12.5–25 mg q6–8h max 75 mg/d. **6–12 y:** 25–50 mg q6–8h max 150 mg/d **W/P:** [B, ?] **CI:** Component sensitivity **Disp:** Tabs 25, 50 mg; chew tabs 50 mg; Inj: 50 mg/mL **SE:** Anticholinergic **Notes:** Take 30 min before travel for motion sickness

**Dimethyl Fumarate (Tecfidera)**

**Uses:** *Relapsing MS* **Acts:** Activates the nuclear factor (erythroid-derived 2)-like 2 (Nrf2) pathway, exact mechanism unknown **Dose:** 120 mg PO twice daily × 7 d, then ↑ to 240 mg PO twice daily; swallow whole **W/P:** [C, ?/] may cause lymphopenia, ✓ CBC at baseline, annually & PRN; withhold Tx w/ severe Infxn **CI:** None **Disp:** Caps DR 120, 240 mg

**Dimethyl sulfoxide [DMSO] (Rimso-50)**

**Uses:** *Interstitial cystitis* **Acts:** Unknown **Dose:** Intravesical, 50 mL, retain for 15 min; repeat q2wk until relief **W/P:** [C, ?] **CI:** Component sensitivity **Disp:** 50% soln

**Dinoprostone (Cervidil Vaginal Insert, Prepidil Vaginal Gel, Prostin E2)**

**BOX:** Should only be used by trained personnel in an appropriate hospital setting **Uses:** *Induce labor; terminate PRG (12–20 wk); evacuate uterus in missed abortion or fetal death* **Acts:** Prostaglandin, changes consistency, dilatation, & effacement of the cervix; induces uterine contraction **Dose:** Gel: 0.5 mg; if no cervi-cal/uterine response, repeat 0.5 mg q6h (max 24-h dose 1.5 mg). **Vag insert:** 1 insert (10 mg = 0.3 mg dinoprostone/h over 12 h); remove w/ onset of labor or 12 h after insertion. **Vag supp:** 20 mg repeated q3–5h; adjust PRN supp: 1 high in vagina, repeat at 3–5-h intervals until abortion (240 mg max) **W/P:** [X, ?] **CI:** Ruptured membranes, allergy to prostaglandins, placenta previa or AUB, when oxytocic drugs CI or if prolonged uterine contractions are inappropriate (Hx C-section, cephalopelvic disproportion, etc) **Disp:** Endocervical gel: 0.5 mg in 3-g syringes (w/ 10- & 20-mm shielded catheter). **Vag gel:** 1 mg/3 g, 2 mg/3 g. **Vag supp:** 20 mg. **Vag insert, CR:** 10 mg **SE:** N/V/D, dizziness, flushing, HA, fever, abnormal uterine contractions

**Diphenhydramine (Benadryl) [OTC]**

**Uses:** *Rx & prevent allergic Rxns, motion sickness, potentiate narcotics, sedation, cough suppression, & Rx of extrapyramidal Rxns* **Acts:** Antihistamine, antiemetic **Dose:** **Adults.** 25–50 mg PO, IV, or IM tid-qid. **Peds > 2 y.** 5 mg/kg/24 h PO or IM + q6h (max 300 mg/d); ↑ dosing interval w/ mod–severe renal Insuff **W/P:** [B, –] Elderly, NAG, BPH, w/ MAOI **CI:** Acute asthma **Disp:** Tabs & caps 25, 50 mg; chew tabs 12.5 mg; elixir 12.5 mg/5 mL; syrup 12.5 mg/5 mL; liq 12.5 mg/5 mL; Inj 50 mg/mL, cream, gel, liq 2% **SE:** Anticholinergic (xerostomia, urinary retention, sedation)

**Diphenoxylate/atropine (Lomotil, Lonox) [C-V]**

**Uses:** *D* **Acts:** Constipating meperidine congener, ↓ GI motility **Dose:** **Adults.** Initial, 5 mg PO tid-qid until controlled, then 2.5–5 mg PO bid; 20 mg/d max **Peds > 2 y.** 0.3–0.4 mg/kg/24 h (of diphenoxylate) bid-qid, 10 mg/d max **W/P:** [C, ?/] Elderly, w/ renal impair **CI:** Obstructive jaundice, D d/t bacterial Infxn; children < 2 y **Disp:** Tabs 2.5 mg
Diphtheria/Tetanus Toxoids (Td) (Decavac, Tenivac for > 7 y)

Uses: Primary immunization, booster (peds 7–9 y; peds 11–12 y if 5 y since last shot then q10y); tetanus protection after wound. Acts: Active immunization Dose: 0.5 mL IM × 1 W/P: [C, ?/−] CI: Component sensitivity Disp: Single-dose syringes 0.5 mL SE: Inj site pain, redness, swelling; fever, fatigue, HA, malaise, neuro disorders rare Notes: If IM, use only preservative-free Inj; Use DTaP (Adacel) rather than TT or Td all adults 19–64 y who have not previously received 1 dose of DTaP (protection adult pertussis) and Tdap for ages 10–18 y (Boostrix); do not confuse ‘Td (for adults) w/ DT (for children < 7 y)

Diphtheria/Tetanus Toxoids (DT) (Generic Only for < 7 y)

Uses: Primary immunization ages < 7 y (DTaP is recommended vaccine) Acts: Active immunization Dose: 0.5 mL IM ×1, 5 dose series for primary immunization if DTaP CI W/P: [C, N/A] CI: Component sensitivity Disp: Single-dose syringes 0.5 mL SE: Inj site pain, redness, swelling; fever, fatigue, myalgia/arthritis, N/V, Sz, other neurological SE rare; syncope, apnea in preemies Notes: If IM, use only preservative-free Inj. Do not confuse DT (for children < 7 y) w/ Td (for adults); DTaP is recommended for primary immunization

Diphtheria/Tetanus Toxoids/Acellular Pertussis Adsorbed (Tdap) (Age > 10–11 y) (Boosters: Adacel, Boostrix)

Acts: Active immunization, ages > 10–11 y Uses: “Catch-up” vaccination if 1 or more of the 5 childhood doses of DTP or DTaP missed; all adults 19–64 y who have not received 1 dose previously (adult pertussis protection) or if around infants < 12 mo; booster q10y; tetanus protection after fresh wound. Acts: Active immunization Dose: 0.5 mL IM ×1 W/P: [C, ?/−] w/ Latex allergy CI: Component sensitivity; if previous pertussis vaccine caused progressive neurologic disorder/encephalopathy w/in 7 d of shot Disp: Single-dose vials 0.5 mL SE: Inj site pain, redness, swelling; Abd pain, arthralgia/myalgia, fatigue, fever, HA, N/V/D, rash, tiredness Notes: If IM, use only preservative-free Inj; ACIP rec: Tdap for ages 10–18 y (Boostrix) or 10–64 y (Adacel); Td should be used in children 7–9 y; CDC rec pts > age 65 who have close contact w/ infants get a dose of Tdap (protection against pertussis).

Diphtheria, Tetanus Toxoids, & Acellular Pertussis, Adsorbed (DTaP) (Ages < 7 y) (Daptacel, Infanrix, Tripedia)

Uses: Primary vaccination; 5 Inj at 2, 4, 6, 15–18 mo and 4–6 y Acts: Active immunization Dose: 0.5 mL IM ×1 as in previous above W/P: [C, N/A] CI: Component sensitivity; if previous pertussis vaccine caused progressive neurologic disorder/encephalopathy w/in 7 d of shot Disp: Single-dose vials 0.5 mL SE: Inj site nodule/pain/swelling/redness; drowsiness, fatigue, fever, fussiness, irritability, lethargy, V, prolonged crying; rare ITP and neurologic disorders Notes: If IM, use only preservative-free Inj; DTaP recommended for primary immunization age < 7 y,
Dipivefrin (Propine) 

**Uses:** *Open-angle glaucoma*  
**Acts:** α-Adrenergic agonist  
**Dose:** 1 gtt in eye q12h  
**W/P:** [B, ?]  
**CI:** NAG  
**Disp:** 0.1% soln  
**SE:** HA, local irritation, blurred vision, photophobia, HTN

Dipyridamole (Persantine) 

**Uses:** *Prevent postop thromboembolic disorders, often in combo w/ ASA or warfarin (eg, CABG, vascular graft); w/ warfarin after artificial heart valve; chronic angina; w/ ASA to prevent coronary artery thrombosis; dipyridamole IV used in place of exercise stress test for CAD*  
**Acts:** Anti-plt activity; coronary vasodilator  
**Dose:**  
- **Adults.** 75–100 mg PO qid; stress test 0.14 mg/kg/min (max 60 mg over 4 min).  
- **Peds > 12 y.** 3–6 mg/kg/d ÷ tid (safety/efficacy not established)  
**W/P:** [B, ?]  
**CI:** Component sensitivity  
**Disp:** Tabs 25, 50, 75 mg; Inj 5 mg/mL  
**SE:** HA, ↓ BP, N, Abd distress, flushing rash, dizziness, dyspnea  
**Notes:** IV use can worsen angina

Dipyridamole & Aspirin (Aggrenox) 

**Uses:** *↓ Reinfarction after MI; prevent occlusion after CABG; ↓ risk of stroke*  
**Acts:** Plt aggregation (both
Disopyramide

**Dose:** 1 cap PO bid W/P: [D, ?] **Cl:** Ulcers, bleeding diathesis **Disp:** Dipyridamole (XR) 200 mg/ASA 25 mg **Se:** ASA component: allergic Rxns, skin Rxns, ulcers/GL bleed, bronchospasm; dipyridamole component: dizziness, HA, rash **Notes:** Swallow caps whole

**Disopyramide (Norpace, Norpace CR, NAPAmide, Rythmodan)**

**Box:** Excessive mortality or nonfatal cardiac arrest rate w/ use in asymptomatic non–life-threatening ventricular arrhythmias w/ MI 6 d–2 y prior. Restrict use to life-threatening arrhythmias only

**Uses:** *Suppression & prevention of VT*

**Acts:** Class IA antiarrhythmic; stabilizes membranes, ↓ action potential

**Dose:** Adults. Immediate < 50 kg 200 mg, > 50 kg 300 mg, maint 400–800 mg/d ÷ q6h or q12h for CR, max 1600 mg/d. **Peds** < 1 y. 10–30 mg/kg/24 h PO (÷ qid). 1–4 y: 10–20 mg/kg/24 h PO (÷ qid). 4–12 y: 10–15 mg/kg/24 h PO (÷ qid). 12–18 y: 6–15 mg/kg/24 h PO (÷ qid); ↓ in renal/hepatic impair **W/P:** [C, +] Elderly, w/ abnormal ECG, lytes, liver/renal impair, NAG **Cl:** A V block, cardiogenic shock, ↓ BP, CHF** Disp:** Caps 100, 150 mg; CR caps 100, 150 mg **Se:** Anticholinergic SEs; negative inotrope, may induce CHF

**Notes:** Levels: Trough: just before next dose; Therapeutic: 2–5 mcg/mL; Toxic > 7 mcg/mL; half-life: 4–10 h

Dobutamine (Dobutex)

**Uses:** *Short-term in cardiac decompensation secondary to ↓ contractility* **Acts:** Positive inotrope **Dose:** Adults. **ECC 2010.** 2.5–20 mcg/kg/min; titrate to HR not > 10% of baseline. **Peds. ECC 2010.** Shock w/ high SVR: 2–20 mcg/kg/min; titrate **W/P:** [B, ?/−] w/ Arrhythmia, MI, severe CAD, ↓ vol **Cl:** Sensitivity to sulfites, IHSS **Disp:** Inj 250 mg/20 mL, 500 mg/40 mL **Se:** CP, HTN, dyspnea **Notes:** Monitor PWP & cardiac output if possible; ✓ ECG for ↑ HR, ectopic activity; follow BP

Docetaxel (Taxotere)

**Box:** Do not administer if neutrophil count < 1500 cells/mm³; severe Rxns possible in hepatic dysfunction

**Uses:** *Breast (anthracycline-resistant), ovarian, lung, & prostate CA* **Acts:** Antimitotic agent; promotes microtubular aggregation; semisynthetic taxoid **Dose:** 100 mg/m² over 1 h IV q3wk (per protocols); dexamethasone 8 mg bid prior & continue for 3–4 d; ↓ dose w/ ↑ bili levels **W/P:** [D, −] Infusion contains ethanol; can cause intoxication **Cl:** Sensitivity to meds w/ polysorbate 80, component sensitivity **Disp:** Inj 20 mg/0.5 mL, 80 mg/2 mL **Se:** ↓ BM, neuropathy, N/V, alopecia, fluid retention synd; cumulative doses of 300–400 mg/m² w/o steroid prep & post-Tx & 600–800 mg/m² w/ steroid prep; allergy possible (rare w/ steroid prep) **Notes:** ✓ Bili/SGOT/SGPT prior to each cycle; frequent CBC during Tx

Docusate Calcium (Surfak)/Docusate Potassium (Dialose)/Docusate Sodium (DOSS, Colace)

**Uses:** *Constipation; adjunct to painful anorectal conditions (hemorrhoids)* **Acts:** Stool softener **Dose:** Adults. 50–500 mg PO + daily-qid. **Peds Infants–3 y.** 10–40 mg/24 h + daily-qid. 3–6 y: 20–60 mg/24 h + daily-qid. 6–12 y: 40–150 mg/24 h + daily-qid **W/P:** [C, ?] **Cl:** Use w/ mineral oil; intestinal obst, acute Abd pain, N/V **Disp:** Ca: Caps 50, 240 mg. K: Caps 100, 240 mg. Na: Caps 50, 100 mg; syrup 50, 60 mg/15 mL; liq 150 mg/15 mL; soln 50 mg/mL;
Donepezil enema 283 mg/mL SE: Rare Abd cramping, D Notes: Take w/ full glass of water; no laxative action; do not use > 1 wk

**Dofetilide (Tikosyn)** **BOX:** To minimize the risk of induced arrhythmia, hospitalize for minimum of 3 d to provide calculations of CrCl, cont ECG monitoring, & cardiac resuscitation Uses: *Maintain nl sinus rhythm in AF/A flutter after conversion* **Acts:** Class III antiarrhythmic, prolongs action potential **Dose:** Based on CrCl & QTc; CrCl > 60 mL/min 500 mcg PO q12h, ✔ QTc 2–3 h after, if QTc > 15% over baseline or > 500 ms, ↓ to 250 mcg q12h, ✔ after each dose; if CrCl < 60 mL/min, see PI; D/C if QTc > 500 ms after dosing adjustments **W/P:** [C, −] w/ AV block, renal Dz, electrolyte imbalance **CI:** Baseline QTc > 440 ms, CrCl < 20 mL/min; w/ verapamil, cimetidine, trimethoprim, ketoconazole, quinolones, ACE inhib/HCTZ combo **Disp:** Caps 125, 250, 500 mcg **SE:** Ventricular arrhythmias, QT ↑, torsades de pointes, rash, HA, CP, dizziness **Notes:** Avoid w/ other drugs that ↑ QT interval; hold class I/III antiarrhythmics for 3 half-lives prior to dosing; amiodarone level should be <0.3 mg/L before use, do not initiate if HR < 60 BPM; restricted to participating prescribers; correct K+ and Mg2+ before use

**Dolasetron (Anzemet)** **Uses:** *Prevent chemotherapy and postop-associated N/V* **Acts:** 5-HT3 receptor antagonist **Dose:** Adults. PO: 100 mg PO as a single dose 1 h prior to chemotherapy. Postop: 12.5 mg IV, or 100 mg PO 2 h preop **Peds 2–16 y.** 1.8 mg/kg PO (max 100 mg) as single dose. Postop: 0.35 mg/kg IV or 1.2 mg/kg PO **W/P:** [B, ?] w/ Cardiac conduction problems **CI:** IV use w/ chemo component sensitivity **Disp:** Tabs 50, 100 mg; Inj 20 mg/mL **SE:** ↑ QT interval, D, HTN, HA, Abd pain, urinary retention, transient ↑ LFTs **Notes:** IV form no longer approved for chemo-induced N&V due to heart rhythm abnormalities.

**Dolutegravir (Tivicay)** **Uses:** *HIV-1 Infxn w/ other antiretrovirals* **Acts:** Integrase strand transfer inhib (INSTI) **Dose:** Adults. Tx-naïve or Tx-experienced INSTI naïve: 50 mg PO 1 ×/d; Tx-naïve or Tx-experienced INSTI naïve w/ a potent UGT1A/CYP3A inducer (efavirenz, fosamprenavir/ritonavir, tipranavir/ritonavir, or rifampin): 50 mg PO 2 ×/d; INSTI-experienced with certain INSTI-associated resistance substitutions or suspected INSTI resist: 50 mg PO 2 ×/d Peds > 12 y & > 40 kg. Tx-naïve or Tx-experienced INSTI-naïve: 50 mg PO 1 ×/d; w/ efavirenz, fosamprenavir/ritonavir, tipranavir/ritonavir, or rifampin: 50 mg PO 2 ×/d W/P: [B, ?/−] CDC rec HIV infect mothers not breastfeed; D/C w/ hypersens Rxn (rash, constitutional findings, organ dysfunction); ↑ LFTs w/ underlying hep B or C (monitor LFTs); w/ other antiretroviral therapy, may cause fat redistribution/accumulation and immune reconstitution synd **CI:** w/ dofetilide **Disp:** Tabs 50 mg **SE:** HA, insomnia, N/V/D, Abd pain, ↑ serum lipase, hypersens Rxn, ↑ glucose, ↑ bilirubin, pruritus **Notes:** Take 2 h before or 6 h after antacids or laxatives, sucralfate, iron & calcium suppl, buffered meds

**Donepezil (Aricept)** **Uses:** *Severe Alzheimer dementia*; ADHD; behavioral synds in dementia; dementia w/ Parkinson Dz; Lewy-body dementia **Acts:** ACH
Dopamine

Uses: *Short-term use in cardiac decompensation secondary to ↓ contractility; ↑ organ perfusion (at low dose)*

 acts: Positive inotropic agent w/ dose response: 1–10 mcg/kg/min β effects (↑ CO); 10–20 mcg/kg/min β-effects (peripheral vasoconstriction, pressor); > 20 mcg/kg/min peripheral & renal vasoconstriction
dose: Adults. 5 mcg/kg/min by cont Inf, ↑ by 5 mcg/kg/min to 50 mcg/kg/min max to effect; ECC 2010. 2–20 mcg/kg/min

Peds. ECC 2010. Shock w/ adequate intravascular volume and stable rhythm: 2–20 mcg/kg/min; titrate, if > 20 mcg/kg/min needed, consider alternative adrenergic

W/P: [C, ?] ↓ Dose w/ MAOI

CI: Phaeochromocytoma, VF, sulfite sensitivity

Disp: Inj 40, 80, 160 mg/mL, premixed 0.8, 1.6, 3.2 mg/mL

SE: Tachycardia, vasoconstriction, ↓ BP, HA, N/V, dyspnea

Notes: > 10 mcg/kg/min ↓ renal perfusion; monitor urinary output & ECG for ↑ HR, BP, ectopy; monitor PCWP & cardiac output if possible, phenolamine used for extrav

10–15 mL NS w/ 5–10 mg of phenolamine

Doripenem (Doribax) Uses: *Complicated intra-Abd Infxn and UTI including pyelo*

acts: Carbapenem, ↓ cell wall synth, a β-lactam

Spectrum: Excellent gram(+) (except MRSA and Enterococcus sp), excellent gram(−) coverage including β-lactamase producers, good anaerobic
dose: 500 mg IV q8h, ↓ w/ renal impair

W/P: [B, ?] Not indicated for ventilator-associated bacterial pneumonia

CI: Carbapenem β-lactams hypersens

Disp: 250, 500 mg vial

SE: HA, N/D, rash, phlebitis

Notes: May ↓ valproic acid levels; overuse may ↑ bacterial resistance; monitor for C. difficile-associated D

Dornase Alfa (Pulmozyme, DNase) Uses: *↓ Frequency of resp Infxns in CF*

acts: Enzyme cleaves extracellular DNA, ↓ mucus viscosity
dose: Adults. Inh 2.5 mg/bid dosing w/ FVC > 85% w/recommended nebulizer

Peds > 5 y. Inh 2.5 mg/daily-bid if forced vital capacity > 85%

W/P: [B, ?] CI: Chinese hamster product allergy

Disp: Soln for Inh 1 mg/mL

SE: Pharyngitis, voice alteration, CP, rash

Dorzolamide (Trusopt) Uses: *Open-angle glaucoma, ocular hypertension*

acts: Carbonic anhydrase inhib

dose: 1 gtt in eye(s) tid

W/P: [C, ?] w/ NAG, CrCl < 30 mL/min

CI: Component sensitivity

Disp: 2% soln

SE: Irritation, bitter taste, punctate keratitis, ocular allergic Rxn

Dorzolamide/Timolol (Cosopt) Uses: *Open-angle glaucoma, ocular hypertension*

acts: Carbonic anhydrase inhib w/ β-adrenergic blocker

dose: 1 gtt in eye(s) bid

W/P: [C, ?] CI: Component sensitivity, asthma, severe COPD, sinus bradycardia, AV block

Disp: Soln dorzolamide 2% & timolol 0.5%

SE: Irritation, bitter taste, superficial keratitis, ocular allergic Rxn
**Doxazosin (Cardura, Cardura XL)**

*Uses:* *HTN & symptomatic BPH*

*Acts:* $\alpha_1$-Adrenergic blocker; relaxes bladder neck smooth muscle

*Dose:* *HTN:* Initial 1 mg/d PO; may be ↑ to 16 mg/d PO.  
*BPH:* Initial 1 mg/d PO, may ↑ to 8 mg/d; XL 4–8 mg q a.m.

*W/P:* [C, ?] w/ Liver impair  
*CI:* Component sensitivity; use w/ PDE5 inhib (eg, sildenafil) can cause ↓ BP

*Disp:* Tabs 1, 2, 4, 8 mg; XL 4, 8 mg

*SE:* Dizziness, HA, drowsiness, fatigue, malaise, sexual dysfunction, doses > 4 mg ↑ postural ↓ BP risk; intraoperative floppy iris synd

*Notes:* 1st dose hs; syncope may occur w/in 90 min of initial dose

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**Doxepin (Adapin)**

*BOX:* Closely monitor for worsening depression or emergence of suicidality

*Uses:* *Depression, anxiety, chronic pain*

*Acts:* TCA; ↑ synaptic CNS serotonin or norepinephrine

*Dose:* 25–150 mg/d PO, usually hs but can ↓ doses; up to 300 mg/d for depression; ↓ in hepatic impair  
*W/P:* [C, ?/−] w/ EtOH abuse, elderly, w/ MAOI  
*CI:* NAG, urinary retention, MAOI use w/in 14 d, in recovery phase of MI

*Disp:* Caps 10, 25, 50, 75, 100, 150 mg

*SE:* Anticholinergic SEs, ↓ BP, tachycardia, drowsiness, photosensitivity

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**Doxepin (Silenor)**

*Uses:* *Insomnia*

*Acts:* TCA

*Dose:* Take w/in 30 min HS 6 mg qd; 3 mg in elderly; 6 mg/d max; not w/in 3 h of a meal  
*W/P:* [C, ?/−] w/ EtOH abuse/elderly/sleep apnea/CNS depressants; may cause abnormal thinking and hallucinations; may worsen depression  
*CI:* NAG, urinary retention, MAOI w/in 14 d

*Disp:* Tabs 3, 6 mg

*SE:* Somnolence/sedation, N, URI

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**Doxepin, Topical (Prudoxin, Zonalon)**

*Uses:* *Short-term Rx pruritus (atopic dermatitis or lichen simplex chronicus)*

*Acts:* Antipruritic; H1- & H2-receptor antagonist

*Dose:* Apply thin coating tid-qid, 8 d max  
*W/P:* [B, ?/−] CI:

*Disp:* 5% cream

*SE:* ↓ BP, tachycardia, drowsiness, photosensitivity

*Notes:* Limit application area to avoid systemic tox

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**Doxorubicin (Adriamycin, Rubex)**

*Uses:* *Acute leukemias; Hodgkin Dz & NHLs; soft tissue, osteo- & Ewing sarcoma; Wilms tumor; neuroblastoma; bladder, breast, ovarian, gastric, thyroid, & lung CAs*

*Acts:* Intercalates DNA; ↓ DNA topoisomerase I & II  
*Dose:* 60–75 mg/m² q3wk; ↓ w/ hepatic impair; IV use only ↓ cardiotox w/ weekly (20 mg/m²/wk) or cont Inf (60–90 mg/m² over 96 h); (per protocols)  
*W/P:* [D, ?] CI:

*Disp:* Inj 10, 20, 50, 150, 200 mg SE: ↓ BM, venous streaking & phlebitis, N/V/D, mucositis, radiation recall phenomenon, cardiomyopathy rare (dose-related)  
*Notes:* Limit of 550 mg/m² cumulative dose (400 mg/m² w/ prior mediastinal irradiation); dexrazoxane may limit cardiac tox; tissue damage w/ extrav; red/orange urine; tissue vesicant w/ extrav, Rx w/ dexrazoxane

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**Doxycycline (Adoxa, Oracea, Periostat, Vibramycin, Vibra-Tabs)**

*Uses:* *Broad-spectrum antibiotic* acne vulgaris, uncomplicated GC, chlamydia, PID, Lyme Dz, skin Infxns, anthrax, malaria prophylaxis

*Acts:* Tetracycline; bacteriostatic; ↓ protein synth.  
*Spectrum:* Limited gram(+) and (−), Rickettsia sp, Chlamydia, M. pneumoniae, B. anthracis  
*Dose:* *Adults.* 100 mg PO q12h on 1st d, then
100 mg PO daily-bid or 100 mg IV q12h; acne qd, chlamydia × 7 d, Lyme × 21 d, PID × 14 d  
Peds: > 8 y. 5 mg/kg/24 h PO, 200 mg/d max + daily-bid W/P: [D, –] hepatic impair CI: Children < 8 y, severe hepatic dysfunction  
Disp: Tabs 20, 50, 75, 100, 150 mg; caps 50, 75, 100, 150 mg; Oracea 40 mg caps (30 mg timed release, 10 mg DR); syrup 50 mg/5 mL; susp 25 mg/5 mL; Inj 100/vial SE: D, GI disturbance, photosens  
Notes: ↓ Effect w/ antacids; tetracycline of choice w/in renal impair; for inhalational anthrax use w/ 1–2 additional antibiotics, not for CNS anthrax

**Doxylamine/Pyridoxine (Diclegis)**  
Uses: *Morning sickness*  
Acts: Anti-histamine & vit B6  
Dose: 2 tabs PO qhs; max 4 tabs/d (1 q A.M., 1 mid-afternoon, 2 qhs)  
W/P: [A, –] CNS depression; anticholinergic (caution w/ asthma, ↑ IOP, NAG, peptic ulcer, pyloroduodenal or bladder neck obst) CI: Component hypersens, w/ MAOIs  
Disp: Tabs DR (doxylamine/pyridoxine) 10/10 mg  
SE: Somnolence, dizziness, HA, urinary retention, blurred vision, palpitation, ↑ HR, dyspnea

**Dronabinol (Marinol)**  
Uses: *N/V associated w/ CA chemotherapy; appetite stimulation*  
Acts: Antiemetic; ↓ V center in the medulla  
Dose: Adults & Peds. Antiemetic: 5–15 mg/m²/dose q4–6h PRN. Adults. Appetite stimulant: 2.5 mg PO before lunch & dinner; max 20 mg/d  
W/P: [C, ?] Elderly, Hx psychological disorder, Sz disorder, substance abuse CI: Hx schizophrenia, sesame oil hypersens  
Disp: Caps 2.5, 5, 10 mg SE: Drowsiness, dizziness, anxiety, mood change, hallucinations, depersonalization, orthostatic ↓ BP, tachycardia  
Notes: Principal psychoactive substance present in marijuana

**Dronedarone (Multaq)**  
BOX: CI w/ NYHA Class IV HF or NYHA Class II-III HF w/ decompensation; CI in A Fib if cannot be converted to NSR  
Uses: *A Fib/A flutter*  
Acts: Antiarrhythmic  
Dose: 400 mg PO bid w/ a.m. and p.m. meal  
W/P: [X, –] w/ Other drugs (see PI); increased risk of death and serious CV events CI: See Box; 2nd-/3rd-degree AV block or SSS (unless w/ pacemaker), HR < 50 BPM, w/ strong CYP3A inhib, w/ drugs/herbals that ↑ QT interval, QTc interval ≥ 500 ms, severe hepatic impair, PRG  
Disp: Tabs 400 mg SE: N/V/D, Abd pain, asthenia, heart failure, ↑ K⁺, ↑ Mg2⁺, ↑ QTc, ↓ HR, ↓ SCR, rash  
Notes: Avoid grapefruit juice

**Droperidol (Inapsine)**  
BOX: Cases of QT interval prolongation and torsades de pointes (some fatal) reported  
Uses: *N/V; anesthetic premedication*  
Acts: Tranquilizer, sedation, antiemetic  
Dose: Adults. N: initial max 2.5 mg IV/IM, may repeat 1.25 mg based on response. Peds. Premed: 0.01–0.15 mg/kg/dose (max 1.25 mg); N Tx 0.1 mg/kg/dose (max 2.5 mg) W/P: [C, ?] w/ Hepatic/renal impair CI: Component sensitivity Disp: Inj 2.5 mg/mL SE: Drowsiness, ↓ BP, occasional tachycardia & extrapyramidal Rxns, ↑ QT interval, arrhythmias  
Notes: Give IV push slowly over 2–5 min

**Droxidopa (Northera)**  
BOX: Monitor supine BP (↓ dose or D/C if raising head of bed does not ↓ supine BP)  
Uses: *Neurogenic orthostatic hypotension*  
Acts: Norepi precursor w/ peripheral arterial/venous vasoconstriction  
Dose: 100 mg PO tid; max 600 mg PO tid; last dose 3 h prior to hs & elevate head of bed  
W/P: [C, –] supine HTN may ↑ CV risk; w/ h/o CHF, arrhythmias, ischemic heart
Ecallantide (Kalbitor) BOX: Anaphylaxis reported, administer in a setting able to manage anaphylaxis and HAE, monitor closely Uses: *Acute attacks of hereditary angioedema (HAE)* Acts: Plasma kallikrein inhibitor Dose: Adult & > 16 y. 30 mg SC in three 10-mg injections; if attack persists may repeat 30-mg dose w/in 24 h W/P: [C, ?/−] Hypersens Rxns CI: Hypersens to ecallantide Disp: Inj 10 mg/mL SE: HA, N/V/D, pyrexia, Inj site Rxn, nasopharyngitis, fatigue, Abd pain

Duloxetine (Cymbalta) BOX: Antidepressants may ↑ risk of suicidality; consider risks/benefits of use. Closely monitor for clinical worsening, suicidality, or behavior changes Uses: *Depression, DM peripheral neuropathic pain, generalized anxiety disorder (GAD), fibromyalgia, chronic OA & back pain* Acts: Selective serotonin & norepinephrine reuptake inhib (SSNRI) Dose: Depression: 40–60 mg/d PO + bid. DM neuropathy: 60 mg/d PO; GAD: 60 mg/d, max 120 mg/d; Fibromyalgia, OA/back pain: 30–60 mg/d, 60 mg/d max W/P: [C, ?/−]; use in 3rd tri; avoid if CrCl < 30 mL/min, NAG, w/ fluvoxamine, inhib of CYP2D6 (Table 10, p 346), TCAs, phenothiazines, type class 1C antiarrhythmics (Table 9, p 345) CI: ↑ risk serotonin synd w/ MAOIs [linezolid or IV meth blue] MAOI use w/in 14 d, w/ thioridazine, NAG, hepatic Insuff Disp: Caps delayed-release 20, 30, 60 mg SE: N, dry mouth, somnolence, fatigue, constipation, ↓ appetite, hyperhydrosis Notes: Swallow whole; monitor BP; avoid abrupt D/C

Dutasteride (Avodart) Uses: *Symptomatic BPH to improve Sxs, ↓ risk of retention and BPH surgery alone or in combo w/ tamsulosin* Acts: 5α-Reductase inhib; ↓ intracellular dihydrotestosterone (DHT) Dose: Monotherapy: 0.5 mg PO/d. Combo: 0.5 mg PO qd w/ tamsulosin 0.4 mg qd W/P: [X, −] Hepatic impair; pregnant women should not handle pills; R/O CA before starting CI: Women, peds Disp: Caps 0.5 mg SE: ↑ Testosterone, ↑ TSH, impotence, ↓ libido, gynecomastia, ejaculatory disturbance, may ↑ risk of high-grade prostate CA Notes: No blood donation until 6 mo after D/C; ↓ PSA, ✓ new baseline PSA at 6 mo (corrected PSA × 2); any PSA rise on dutasteride suspicious for CA; now available in fixed dose combination w/ tamsulosin (see Jalyn)

Dutasteride/Tamsulosin (Jalyn) Uses: *Symptomatic BPH to improve Sxs* Acts: 5α-Reductase inhib (↓ intracellular DHT) w/ α-blocker Dose: 1 capsule daily after same meal W/P: [X, −] w/ CYP3A4 and CYP2D6 inhib may ↑ SEs; pregnant women should not handle pills; R/O CA before starting; IFIS (tamsulosin) discuss w/ ophthalmologist before cataract surgery; rare priapism; w/ warfarin; may ↑ risk of high-grade prostate CA CI: Women, peds, component sens Disp: Caps 0.5 mg dutasteride w/ 0.4 mg tamsulosin SE: Impotence, decreased libido, ejaculation disorders, and breast disorders Notes: No blood donation until 6 mo after D/C; ↓ PSA, ✓ new baseline PSA at 6 mo (corrected PSA × 2); any PSA rise on dutasteride suspicious for CA (see also dutasteride and tamsulosin)
Echothiophate Iodine (Phospholine Ophthalmic)   Uses: *Glaucoma*   Acts: Cholinesterase inhib  Dose: 1 gtt eye(s) bid w/1 dose hs  W/P: [C, ?]  CI: Active uveal inflammation, inflammatory Dz of iris/ciliary body, glaucoma irido-cyclitis  Disp: Powder for reconstitution 6.25 mg/5 mL (0.125%)  SE: Local irritation, myopia, blurred vision, ↓ BP, ↓ HR

**Econazole (Ecoza, Spectazole, Generic)**   Uses: *Tinea, cutaneous Candida, & tinea versicolor Infxns*   Acts: Topical antifungal   Dose: Apply to areas bid Candida; (daily for tinea versicolor) for 2–4 wk  W/P: [C, ?]  CI: Component sensitivity  Disp: Topical cream 1%; (Ecoza) foam 1%  SE: Local irritation, pruritus, erythema  Notes: Early Sx/clinical improvement; complete course to avoid recurrence

**Eculizumab (Soliris)**   BOX: ↑ Risk of meningococcal Infxns (give meningococcal vaccine 2 wk prior to 1st dose and revaccinate per guidelines)   Uses: *Rx paroxysmal nocturnal hemoglobinuria*   Acts: Complement inhib  Dose: 600 mg IV q7d × 4 wk, then 900 mg IV 5th dose 7 d later, then 900 mg IV q14d  W/P: [C, ?]  CI: Active N. meningitidis Infxn; if not vaccinated against N. meningitidis  Disp: 300-mg vial  SE: Meningococcal Infxn, HA, nasopharyngitis, N, back pain, Infxns, fatigue, severe hemolysis on D/C  Notes: IV over 35 min (2-h max Inf time); monitor for 1 h for S/Sx of Inf Rxn

**Edrophonium (Enlon)**   Uses: *Diagnosis of MyG; acute MyG crisis; curare antagonist, reverse of nondepolarizing neuromuscular blockers*   Acts: Anticholinesterase   Dose: Adults. Test for MyG: 2 mg IV in 1 min; if tolerated, give 8 mg IV; (+) test is brief ↑ in strength. Peds. See label  W/P: [C, ?]  CI: GI or GU obst; allergy to sulfite  Disp: Inj 10 mg/mL  SE: N/V/D, excessive salivation, stomach cramps, ↑ aminotransferases  Notes: Can cause severe cholinergic effects; keep atropine available, 0.4–0.5 mg IV to Rx muscarinic SE (fasciculations, muscle weakness)

**Efavirenz (Sustiva)**   Uses: *HIV Infxns*   Acts: Antiretroviral; nonnucleoside RT inhib  Dose: Adults. 600 mg/d PO q hs  Peds ≥ 3 y 10–15 kg: 200 mg PO qd; 15–20 kg: 250 mg PO qd; 20–25 kg: 300 mg PO qd; 25–32.5 kg: 350 mg PO qd; 32.5–< 40 kg: 400 mg PO qd ≥ 40 kg: 600 mg PO qd; on empty stomach  W/P: [D, ?]  CDC rec: HIV-infected mothers not breast-feed  CI: w/ Astemizole, bepridil, cisapride, midazolam, pimozide, triazolam, ergot derivatives, voriconazole  Disp: Caps 50, 200; 600 mg tab  SE: Somnolence, vivid dreams, depression, CNS Sxs, dizziness, rash, N/V/D  Notes: ✓ LFTs (especially w/ underlying liver Dz), cholesterol; not for monotherapy

**Efavirenz, Emtricitabine, Tenofovir (Atripla)**   BOX: Lactic acidosis and severe hepatomegaly w/ steatosis, including fatal cases, reported w/ nucleoside analogs alone or combo w/ other antiretrovirals   Uses: *HIV Infxns*   Acts: Triple fixed-dose combo nonnucleoside RT inhib/nucleoside analog  Dose: Adults. 1 tab qd on empty stomach; hs dose may ↓ CNS SE  W/P: [D, ?]  CDC rec: HIV-infected mothers not breast-feed, w/ obesity  CI: < 12 y or < 40 kg, w/ astemizole,
midazolam, triazolam, or ergot derivatives (CYP3A4 competition by efavirenz could cause serious/life-threatening SE) **Disp:** Tab (efavirenz 600 mg/emtricitabine 200 mg/tenofovir 300 mg) **SE:** Somnolence, vivid dreams, HA, dizziness, rash, N/V/D, ↓ BMD **Notes:** Monitor LFTs, cholesterol; see individual agents for additional info, not for HIV/hep B coinfection

**Eletriptan (Relpax)**  
**Uses:** *Acute Rx of migraine*  
**Acts:** Selective serotonin receptor (5-HT₁₉/B/₁D) agonist  
**Dose:** 20–40 mg PO, may repeat in 2 h; 80 mg/24 h max  
**W/P:** [C, +/−]  
**CI:** Hx ischemic heart Dz, coronary artery spasm, stroke or TIA, peripheral vascular Dz, IBD, uncontrolled HTN, hemiplegic or basilar migraine, severe hepatic impair, w/in 24 h of another 5-HT₁ agonist or ergot, w/in 72 h of CYP3A4 inhib  
**Disp:** Tabs 20, 40 mg  
**SE:** Dizziness, somnolence, N, asthenia, xerostomia, paresthesias; pain, pressure, or tightness in chest, jaw, or neck; serious cardiac events

**Eltrombopag (Promacta)**  
**BOX:** May cause hepatotox ✔ baseline ALT/AST/bili, q2wk w/ dosage adjustment, then monthly. D/C if ALT is > 3× ULN w/ ↑ bili, or Sx of liver injury  
**Uses:** *Tx ↑ plt in idiopathic thrombocytopenia refractory to steroids, immune globulins, splenectomy*  
**Acts:** Thrombopoietin receptor agonist  
**Dose:** 50 mg PO daily, adjust to keep plt ≥ 50,000 cells/mm³; 75 mg/d max; start 25 mg/d if East-Asian or w/ hepatic impair; on an empty stomach; not w/in 4 h of product w/ polyvalent cations  
**W/P:** [C, ?/−]  
**↑ Risk for BM reticulin fiber deposition, heme malignancies, rebound ↓ plt on D/C, thromboembolism**  
**CI:** None  
**Disp:** Tabs 12.5, 25, 50, 75 mg  
**SE:** Rash, bruising, menorrhagia, N/V, dyspepsia, ↓ plt, ↑ ALT/AST, limb pain, myalgia, paresthesia, cataract, conjunctival hemorrhage  
**Notes:** D/C if no ↑ plt count after 4 wk; restricted distribution

**Emedastine (Emadine)**  
**Uses:** *Allergic conjunctivitis*  
**Acts:** Antihistamine; selective H₁-antagonist  
**Dose:** 1 gtt in eye(s) up to qid  
**W/P:** [B, ?]  
**CI:** Allergy to ingredients (preservatives benzalkonium, tromethamine)  
**Disp:** 0.05% soln SE: HA, blurred vision, burning/stinging, corneal infiltrates/staining, dry eyes, foreign body sensation, hyperemia, keratitis, tearing, pruritus, rhinitis, sinusitis, asthenia, bad taste, dermatitis, discomfort  
**Notes:** Do not use contact lenses if eyes are red

**Empagliflozin (Jardiance)**  
**Uses:** *Adjunct to diet/exercise w/type 2 DM*  
**Acts:** Sodium-glucose co-transporter 2 (SGLT2) inhib  
**Dose:** 10 mg PO QAM, to 25 mg QD PRN; do not use w/eGFR < 45  
**W/P:** [C, −] D/C w/eGFR <45; monitor/correct volume esp in elderly; follow Cr, ↓ insulin or insulin secretagogue to limit hypoglycemia risk  
**CI:** Hypersens, severe renal impair, dialysis, ESRD  
**Disp:** Tabs 10, 25 mg SE: UTI, female genital mycotic Infxn

**Emtricitabine (Emtriva)**  
**BOX:** Lactic acidosis & severe hepatomegaly w/ steatosis reported; not for HBV Infxn  
**Uses:** HIV-1 Infxn  
**Acts:** NRTI  
**Disp:** Soln 10 mg/mL, caps 200 mg SE: HA, N/D, rash, rare hyperpigmentation of feet & hands, posttreatment exacerbation of hep
Enalapril (Enalaprilat, Epaned Kit, Vasotec) BOX: ACE inhib used during PRG can cause fetal injury & death Uses: *HTN, CHF, LVDisomers* Acts: ACE inhib Dose: Adults. 2.5–40 mg/d PO; 1.25 mg IV q6h. Peds. 0.05–0.08 mg/kg/d PO q12–24h; ↓ w/ renal impair W/P: [C (1st tri; D 2nd & 3rd tri), +] D/C immediately w/ PRG, w/NSAIDs, K+ supplements CI: Bilateral RAS, angioedema Disp: Tabs 2.5, 5, 10, 20 mg; Enalaprilat: IV 1.25 mg/mL; Epaned Kit: powder for oral (1 mg/mL) SE: ↓ BP w/ initial dose (especially w/ diuretics), ↑ K+, ↑ Cr, cough, angioedema Notes: Monitor Cr; D/C diuretic for 2–3 d prior to start

Enfuvirtide (Fuzeon) BOX: Rarely causes allergy; never rechallenge Uses: *w/ Antiretroviral agents for HIV-1 in Tx-experienced pts w/ viral replication despite ongoing Rx* Acts: Viral fusion inhib Dose: Adults. 90 mg (1 mL) SQ bid in upper arm, anterior thigh, or Abd; rotate site Peds. See PI W/P: [B, –] CI: Previous allergy to drug Disp: 90 mg/mL recons; pt kit w/ supplies CI: Previous allergy to drug Disp: 90 mg/mL recons; pt kit w/ supplies SE: Inj site Rxns; pneumonia, D, N, fatigue, insomnia, peripheral neuropathy Notes: Available via restricted distribution system; use immediately on recons or refrigerate (24 h max)

Enoxaparin (Lovenox) BOX: Recent or anticipated epidural/spinal anesthesia, ↓ risk of spinal/epidural hematoma w/ subsequent paralysis Uses: *Prevention & Rx of DVT; Rx PE; unstable angina & non–Q-wave MI* Acts: LMW heparin; inhibit thrombin by complexing w/ antithrombin III Dose: Adults. Prevention: 30 mg SQ bid or 40 mg SQ q24h. DVT/PE Rx: 1 mg/kg SQ q12h or 1.5 mg/kg SQ q24h. Angina: 1 mg/kg SQ q12h; Ancillary to AMI fibrinolysis: 30 mg IV bolus, then 1 mg/kg SQ bid; CrCl < 30 mL/min ↓ to 1 mg/kg SQ qd Peds. Prevention: 0.5 mg/kg SQ q12h. DVT/PE Rx: 1 mg/kg SQ q12h; ↓ dose w/ CrCl < 30 mL/min W/P: [B, ?] Not for prophylaxis in prosthetic heart valves CI: Active bleeding, HIT Ab, heparin, pork sens Disp: Inj 0.1 mL (30-, 40-, 60-, 80-, 100-, 120-, 150-mg syringes); 300-mg/mL multi-dose vial SE: Bleeding, hemorrhage, bruising, thrombocytopenia, fever, pain/hematoma at site, ↑ AST/ALT Notes: No effect on bleeding time, pt Fnx, PT, or aPTT; monitor plt for HIT, clinical bleeding; may monitor antifactor Xa; not for IM

Entacapone (Comtan) Uses: *Parkinson Dz* Acts: Selective & reversible catechol-O-methyltransferase inhib Dose: 200 mg w/ each levodopa/carbidopa dose; max 1600 mg/d; ↓ levodopa/carbidopa dose 25% w/ levodopa dose > 800 mg W/P: [C, ?] Hepatic impair CI: Use w/ MAOI Disp: Tabs 200 mg SE: Dyskinesia, hyperkinesia, N, D, dizziness, hallucinations, orthostatic ↓ BP, brown-orange urine Notes: ✓ LFTs; do not D/C abruptly

Enzalutamide (Xtandi) Uses: *Metastatic castration-resistant prostate cancer pre or post-docetaxel* Acts: Androgen receptor inhibitor Dose (men only): 160 mg daily, do not chew/open caps W/P: [X, –] Sz risk CI: PRG Disp: Caps 40 mg SE: HA, dizziness, insomnia, fatigue, anxiety, MS pain, muscle weakness, paresis, back pain, spinal cord compression, cauda equina synd, arthralgias, edema,
URI, lower resp Infxn, hematuria, ↑ BP Notes: Avoid w/ strong CYP2C8 inhib, strong/mod CYP3A4 or CYP2C8 induc, avoid CPY3A4, CYP2C9, CYP2C19 substrates w/ narrow therapeutic index; if on warfarin ✓ INR

**Ephedrine**

**Uses:** Acute bronchospasm, bronchial asthma, nasal congestion*, ↓ BP, narcolepsy, enuresis, & MyG

**Acts:** Sympathomimetic; stimulates alpha- & beta-receptors; bronchodilator

**Dose:**

**Adults.** Congestion: 12.5–25 mg PO q4h PRN w/ expectorant; ↓ BP: 25–50 mg IV q5–10min, 150 mg/d max. Peds. 0.2–0.3 mg/kg/dose IV q4–6h PRN

**W/P:** [C, ?/−] CI: Arrhythmias; NAG

**Disp:** Caps 25 mg; Inj 50 mg/mL; nasal spray 0.25%

**SE:** CNS stimulation (nervousness, anxiety, trembling), tachycardia, arrhythmia, HTN, xerostomia, dysuria

**Notes:** Protect from light; monitor BP, HR, urinary output; can cause false(+) amphetamine EMIT; take last dose 4–6 h before hs; abuse potential, OTC sales mostly banned/restricted

**Epinephrine (Adrenalin, EpiPen, EpiPen Jr., Others)**

**Uses:** *Cardiac arrest, anaphylactic Rxn, bronchospasm, open-angle glaucoma*  
**Acts:** Beta-adrenergic agonist, some alpha-effects

**Dose:**

**Adults.** ECC 2010. 1-mg (10 mL of 1:1000 soln) IV/IO push, repeat q3–5min (0.2 mg/kg max) if 1-mg dose fails. Inf: 0.1–0.5 mcg/kg/min, titrate. ET 2–2.5 mg in 5–10 mL NS. Profound bradycardia/hypotension: 2–10 mcg/min (1 mg in 250 mL D5W). Allergic Rxn: 0.3–0.5 mg (0.3–0.5 mL of 1:1000 soln) SQ. Anaphylaxis: 0.3–0.5 (0.3–0.5 mL of 1:1000 soln) IV. Asthma: 0.1–0.5 mL SQ of 1:1000 dilution, repeat q20min to 4 h, or 1 Inh (metered-dose) repeat in 1–2 min, or susp 0.1–0.3 mL SQ for extended effect. Peds. ECC 2010. Pulseless arrest: (0.01 mL/kg 1:1000) IV/IO q3–5min; max dose 1 mg; OK via ET tube (0.01 mL/kg 1:1000) until IV/IO access. Symptomatic bradycardia: 0.01 mg/kg (0.1 mL/kg 1:1000) cont Inf: typical 0.1–1 mcg/kg/min, titrate. Anaphylaxis/status asthmaticus: 0.01 mg/kg (0.01 mL/kg 1:1000) IM, repeat PRN; max single dose 0.3 mg W/P: [C, ?] ↓ bronchodilation w/ β-blockers CI: Cardiac arrhythmias, NAG Disp: Inj 1:1000, 1:2000, 1:10,000; nasal inhal 0.1%; oral inhal 2.25% soln; EpiPen Autoinjector 1 dose = 0.30 mg; EpiPen Jr. 1 dose = 0.15 mg SE: CV (tachycardia, HTN, vasoconstriction), CNS stimulation (nervousness, anxiety, trembling), ↓ renal blood flow Notes: Can give via ET tube if no central line (use 2–2.5 × IV dose); EpiPen for pt self-use (www.EpiPen.com)

**Epirubicin (Ellence)**

**BOX:** Do not give IM or SQ. Extrav causes tissue necrosis; potential cardiotoxicity; severe myelosuppression; ↓ dose w/ hepatic impair

**Uses:** *Adjuvant Rx for (+) axillary nodes after resection of primary breast CA secondary AML*

**Acts:** Anthracycline cytotoxic agent

**Dose:** Per protocols; ↓ dose w/ hepatic impair W/P: [D, −] CI: Baseline neutrophil count < 1500 cells/mm³, severe cardiac Insuff, recent MI, severe arrhythmias, severe hepatic dysfunction,
previous anthracyclines Rx to max cumulative dose Disp: Inj 50 mg/25 mL, 200 mg/100 mL SE: Mucositis, N/V/D, alopecia, ↓ BM, cardiotoxic, secondary AML, tissue necrosis w/ extrav (see Adriamycin for Rx), lethargy Notes: ✓ CBC, bili, AST, Cr, cardiac Fxn before/during each cycle

**Eplerenone (Inspra)** Uses: *HTN*, ↑ survival after MI w/ LVEF < 40% and CHF* Acts: Selective aldosterone antagonist Dose: **Adults.** 50 mg PO daily-bid, doses > 100 mg/d no benefit w/ ↑ K⁺; ↓ to 25 mg PO daily if giving w/ CYP3A4 inhib W/P: [B, +/−] w/ CYP3A4 inhib (Table 10, p 346); monitor K⁺ w/ ACE inhib, ARBs, NSAIDs, K⁺-sparking diuretics; grapefruit juice, St. John’s Wort CI: K⁺ > 5.5 mEq/L; non–insulin-dependent diabetes mellitus (NIDDM) w/ microalbuminuria; SCr > 2 mg/dL (males), > 1.8 mg/dL (females); CrCl < 30 mL/min; w/ K⁺ supls/K⁺-sparking diuretics, ketoconazole Disp: Tabs 25, 50 mg SE: ↑ cholesterol/triglycerides, ↑ K⁺, HA, dizziness, gynecomastia, D, orthostatic ↓ BP Notes: May take 4 wk for full effect

**Epoetin Alfa [Erythropoietin, EPO] (Epogen, Procrit)** BOX: ↑ Mortality, serious CV/thromboembolic events, and tumor progression. Renal failure pts experienced ↑ greater risks (death/CV events) on erythropoiesis-stimulating agents (ESAs) to target Hgb levels 11 g/dL. Maintain Hgb 10–12 g/dL. In CA pt, ESAs ↓ survival/time to progression in some CA when dosed Hgb ≥ 12 g/dL. Use lowest dose needed. Use only for myelosuppressive chemotherapy. D/C following chemotherapy. Preop ESA ↑ DVT. Consider DVT prophylaxis Uses: *CRF-associated anemia, zidovudine Rx in HIV-infected pts, CA chemotherapy; ↓ transfusions associated w/ surgery* Acts: Induces erythropoiesis Dose: **Adults & Peds.** 50–150 units/kg IV/SQ 3×/wk; adjust dose q4–6wk PRN. Surgery: 300 units/kg/d × 10 d before to 4 d after; ↓ dose if Hct ~36% or Hgb, ↑ > ≅ 12 g/dL or Hgb ↑ > 1 g/dL in 2-wk period; hold dose if Hgb > 12 g/dL W/P: [C, ?/−] CI: Uncontrolled HTN Disp: Inj 2000, 3000, 4000, 10,000, 20,000, 40,000 units/mL SE: HTN, HA, fatigue, fever, tachycardia, N/V Notes: Refrigerate; monitor baseline & posttreatment Hct/Hgb, BP, ferritin

**Epoprostenol (Flolan, Veletri)** Uses: *Pulm HTN* Acts: Dilates pulm/systemic arterial vascular beds; ↓ plt aggregation Dose: Initial 2 ng/kg/min; ↑ by 2 ng/kg/min q15min until dose-limiting SE (CP, dizziness, N/V, HA, ↓ BP, flushing); IV cont Inf 4 ng/kg/min < max tolerated rate; adjust based on response; see PI W/P: [B, ?] ↑ tox w/ diuretics, vasodilators, acetate in dialysis fluids, anticoagulants CI: Chronic use in CHF 2nd degree, if pt develops pulm edema w/ dose initiation, severe LVSD Disp: Inj 0.5, 1.5 mg SE: Flushing, tachycardia, CHF, fever, chills, nervousness, HA, N/V/D, jaw pain, flu-like Sxs Notes: Abrupt D/C can cause rebound pulm HTN; monitor bleeding w/ other antiplatelet/anticoagulants; watch ↓ BP w/ other vasodilators/diuretics

**Eprosartan (Teveten)** Uses: *HTN*, DN, CHF Acts: **ARB** Dose: 400–800 mg/d single dose or bid W/P: [C (1st tri); D (2nd & 3rd tri), D/C immediately when PRG detected] w/ Li, ↑ K⁺ w/ K⁺-sparking diuretics/supls/high-dose trimethoprim
Erythromycin (E-Mycin, E.E.S., Ery-Tab, EryPed, I lotycin)  Uses:  *Bacterial Infections; bowel prep*; ↑ GI motility (prokinetic); *acne vulgaris*  Acts:  Bacteriostatic; interferes with protein synthesis.  Spectrum:  Group A streptococci (S. pyogenes), S. pneumoniae, N. gonorrhoeae (if PCN-allergic), Legionella, M. pneumoniae  Dose:  Adults.  Base 250–500 mg PO q6–12h or

CI:  Bilateral RAS, 1st-degree aldosteronism  Disp:  Tabs 400, 600 mg  SE:  Fatigue, depression, URI, UTI, Abd pain, rhinitis/pharyngitis/cough, hypertriglyceridermia  **Eptifibatide (Integrilin)**  Uses:  *ACS, PCI*  Acts:  Glycoprotein IIb/IIIa inhibit  Dose:  180 mcg/kg IV bolus, then 2 mcg/kg/min cont Inf; ↓ in renal impair (CrCl < 50 mL/min: 180 mcg/kg, then 1 mcg/kg/min);  **ECC 2010. ACS:**  180 mcg/kg/min IV bolus over 1–2 min, then 2 mcg/kg/min, then repeat bolus in 10 min; continue infusion 18–24 h post-PCI  W/P:  [B, ?]  Monitor bleeding w/ other anticoagulants  CI:  Other glycoprotein IIb/IIIa inhibit, Hx abnormal bleeding, hemorrhagic stroke (w/in 30 d), severe HTN, major surgery (w/in 6 wk), plt count < 100,000 cells/mm³, renal dialysis  Disp:  Inj 0.75, 2 mg/mL  SE:  Bleeding, ↓ BP, Inj site Rxn, thrombocytopenia  Notes:  Monitor bleeding, coagulants, plt, SCr, activated coagulation time (ACT) w/ prothrombin consumption index (keep ACT 200–300 s)  **Eribulin (Halaven)**  Uses:  *Met breast CA after 2 chemo regimens (including anthracycline & taxane)*  Acts:  Microtubule inhibitor  Dose:  Adults.  1.4 mg/m² IV (over 2–5 min) days 1 & 8 of 21-d cycle; ↓ dose w/ hepatic & mod renal impair; delay/↓ for tox (see label) W/P:  [D, –]  CI:  None  Disp:  Inj 0.5 mg/mL  SE:  ↓ WBC/Hct/plt, fatigue/asthenia, neuropathy, N/V/D, constipation, pyrexia, alopecia, ↑ QT, arthralgia/myalgia, back/pain, cough, dyspnea, UTI  Notes:  Monitor bleeding, coagulants, plt, SCr, activated coagulation time (ACT) w/ prothrombin consumption index (keep ACT 200–300 s)  **Erlotinib (Tarceva)**  Uses:  *NSCLC after failing 1 chemotherapy; maint NSCLC who have not progressed after 4 cycles cisplatin-based therapy, CA pancreas*  Acts:  HER2/EGFR TKI  Dose:  CA pancreas 100 mg, others 150 mg/d PO 1 h ac or 2 h pc; ↓ (in 50-mg decrements) w/ severe Rxn or w/ CYP3A4 inhibit (Table 10, p 346); per protocols  W/P:  [D, –]  CI:  None  Disp:  Inj 0.75, 2 mg/mL  SE:  ↑ QT, arthralgia/myalgia, back/pain, cough, dyspnea, UTI Notes:  May ↑ INR w/ warfarin, monitor INR  **Ertapenem (Invanz)**  Uses:  *Complicated intra-Abd, acute pelvic, & skin Infections, pyelonephritis, CAP*  Acts:  α-carbapenem; β-lactam antibiotic, ↓ cell wall synth.  Spectrum:  Good gram (+/-) & anaerobic coverage, not Pseudomonas, PCN-resistant pneumococci, MRSA, Enterococcus, β-lactamase (+) H. influenzae, Mycoplasma, Chlamydia  Dose:  Adults.  1 g IM/IV daily; 500 mg/d in CrCl < 30 mL/min  Peds 3 mo–12 y.  15 mg/kg bid IM/IV, max 1 g/d  W/P:  [B, ?–]  Sz Hx, CNS disorders, β-lactam & multiple allergies, probenecid ↓ renal clearance  CI:  Component hypersens or amide anesthetics  Disp:  Inj 1 g/vial  SE:  HA, N/V/D, Inj site Rxns, thrombocytosis, ↑ LFTs  Notes:  Can give IM × 7 d, IV × 14 d; 137 mg Na⁺ (6 mEq)/g ertapenem  **Erythromycin**  **Spectrum:**  Group A streptococci (S. pyogenes), S. pneumoniae, N. gonorrhoeae (if PCN-allergic), Legionella, M. pneumoniae  **Dose:**  Adults.  Base 250–500 mg PO q6–12h or
Erythromycin, Ophthalmic

Uses: *Conjunctival/ corneal Infections*

Acts: Macrolide antibiotic

Dose: 1/2 in 2–6 times/day

W/P: [B, +] CI: Erythromycin hypersensitivity

Disp: 0.5% oint

SE: Local irritation

Erythromycin, Topical (Akne-Mycin, Ery, Erythra-Derm, Generic)

Uses: *Acne vulgaris*

Acts: Macrolide antibiotic

Dose: Wash & dry area, apply 2% product over area bid

W/P: [B, +] Pseudomembranous colitis possible CI: Component sensitivity

Disp: Soln 1.5%, 2%; gel 2%; pads & swabs 2% SE: Local irritation

Erythromycin/Benzoyl Peroxide (Benzamycin)

Uses: *Topical for acne vulgaris*

Acts: Macrolide antibiotic w/ keratolytic

Dose: Apply bid (a.m. & p.m.)

W/P: [C, ?] CI: Component sensitivity

Disp: Gel erythromycin 30 mg/benzoyl peroxide 50 mg/g

SE: Local irritation, dryness

Erythromycin/Sulfisoxazole (E.S.P.)

Uses: *Upper & lower resp tract; bacterial Infections: H. influenzae otitis media in children; Infections in PCN-allergic pts*

Acts: Macrolide antibiotic w/ sulfonamide

Dose: Adults. Based on erythromycin content; 400 mg erythromycin/1200 mg sulfisoxazole PO q6h. Peds > 2 mo. 40–50 mg/kg/d erythromycin & 150 mg/kg/d sulfisoxazole PO q6h; max 2 g/d erythromycin or 6 g/d sulfisoxazole × 10 d; ↓ in renal impair

W/P: [C (D if near term), +] w/ PO anticoagulants, hypoglycemics, phenytoin, cyclosporine CI: Infants < 2 mo

Disp: Susp erythromycin ethylsuccinate 200 mg/sulfisoxazole 600 mg/5 mL (100, 150, 200 mL)

SE: GI upset

Escitalopram (Lexapro, Generic)

BOX: Closely monitor for worsening depression or emergence of suicidality, particularly in ped pts

Uses: Depression, anxiety

Acts: SSRI

Dose: Adults. 10–20 mg PO daily; 10 mg/d in elderly & hepatic impair

W/P: [C, +/−] Serotonin synd (Table 11, p 32); use of escitalopram, w/ NSAID, ASA, or other drugs affecting coagulation associated w/ ↑ bleeding risk

CI: w/in 14 d of MAOI

Disp: Tabs 5, 10, 20 mg; soln 1 mg/mL

SE: N/V/D, sweating, insomnia, dizziness, xerostomia, sexual dysfunction

Note: Full effects may take 3 wk
**Estazolam**

**Estazolam (ProSom, Generic) [C-IV]**

Uses: *Short-term management of insomnia*

Acts: Benzodiazepine

Dose: 1–2 mg PO qhs PRN; ↓ in hepatic impair/elderly/debilitated

W/P: [X, –] ↑ Effects w/ CNS depressants; cross-sensitivity
Esterified Estrogens

w/ other benzodiazepines CI: PRG, component hypersens, w/ itraconazole or ketoconazole Disp: Tabs 1, 2 mg SE: Somnolence, weakness, palpitations, anaphylaxis, angioedema, amnesia Notes: May cause psychological/physical dependence; avoid abrupt D/C after prolonged use

Estradiol, Gel (Divigel) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal Uses: *Vasomotor Sxs in menopause* Acts: Estrogen supl Dose: Menopausal vasomotor Sx: 0.3–1.25 mg/d, cyclically 3 wk on, 1 wk off; add progestin 10–14 d w/ 28-d cycle w/ uterus intact; Vulvovaginal atrophy: Same regimen except use 0.3–1.25 mg; Hypogonadism: 2.5–7.5 mg/d PO × 20 d, off × 10 d; add progestin 10–14 d w/ 28-d cycle w/ uterus intact W/P: [X, −] CI: Undiagnosed genital bleeding, breast CA, estrogen-dependent tumors, thromboembolic disorders, thrombophlebitis, recent MI, PRG, severe hepatic Dz Disp: Tabs 0.3, 0.625, 1.25, 2.5 mg SE: N, HA, bloating, breast enlargement/tenderness, edema, venous thromboembolism, hypertriglyceridemia, gallbladder Dz Notes: Use lowest dose for shortest time (see WHI data [www.whi.org])

Estradiol, Metered Gel (Elestrin, Estrogel) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y) Uses: *Postmenopausal vasomotor Sxs* Acts: Estrogen Dose: Apply 0.87–1.7 g to upper arm skin qd; add progestin × 10–14 d/28-d cycle w/ intact uterus; use lowest effective estrogen dose W/P: [X, ?] CI: AUB, breast CA, estrogen-dependent tumors, hereditary angioedema, thromboembolic disorders, recent MI, PRG, severe hepatic Dz Disp: Gel 0.06%; metered dose/activation SE: Thromboembolic events, MI, stroke, ↑ BP, breast/ovarian/endometrial CA, site Rxs, Vag spotting, breast changes, Abd bloating, cramps, HA, fluid retention Notes: Wait > 25 min before sunscreen; avoid concomitant use for > 7 d; BP, breast exams

Estradiol, Oral (Delestrogen, Estrace, Femtrace) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke,
breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y). Uses: *Atrophic vaginitis, menopausal vasomotor Sxs, prevent osteoporosis, ↑ low estrogen levels, palliation breast and PCa*.

**Acts:**

**Dose:**

- **PO:** 1–2 mg/d, adjust PRN to control Sxs.  
  - Vag cream: 2–4 g/d × 2 wk, then 1 g 1–3×/wk.
- **Vasomotor Sx/Vag atrophy:** 10–20 mg IM q4wk, D/C or taper at 3- to 6-mo intervals.  
  - **Hypoestrogenism:** 10–20 mg IM q4wk.
- **PCa:** 30 mg IM q12wk

**W/P:** [X, −] CI: Genital bleeding of unknown cause, breast CA, porphyria, estrogen-dependent tumors, thromboembolic disorders, thrombophlebitis; recent MI; hepatic impair

**Disp:**

- Tabs 0.5, 1, 2 mg; depot Inj (Delestrogen) 10, 20, 40 mg/mL

**SE:**

- N, HA, bloating, breast enlargement/tenderness, edema, ↑ triglycerides, venous thromboembolism, gallbladder Dz

**Notes:**

- When estrogen used in postmenopausal w/ uterus, use w/ progestin

**Estradiol, Spray (Evamist) BOX:** ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y)

**Uses:** *Vasomotor Sx in menopause*

**Acts:**

**Dose:** 1 spray on inner surface of forearm

**W/P:** [X, ±−] May ↑ PT/PTT/plt aggregation w/ thyroid Dz

**CI:** Undiagnosed genital bleeding, breast CA, estrogen-dependent tumors, thromboembolic disorders, thrombophlebitis, recent MI, PRG, severe hepatic Dz

**Disp:** 1.53 mg/spray (56-spray container)

**SE:**

- N, HA, bloating, breast enlargement/tenderness, edema, ↑ BP, hypertriglyceridemia, gallbladder Dz

**Notes:** Contains alcohol, caution around flames until dry; not for Vag use

**Estradiol, Transdermal (Alora, Climara, Estraderm, Vivelle Dot) BOX:** ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y)

**Uses:** *Severe menopausal vasomotor Sxs; female hypogonadism*

**Acts:** Estrogen supl

**Dose:** Start 0.0375–0.05 mg/d patch 1–2×/wk based on product (Climara 1×/wk; Alora 2×/wk) adjust PRN to control Sxs; w/ intact uterus cycle 3 wk on 1 wk off or use cyclic progestin 10–14 d

**W/P:** [X, −] See estradiol

**CI:** PRG, AUB, porphyria, breast CA, estrogen-dependent tumors, Hx thrombophlebitis, thrombosis

**Disp:** Transdermal patches (mg/24 h) 0.025, 0.0375, 0.05, 0.06, 0.075, 0.1

**SE:**

- N, bloating, breast enlargement/tenderness, edema, HA, hypertriglyceridemia

**Notes:** Do not apply to breasts, place on trunk, rotate sites; see estradiol, oral notes

**Estradiol, Vaginal (Estring, Femring, Vagifem) BOX:** ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y)

**Uses:** *Postmenopausal Vag atrophy (Estring)*  
*vasomotor Sxs and vulvar/Vag atrophy associated w/ menopause (Femring)*  
*atrophic vaginitis (Vagifem)*

**Acts:** Estrogen supl

**Dose:**

- **Estring:** Insert ring into upper third of Vag vault; remove and replace after 90 d; reassess 3–6 mo
- **Femring:** Use lowest effective dose, insert vaginally, replace q3mo
- **Vagifem:** 1 tab vaginally qd × 2 wk, then maint 1 tab 2×/
Estradiol/Levonorgestrel, Transdermal

wk, D/C or taper at 3–6 mo W/P: [X, –] May ↑ PT/PTT/plt aggregation w/ thyroid Dz, toxic shock reported CI: Undiagnosed genital bleeding, breast CA, estrogen-dependent tumors, thromboembolic disorders, thrombophlebitis, recent MI, PRG, severe hepatic Dz

Disp: Estring ring: 0.0075 mg/24 h; Femring ring: 0.05 and 0.1 mg/d Vagifem tab (Vag): 10 mcg SE: HA, leukorrhea, back pain, candidiasis, vaginitis, Vag discomfort/hemorrhage, arthralgia, insomnia, Abd pain; see estradiol, oral notes

Estradiol/Levonorgestrel, Transdermal (Climara Pro) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y) Uses: *Menopausal vasomotor Sx; prevent postmenopausal osteoporosis* Acts: Estrogen & progesterone

Disp: Estradiol 0.045 mg/levonorgestrel 0.015 mg day patch SE: Site Rxn, Vag bleed/spotting, breast changes, Abd bloating/cramps, HA, retention fluid, edema, ↑ BP Notes: Apply lower Abd; for osteoporosis give Ca²⁺/vit D supl; follow breast exams

Estradiol/Norethindrone (Activella, Generic) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y) Uses: *Menopause vasomotor Sxs; prevent osteoporosis* Acts: Estrogen/progestin; plant derived

Disp: Femhrt: Tabs 2.5/0.5, 5 mcg/1 mg; Activella: Tabs 1/0.5, 0.5 mg/0.1 mg SE: Thrombosis, dizziness, HA, libido changes, insomnia, emotional instability, breast pain Notes: Use in women w/ intact uterus; caution in heavy smokers; combo also used as OCP

Estramustine Phosphate (Emcyt) Uses: *Advanced PCa* Acts: Estradiol w/ nitrogen mustard; exact mechanism unknown

Disp: Caps 140 mg SE: N/V , exacerbation of preexisting CHF, edema, hepatic disturbances, thrombophlebitis, MI, PE, gynecomastia in 20–100% Notes: Low-dose breast irradiation before may ↓ gynecomastia

Estrogen, Conjugated (Premarin) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y) Uses: *Mod–severe menopausal vasomotor Sxs; atrophic vaginitis, dyspareunia*; palliative advanced CAP; prevention & Tx of estrogen deficiency osteoporosis

Disp: Tabs 0.3, 0.45,
Ethambutol

0.625, 0.9, 1.25 mg; Vag cream 0.625 mg/g
SE: ↑ Risk of endometrial CA, gallbladder Dz, thromboembolism, HA, & possibly breast CA
Notes: Generic products not equivalent

Estrogen, Conjugated/Medroxyprogesterone (Prempro, Premphase) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y) Uses: *Mod–severe menopausal vasomotor Sxs; atrophic vaginitis; prevent postmenopausal osteoporosis* Acts: Hormonal replacement Dose: Prempro 1 tab PO daily; Premphase 1 tab PO daily W/P: [X, –] CI: Severe hepatic impair, genital bleeding of unknown cause, breast CA, estrogen-dependent tumors, thromboembolic disorders, thrombosis, thrombophlebitis Disp: (As estrogen/medroxyprogesterone) Prempro: Tabs 0.3/1.5, 0.45/1.5, 0.625/2.5, 0.625/5 mg; Premphase: Tabs 0.625/0 (d 1–14) & 0.625/5 mg (d 15–28) SE: Gallbladder Dz, thromboembolism, HA, breast tenderness Notes: See WHI (www.whi.org); use lowest dose/shortest time possible

Estrogen, Conjugated Synthetic (Cenestin, Enjuvia) BOX: ↑ Risk endometrial CA. Do not use to prevent CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, and DVT in postmenopausal (50–79 y). ↑ Dementia risk in postmenopausal (≥ 65 y) Uses: *Vasomotor menopausal Sxs, vulvovaginal atrophy* Acts: Multiple estrogen replacement Dose: For all w/ intact uterus progestin × 10–14 d/28-d cycle; Vasomotor: 0.3–1.25 mg (Enjuvia) 0.625–1.25 mg (Cenestin) PO daily; Vag atrophy: 0.3 mg/d; Osteoporosis: (Cenestin) 0.625 mg/d W/P: [X, –] CI: See Estrogen, conjugated Disp: Tabs, Cenestin, 0.3, 0.45, 0.625, 0.9, 1.25 mg; Enjuvia ER 0.3, 0.45, 0.625, 0.9, 1.25 mg SE: ↑ Risk endometrial/breast CA, gallbladder Dz, thromboembolism

Eszopiclone (Lunesta) [C-IV] Uses: *Insomnia* Acts: Nonbenzodiazepine hypnotic Dose: Start 1 mg. ↑ 2–3 mg/d hs Elderly: 1–2 mg/d hs; w/ hepatic impair use w/ CYP3A4 inhib (Table 10, p 346): 1 mg/d hs only if necessary W/P: [C, ?/–] Disp: Tabs 1, 2, 3 mg SE: HA, xerostomia, dizziness, somnolence, hallucinations, rash, Infxn, unpleasant taste, anaphylaxis, angioedema Notes: High-fat meals ↓ absorption; dose > 2 mg may cause next day impairment

Etanercept (Enbrel) BOX: Serious Infxns (bacterial sepsis, TB, reported); D/C w/ severe Infxn. Evaluate for TB risk; test for TB before use; lymphoma/other CA possible in children/adolescents possible Uses: *↓ Sxs of RA in pts who fail other DMARD*, Crohn Dz Acts: TNF-receptor blocker Dose: Adults. RA 50 mg SQ weekly or 25 mg SQ 2x/wk (separated by at least 72–96 h). Peds 4–17 y. 0.8 mg/kg/wk (max 50 mg/wk) or 0.4 mg/kg (max 25 mg/dose) 2x/wk 72–96 h apart W/P: [B, ?] w/ Predisposition to Infxn (ie, DM); may ↑ risk of malignancy in peds and young adults CI: Active Infxn Disp: Inj 25 mg/vial, 50 mg/mL syringe SE: HA, rhinitis, Inj site Rxn, URI, new-onset psoriasis Notes: Rotate Inj sites

Ethambutol (Myambutol, Generic) Uses: *Pulm TB* & other mycobacterial Infxns, MAC Acts: ↓ RNA synth Dose: Adults & Peds > 12 y. 15–25 mg/
kg/d PO single dose; ↓ in renal impair, take w/ food, avoid antacids W/P: [C, +]
CI: Unconscious pts, optic neuritis Disp: Tabs 100, 400 mg SE: HA, hyperuricemia, acute gout, Abd pain, ↑ LFTs, optic neuritis, GI upset

**Ethinyl Estradiol/Norelgestromin (Ortho Evra)**

BOX: Cigarette smoking ↑ risk of serious CV events. ↑ Risk w/ age & no. of cigarettes smoked. Hormonal contraceptives should not be used by women who are > 35 y and smoke. Different from OCP pharmacokinetics Uses: *Contraceptive patch*

Acts: Estrogen & progestin

Dose: Apply patch to Abd, buttocks, upper torso (not breasts), or upper outer arm at the beginning of the menstrual cycle; new patch is applied weekly for 3 wk; wk 4 is patch-free W/P: [X, +/-] CI: PRG, Hx or current DVT/PE, stroke, MI, CV Dz, CAD; SBP ≥ 160 systolic mm Hg or DBP ≥ 100 diastolic mm Hg severe HTN; severe HA w/ focal neurologic Sx; breast/endometrial CA; estrogen-dependent neoplasms; hepatic dysfunction; jaundice; major surgery w/ prolonged immobilization; heavy smoking if > 35 y Disp: 20 cm² patch (6-mg norgestimate [active metabolite norgestimate] & 0.75 mg of ethinyl estradiol) SE: Breast discomfort, HA, site Rxs, N, menstrual cramps; thrombosis risks similar to OCP

Notes: Less effective in women > 90 kg; instruct pt does not protect against STD/HIV; discourage smoking

**Ethosuximide (Zarontin, Generic)**

Uses: *Absence (petit mal) Szs*

Acts: Anticonvulsant; ↑ Szs threshold

Dose: Adults & peds > 6 y. Initial, 500 mg PO + bid; ↑ by 250 mg/d q4–7d PRN (max 1500 mg/d) usual maint 20–30 mg/kg. Peds 3–6 y. 250 mg/d; ↑ by 250 mg/d q4–7d PRN; maint 20–30 mg/kg/d + bid; max 1500 mg/d W/P: [D, +] In renal/hepatic impair; antiepileptics may ↑ risk of suicidal behavior or ideation CI: Component sensitivity

Disp: Caps 250 mg; syrup 250 mg/5 mL SE: Blood dyscrasias, GI upset, drowsiness, dizziness, irritability

Notes: Levels: Trough: just before next dose; Therapeutic: Peak: 40–100 mcg/mL; Toxic Trough: > 100 mcg/mL; Half-life: 25–60 h

**Etidronate Disodium (Didronel, Generic)**

Uses: *↑ Ca²⁺ of malignancy, Paget Dz, & heterotopic ossification*

Acts: ↓ NL & abnormal bone resorption

Dose: Paget Dz: 5–10 mg/kg/d PO + doses (for 3–6 mo). ↑ Ca²⁺: 20 mg/kg/d IV × 30–90 d W/P: [B if PO (C if parenteral), ?] Bisphosphonates may cause severe musculoskeletal pain CI: Overt osteomalacia, SCR > 5 mg/dL Disp: Tabs 200, 400 mg SE: GI intolerance ( ↓ by + daily doses); hyperphosphatemia, hypomagnesemia, bone pain, abnormal taste, fever, convulsions, nephrotoxic

Notes: Take PO on empty stomach 2 h before or 2 h pc

**Etodolac**

BOX: May ↑ risk of CV events & GI bleeding; may worsen ↑ BP

Uses: *OA & pain*, RA

Acts: NSAID

Dose: 200–400 mg PO bid-qid (max 1200 mg/d) W/P: [C (D 3rd tri), ?] Bleeding risk w/ ASA, warfarin; ↑ nephrotox w/ cyclosporine; Hx CHF, HTN, renal/hepatic impair, PUD CI: Active GI ulcer

Disp: Tabs 400, 500 mg; ER tabs 400, 500, 600 mg; caps 200, 300 mg SE: N/V/D, gastritis, Abd cramps, dizziness, HA, depression, edema, renal impair

Notes: Do not crush tabs
Etravirine


Etoposide [VP-16] (Etopophos, Toposar, Vepesid, Generic) Uses: *Testicular, NSCLC, Hodgkin Dz, & NHLs, peds ALL,* & allogeneic/autologous BMT in high doses* Acts: Topoisomerase II inhib Dose: 50 mg/m²/d IV for 3–5 d; 50 mg/m²/d PO for 21 d (PO availability = 50% of IV); 2–6 g/m² or 25–70 mg/kg in BMT (per protocols); ↓ in renal/hepatic impair W/P: [D, –] CI: IT administration Disp: Caps 50 mg; Inj 20 mg/mL SE: N/V (emesis in 10–30%), ↓ BM, alopecia, ↓ BP w/ rapid IV, anorexia, anemia, leukopenia, ↑ risk secondary leukemias

Etonogestrel Implant (Implanon) Uses: *Contraception* Acts: Transforms endometrium from proliferative to secretory Dose: 1 implant subdermally q3y W/P: [X, +] Exclude PRG before implant CI: PRG, hormonally responsive tumors, breast CA, AUB, hepatic tumor, active liver Dz, Hx thromboembolic Dz Disp: 68-mg implant 4 cm long SE: Spotting, irregular periods, amenorrhea, dysmenorrhea, HA, tender breasts, N, Wt gain, acne, ectopic PRG, PE, ovarian cysts, stroke, ↑ BP Notes: 99% effective; remove implant and replace; restricted distribution; physician must register and train; does not protect against STDs; site nondominant arm 8–10 cm above medial epicondyle of humerus; implant must be palpable after placement

Etonogestrel/Ethinyl Estradiol Vaginal Insert (NuvaRing) BOX: Cigarette smoking ↑ risk of serious CV events. ↑ Risk w/ age & # cigarettes smoked. Hormonal contraceptives should not be used by women who are > 35 y and smoke. Different from OCP pharmacokinetics Uses: *Contraceptive* Acts: Estrogen & progestin combo Dose: Rule out PRG first; insert ring vaginally for 3 wk, remove for 1 wk; insert new ring 7 d after last removed (even if bleeding) at same time of day ring removed. 1st day of menses is day 1, insert before day 5 even if bleeding. Use other contraception for first 7 d of starting Rx. See PI if converting from other contraceptive; after delivery or 2nd tri Ab, insert 4 wk postpartum (if not breast-feeding) W/P: [X, ?/] HTN, gallbladder Dz, ↑ lipids, migraines, sudden HA CI: PRG, heavy smokers > 35 y, DVT, PE, cerebro-/CV Dz, estrogen-dependent neoplasm, undiagnosed abnormal genital bleeding, hepatic tumors, cholestatic jaundice Disp: Intravag ring: ethinyl estradiol 0.015 mg/d & etonogestrel 0.12 mg/d Notes: If ring removed, rinse w/cool/lukewarm H₂O (not hot) & reinsert ASAP; if not reinserted w/in 3 h, effectiveness ↓; do not use w/diaphragm

Etomidate (Amidate, Generic) Uses: *Induce general or short-procedure anesthesia* Acts: Short-acting hypnotic Dose: Adults & Peds > 10 y. Induce anesthesia 0.2–0.6 mg/kg IV over 30–60 s; Peds < 10 y. Not recommended Peds. ECC 2010. Rapid sedation: 0.2–0.4 mg/kg IV/IO over 30–60 s; max dose 20 mg W/P: [C, ?] CI: Hypersens Disp: Inj 2 mg/mL SE: Inj site pain, myoclonus

Etoposide [VP-16] (Etopophos, Toposar, Vepesid, Generic) Uses: *Testicular, NSCLC, Hodgkin Dz, & NHLs, peds ALL,* & allogeneic/autologous BMT in high doses* Acts: Topoisomerase II inhib Dose: 50 mg/m²/d IV for 3–5 d; 50 mg/m²/d PO for 21 d (PO availability = 50% of IV); 2–6 g/m² or 25–70 mg/kg in BMT (per protocols); ↓ in renal/hepatic impair W/P: [D, –] CI: IT administration Disp: Caps 50 mg; Inj 20 mg/mL SE: N/V (emesis in 10–30%), ↓ BM, alopecia, ↓ BP w/ rapid IV, anorexia, anemia, leukopenia, ↑ risk secondary leukemias

Etravirine
Everolimus

**Uses:** *Advanced RCC w/ sunitinib or sorafenib failure, subependymal giant cell astrocytoma and PNET in nonsurgical candidates w/ tuberous sclerosis*, renal angiomyolipoma w/ tuberous sclerosis

**Acts:** mTOR inhib

**Dose:** 10 mg PO daily, ↓ to 5 mg w/ SE or hepatic impair; avoid w/ high fat meal

**W/P:** [D, ?] Avoid w/ or if received live vaccines; w/ CYP3A4 inhib

**CI:** Compound/ rapamycin derivative hypersens

**Disp:** Tabs 100, 200 mg

**SE:** Noninfectious pneumonitis, ↑ Infxn risk, oral ulcers, asthenia, cough, fatigue, diarrhea, ↑ glucose/SCr/lipids; ↓ hemoglobin/WBC/plt

**Notes:** Follow CBC, LFT, glucose, lipids; see also everolimus (Zortress)

**Everolimus (Zortress)**

**Uses:** *Prevent renal and liver transplant rejection; combo w/ basiliximab w/ ↓ dose of steroids and cyclosporine*

**Acts:** mTOR inhib (mammalian rapamycin target)

**Dose:** 0.75 mg PO bid, adjust to trough levels 3–8 ng/mL

**W/P:** [D, ?]/CI: PRG, component sensitivity

**Disp:** Tabs 25 mg

**SE:** Hot flashes, N, fatigue, ↑ alkaline phosphate

**Notes:** Consider ↓ sulfonylurea to ↓ risk of hypoglycemia; discard pen 30 d after 1st use; monitor Cr

**Exenatide ER (Bydureon, Bydureon Pen)**

**BOX:** Causes thyroid C-cell tumors in rats, ? human relevance; CI in pts w/ Hx or family Hx medullary thyroid carcinoma (MTC) or multiple endocrine neoplasia synd type 2 (MEN2); counsel pts on thyroid tumor risk & Sx

**Uses:** *Type 2 DM*

**Acts:** Glucagon-like peptide-1 (GLP-1) receptor agonist

**Dose:** Adult. 2 mg SQ 1 × wk; w/ or w/o meals

**W/P:** [C, ?/−] w/ severe GI Dz; may cause acute pancreatitis and absorption of PO meds, may ↑ INR w/ warfarin

**CI:** MTC, MEN2, hypersens; CrCl < 30 mL/min

**Disp:** Soln 5, 10 mcg/dose in prefilled pen

**SE:** N/V/D/C, dyspepsia, ↓ appetite, hypoglycemia, HA, Inj site Rxn, pancreatitis, renal impair, hypersens

**Ezetimibe (Zetia)**

**Uses:** *Hypercholesterolemia alone or w/ a HMG-CoA reductase inhib*

**Acts:** ↓ Cholesterol & phytosterols absorption

**Dose:** Adults &
**Famciclovir (Famvir, Generic)**

**Uses:** *Acute herpes zoster (shingles) & genital herpes*  
**Acts:** ↓ Viral DNA synth  
**Dose:** Zoster: 500 mg PO q8h × 7 d.

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**Ezetimibe/Atorvastatin (Liptruzet)**

**Uses:** *Tx primary & mixed hyperlipidemia*  
**Acts:** Cholesterol absorption inhib & HMG-CoA reductase inhib  
**Dose:**  
- Adults: 10/10–10/80 mg/d PO; w/ clarithromycin, itraconazole, saquinavir/ritonavir, darunavir/ritonavir, fosamprenavir, fosamprenavir/ritonavir: 10/20 mg/d max; w/ nelfinavir, boceprevir: 10/40 mg/d max; use caution/lowest effective dose w/ lopinavir/ritonavir; start 10/40 mg/day for > 55% ↓ in LDL-C  
**W/P:** [X, –]; w/ CYP3A4 inhib (Table 10, p 346), gemfibrozil, niacin > 1 g/d  
**CI:** Liver Dz, ↑ LFTs; PRG/lactation; w/ cyclosporine, tipranavir/ritonavir, telaprevir, gemfibrozil; component hypersens  
**Disp:** Tabs (mg ezetimibe/mg simvastatin) 10/10, 10/20, 10/40, 10/80 mg  
**SE:** HA, GI upset, myalgia, myopathy (muscle pain, weakness, or tenderness w/ creatine kinase 10 × ULN, rhabdomyolysis), hep, Infxn  
**Notes:** Monitor LFTs, lipids; ezetimibe/simvastatin combo lowered LDL more than simvastatin alone in ENHANCE study, but was no difference in carotid-intima media thickness; pts to report muscle pain

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**Ezogabine (Potiga)**  
**BOX:** Retinal abnormalities possible; abn visual acuity/loss possible; D/C if inadequate clinical benefit. Baseline q6mo visual monitoring by an ophthalmic professional (acuity & dilated fundus photography); w/ retinal pigment abnormalities/vision changes D/C drug  
**Uses:** *Partial-onset Szs*  
**Acts:** ↑ Transmembrane K⁺ currents & augment GABA mediated currents  
**Dose:** Adult. 100 mg PO 3 × d; ↑ dose by 50 mg 3 × d qwk, max dose 400 mg 3 × d (1200 mg/d); ↓ dosage in elderly, renal/hepatic impair (see labeling); swallow whole  
**W/P:** [C, ?/–]  
**May need to ↑ dose when used w/ phenytoin & carbamazepine; monitor digoxin levels  
**Disp:** Tabs 50, 200, 300, 400 mg  
**SE:** Dizziness, somnolence, fatigue, abnormal coordination, gait disturbance, confusion, psychotic Sxs, hallucinations, attention disturbance, memory impair, vertigo, tremor, blurred vision, aphasias, dysarthria, urinary retention, ↑ QT interval, suicidal ideation/behavior, withdrawal Szs  
**Notes:** Withdraw over min. of 3 wk

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**Famciclovir**

**Pediatric Use:**  
**W/P:** [C, +/–] Bile acid sequestrants ↓ bioavailability  
**CI:** Hepatic impair  
**Disp:** Tabs 10 mg  
**SE:** HA, D, Abd pain, ↑ transaminases w/ HMG-CoA reductase inhib, erythema multiforme  
**Notes:** See ezetimibe/simvastatin

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**Ezetimibe/Simvastatin (Vytorin)**

**Uses:** *Hypercholesterolemia*  
**Acts:** ↓ Absorption of cholesterol & phytosterols w/ HMG-CoA-reductase inhib  
**Dose:**  
- 10/10–10/80 mg/d PO; w/ cyclosporine or danazol: 10/10 mg/d max; w/ diltiazem/amiodarone or verapamil: 10/10 mg/d max; w/ amlodipine/ranolazine 10/20 max; ↓ w/ severe renal Insuff; give 2 h before or 4 h after bile acid sequestrants  
**W/P:** [X, –]; w/ CYP3A4 inhib (Table 10, p 346), gemfibrozil, niacin > 1 g/d, danazol, amiodarone, verapamil; avoid high dose w/ diltiazem; w/ Chinese pt on lipid-modifying meds  
**CI:** PRG/lactation; w/ cyclosporine & danazol; liver Dz, ↑ LFTs

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**Ezetimibe/Atorvastatin (Liptruzet)**

**Uses:** *Tx primary & mixed hyperlipidemia*  
**Acts:** Cholesterol absorption inhib & HMG-CoA reductase inhib  
**Dose:**  
- Adults: 10/10–10/80 mg/d PO; w/ clarithromycin, itraconazole, saquinavir/ritonavir, darunavir/ritonavir, fosamprenavir, fosamprenavir/ritonavir: 10/20 mg/d max; w/ nelfinavir, boceprevir: 10/40 mg/d max; use caution/lowest effective dose w/ lopinavir/ritonavir; start 10/40 mg/day for > 55% ↓ in LDL-C  
**W/P:** [X, –] w/ CYP3A4 inhib, fenofibrates, niacin > 1 g/d  
**CI:** Liver Dz, ↑ LFTs; PRG/lactation; w/ cyclosporine, tipranavir/ritonavir, telaprevir, gemfibrozil; component hypersens  
**Disp:** Tabs (ezetimibe/atorvastatin): 10/10, 10/20, 10/40, 10/80 mg  
**SE:** HA, D, Abd pain, ↑ transaminases w/ HMG-CoA reductase inhib, erythema multiforme  
**Notes:** See ezetimibe/simvastatin
**Famotidine (Pepcid, Pepcid AC, Generic) [OTC]**

**Uses:** *Short-term Tx of duodenal ulcer & benign gastric ulcer; maint for duodenal ulcer, hypersecretory conditions, GERD, & heartburn*

**Acts:** H₂-antagonist; ↓ gastric acid

**Dose:**
- **Adults. Ulcer:** 20 mg IV q12h or 20–40 mg PO qhs × 4–8 wk.
- **Hypersecretion:** 20–160 mg PO q6h.
- **GERD:** 20 mg PO bid × 6 wk.
- **Heartburn:** 10 mg PO PRN q12h.
- **Peds.** 0.5–1 mg/kg/d; ↓ in severe renal Insuff

**W/P:** [B, −] CI: Component sensitivity

**Disp:** Tabs 125, 250, 500 mg

**SE:** Fatigue, dizziness, HA, pruritus, N/D

**Notes:** Best w/in 72 h of initial lesion

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**Febuxostat (Uloric)**

**Uses:** *Hyperuricemia and gout*

**Acts:** Xanthine oxidase inhibit (enzyme that converts hypoxanthine to xanthine to uric acid)

**Dose:** 40 mg PO 1 × d, ↑ 80 mg if uric acid not < 6 mg/dL after 2 wk

**W/P:** [C, ?/–] CI: Use w/ azathioprine, mercaptopurine, theophylline

**Supplied:** Tabs 40, 80 mg

**SE:** ↑ LFTs, rash, myalgia

**Notes:** OK to continue w/ gouty flare or use w/ NSAIDs

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**Felodipine (Plendil)**

**Uses:** *HTN & CHF*  
**Acts:** CCB

**Dose:** 2.5–10 mg PO daily; swallow whole; ↓ in hepatic impair

**W/P:** [C, ?] ↑ Effect w/ azole antifungals, erythromycin, grapefruit juice

**CI:** Component sensitivity

**Disp:** ER tabs 2.5, 5, 10 mg

**SE:** Peripheral edema, flushing, tachycardia, HA, gingival hyperplasia

**Notes:** Follow BP in elderly & w/ hepatic impair

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**Fenofibrate (Antara, Lipofen, Lofibra, TriCor, Triglide, Generic)**

**Uses:** *Hypertriglyceridemia, hypercholesteremia*  
**Acts:** ↓ Triglyceride synth

**Dose:** 43–160 mg/d; ↓ w/ renal impair; take w/ meals

**W/P:** [C, ?] CI: Hepatic/severe renal Insuff, primary biliary cirrhosis, unexplained

**LFTs, gallbladder Dz**

**Disp:** Caps 35, 40, 43, 48, 50, 54, 67, 105, 107, 130, 134, 145, 160, 200 mg

**SE:** GI disturbances, cholecystitis, arthralgia, myalgia, dizziness, ↑ LFTs

**Notes:** Monitor LFTs

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**Fenofibric Acid (Fibricor, Trilipix)**

**Uses:** *Adjunct to diet for ↑ triglycerides, to ↓ LDL-C, cholesterol, triglycerides, and apo B, to ↑ HDL-C in hypercholesterolemia/mixed dyslipidemia; adjunct to diet w/ a statin to ↓ triglycerides and ↑ HDL-C w/ CHD or w/ CHD risk*  
**Acts:** Agonist of peroxisome proliferator-activated receptor-alpha (PPAR-α), causes ↑ VLDL catabolism, fatty acid oxidation, and clearing of triglyceride-rich particles w/ ↓ VLDL, triglycerides; ↑ HDL in some

**Dose:** Mixed dyslipidemia w/ a statin: 135 mg PO × 1 d; Hypertriglyceridemia: 45–135 mg 1 × d; maint based on response; Primary hypercholesterolemia/mixed dyslipidemia: 135 mg PO 1 × d; 135 mg/d max; 35 mg w/ renal impair

**W/P:** [C, –/–] Multiple interactions, ↑ embolic phenomenon

**CI:** Severe renal impair, pt on dialysis, active liver/gall bladder Dz, nursing

**Disp:** DR Caps 35, 45, 105, 135 mg

**SE:** HA, back pain, nasopharyngitis, URI, N/D, myalgia, gall stones, ↓ CBC (usually...
Fentanyl, Transmucosal

stabilizes), rare myositis/rhabdomyolysis **Notes:** ✔ CBC, lipid panel, LFTs; D/C if LFT > 3x ULN

**Fenoldopam (Corlopam, Generic)** **Uses:** *Hypertensive emergency*  
**Acts:** Rapid vasodilator  
**Dose:** Initial 0.03–0.1 mcg/kg/min IV Inf, titrate q15min by 0.05–0.1 mcg/kg/min to max 1.6 mcg/kg/min  
**W/P:** [B, ?] ↓ BP w/ β-blockers  
**CI:** Allergy to sulfites  
**Disp:** Inj 10 mg/mL  
**SE:** ↓ BP w/ β-blockers  
**Notes:** Avoid concurrent β-blockers

**Fenoprofen (Nalfon, Generic)**  
**BOX:** May ↑ risk of CV events and GI bleeding  
**Uses:** *Arthritis & pain*  
**Acts:** NSAID  
**Dose:** 200–600 mg q4–8h, to 3200 mg/d max; w/ food  
**W/P:** [B (D 3rd tri), +/−] CHF, HTN, renal/hepatic impair, Hx PUD  
**CI:** NSAID sensitivity  
**Disp:** Caps 200, 400, 600 mg  
**SE:** GI disturbance, dizziness, HA, rash, edema, renal impair, hep  
**Notes:** Swallow whole

**Fentanyl (Sublimaze, Generic) [C-II]**  
**Uses:** *Short-acting analgesic* in anesthesia & PCA  
**Acts:** Narcotic analgesic  
**Dose:** Adults. 1–2 mcg/kg or 25–100 mcg/dose IV/IM titrated; Anesthesia: 5–15 mcg/kg; Pain: 200 mcg over 15 min, titrate to effect  
**Peds.** 1–2 mcg/kg IV/IM q1–4h titrate; ↓ in renal impair  
**W/P:** [B, +] CI: Paralytic ileus ↑ ICP, resp depression, severe renal/hepatic impair  
**Disp:** Inj 0.05 mg/mL  
**SE:** Sedation, ↓ BP, ↓ HR, constipation, N, resp depression, miosis  
**Notes:** 0.1 mg fentanyl = 10 mg morphine IM

**Fentanyl, Transdermal (Duragesic, Generic) [C-II]**  
**BOX:** Potential for abuse and fatal OD  
**Uses:** *Persistent mod–severe chronic pain in pts already tolerant to opioids*  
**Acts:** Narcotic analgesic  
**Dose:** Application to upper torso q72h; dose based on narcotic requirements in previous 24 h; start 25 mcg/h patch q72h; ↓ in renal impair  
**W/P:** [B, +] w/ CYP3A4 inhib (Table 10, p 346) may ↑ fentanyl effect, w/ Hx substance abuse  
**CI:** Not opioid tolerant, short-term pain management, postop outpatient pain in outpatient surgery, mild pain, PRN use, ↑ ICP, resp depression, severe renal/hepatic impair, peds < 2 y  
**Disp:** Patches 12.5, 25, 50, 75, 100 mcg/h  
**SE:** Resp depression (fatal), sedation, ↓ BP, ↓ HR, constipation, N, miosis  
**Notes:** 0.1 mg fentanyl = 10 mg morphine IM; do not cut patch; peak level in PRG 24–72 h

**Fentanyl, Transmucosal (Abstral, Actiq, Fentora, Lazanda, Onsolis, Generic) [C-II]**  
**BOX:** Potential for abuse and fatal OD; use only in pts w/ chronic pain who are opioid tolerant; CI in acute/postop pain; do not substitute for other fentanyl products; fentanyl can be fatal to children, keep away; use w/ strong CYP3A4 inhib may ↑ fentanyl levels. Abstral, Onsolis restricted distribution  
**Uses:** *Breakthrough CA pain w/ tolerance to opioids*  
**Acts:** Narcotic analgesic, transmucosal absorption  
**Dose:** Titrate to effect  
- **Abstral:** Start 100 mcg SL, 2 doses max per pain breakthrough episode; wait 2 h for next breakthrough dose; limit to < 4 breakthrough doses w/ successful baseline dosing  
- **Actiq:** Start 200 mcg PO × 1, may repeat × 1 after 30 min  
- **Fentora:** Start 100 mcg buccal tab × 1, may repeat in 30 min, 4 tabs/dose max
• **Lazanda**: Through TIRF REMS Access Program; initial 1 × 100 mcg spray; if no relief, titrate for breakthrough pain as follows: 2 × 100 mcg spray (1 in each nostril); 1 × 400 mcg; 2 × 400 mcg (1 in each nostril); wait 2 h before another dose; max 4 doses/24 h
• **Onsolis**: Start 200 mcg film, ↑ 200 mcg increments to max four 200-mcg films or single 1200-mcg film

**W/P**: [B, +] resp/CNS depression possible; CNS depressants/CYP3A4 inhib may ↑ effect; may impair tasks (driving, machinery); w/ severe renal/hepatic impair

**CI**: Opioid intolerant pt, acute/postop pain

**Disp**: • Abstral: SL tabs 100, 200, 300, 400, 600, 800 mcg
• Actiq: Lozenges on stick 200, 400, 600, 800, 1200, 1600 mcg
• Fentora: Buccal tabs 100, 200, 400, 600, 800 mcg
• **Lazanda**: Nasal spray metered dose audible and visual counter, 8 doses/bottle, 100/400 mcg/spray
• **Onsolis**: Buccal soluble film 200, 400, 600, 800, 1200 mcg

**SE**: Sedation, ↓ BP, ↓ HR, constipation, N/V, ↓ resp, dyspnea, HA, miosis, anxiety, confusion, depression, rash dizziness

**Notes**: 0.1 mg fentanyl = 10 mg IM morphine

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**Ferric Carboxymaltose (Injectafer)**

**Uses**: *Iron deficiency anemia*

**Acts**: Fe Supl

**Dose**: Adults. ≥ 50 kg: 2 doses 750 mg IV separated by 7 days; < 50 kg: 2 doses of 15 mg/kg IV separated by 7 days

**W/P**: [C, M] Hypersens Rxn (monitor during & 30 min after Inf)

**CI**: Component hypersens

**Disp**: Inj 750 mg iron/15 mL single-use vial

**SE**: N, HTN, flushing, hypophosphatemia, dizziness, HTN

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**Ferrous Gluconate (Fergon [OTC], Others)**

**BOX**: Accidental OD of iron-containing products is a leading cause of fatal poisoning in children < 6 y. Keep out of reach of children

**Uses**: *Iron-deficiency anemia* & Fe supl

**Acts**: Dietary supl

**Dose**: Adults. 100–200 mg of elemental Fe/d ÷ doses. Peds. 4–6 mg/kg/d ÷ doses; on empty stomach (OK w/ meals if GI upset occurs); avoid antacids

**W/P**: [A, ?] CI: Hemochromatosis, hemolytic anemia

**Disp**: Tabs Fergon 240 (27 mg Fe), 246 (28 mg Fe), 300 (34 mg Fe), 324 mg (38 mg Fe)

**SE**: GI upset, constipation, dark stools, discoloration of urine, may stain teeth

**Notes**: 12% Elemental Fe; false(+) stool guaiac; keep away from children; severe tox in OD

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**Ferrous Gluconate Complex (Ferrlecit)**

**Uses**: *Iron-deficiency anemia or supl to erythropoietin Rx therapy*

**Acts**: Fe supl

**Dose**: Test dose: 2 mL (25 mg Fe) IV over 1 h, if OK, 125 mg (10 mL) IV over 1 h. Usual cumulative dose: 1 g Fe over 8 sessions (until favorable Hct)

**W/P**: [B, ?] CI: Non–Fe-deficiency anemia; CHF; Fe overload

**Disp**: Inj 12.5 mg/mL. Fe

**SE**: ↓ BP, serious allergic Rxns, GI disturbance, Inj site Rxn

**Notes**: Dose expressed as mg Fe; may infuse during dialysis

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**Ferrous Sulfate [OTC]**

**Uses**: *Fe-deficiency anemia & Fe supl*

**Acts**: Dietary supl

**Dose**: Adults. 100–200 mg elemental Fe/d ÷ doses. Peds. 1–6 mg/kg/d ÷ daily–tid; on empty stomach (OK w/ meals if GI upset occurs); avoid antacids

**W/P**: [OTC] CI: Non–Fe-deficiency anemia; CHF; Fe overload
Finasteride

[A, ?] ↑ Absorption w/ vit C; ↓ absorption w/ tetracycline, fluoroquinolones, antacids, H₂ blockers, proton pump inhib CI: Hemochromatosis, hemolytic anemia Disp: Tabs 187 (60 mg Fe), 200 (65 mg Fe), 324 (65 mg Fe), 325 mg (65 mg Fe); SR caplets & tabs 160 (50 mg Fe), 200 mg (65 mg Fe); gtt 75 mg/0.6 mL (15 mg Fe/0.6 mL); syrup 90 mg/5 mL (18 mg Fe/5 mL) SE: GI upset, constipation, dark stools, discolored urine

Ferumoxytol (Feraheme) Uses: *Iron-deficiency anemia in chronic kidney Dz* Acts: Fe replacement Dose: Adults. 510 mg IV × 1, then 510 mg IV × 1 3–8 d later; give 1 mL/s W/P: [C, ?/−] Monitor for hypersens & ↓ BP for 30 mins after dose, may alter MRI studies CI: Iron overload; hypersens to ferumoxytol Disp: IV soln 30 mg/mL (510 mg elemental Fe/17 mL) SE: N/D, constipation, dizziness, hypotension, peripheral edema, hypersens Rxn Notes: ✓ hematologic response 1 month after 2nd dose

Fesoterodine (Toviaz) Uses: * OAB w/ urge urinary incontinence, urgency, frequency* Acts: Competitive muscarinic receptor antagonist, ↓ bladder muscle contractions Dose: 4 mg PO qd, ↑ to 8 mg PO daily PRN W/P: [C, ?/] Avoid > 4 mg w/ severe renal Insuff or w/ CYP3A4 inhib (eg, ketoconazole, clarithromycin); w/ BOO, ↓ GI motility/constipation, NAG, MyG CI: Urinary/gastric retention, or uncontrolled NAG, hypersens to class Disp: Tabs 4, 8 mg SE: Dry mouth, constipation, ↓ sweating can cause heat prostration

Fexofenadine (Allegra, Allegra-D, Generic) Uses: *Allergic rhinitis, chronic idiopathic urticaria* Acts: Selective antihistamine, antagonizes H₁-receptors; Allegra-D contains w/ pseudoephedrine Dose: Adults & Peds > 12 y. 60 mg PO bid or 180 mg/d; 12-h ER form bid, 24-h ER form qd. Peds 2–11 y. 30 mg PO bid; ↓ in renal impair W/P: [C, +] w/ Nevirapine CI: Component sensitivity Disp: Tabs 30, 60, 180 mg; susp 6 mg/mL; Allegra-D 12-h ER tab (60 mg fexofenadine/120 mg pseudoephedrine), Allegra-D 24-h ER (180 mg fexofenadine/240 mg pseudoephedrine) SE: Drowsiness (rare), HA, ischemic colitis

Fidaxomicin (Dificid) Uses: *Clostridium difficile-associated diarrhea* Acts: Macrolide antibiotic Dose: 200 mg PO bid × 10 d W/P: [B, +/-] Not for systemic Infxn or < 18 y; to ↓ resistance, use only when diagnosis suspected/ proven Disp: Tabs 200 mg SE: N/V, Abd pain, GI bleed, anemia, neutropenia

Filgrastim [G-CSF] (Neupogen) Uses: *↓ Incidence of Infxn in febrile neutopenic pts; Rx chronic neutropenia* Acts: Recombinant G-CSF Dose: Adults & Peds. 5 mcg/kg/d SQ or IV single daily dose; D/C when ANC > 10,000 cells/mm³ W/P: [C, ?] w/ Drugs that potentiate release of neutrophils (eg, Li) CI: Allergy to E. coli-derived proteins or G-CSF Disp: Inj 300 mcg/mL, 480 mg/1.6 mL SE: Fever, alopecia, N/V/D, splenomegaly, bone pain, HA, rash Notes: ✓ CBC & plt; monitor for cardiac events; no benefit w/ ANC > 10,000 cells/mm³

Finasteride (Proscar [Generic], Propecia) Uses: *BPH & androgenetic alopecia* Acts: ↓ 5-alpha-reductase Dose: BPH: 5 mg/d PO. Alopecia: 1 mg/d
PO; food ↓ absorption W/P: [X, –] Hepatic impair CI: Pregnant women should avoid handling pills, teratogen to male fetus Disp: Tabs 1 mg (Propecia), 5 mg (Proscar) SE: ↓ Libido, vol ejaculate, ED, gynecomastia; may slightly ↑ risk of high grade prostate CA Notes: Both ↓ PSA by ~50%; reestablish PSA baseline 6 mo (double PSA for “true” reading); 3–6 mo for effect on urinary Sxs; continue to maintain new hair, not for use in women

**Fingolimod (Gilenya)** Uses: *Relapsing MS* Acts: Sphingosine 1-phosphate receptor modulator; ↓ lymphocyte migration into CNS Dose: **Adults.** 0.5 mg PO 1 × d; monitor for 6 h after 1st dose for bradycardia; monitor W/P: [C, –] Monitor w/ severe hepatic impair and if on Class 1a or III antiarrhythmics/beta-blockers/CCBs (rhythm disturbances); avoid live vaccines during & 2 mo after D/C; ketoconazole ↑ level Disp: Caps 0.5 mg SE: HA, D, back pain, dizziness, bradycardia, AV block, HTN, Infxs, macular edema, ↑ LFTs, cough, dyspnea Notes: Obtain baseline ECG, CBC, LFTs & eye exam; women of childbearing potential should use contraception during & 2 mo after D/C

**Flavoxate (Generic)** Uses: *Relief of Sx of dysuria, urgency, nocturia, suprapubic pain, urinary frequency, incontinence* Acts: Antispasmodic Dose: 100–200 mg PO tid-qid W/P: [B, ?] CI: GI obst, GI hemorrhage, ileus, achalasia BPH Disp: Tabs 100 mg SE: Drowsiness, blurred vision, xerostomia

**Flecainide (Tambocor)** BOX: ↑ Mortality in pts w/ ventricular arrhythmias and recent MI; pulm effects reported; ventricular proarrrhythmic effects in AF/A flutter, not OK for chronic AF Uses: Prevent AF/A flutter & PSVT, *prevent/suppress life-threatening ventricular arrhythmias* Acts: Class 1C antiarrhythmic Dose: **Adults.** Start 50 mg PO q12h; ↑ by 50 mg q12h q4d, to max 400 mg/d max Peds. 3–6 mg/kg/d in 3 ÷ doses; ↓ w/ renal impair, W/P: [C, +] Monitor w/ hepatic impair, ↑ conc w/ amiodarone, digoxin, quinidine, ritonavir/amprenavir, β-blockers, verapamil; may worsen arrhythmias CI: 2nd-/3rd-degree AV block, right BBB w/ bifascicular or trifascicular block, cardiogenic shock, CAD, ritonavir/amprenavir, alkalinizing agents Disp: Tabs 50, 100, 150 mg SE: Dizziness, visual disturbances, dyspnea, palpitations, edema, CP, tachycardia, CHF, HA, fatigue, rash, N Notes: Initiate Rx in hospital; dose q8h if pt is intolerant/uncontrolled at q12h; Levels: Trough: Just before next dose; Therapeutic: 0.2–1 mcg/mL; Toxic: > 1 mcg/mL; half-life: 11–14 h

**Flouxuridine (Generic)** BOX: Administration by experienced physician only; pts should be hospitalized for 1st course d/t risk for severe Rxn Uses: *GI adenoma, liver, renal CAs*; colon & pancreatic CAs Acts: Converted to 5-FU; inhibits thymidylate synthase; ↓ DNA synthase (S-phase specific) Dose: 0.1–0.6 mg/kg/d for 1–6 wk (per protocols) usually intraarterial for liver mets W/P: [D, –] Interaction w/ vaccines CI: BM suppression, poor nutritional status, serious Infxs, PRG, component sensitivity Disp: Inj 500 mg SE: ↓ BM, anorexia, Abd cramps, N/V/D, mucositis, alopecia, skin rash, & hyperpigmentation; rare neurotox (blurred vision, depression, nystagmus, vertigo, & lethargy); intraarterial catheter-related problems
Fluorouracil, Injection

(ischemia, thrombosis, bleeding, & Infxn) Notes: Need effective birth control; palliative Rx for inoperable/incurable pts

**Fluconazole (Diflucan, Generic)**

**Uses:** *Candidiasis (esophageal, oropharyngeal, urinary tract, Vag, prophylaxis); cryptococcal meningitis, prophylaxis w/ BMT*

**Acts:** Antifungal; ↓ cytochrome P-450 sterol demethylation. **Spectrum:** All *Candida* sp except *C. krusei*

**Dose:** Adults. 100–400 mg/d PO or IV. **Vaginitis:** 150 mg PO daily. **Crypto:** Doses up to 800 mg/d reported; 400 mg d 1, then 200 mg × 10–12 wk after CSF (–). **Peds.** 3–6 mg/kg/d PO or IV; 12 mg/kg/d/systemic Infxn; ↓ in renal impair **W/P:** [C, Vag candidiasis (D high or prolonged dose), –] Do not use w/ clopidogrel (↓ effect) **CI:** None

**Disp:**Tabs 50, 100, 150, 200 mg; susp 10, 40 mg/mL; Inj 2 mg/mL **SE:** HA, rash, GI upset, ↓ K⁺, ↑ LFTs **Notes:** PO (preferred) = IV levels; cong anomalies w/ high dose 1st tri

**Fludarabine (Generic)**

**BOX:** Administer only under supervision of qualified physician experienced in chemotherapy. Can ↓ BM and cause severe CNS effects (blindness, coma, and death). Severe/fatal autoimmune hemolytic anemia reported; monitor for hemolysis. Use w/ pentostatin not OK (fatal pulm tox)

**Uses:** *Autoimmune hemolytic anemia, CLL, cold agglutinin hemolysis*, low-grade lymphoma, mycosis fungoides **Acts:** ↓ Ribonucleotide reductase; blocks DNA polymerase-induced DNA repair **Dose:** 18–30 mg/m²/d for 5 d, as a 30-min Inf (per protocols); ↓ w/ renal impair **W/P:** [D, –] Give cytarabine before fludarabine (↓ its metabolism) **CI:** w/ Pentostatin, severe Infxns, CrCl < 30 mL/min, hemolytic anemia **Disp:** Inj 50 mg **SE:** ↓ BM, N/V/D, ↑ LFTs, edema, CHF, fever, chills, fatigue, dyspnea, nonproductive cough, pneumonitis, severe CNS tox rare in leukemia, autoimmune hemolytic anemia

**Fludrocortisone Acetate** *(Florinef, Generic)*

**Uses:** *Adrenocortical Insuff, Addison Dz, salt-wasting synd* **Acts:** Mineralocorticoid **Dose:** Adults. 0.1–0.2 mg/d PO. **Peds.** 0.05–0.1 mg/d PO **W/P:** [C, ?] **CI:** Systemic fungal Infxns; known allergy **Disp:** Tabs 0.1 mg SE: HTN, edema, CHF, HA, dizziness, convulsions, acne, rash, bruising, hyperglycemia, hypothalamic-pituitary-adrenal suppression, cataracts **Notes:** For adrenal Insuff, use w/ glucocorticoid; dose changes based on plasma renin activity

**Flumazenil** *(Romazicon, Generic)*

**Uses:** *Reverse sedative effects of benzodiazepines & general anesthesia* **Acts:** Benzodiazepine receptor antagonist **Dose:** Adults. 0.2 mg IV over 15 s; repeat PRN, to 1 mg max (5 mg max in benzodiazepine OD). **Peds.** 0.01 mg/kg (0.2 mg/dose max) IV over 15 s; repeat 0.005 mg/kg at 1-min intervals to max 1 mg total; ↓ in hepatic impair **W/P:** [C, ?] **CI:** TCA OD; if pts given benzodiazepines to control life-threatening conditions (ICP/ status epilepticus) **Disp:** Inj 0.1 mg/mL SE: N/V, palpitations, HA, anxiety, nervousness, hot flashes, tremor, blurred vision, dyspnea, hyperventilation, withdrawal synd **Notes:** Does not reverse narcotic Sx or amnesia, use associated w/ Szs

**Fluorouracil, Injection** *(5-FU)* *(Generic)*

**BOX:** Administration by experienced chemotherapy physician only; pts should be hospitalized for 1st course d/t risk for severe Rxn **Uses:** *Colorectal, gastric, pancreatic, breast, basal cell*, head, neck,
Fluorouracil, Topical

**Uses:** *Basal cell carcinoma (when standard therapy impractical); actinic/solar keratosis*

**Acts:** Inhibits thymidylate synthetase (↓ DNA synth, S-phase specific)

**Dose:** 5% cream bid × 2–6 wk

**Disp:** Cream 0.5, 1, 5%; soln 1, 2, 5%

**Notes:** Healing may not be evident for 1–2 mo; wash hands thoroughly; avoid occlusive dressings; do not overuse

Fluoxetine (Gaboxetine, Prozac, Prozac Weekly, Sarafem, Generic)

**Uses:** *Depression, OCD, panic disorder, bulimia (Prozac)*

**Acts:** SSRI

**Dose:** 20 mg/d PO (max 80 mg/d ÷ dose); weekly 90 mg/wk after 1–2 wk of standard dose. Bulimia: 60 mg q a.m. Panic disorder: 20 mg/d. OCD: 20–80 mg/d. PMDD: 20 mg/d or 20 mg intermittently, start 14 d prior to menses, repeat w/ each cycle; ↓ in hepatic failure

**Disp:** Prozac: Caps 10, 20, 40 mg; scored tabs 10, 20 mg; SR weekly caps 90 mg; soln 20 mg/5 mL. Sarafem: Caps 10, 15, 20 mg

**Notes:** May cause dependency

Fluoxymesterone (Androxy)

**Uses:** Androgen-responsive metastatic *breast CA, hypogonadism*

**Acts:** ↓ Secretion of LH & FSH (feedback inhibition)

**Dose:** Breast CA: 10–40 mg/d ÷ × 1–3 mo. Hypogonadism: 5–20 mg/d

**Disp:** Caps 10 mg

**Notes:** May cause dependency
**Flurbiprofen (Ansaid, Ocufen, Generic)**  
**BOX:** May ↑ risk of CV events and GI bleeding  
**Uses:** *Arthritis, ocular surgery*  
**Acts:** NSAID  
**Dose:** *Ansaid* 50–300 mg/d + bid-qid, max 300 mg/d w/ food; *Ocufen:* Ocular 1 gtt q30 min × 4, beginning 2 h preop  
**W/P:** [C (D in 3rd tri), ?/–]  
**CI:** PRG (3rd tri); ASA allergy  
**Disp:** Tabs 50, 100 mg; Ocufen 0.03% opthal soln  
**SE:** Dizziness, GI upset, peptic ulcer Dz, ocular irritation

**Flutamide (Generic)**  
**BOX:** Liver failure & death reported. Measure LFTs before, monthly, & periodically after; D/C immediately if ALT 2 × ULN or jaundice develops  
**Uses:** Advanced *PCa* (w/ LHRH agonists, eg, leuprolide or goserelin); w/ radiation & GnRH for localized CAP  
**Acts:** Nonsteroidal antiandrogen  
**Dose:** 250 mg PO tid (750 mg total)  
**W/P:** [D, ?]  
**CI:** Severe hepatic impair  
**Disp:** Caps 125 mg  
**SE:** Hot flashes, loss of libido, impotence, N/V/D, gynecomastia, hepatic failure  
**Notes:** ✓ LFTs, avoid EtOH

**Fluticasone Furoate, Nasal (Veramyst)**  
**Uses:** *Seasonal allergic rhinitis*  
**Acts:** Topical steroid  
**Dose:** *Adults & Peds* > 12 y. 2 sprays/nostril/d, then 1 spray/d maint. *Peds* 2–11 y. 1–2 sprays/nostril/d  
**W/P:** [C, M] Avoid w/ ritonavir, other steroids, recent nasal surgery/trauma  
**CI:** None  
**Disp:** Nasal spray 25.5 mcg/actuation  
**SE:** HA, epistaxis, nasopharyngitis, pyrexia, pharyngolaryngeal pain, cough, nasal ulcers, back pain, anaphylaxis

**Fluticasone Propionate, Inhalation (Flovent HFA, Flovent Diskus)**  
**Uses:** *Chronic asthma*  
**Acts:** Topical steroid  
**Dose:** *Adults & Peds* > 12 y. 2–4 puffs bid. *Peds* 4–11 y. 44 or 50 mcg bid  
**W/P:** [C, M] Avoid w/ phenothiazines  
**CI:** Status asthmaticus  
**Disp:** Diskus dry powder: 50, 100, 250 mcg/action; HFA; MDI 44/110/220 mcg/Inh  
**SE:** HA, dysphonia, oral candidiasis  
**Notes:** Risk of thrush, rinse mouth after; counsel on use of devices

**Fluticasone Propionate, Nasal (Flonase, Generic)**  
**Uses:** *Seasonal allergic rhinitis*  
**Acts:** Topical steroid  
**Dose:** *Adults & Peds* > 12 y. 2 sprays/nostril/d  
**Peds* 4–11 y. 1–2 sprays/nostril/d  
**W/P:** [C, M]  
**CI:** Primary Rx of status asthmaticus  
**Disp:** Nasal spray 50 mcg/actuation  
**SE:** HA, dysphonia, oral candidiasis  
**Notes:** Recap: Risk of worsening wheezing or asthma-related death w/ long-acting β₂-adrenergic agonists; use only if asthma not controlled on agent such as inhaled steroid  
**Uses:** *Maint Rx for asthma & COPD*  
**Acts:** Corticosteroid w/ LA bronchodilator β₂ agonist  
**Dose:** *Adults & Peds* > 12 y. 1 Inh bid q12h; titrate to lowest effective dose (4 Inh or 920/84 mcg/d max)  
**W/P:** [C, M]  
**CI:** Acute asthma attack; conversion from PO steroids; w/ phenothiazines  
**Disp:** Diskus = metered-dose Inh powder (fluticasone/salmeterol in mcg) 100/50, 250/50, 500/50; HFA = aerosol 45/21, 115/21, 230/21 mg  
**SE:** URI, pharyngitis, HA  
**Notes:** Combo of Flovent & Serevent; do not wash mouthpiece, do not exhale into device; Advair HFA for pts not controlled on other meds (eg, low-medium dose Inh steroids) or whose Dz severity warrants 2 maint therapies
Fluticasone/Vilanterol (Breo Ellipta) BOX: LABAs may ↑ risk of asthma-related death; not indicated for Tx of asthma

Uses: *COPD*

Acts: Inhaled steroid & LABA

Dose: Adults. 1 inh 1 ×/d W/P: [C, ~/] not for acute Sx; ↑ risk pneumonia & other Infxns; adrenal suppression/hypercorticism w/ high doses; w/ CV Dz, Sz disorders, thyrotoxicosis, DM, ketoacidosis; w/ strong CYP3A4 inhib, MAOIs, TCAs, beta-blockers, diuretics, other LABAs

CI: Hypersens to milk protein/components

Disp: Inh powder (fluticasone/vilanterol) 100 mcg/25 mcg blister

SE: Nasopharyngitis, URI, HA, oral candidiasis, ↑ glucose, ↓ K⁺, glaucoma, cataracts, ↓ BMD, paradoxical bronchospasm

Notes: After inh rinse mouth w/o swallowing to ↓ risk of candidiasis

Fluvastatin (Lescol, Generic) Uses: *Atherosclerosis, primary hypercholesterolemia, heterozygous familial hypercholesterolemia, hypertriglyceridemia*

Acts: HMG-CoA reductase inhib

Dose: 20–40 mg bid PO or XL 80 mg/d ↓ w/ hepatic impair W/P: [X, –] CI: Active liver Dz, ↑ LFTs, PRG, breast-feeding

Disp: Caps 20, 40 mg; XL 80 mg SE: HA, dyspepsia, N/D, Abd pain

Notes: Dose no longer limited to hs; ✓ LFTs; OK w/ grapefruit

Fluvoxamine (Luvox CR, Generic) BOX: Closely monitor for worsening depression or emergence of suicidality, particularly in ped pts

Uses: *OCD, SAD*

Acts: SSRI

Dose: Initial 50-mg single qhs dose, ↑ to 300 mg/d in ÷ doses; CR: 100–300 mg PO qhs, may ↑ by 50 mg/d qwk, max 300 mg/d ↓ in elderly/hepatic impair, titrate slowly; ÷ doses > 100 mg W/P: [C, ~/] Multiple interactions (see PI: MAOIs, phenothiazines, SSRIs, serotonin agonists, others); do not use w/ clopidogrel

CI: MAOI w/in 14 d, w/ alosetron, tizanidine, thioridazine, pimozide

Disp: Tabs 25, 50, 100 mg; caps ER 100, 150 mg SE: HA, N/D, somnolence, insomnia, ↓ Na⁺, Notes: Gradual taper to D/C

Folic Acid, Injectable, Oral (Generic) Uses: *Megaloblastic anemia; folate deficiency*

Acts: Dietary supl

Dose: Adults. Supl: 0.4 mg/d PO. PRG: 0.8 mg/d PO.

Folate deficiency: 1 mg PO daily–tid. Peds. Supl: 0.04–0.4 mg/24 h PO, IM, IV, or SQ.

Folate deficiency: 0.5–1 mg/24 h PO, IM, IV, or SQ W/P: [A, +] CI: Pernicious, aplastic, normocytic anemias

Disp: Tabs 0.4, 0.8, 1 mg; Inj 5 mg/mL SE: Well tolerated

Notes: OK for all women of childbearing age; ↓ fetal neural tube defects by 50%; no effect on normocytic anemias

Fondaparinux (Arixtra) BOX: When epidural/spinal anesthesia or spinal puncture is used, pts anticoagulated or scheduled to be anticoagulated w/ LMW heparins, heparinoids, or fondaparinux are at risk for epidural or spinal hematoma, which can result in long-term or permanent paralysis

Uses: *DVT prophylaxis* w/ hip fracture, hip or knee replacement, Abd surgery; w/ DVT or PE in combo w/ warfarin

Acts: Synth inhib of activated factor X; a pentasaccharide

Dose: Prophylaxis 2.5 mg SQ daily, up to 5–9 d; start > 6 h postop; Tx: 7.5 mg SQ daily (< 50 kg: 5 mg SQ daily; > 100 kg: 10mg SQ daily); ↓ w/ renal impair W/P: [B, ?]

↑ Bleeding risk w/ anticoagulants, anti-plts, drotrecogin alfa, NSAIDs

CI: Wt < 50 kg, CrCl < 30 mL/min, active bleeding, SBE ↓ plt w/ anti-plt Ab

Disp:
Prefilled syringes w/ 27-gauge needle: 2.5/0.5, 5/0.4, 7.5/0.6, 10/0.8 mg/mL

SE: Thrombocytopenia, anemia, fever, N

Notes: D/C if plts < 100,000 cells/mcL; only give SQ; may monitor antifactor Xa levels

**Formoterol Fumarate (Foradil, Perforomist) BOX:** May ↑ risk of asthma-related death

*Uses:* Long-term Rx of bronchoconstriction in COPD, EIB (only Foradil)*

*Acts:* LA β₂-agonist

*Dose: Adults.* Perforomist: 20-mcg Inh q12h; Foradil: 12-mcg Inh q12h, 24 mcg/d max; EIB: 12 mcg 15 min before exercise

*Peds > 5y.* (Foradil) See Adults

*W/P: [C, M] Not for acute Sx, w/ CV Dz, w/ adrenergic med; xanthine derivatives med that ↑ QT; β-blockers may ↓ effect, D/C w/ ECG change CI: None

*Disp: Foradil* caps 12 mcg for Aerolizer inhaler (12 & 60 doses), Perforomist: 20 mcg/2 mL for inhaler

*SE: N/D, nasopharyngitis, dry mouth, angina, HTN, ↓ BP, tachycardia, arrhythmias, nervousness, HA, tremor, muscle cramps, palpitations, dizziness Notes: Excess use may ↑ CV risks; not for oral use

**Fosamprenavir (Lexiva) BOX:** Do not use w/ severe liver dysfunction, reduce dose w/ mild–mod liver impair (fosamprenavir 700 mg bid w/o ritonavir)

*Uses: HIV Infxn*

*Acts:* Protease inhib

*Dose: 1400 mg bid w/o ritonavir; w/ ritonavir, fosamprenavir 1400 mg + ritonavir 200 mg daily or fosamprenavir 700 mg + ritonavir 100 mg bid; w/ efavirenz & ritonavir: fosamprenavir 1400 mg + ritonavir 300 mg daily

*W/P: [C, ?/−] Do not use w/ salmeterol, colchicine (w/ renal/hepatic failure); adjust dose w/ bosentan, tadalafil for PAH CI: w/ CYP3A4 drugs (Table 10, p 346) such as w/ rifampin, lovastatin, simvastatin, delavirdine, ergot alkaloids, midazolam, triazolam, or pimozide; sulfa allergy; w/ alpha 1-adrenoceptor antagonist (alfuzosin); w/ PDE5 inhibitor sildenafil

*Disp: Tabs 700 mg; susp 50 mg/mL SE: N/V/D, HA, fatigue, rash Notes: Numerous drug interactions because of hepatic metabolism; replaced amprenavir

**Fosaprepitant (Emend, Injection) Uses:** Prevent chemotherapy-associated N/V*

*Acts:* Substance P/neurokinin 1 receptor antagonist

*Dose: Chemotherapy:* 150 mg IV 30 min before chemotherapy on d 1 (followed by aprepitant [Emend, Oral] 80 mg PO days 2 and 3) in combo w/ other antiemetics

*W/P: [B, ?/−] Potential for drug interactions, substrate and mod CYP3A4 inhib (dose-dependent); ↓ effect of OCP and warfarin

*CI: w/ Pimozide, terfenadine, astemizole, or cisapride Disp: Inj 115 mg SE: N/D, weakness, hiccups, dizziness, HA, dehydration, hot flushing, dyspepsia, Abd pain, neutropenia, ↑ LFTs, Inj site discomfort Notes: See also aprepitant (Emend, Oral)

**Foscarnet (Foscavir, Generic) Uses:** CMV retinitis*; acyclovir-resistant herpes Infxns*

*Acts:↓ Viral DNA polymerase & RT

*Dose: CMV retinitis: Induction: 90 mg/kg IV q12h or 60 mg/kg q8h × 14–21 d. Maint: 90–120 mg/kg/d IV (Mon–Fri). Acyclovir-resistant HSV: Induction: 40 mg/kg IV q8–12h × 14–21 d; use central line; ↓ w/ renal impair

*W/P: [C, −] ↑ Sz potential w/ fluoroquinolones; avoid nephrotoxic Rx (cyclosporine, aminoglycosides, amphotericin B, protease inhibit) CI: CrCl < 0.4 mL/min/kg Disp: Inj 24 mg/mL SE: Nephrotox, electrolyte abnormalities Notes: Sodium loading (500 mL 0.9% NaCl) before & after helps minimize nephrotox; monitor-ionized Ca²⁺
Fosfomycin

**Fosfomycin (Monurol, Generic)**
- **Uses:** *Uncomplicated UTI*
- **Acts:** ↓ Cell wall synth
- **Spectrum:** gram (+) Enterococcus, staphylococci, pneumococci; gram (−) (E. coli, Salmonella, Shigella, H. influenzae, Neisseria, indole (−) Proteus, Providencia); B. fragilis & anaerobic gram (−) cocci are resistant
- **Dose:** 3 g PO in 90–120 mL of H₂O single dose; ↓ in renal impair
- **W/P:** [B, ?] ↓ Absorption w/ antacids/Ca salts
- **CI:** Component sensitivity
- **Disp:** Granule packets 3 g
- **SE:** HA, GI upset
- **Notes:** May take 2–3 d for Sxs to improve

Fosinopril

**Fosinopril (Monopril, Generic)**
- **Uses:** *HTN, CHF, DN*
- **Acts:** ACE inhib
- **Dose:** 10 mg/d PO initial; max 40 mg/d PO; ↓ in elderly; ↓ in renal impair
- **W/P:** [D, +] ↑ K⁺ w/ K⁺ supls,ARBs,K⁺-sparing diuretics; ↑ renal after effects w/ NSAIDs, diuretics, hypovolemia
- **CI:** Hereditary/idiopathic angioedema or angioedema w/ ACE inhib, bilateral RAS
- **Disp:** Tabs 10, 20, 40 mg
- **SE:** Cough, dizziness, angioedema, ↑ K⁺

Fosphenytoin

**Fosphenytoin (Cerebyx, Generic)**
- **Uses:** *Status epilepticus*
- **Acts:** ↓ Sz spread in motor cortex
- **Dose:** As phenytoin equivalents (PE).
- **Load:** 15–20 mg PE/kg.
- **Maint:** 4–6 mg PE/kg/d; ↓ dosage, monitor levels in hepatic impair
- **W/P:** [D, +] May ↑ phenobarbital
- **CI:** Sinus bradycardia, SA block, 2nd-/3rd-degree A V block, Adams-Stokes synd, rash during Rx
- **Disp:** Inj 75 mg/mL
- **SE:** ↓ BP, dizziness, pruritus, nystagmus
- **Notes:** 15 min to convert fosphenytoin to phenytoin; administer < 150 mg PE/min to prevent ↓ BP; administer w/ BP monitoring

Frovatriptan

**Frovatriptan (Frova)**
- **Uses:** *Rx acute migraine*
- **Acts:** Vascular serotonin receptor agonist
- **Dose:** 2.5 mg PO repeat in 2 h PRN; max 7.5 mg/d
- **W/P:** [C, ?/–] ↑ Effects w/ CYP3A4 inhib (Table 10, p 346); w/ hepatic impair
- **CI:** Angina, ischemic heart Dz, coronary artery vasospasm, hemiplegic or basilar migraine, uncontrolled HTN, ergot use, MAOI use w/in 14 d
- **Supplied:** Tabs 2.5 mg
- **SE:** N, V, dizziness, hot flashes, paresthesias, dyspepsia, dry mouth, hot/cold sensation, CP, skeletal pain, flushing, weakness, numbness, coronary vasospasm, HTN

Fulvestrant

**Fulvestrant (Faslodex)**
- **Uses:** *HR (+) metastatic breast CA in postmenopausal women w/ progression following antiestrogen Rx therapy*
- **Acts:** Estrogen receptor antagonist
- **Dose:** 500 mg days 1, 15, & 29; maint 500 mg IM mo
- **CI:** PRG
- **Disp:** Prefilled syringes 50 mg/mL (single 5 mL, dual 2.5 mL)
- **SE:** N/V/D, constipation, Abd pain, HA, back pain, hot flushes, pharyngitis, injection site Rxns
- **Notes:** Only use IM

Furosemide

**Furosemide (Lasix, Generic)**
- **Uses:** *CHF, HTN, edema, ascites*
- **Acts:** Loop diuretic; ↓ Na & Cl reabsorption in ascending loop of Henle & distal tubule
- **Dose:** Adults 20–80 mg PO or IV bid. Peds. 1 mg/kg/dose IV q6–12h; 2 mg/kg/dose PO q12–24h (max 6 mg/kg/dose); ↑ doses w/ renal impair
- **W/P:** [C, +] ↓ K⁺, ↑ risk digoxin tox & ototox w/ aminoglycosides, cisplatin (especially in renal dysfunction)
- **CI:** Sulfonylurea allergy; anuria; hepatic coma; electrolyte depletion
- **Disp:** Tabs 20, 40, 80 mg; soln 10 mg/mL, 40 mg/5 mL; Inj 10 mg/mL
- **SE:** ↓ BP, hyperglycemia, ↓ K⁺
- **Notes:** ✓ Lytes, renal Fxn; high doses IV may cause ototox
Ganciclovir (Cytovene, Vitrasert, Generic)  Uses: *Rx & prevent CMV retinitis, prevent CMV Dz* in transplant recipients  Acts: ↓ viral DNA synth  Dose: Adults & Peds. IV: 5 mg/kg IV q12h for 14–21 d, then maint 5 mg/kg/d IV × 7 d/wk or 6 mg/kg/d IV × 5 d/wk. Ocular implant: 1 implant q5–8mo. Adults. PO: Following induction, 1000 mg PO tid. Prevention: 1000 mg PO tid; w/ food; ↓ in

Gabapentin (Neurontin, Generic)  Uses: Adjunct in *partial Szs; postherpetic neuralgia (PHN)*; chronic pain synds  Acts: Anticonvulsant; GABA analog  Dose: Adults & Peds > 12 y. Anticonvulsant: 300 mg PO tid, ↑ max 3600 mg/d. PHN: 300 mg day 1, 300 mg bid day 2, 300 mg tid day 3, titrate (1800–3600 mg/d); Peds 3–12 y: 10–15 mg/kg/d + tid, ↑ over 3 d: 3–4 y: 25–35 mg/kg/d + tid, 50 mg/kg/d max; ↓ w/ renal impair  W/P: [C, ?] Use in peds 3–12 y w/ epilepsy may ↑ CNS-related adverse events  CI: Component sensitivity  Disp: Caps 100, 300, 400 mg; soln 250 mg/5 mL; scored tab 600, 800 mg SE: Somnolence, dizziness, ataxia, fatigue  Notes: Not necessary to monitor levels; taper ↑ or ↓ over 1 wk

Gabapentin Enacarbil (Horizant)  Uses: *RLS*  Acts: GABA analog; ? mechanism  Dose: Adult. CrCl > 60 mL/min: 600 mg PO 1 × d; 30–59 mL/min: 300 mg 1 × d (max 600 mg/d); 15–29 mL/min: 300 mg 1 × d; < 15 mL/min: 300 mg q other day; not recommended w/ hemodialysis; take w/ food at 5 p.m.; swallow whole  W/P: [C, ?/–]  Disp: Tabs ER 300, 600 mg SE: Somnolence, sedation, fatigue, dizziness, HA, blurred vision, feeling drunk, disorientation, ↓ libido, depression, suicidal thoughts/behaviors, multiorgan hypersens

Galantamine (Razadyne, Razadyne ER, Generic)  Uses: *Mild–mod Alzheimer Dz*  Acts: ? Acetylcholinesterase inhib  Dose: Razadyne Start 8 mg/d, ↑ to 16 mg/d after 4 wk, then to 24 mg/d after 4 more wk; give q a.m. w/ food  W/P: [B, ?] w/ Heart block, ↑ effect w/ succinylcholine, amiodarone, diltiazem, verapamil, NSAIDs, digoxin; ↓ effect w/ anti-cholinergics; ↑ risk of death w/ mild impair  CI: Severe renal/hepatic impair  Disp: Razadyne Tabs 4, 8, 12 mg; soln 4 mg/mL. Razadyne ER Caps 8, 16, 24 mg SE: GI disturbances, ↓ Wt, sleep disturbances, dizziness, HA  Notes: Caution w/ urinary outflow obst, Parkinson Dz, severe asthma/COPD, severe heart Dz or ↓ BP

Gallium Nitrate (Ganite)  BOX: ↑ Risk of severe renal Insuff w/ concurrent use of nephrotoxic drugs (eg, aminoglycosides, amphotericin B). D/C if use of potentially nephrotoxic drug is indicated; hydrate several d after administration. D/C w/ Scr > 2.5 mg/dL  Uses: *↑ Ca++ of malignancy*; bladder CA  Acts: ↓ Bone resorption of Ca++  Dose: ↑ Ca++: 100–200 mg/m²/d × 5 d. CA: 350 mg/m² cont Inf × 5 d to 700 mg/m² rapid IV Inf q2wk in antineoplastic settings (per protocols), Inf over 24 h  W/P: [C, ?] Do not give w/ live or rotavirus vaccine  CI: Scr > 2.5 mg/dL  Disp: Inf 25 mg/mL  SE: Renal Insuff, ↓ Ca++, hypophosphatemia, ↓ bicarb, < 1% acute optic neuritis  Notes: Bladder CA, use in combo w/ vinblastine & ifosfamide

Ganetespib
Ganciclovir, Ophthalmic Gel (Zirgan)  
**Uses:** *Acute herpetic keratitis (dendritic ulcers)*  
**Acts:** ↓ Viral DNA synth  
**Dose:**  
- **Adult & Peds ≥2 y.**  
  - 1 gtt affected eye/s 5 × d (q3h while awake) until ulcer heals, then 1 gtt tid × 7 d  
- **W/P:** [C, Câ€“]  
- **CI:** None  
- **Disp:** Gel, 5-g tube  
**SE:** Blurred vision, eye irritation, punctate keratitis, conjunctival hyperemia  
**Notes:** Correct ↓ Ca²⁺ before use; ✓ Ca²⁺

Gemcitabine (Gemzar, Generic)  
**Uses:** *Pancreatic CA (single agent), breast CA w/ paclitaxel, NSCLC w/ cisplatin, ovarian CA w/ carboplatin*, gastric CA  
**Acts:** Antimetabolite; nucleoside metabolic inhibitor; ↓ ribonucleotide reductase; produces false nucleotide base-inhibiting DNA synth  
**Dose:** 1000–1250 mg/m² over 30 min–1 h IV Inf/wk × 3–4 wk or 6–8 wk; modify dose based on hematologic Fxn (per protocol)  
**W/P:** [D, Câ€“]  
**CI:** PRG  
**Disp:** Inj 200 mg, 1 g  
**SE:** ↓ BM, N/V/D, drug fever, skin rash  
**Notes:** Reconstituted soln 38 mg/mL; monitor hepatic/renal Fxn

Gemfibrozil (Lopid, Generic)  
**Uses:** *Hypertriglyceridemia, coronary heart Dz*  
**Acts:** Fibric acid  
**Dose:** 1200 mg/d PO ÷ bid 30 min ac A.M. & P.M.  
**W/P:** [C, Câ€“]  
**CI:** None  
**Disp:** Tabs 600 mg  
**SE:** Cholelithiasis, GI upset  
**Notes:** Avoid w/HMG-CoA reductase inh; ✓ LFTs & serum lipids

Gemifloxacin (Factive)  
**Uses:** *CAP, acute exacerbation of chronic bronchitis*  
**Acts:** ↓ DNA gyrase & topoisomerase IV; Spectrum: *S. pneumoniae* (including multidrug-resistant strains), *H. influenzae, H. parainfluenzae, M. catarrhalis, M. pneumoniae, C. pneumoniae, K. pneumoniae*  
**Dose:** 320 mg PO daily × 5–7 d; CrCl < 40 mL/min: 160 mg PO/d  
**W/P:** [C, Câ€“]; Peds < 18 y; Hx of ↑ QTc interval, electrolyte disorders, w/ class IA/III antiarrhythmics, erythromycin, TCAs, antipsychotics, ↑ INR and bleeding risk w/ warfarin  
**CI:** Fluoroquinolone allergy  
**Disp:** Tab 320 mg SE: Rash, N/V/D, *C. difficile* enterocolitis, ↑ risk of Achilles tendon rupture, tendonitis, Abd pain, dizziness, xerostomia, arthralgia, allergy/anaphylactic Rxns, peripheral neuropathy, tendon rupture  
**Notes:** Take 3 h before or 2 h after Al/Mg antacids, Fe²⁺, Zn²⁺ or other metal cations; ↑ rash risk w/ ↑ duration of Rx

Gentamicin, Injectable (Generic)  
**Uses:** *Septicemia, serious bacterial Infxn of CNS, urinary tract, resp tract, GI tract, including peritonitis, skin, bone, soft tissue, including burns; severe Infxn* *P. aeruginosa* w/ carbenicillin; group D
Glimepiride/Pioglitazone

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streptococci endocarditis w/ PCN-type drug; serious staphylococcal Infxns, but not the antibiotic of 1st choice; mixed Infxn w/ staphylococci and gram(−)* Acts: Aminoglycoside, bactericidal; ↓ protein synth Spectrum: gram(−) (not Neisseria, Legionella, Acinetobacter); weaker gram(+) but synergy w/ PCNs Dose: Adults. Standard: 1–2 mg/kg IV q8–12h or daily dosing 4–7 mg/kg q24h IV. Gram(−) Synergy: 1 mg/kg q8h Peds. Infants < 7 d < 1200 g: 2.5 mg/kg/dose q18–24h. Infants > 1200 g: 2.5 mg/kg/dose q12–18h. Infants > 7 d: 2.5 mg/kg/dose IV q8–12h. Children: 2.5 mg/kg/d IV q8h; ↓ w/ renal Insuff; if obese, dose based on IBW W/P: [C, ±/−] Avoid other nephrotoxics CI: Aminoglycoside sensitivity Disp: Premixed Inf 40, 60, 70, 80, 90, 120 mg; ADD-Vantage Inj vials 10 mg/mL; Inj 40 mg/mL; IT preservative-free 2 mg/mL SE: Nephro-/oto-/neurotox Notes: Follow CrCl, SCr, & serum conc for dose adjustments; use IBW to dose (use adjusted if obese > 30% IBW); OK to use intraperitoneal for peritoneal dialysis-related Infxns Levels: Peak: 30 min after Inf; Trough: < 0.5 h before next dose; Therapeutic: Peak: 5–8 mcg/mL, Trough: < 2 mcg/mL, if > 2 mcg/mL associated w/ renal tox

**Gentamicin, Ophthalmic (Garamycin, Genoptic, Gentak, Generic)**

Uses: *Conjunctival Infxns* Acts: Bactericidal; ↓ protein synth Dose: Oint: Apply 1/2 in bid-tid. Soln: 1–2 gtt q2–4h, up to 2 gtt/h for severe Infxn W/P: [C, ?] CI: Aminoglycoside sensitivity Disp: Soln & oint 0.1% and 0.3% SE: Local irritation Notes: Do not use other eye drops w/in 5–10 min; do not touch dropper to eye

**Gentamicin, Topical (Generic)**

Uses: *Skin Infxns* caused by susceptible organisms Acts: Bactericidal; ↓ protein synth Dose: Adults & Peds > 1 y. Apply tid-qid W/P: [C, ?] CI: Aminoglycoside sensitivity Disp: Cream & oint 0.1% SE: Irritation

**Gentamicin/Prednisolone, Ophthalmic (Pred-G Ophthalmic)**

Uses: *Steroid-responsive ocular & conjunctival Infxns* sensitive to gentamicin Acts: Bactericidal; ↓ protein synth w/ anti-inflammatory. Spectrum: Staphylococcus, E. coli, H. influenzae, Klebsiella, Neisseria, Pseudomonas, Proteus, & Serratia sp Dose: Oint: 1/2 in in conjunctival sac daily-tid. Susp: 1 gtt bid-qid, up to 1 gtt/h for severe Infxns CI: Aminoglycoside sensitivity W/P: [C, ?] Disp: Oint, opthalm: Prednisolone acetate 0.6% & gentamicin sulfate 0.3% (3.5 g). Susp, opthal: Prednisolone acetate 1% & gentamicin sulfate 0.3% (2, 5, 10 mL) SE: Local irritation

**Glimepiride (Amaryl, Generic)**

Uses: *Type 2 DM* Acts: Sulfonylurea; ↑ pancreatic insulin release; ↑ peripheral insulin sensitivity; ↓ hepatic glucose output/production Dose: 1–4 mg/d, max 8 mg W/P: [C, −] CI: DKA Disp: Tabs 1, 2, 4 mg SE: HA, N, hypoglycemia Notes: Give w/ 1st meal of day

**Glimepiride/Pioglitazone (Duetact)** BOX: Thiazolidinediones, including pioglitazone, cause or exacerbate CHF. Not recommended in pts w/ symptomatic heart failure. CI w/ NYHA Class III or IV heart failure Uses: *Adjunct to exercise type 2 DM not controlled by single agent* Acts: Sulfonylurea (↓ glucose) w/ agent that ↑ insulin sensitivity & ↓ gluconeogenesis Dose: Initial 30 mg/2 mg PO q A.M.;
Glipizide

45 mg pioglitazone/8 mg glimepiride/d max; w/ food W/P: [C, ?/−] w/ Liver impair, elderly, w/ Hx bladder CA CI: Component hypersens, DKA Disp: Tabs 30/2, 30 mg/4 mg SE: Hct, ↑ ALT, ↓ glucose, URI, ↑ Wt, edema, HA, N/D, may ↑ CV mortality Notes: Monitor CBC, ALT, Cr, Wt

Glipizide (Glucotrol, Glucotrol XL, Generic) Uses: *Type 2 DM* Acts: Sulfonylurea; ↑ pancreatic insulin release; ↑ peripheral insulin sensitivity; ↓ hepatic glucose output/production; ↓ intestinal glucose absorption Dose: 5 mg initial, ↑ by 2.5–5 mg/d, max 40 mg/d; XL max 20 mg; 30 min ac; hold if NPO W/P: [C, ?/−] Severe liver Dz CI: DKA, type 1 DM, sulfonamide sensitivity Disp: Tabs 5, 10 mg; XL tabs 2.5, 5, 10 mg SE: HA, anorexia, N/V/D, constipation, fullness, rash, urticaria, photosens Notes: Counsel about DM management; wait several days before adjusting dose; monitor glucose

Glucagon, Recombinant (Glucagen) Uses: Severe *hypoglycemic Rxns in DM*, radiologic GI tract diagnostic aid; β-blocker/CCB OD Acts: Accelerates liver gluconeogenesis Dose: Adults. 0.5–1 mg SQ, IM, or IV; repeat in 20 min PRN. ECC 2010. β-Blocker or CCB overdose: 3–10 mg slow IV over 3–5 min; follow w/ Inf of 3–5 mg/h; Hypoglycemia: 1 mg IV, IM, or SQ. Peds. Neonates: 30 mcg/kg/dose SQ, IM, or IV q4h PRN. Children: 0.025–0.1 mg/kg/dose SQ, IM, or IV; repeat in 20 min PRN W/P: [B, M] CI: Pheochromocytoma Disp: Inj 1 mg SE: N/V, ↓ BP Notes: Administration of dextrose IV necessary; ineffective in starvation, adrenal Insuff, or chronic hypoglycemia

Glucarpidase (Voraxaze) Uses: *Tx toxic plasma MTX conc (> 1 micromole/L) in pts w/ ↓ clearance* Acts: Carboxypeptidase enzyme converts MTX to inactive metabolites Dose: 50 units/kg IV over 5 min × 1 W/P: [C, ?/−] serious allergic/anaphylactic Rxns; do not administer leucovorin w/in 2 h before/after dose Disp: Inj (powder) 1000 units/vial SE: N/V/D, HA, ↓/↑ BP, flushing, paraesthesias, hypersens, blurred vision, rash, tremor, throat irritation Notes: Measure MTX conc by chromatographic method w/in 48 h of admin; continue leucovorin until methotrexate conc below leucovorin Tx threshold × 3 d; hydrate & alkalinize urine

Glyburide (DiaBeta, Glynase, Generic) Uses: *Type 2 DM* Acts: Sulfonylurea; ↑ pancreatic insulin release; ↑ peripheral insulin sensitivity; ↓ hepatic glucose output/production; ↓ intestinal glucose absorption Dose: 1.25–10 mg daily-bid, max 20 mg/d. Micronized: 0.75–6 mg daily or bid, max 12 mg/d W/P: [C, ?] Renal impair, sulfonamide allergy, ? ↑ CV risk CI: DKA, type 1 DM Disp: Tabs 1.25, 2.5, 5 mg; micronized tabs (Glynase) 1.5, 3, 6 mg SE: HA, hypoglycemia, cholestatic jaundice, and hepatitis may cause liver failure Notes: Not OK for CrCl < 50 mL/min; hold dose if NPO; hypoglycemia may be difficult to recognize; many medications can enhance hypoglycemic effects

Glyburide/Metformin (Glucovance, Generic) Uses: *Type 2 DM* Acts: Sulfonylurea: ↑ Pancreatic insulin release. Metformin: ↑ Peripheral insulin sensitivity; ↓ hepatic glucose output/production; ↓ intestinal glucose absorption Dose: 1st line (naïve pts), 1.25/250 mg PO daily-bid; 2nd line, 2.5/500 or 5/500 mg
bid (max 20/2000 mg); take w/ meals, slowly ↑ dose; hold before & 48 h after ionic contrast media W/P: [C, –] CI: SCr > 1.4 mg/dL in females or > 1.5 mg/dL in males; hypoxemic conditions (sepsis, recent MI); alcoholism; metabolic acidosis; liver Dz; Disp: Tabs (glyburide/metformin) 1.25/250, 2.5/500, 5/500 mg SE: HA, hypoglycemia, lactic acidosis, anorexia, N/V, rash Notes: Avoid EtOH; hold dose if NPO; monitor folate levels (meagloblastic anemia)

**Glycerin Suppository** Uses: *Constipation* Acts: Hyperosmolar laxative Dose: Adults. 1 Adult supp PR PRN. Peds. 1 Infant supp PR daily-bid PRN W/P: [C, –] Disp: Supp (adult, infant); liq 4 mL/applicator full SE: D

**Golimumab (Simponi)** BOX: Serious Infxns (bacterial, fungal, TB, opportunistic) possible. D/C w/ severe Infxn/sepsis, test and monitor for TB w/ Tx; lymphoma/other CA possible in children/adolescents Uses: *Mod–severe RA w/ methotrexate, psoriatic arthritis w/ or w/o methotrexate, ankylosing spondylitis* Acts: TNF blocker Dose: 50 mg SQ 1 × mo W/P: [B, ?/–] Do use w/ active Infxn; w/ malignancies, CHF, demyelinating Dz; do use w/ abatacept, anakinra, live vaccines CI: None Disp: Prefilled syringe & SmartJect auto-injector 50 mg/0.5 mL SE: URI, nasopharyngitis, Inj site Rxn, ↑ LFTs, Infxn, hep B reactivation, new- onset psoriasis

**Goserelin (Zoladex)** Uses: *Advanced CA prostate & w/ radiation and flutamide for localized high-risk Dz,*endometriosis, breast CA Acts: LHRH agonist, transient ↑ then ↓ in LH, w/ ↓ testosterone Dose: 3.6 mg SQ (implant) q28d or 10.8 mg SQ q3mo; usually upper Abd wall W/P: [X, –] CI: PRG, breast-feeding, 10.8-mg implant not for women Disp: SQ implant 3.6 (1 mo), 10.8 mg (3 mo) SE: Hot flashes, ↓ libido, gynecomastia, & transient exacerbation of CA-related bone pain (“flare Rxn” 7–10 d after 1st dose) Notes: Inject SQ into fat in Abd wall; do not aspirate; females must use contraception

**Granisetron (Kytril, Generic)** Uses: *Rx and Prevention of N/V (chemo/radiation/postoperation)* Acts: Serotonin (5-HT₃) receptor antagonist Dose: Adults & Peds. Chemotherapy: 10 mcg/kg/dose IV 30 min prior to chemotherapy Adults. Chemotherapy: 2 mg PO qd 1 h before chemotherapy, then 12 h later. Postop N/V: 1 mg IV over 30 s before end of case W/P: [B, +/–] St. John’s wort ↓ levels CI: Liver Dz, children < 2 y Disp: Tabs 1 mg; Inj 1 mg/mL SE: HA, asthenia, somnolence, D, constipation, Abd pain, dizziness, insomnia, ↑ LFTs

**Guaifenesin (Robitussin, Others, Generic)** Uses: *Relief of dry, non-productive cough* Acts: Expectorant Dose: Adults. 200–400 mg (10–20 mL) PO q4h SR 600–1200 mg PO bid (max 2.4 g/d). Peds 2–5 y. 50–100 mg (2.5–5 mL) PO q4h (max 600 mg/d). 6–11 y: 100–200 mg (5–10 mL) PO q4h (max 1.2 g/d) W/P: [C, ?] Disp: Tabs 100, 200 mg; SR tabs 600, 1200 mg; caps 200 mg; SR caps 300 mg; liq 100 mg/5 mL SE: GI upset Notes Give w/ large amount of water; some dosage forms contain EtOH

**Guaifenesin/Codeine (Robafen AC, Others, Generic) [C-V]** Uses: *Relief of dry cough* Acts: Antitussive w/ expectorant Dose: Adults. 5–10 mL or 1 tab PO q6–8h (max 60 mL/24 h). Peds > 6 y. 1–1.5 mg/kg codeine/d
Guaifenesin/Dextromethorphan

**Uses:**
- *Cough* d/t upper resp tract irritation

**Acts:**
- Antitussive w/ expectorant

**Dose:**
- **Adults & Peds > 12 y.** 10 mL PO q6–8h (max 40 mL/24 h).
- **Peds 2–6 y.** Dextromethorphan 1–2 mg/kg/24 h + 3–4 × d (max 10 mL/d). 
- **6–12 y.** 5 mL q6–8h (max 20 mL/d)

**W/P:** [C, +]

**Disp:**
- Many OTC formulations

**SE:** Somnolence

**Notes:**
- Not recommended for children < 6 y

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**Guanfacine (Intuniv, Tenex, Generic)**

**Uses:**
- *ADHD (peds > 6 y)*; *HTN (adults)*

**Acts:**
- Central α₂a-adrenergic agonist

**Dose:**
- **Adults.** 1–3 mg/d IR PO h (Tenex), ↑ by 1 mg q3–4wk PRN 3 mg/d max
- **Peds.** 1–4 mg/d XR PO (Intuniv), ↑ by 1 mg q1wk PRN 4 mg/d max

**W/P:** [B, +/−]

**Disp:**
- Tabs IR 1, 2 mg; tabs XR 1, 2, 3, 4 mg

**SE:**
- Somnolence, dizziness, HA, fatigue, constipation, Abd pain, xerostomia, hypotension, bradycardia, syncope

**Notes:**
- Rebound ↑ BP, anxiety, nervousness w/ abrupt D/C; metabolized by CYP3A4
5, 10, 20 mg; conc liq 2 mg/mL; Inj 5 mg/mL; decanoate Inj 50, 100 mg/mL
SE: Extrapyramidal Sxs (EPS), tardive dyskinesia, neuroleptic malignant synd, ↓ BP, anxiety, dystonias, risk for torsades de pointes and QT prolongation; leukopenia, neutropenia and agranulocytosis
Notes: Do not give decanoate IV; dilute PO conc liq w/ H₂O/juice; monitor for EPS; ECG monitoring w/ off-label IV use; follow CBC if WBC counts decreased

Hepatitis A Vaccine (HAVRIX, VAQTA) Uses: *Prevent hep A* in high-risk individuals (eg, travelers, certain professions, day-care workers if 1 or more children or workers are infected, high-risk behaviors, children at ↑ risk); in chronic liver Dz
Acts: Active immunity
Dose: Adults. HAVRIX 1.0-mL IM w/ 1.0-mL booster 6–12 mo later; VAQTA 1.0 mL IM w/ 1.0 mL IM booster 6–18 mo later Peds > 12 mo. HAVRIX 0.5-mL IM, w/ 0.5-mL booster 6–18 mo later; VAQTA 0.5 mL IM w/ booster 0.5 mL 6–18 mo later
W/P: [C, +] CI: Component sensitivity; syringes contain latex
Disp: HAVRIX: Inj 720 EL.U./0.5 mL, 1440 EL.U./1 mL; VAQTA 50 units/mL
SE: Fever, fatigue, HA, Inj site pain
Notes: Give primary at least 2 wk before anticipated exposure; do not give HAVRIX in gluteal region; report SAE to VAERS (1-800-822-7967)
Hepatitis B Immune Globulin (HyperHep, HepaGam B, Nabi-HB, H-BIG) **Uses:** Exposure to HBsAg(+) material (eg, blood, accidental needlestick, mucous membrane contact, PO or sexual contact), prevent hep B in HBsAg(+) liver Tx pt.* **Acts:** Passive immunization **Dose:** Adults & Peds. 0.06 mL/kg IM 5 mL max; w/in 24 h of exposure; w/in 14 d of sexual contact; repeat 1 mo if nonresponder or refused initial Tx; liver Tx per protocols **W/P:** [C, ?] CI: Allergies to γ-globulin, anti-immunoglobulin Ab, or thimerosal; IgA deficiency **Disp:** Inj SE: Inj site pain, dizziness, HA, myalgias, arthralgias, anaphylaxis **Notes:** IM in gluteal or deltoid; w/ continued exposure, give hep B vaccine; not for active hep B; ineffective for chronic hep B

Hepatitis B Vaccine (Engerix-B, Recombivax HB) **Uses:** Prevent hep B*: men who have sex w/ men, people who inject street drugs; chronic renal/liver Dz, healthcare workers exposed to blood, body fluids; sexually active not in monogamous relationship, people seeking evaluation for or w/ STDs, household contacts and partners of hep B infected persons, travelers to countries w/ ↑ hep B prevalence, clients/staff working w/ people w/ developmental disabilities **Acts:** Active immunization; recombinant DNA **Dose:** Adults. 3 IM doses 1 mL each; first 2 doses 1 mo apart; the third 6 mo after the first. **Peds.** 0.5 mL IM adult schedule **W/P:** [C, +] ↓ Effect w/ immunsuppressives CI: Yeast allergy, component sensitivity **Disp:** Engerix-B: Inj 20 mcg/mL; peds Inj 10 mcg/0.5 mL. Recombivax HB: Inj 10 & 40 mcg/mL; peds Inj 5 mcg/0.5 mL **SE:** Fever, HA, Inj site pain **Notes:** Deltoid IM Inj adults/older peds; younger peds, use anterolateral thigh

Hetastarch (Hespan) **Uses:** Plasma vol expansion* adjunct for leukapheresis **Acts:** Synthetic colloid; acts similar to albumin **Dose:** Vol expansion: 500–1000 mL (1500 mL/d max) IV (20 mL/kg/h max rate). Leukapheresis: 250–700 mL; ↓ in renal failure **W/P:** [C, +] CI: Severe bleeding disorders, CHF, oliguric/anuric renal failure **Disp:** Inj 6 g/100 mL SE: Bleeding (↑ PT, PTT, bleeding time) **Notes:** Not blood or plasma substitute

Histrelin Acetate (Supprelin LA, Vantas) **Uses:** Advanced PCa, precocious puberty* **Acts:** GNRH agonist; paradoxically ↑ release of GnRH w/ ↓ LH from anterior pituitary; in men ↓ testosterone **Dose:** Vantas: 50 mg SQ implant q12mo inner aspect of the upper arm; Supprelin LA: 1 implant q12mo W/P: [X, –] Transient “flare Rxn” at 7–14 d after 1st dose (LH/testosterone surge before suppression); w/ impending cord compression or urinary tract obstruction; ↑ risk DM, CV Dz, MI CI: GNRH sensitivity, PRG **Disp:** 50 mg 12-mo SQ implant **SE:** Hot flashes, fatigue, implant site Rxn, testis atrophy, gynecomastia **Notes:** Nonsteroidal antiandrogen (eg, bicalutamide) may block flare in men w/ PCa

Human Papillomavirus Recombinant Vaccine (Cervarix [Types 16, 18], Gardasil [Types 6, 11, 16, 18]) **Uses:** Prevent cervical CA, precancerous genital lesions (Cervarix and Gardasil), genital warts, anal CA and oral CA (Gardasil) dt to HPV types 16, 18 (Cervarix) and types 6, 11, 16, 18 (Gardasil) in females 9–26 y*; prevent genital warts, anal CA, and anal intraepithelial neoplasia in males 9–26 y (Gardasil)* **Acts:** Recombinant vaccine, passive
Hydrocodone, extended release

immunity Dose: 0.5 mL IM, then 1 and 6 mo (Cervarix), or 2 and 6 mo (Gardasil) (upper thigh or deltoid) W/P: [B, ?/–] Disp: Single-dose vial & prefilled syringe: 0.5 mL SE: Erythema, pain at Inj site, fever, syncope, venous thromboembolism Notes: 1st CA prevention vaccine, 90% effective in preventing CIN 2 or more severe Dz in HPV naïve populations; report adverse events to Vaccine Adverse Events Reporting System (VAERS: 1-800-822-7967); continue cervical CA screening. Hx of genital warts, abn Pap smear, or + HPV DNA test is not CI to vaccination

Hydralazine (Apresoline, Others, Generic) Uses: *Mod–severe HTN; CHF* (w/ Isordil) Acts: Peripheral vasodilator Dose: *Adults.* Initial 10 mg PO 3–4×/d, ↑ to 25 mg 3–4×/d, 300 mg/d max. *Peds.* 0.75–3 mg/kg/24 h PO + q6–12h; ↓ in renal impair; ✓ CBC & ANA before W/P: [C, +] ↓ Hepatic Fxn & CAD; ↑ tox w/ MAOI, indomethacin, β-blockers CI: Dissecting aortic aneurysm, mitral valve/rheumatic heart Dz Disp: Tabs 10, 25, 50, 100 mg; Inj 20 mg/mL SE: SLE-like synd w/ chronic high doses; SVT following IM route; peripheral neuropathy Notes: Compensatory sinus tachycardia eliminated w/ β-blocker

Hydrochlorothiazide (HydroDIURIL, Esidrix, Others, Generic) Uses: *Edema, HTN* prevent stones in hypercalcuria Acts: Thiazide diuretic; ↓ distal tubule Na+ reabsorption Dose: *Adults.* 25–100 mg/d PO single or + doses; 200 mg/d max. *Peds < 6 mo.* 2–3 mg/kg/d in 2 × doses. > 6 mo: 2 mg/kg/d in 2 × doses W/P: [D, +] CI: Anuria, sulfonamide allergy, renal Insuff Disp: Tabs 25, 50, mg; caps 12.5 mg; PO soln 50 mg/5 mL SE: ↓ K+, hyperglycemia, hyperuricemia, ↓ Na+; sun sensitivity Notes: Follow K+, may need supplementation

Hydrochlorothiazide/Amiloride (Moduretic, Generic) Uses: *Edema, HTN* prevent stones in hypercalcuria Acts: Combined thiazide & K+ sparing diuretic Dose: 1–2 tabs/d PO W/P: [D, ?] CI: Renal failure, sulfonamide allergy Disp: Tabs (amiloride/HCTZ) 5 mg/50 mg SE: ↓ BP, photosens, ↑ K+/ ↓ K+, hyperglycemia, ↓ Na+, hyperlipidemia, hyperuricemia


Hydrochlorothiazide/Triamterene (Dyazide, Maxzide, Generic) Uses: *Edema & HTN* Acts: Combo thiazide & K+ sparing diuretic Dose: Dyazide: 1–2 caps PO daily-bid. Maxzide: 1 tab/d PO W/P: [D, +/–] CI: Sulfonamide allergy Disp: (Triamterene/HCTZ) 37.5/25, 75/50 mg SE: Photosens, ↓ BP, ↑ or ↓ K+, ↓ Na+, hyperglycemia, hyperlipidemia, hyperuricemia Notes: HCTZ component in Maxzide more bioavailable than in Dyazide

Hydrocodone, extended release (Zohydro) [C-II] BOX: Addiction risk, risk of resp depression. Accidental consumption, esp. peds, can be fatal. Use during PRG can cause neonatal opioid withdrawal. Contains acetaminophen, associated with liver failure, transplant, and death Uses: *Severe pain requiring
Hydrocodone/Acetaminophen

around-the-clock long-term opioid treatment where alternatives are inadequate

**Acts:** Opioid agonist  
**Dose:** Opioid naïve/opioid intolerant 10 mg PO q12h; ↑ 10 mg q12h PRN every 3–7 days; do not crush/chew

**W/P:** [C/M]; caution w/ other CNS depressants, MAOI, TCA, elderly, debilitated, w/ hepatic impairment; may ↑ ICP (✓ pupils); impairs mental/physical abilities; drugs that ↓ CYP3A4 may ↓ clearance; may prolong GI obstruction  
**CI:** Component hypersensitivity; resp dep, severe asthma/hypercarbia, ileus

**Disp:** ER caps 10, 15, 20, 30, 40, 50 mg

**SE:** Constipation, N/V, somnolence, fatigue, HA, dizziness, dry mouth, pruritus, Abd pain, edema, URI, spasms, UTI, back pain, tremor

**Hydrocodone/Acetaminophen (Hycet, Lorcet, Vicodin, Others)**  
[C-III] BOX: Acetaminophen hepatotoxicity (acute liver failure, liver transplant, death) reported; often d/t acetaminophen > 4000 mg/d or more than one acetaminophen product

**Uses:** *Mod–severe pain*  
**Acts:** Narcotic analgesic w/ nonnarcotic analgesic

**Dose:**  
**Adults.** 1–2 caps or tabs PO q4–6h PRN; soln 15 mL q4–6h

**Peds.**  
Solin (Hycet) 0.27 mL/kg q4–6h

**W/P:** [C, M]  
**CI:** CNS depression, severe resp depression

**Disp:** Many formulations; specify hydrocodone/APAP dose; caps 5/500 mg; tabs 2.5/500, 5/300, 5/325, 5/500, 7.5/300, 7.5/325, 7.5/500, 7.5/650, 7.5/750, 10/300, 10/325, 10/500, 10/650, 10/660, 10/750 mg; soln Hycet (fruit punch) 7.5 mg hydrocodone/325 mg acetaminophen/15 mL

**SE:** GI upset, sedation, fatigue

**Hydrocodone/Homatropine (Hycodan, Hydromet, Generic)**  
[C-III]  
**Uses:** *Relief of cough*  
**Acts:** Combo antitussive

**Dose:** (Based on hydrocodone)  
**Adults.** 5–10 mg q4–6h.  
**Peds.** 0.6 mg/kg/d ÷ tid-qid

**W/P:** [C, M]  
**CI:** NAG, ↑ ICP, depressed ventilation

**Disp:** Syrup 5 mg hydrocodone/5 mL; tabs 5 mg hydrocodone

**SE:** Sedation, fatigue, GI upset  
**Notes:** Do not give < q4h; see individual drugs

**Hydrocodone/Ibuprofen (Vicoprofen, Generic)**  
[C-III]  
**Uses:** *Mod–severe pain (< 10 d)*  
**Acts:** Narcotic w/ NSAID

**Dose:** 1–2 tabs q4–6h PRN

**W/P:** [C, M] Renal Insuff; ↓ effect w/ ACE inhib & diuretics; ↑ effect w/ CNS depressants, EtOH, MAOI, ASA, TCA, anticoagulants  
**CI:** Component sensitivity

**Disp:** Tabs 7.5 mg hydrocodone/200 mg ibuprofen

**SE:** Sedation, fatigue, GI upset

**Hydrocortisone, Rectal (Anusol-HC Suppository, Cortifoam Rectal, Proctocort, Others, Generic)**  
**Uses:** *Painful anorectal conditions*, radiation proctitis, UC

**Acts:** Anti-inflammatory steroid

**Dose:**  
**Adults.** UC: 10–100 mg PR daily-bid for 2–3 wk

**W/P:** [B, ?/]  
**CI:** Component sensitivity

**Disp:** Hydrocortisone acetate: Rectal aerosol 90 mg/applicator; supp 25 mg.  
**Hydrocortisone base:** Rectal 0.5%, 1%, 2.5%; rectal susp 100 mg/60 mL

**SE:** Minimal systemic effect
Hydroxychloroquine (Plaquenil, Generic) BOX: Physicians should completely familiarize themselves w/ the complete contents of the FDA package insert before prescribing Uses: *Malaria: Plasmodium vivax, malariae, ovale, and falciparum (NOT all strains of falciparum); malaria prophylaxis; discoid lupus, SLE, RA* Acts: Unknown/antimalarial Dose: Acute Malaria: Adults. 800 mg, 600 mg 6–8 h later then 400 mg daily × 2 d Peds. 25 mg base/kg over 3 d (200 mg = 155 mg base) 10 mg/kg day 1 (max 620 mg), then 5 mg/kg 6 h after 1st dose (max

Hydrocortisone, Topical & Systemic (Cortef, Solu-Cortef, Generic) See Steroids Systemic p 272 and Topical p 273 Peds. ECC 2010. Adrenal insufficiency: 2 mg/kg IV/IO bolus; max dose 100 mg W/P: [B, –] CI: Viral, fungal, or tubercular skin lesions; serious Infxns (except septic shock or TB meningitis) SE: Systemic: ↑ Appetite, insomnia, hyperglycemia, bruising Notes: May cause hypothalamic-pituitary-adrenal axis suppression

Hydromorphone (Dilaudid, Dilaudid HP, Generic) [C–II] BOX: A potent Schedule II opioid agonist; highest potential for abuse and risk of resp depression. HP formula is highly concentrated; do not confuse w/ standard formulations, OD and death could result. Alcohol, other opioids, CNS depressants ↑ resp depressant effects Uses: *Mod–severe pain* Acts: Narcotic analgesic Dose: 1–4 mg PO, IM, IV, or PR q4–6h PRN; 3 mg PR q6–8h PRN; ↓ w/ hepatic failure W/P: [B (D if prolonged use or high doses near term), ?] ↑ Resp depression and CNS effects, CNS depressants, phenothiazines, TCA CI: CNS lesion w/ ↑ ICP, COPD, cor pulmonale, emphysema, kyphoscoliosis, status asthmaticus; HP-Inj form in OB analgesia Disp: Tabs 2, 4, 8 mg scored; liq 5 mg/5 mL or 1 mg/mL; Inj 1, 2, 4 mg, Dilaudid HP is 10 mg/mL; supp 3 mg SE: Sedation, dizziness, GI upset Notes: Morphine 10 mg IM = hydromorphone 1.5 mg IM

Hydromorphone, Extended-Release (Exalgo) [C–II] BOX: Use in opioid tolerant only; high potential for abuse, criminal diversion and resp depression. Not for postop pain or PRN use. OD and death especially in children. Do not break/crush/chew tabs, may result in OD Uses: *Mod–severe chronic pain requiring around-the-clock opioid analgesic* Acts: Narcotic analgesic Dose: 8–64 mg PO/d titrate to effect; ↓ w/ hepatic/renal impair and elderly W/P: [C, –] Abuse potential; ↑ resp depression and CNS effects, w/ CNS depressants, pts susceptible to intracranial effects of CO₂ retention CI: Opioid-intolerant pts, ↓ pulmonary function, ileus, GI tract narrowing/obstr, component hypersens; w/in 14 d of MAOI; anticholinergics may ↑ SE Disp: Tabs 8, 12, 16 mg SE: constipation, N/V, somnolence, HA, dizziness Notes: See label for opioid conversion

Hydroxocobalamin (Cyanokit) Uses: *Cyanide poisoning* Acts: Binds cyanide to form nontoxic cyanocobalamin excreted in urine Dose: 5 g IV over 15 min, repeat PRN 5 g IV over 15 min–2 h, total dose 10 g W/P: [C, ?] CI: None known Disp: Kit- 2- to 2.5-g vials w/ Inf set SE: ↑ BP (can be severe) anaphylaxis, chest tightness, edema, urticaria, rash, chromaturia, N, HA, Inj site Rxns

Hydroxychloroquine (Plaquenil, Generic) BOX: Physicians should completely familiarize themselves w/ the complete contents of the FDA package insert before prescribing Uses: *Malaria: Plasmodium vivax, malariae, ovale, and falciparum (NOT all strains of falciparum); malaria prophylaxis; discoid lupus, SLE, RA* Acts: Unknown/antimalarial Dose: Acute Malaria: Adults. 800 mg, 600 mg 6–8 h later then 400 mg daily × 2 d Peds. 25 mg base/kg over 3 d (200 mg = 155 mg base) 10 mg/kg day 1 (max 620 mg), then 5 mg/kg 6 h after 1st dose (max
Hydroxyurea (Droxia, Hydrea, Generic)

**Uses:** *CML, head & neck, ovarian & colon CA, melanoma, ALL, sickle cell anemia, polycythemia vera, HIV*

**Acts:** ↓ Ribonucleotide reductase** Dose:** (per protocol) 50–75 mg/kg for WBC > 100,000 cells/mL; 20–30 mg/kg in refractory CML. **HIV:** 1000–1500 mg/d in single or + doses; ↓ in renal Insuff **W/P:** [D, –] ↑ Effects w/ zidovudine, zalcitabine, didanosine, stavudine, fluorouracil **CI:** Severe anemia, BM suppression, WBC < 2500 cells/mL or plt < 100,000 cells/mm³, PRG **Disp:** Caps 200, 300, 400, 500 mg **SE:** ↓ BM (mostly leukopenia), N/V, rashes, facial erythema, radiation recall Rxns, renal impair **Notes:** Empty caps into H2O

Hydroxyzine (Atarax, Vistaril, Generic)

**Uses:** *Anxiety, sedation, itching*

**Acts:** Antihistamine, antianxiety** Dose:** Adults. Anxiety/sedation: 50–100 mg PO or IM qid or PRN (max 600 mg/d). **Itching:** 25–50 mg PO or IM tid-qid. **Peds.** 0.5–1.0 mg/kg/24 h PO or IM q6h; ↓ w/ hepatic impair **W/P:** [C, +/−] ↑ Effects w/ CNS depressants, anticholinergics, EtOH **CI:** Component sensitivity **Disp:** Tabs 10, 25, 50 mg; caps 25, 50 mg; syrup 10 mg/5 mL; susp 25 mg/5 mL; Inj 25, 50 mg/mL **SE:** Drowsiness, anticholinergic effects **Notes:** Used to potentiate narcotic effects; not for IV/SQ (thrombosis & digital gangrene possible)

Hyoscyamine (Anaspaz, Cystospaz, Levsin, Others, Generic)

**Uses:** *Spasm w/ GI & bladder disorders*

**Acts:** Anticholinergic** Dose:** Adults. 0.125–0.25 mg (1–2 tabs) SL/PO tid-qid, ac & hs; 1 SR caps q12h **W/P:** [C, +] ↑ Effects w/ amantadine, antihistamines, antimuscarinics, haloperidol, phenothiazines, TCA, MAOI **CI:** NAG **Disp:** (Cystospaz-M, Levsinex) time-release caps 0.375 mg; elixir (EtOH); soln 0.125 mg/5 mL; Inj 0.5 mg/mL; tab 0.125 mg; tab (Cystospaz) 0.15 mg; XR tab (Levbid) 0.375 mg; SL (Levsin SL) 0.125 mg **SE:** Dry skin, xerostomia, constipation, anticholinergic SE, heat prostration w/ hot weather **Notes:** Administer tabs ac

Hyoscyamine/Atropine/Scopolamine/Phenobarbital (Donnatal, Others, Generic)

**Uses:** *Irritable bowel, spastic colitis, peptic ulcer, spastic bladder*

**Acts:** Anticholinergic, antispasmodic** Dose:** 0.125–0.25 mg (1–2 tabs) tid-qid, 1 caps q12h (SR), 5–10 mL elixir tid-qid or q8h **W/P:** [D, M] **CI:** NAG **Disp:** Many combos/manufacturers. Caps (Donnatal, others): Hyoscyamine
Ibuprofen, Parenteral

0.1037 mg/atropine 0.0194 mg/scopolamine 0.0065 mg/phenobarbital 16.2 mg. Tabs (Donnatal, others): Hyoscyamine 0.1037 mg/atropine 0.0194 mg/scopolamine 0.0065 mg/phenobarbital 16.2 mg. LA (Donnatal): Hyoscyamine 0.311 mg/atropine 0.0582 mg/scopolamine 0.0195 mg/phenobarbital 48.6 mg. Elixirs (Donnatal, others): Hyoscyamine 0.1037 mg/atropine 0.0194 mg/scopolamine 0.0065 mg/phenobarbital 16.2 mg/5 mL

SE: Sedation, xerostomia, constipation

**Ibandronate (Boniva, Generic)**

**Uses:** *Rx & prevent osteoporosis in postmenopausal women*  
**Acts:** Bisphosphonate, ↓ osteoclast-mediated bone resorption  
**Dose:** 2.5 mg PO daily or 150 mg 1 × mo on same day (do not lie down for 60 min after); 3 mg IV over 15–30 s q3mo  
**W/P:** [C, ?/−] Avoid w/ CrCl < 30 mL/min  
**CI:** Uncorrected ↓ Ca2+; inability to stand/sit upright for 60 min (PO)  
**Disp:** Tabs 2.5, 150 mg, Inj IV 3 mg/3 mL  
**SE:** Jaw osteonecrosis (avoid extensive dental procedures) N/D, HA, dizziness, asthenia, HTN, Infxn, dysphagia, esophagitis, esophageal/gastric ulcer, musculoskeletal pain  
**Notes:** Take 1st thing in a.m. w/ water (6–8 oz) > 60 min before 1st food/beverage & any meds w/ multivalent cations; give adequate Ca2+ & vit D supls; possible association between bisphosphonates & severe muscle/bone/joint pain; may ↑ atypical subtrochanteric femur fractures

**Ibrutinib (Imbruvica)**

**Uses:** *Mantle cell lymphoma (MCL) & CLL after one prior therapy*  
**Acts:** TKI  
**Dose:** Adults. MCL: 560 mg PO 1×/d; CLL: 420 mg PO 1×/d; swallow whole; see label dose mod w/ tox  
**W/P:** [D, −] Embryo-fetal tox; may cause new primary malignancies, ↑ bleeding risk, Infxns, ↓ BM, renal tox; avoid w/ hepatic impair or w/ mod/strong CYP3A inhib & strong CYP3A inducers, ↓ dose w/ CYP3A inhib  
**CI:** None  
**Disp:** Caps 140 mg  
**SE:** N/V/D, constipation, Abd pain, ↓ plts/WBC, bruising, anemia, fatigue, MS pain, arthralgia, edema, URI, sinusitis, dyspnea, rash, ↓ appetite, pyrexia, stomatitis, dizziness

**Ibuprofen, Oral (Advil, Motrin, Motrin IB, Rufen, Others, Generic) [OTC]**  
**BOX:** May ↑ risk of CV events & GI bleeding  
**Uses:** *Arthritis, pain, fever*  
**Acts:** NSAID  
**Dose:** Adults. 200–800 mg PO bid-qid (max 2.4 g/d). Peds. 30–40 mg/kg/d in 3–4 ÷ doses (max 40 mg/kg/d); w/ food  
**W/P:** [C (D ≥ 30 wk gestation), +] May interfere w/ ASAs anti-plt effect if given < 8 h before ASA  
**CI:** 3rd-tri PRG, severe hepatic impair, allergy, use w/ other NSAIDs, upper GI bleeding, ulcers  
**Disp:** Tabs 100, 200, 400, 600, 800 mg; chew tabs 50, 100 mg; caps 200 mg; susp 50 mg/1.25 mL, 100 mg/2.5 mL, 100 mg/5 mL, 40 mg/mL (Motrin IB & Advil OTC 200 mg are the OTC forms)  
**SE:** Dizziness, peptic ulcer, plt inhibition, worsening of renal Insuff

**Ibuprofen, Parenteral (Caldolor)**  
**BOX:** May ↑ risk of CV events & GI bleeding  
**Uses:** *Mild–mod pain, as adjunct to opioids, ↓ fever*  
**Acts:** NSAID  
**Dose:** Pain: 400–800 mg IV over 30 min q6h PRN; Fever: 400 mg IV over 30 min, the 400 mg q4–6h or 100–200 mg q4–6h PRN  
**W/P:** [C < 30 wk, D after 30 wk, ?/−] May ↓ ACE effects; avoid w/ ASA, and < 17 y  
**CI:** Hypersens NSAIDs; asthma, urticaria, or allergic Rxns w/ NSAIDs, periop CABG  
**Disp:** Vials 400 mg/
Ibutilide (Corvert, Generic)

Uses: *Rapid conversion of AF/A flutter*
Acts: Class III antiarrhythmic
Dose: Adults > 60 kg: 1 mg IV over 10 min; may repeat × 1; < 60 kg use 0.01 mg/kg

ECC 2010. SVT (AFib and AFlutter): Adults > 60 kg: 1 mg (10 mL) over 10 min; a 2nd dose may be used; < 60 kg 0.01 mg/kg over 10 min. Consider DC cardioversion
W/P: [C, –] CI: w/ Class I/III antiarrhythmics (Table 9, p 345); QTc > 440 ms
Disp: Inj 0.1 mg/mL
SE: N/V, HA, flatulence, hemorrhage, dizziness
Notes: Make sure pt well hydrated; use lowest dose/shortest duration possible

Icatibant (Firazyr)

Uses: *Hereditary angioedema*
Acts: Bradykinin B₂ receptor antag
Dose: Adult. 30 mg SQ in Abd; repeat q6h × 3 doses/max/24 h

W/P: [C, ?/–] Seek medical attn after Tx of laryngeal attack
Disp: Inj 10 mg/mL (30 mg/syringe)
SE: Inj site Rxns, pyrexia, ↑ LFTs, dizziness, rash

Icosapent Ethyl (Vascepa)

Uses: *Hypertriglyceridemia w/ triglycerides > 500 mg/dL*
Acts: ↓ Hepatic VLDL-triglyceride synth/secretion & ↑ triglyceride clearance

Dose: Adults. 2 caps bid w/ food
W/P: [C, M] If hepatic Dx
CI: ALT/AST; caution w/ fish/shellfish allergy; may ↑ bleeding time
Disp: Caps 1 g SE: Arthralgias
Notes: (Ethyl ester of eicosapentaenoic); ↓ risk of pancreatitis or CV morbidity/mortality not proven

Idarubicin (Idamycin, Generic)

BOX: Administer only under supervision of an MD experienced in leukemia and in an institution w/ resources to maintain a pt compromised by drug tox
Uses: *Acute leukemias* (AML, ALL), *CML in blast crisis, breast CA*
Acts: DNA-intercalating agent; ↓ DNA topoisomerase I & II
Dose: (Per protocol) 10–12 mg/m²/d for 3–4 d; ↓ in renal/hepatic impair
W/P: [D, –] CI: Bilirubin > 5 mg/dL, PRG
Disp: Inj 1 mg/mL (5-, 10-, 20-mg vials) SE: ↓ BM, cardiotox, N/V, mucositis, alopecia, & IV site Rxns, rarely ↓ renal/hepatic Fxn
Notes: Avoid extrav, potent vesicant; IV only

Ifosfamide (Ifex, Generic)

BOX: Administer only under supervision by an MD experienced in chemotherapy; hemorrhagic cystitis, myelosupp; confusion, coma possible
Uses: *Testis*, lung, breast, pancreatic, & gastric CA, Hodgkin lymphoma/NHL, soft-tissue sarcoma
Acts: Alkylating agent
Dose: (Per protocol) 1.2 g/m²/d for 5-d bolus or cont Inf; 2.4 g/m²/d for 3 d; w/ mesna uroprotection; ↓ in renal/hepatic impair
W/P: [D, M] ↑ Effect w/ phenobarbital, carbamazepine, phenytoin; St. John’s wort may ↓ levels
CI: ↓ BM Fxn, PRG
Disp: Inj 1, 3 g
SE: Hemorrhagic cystitis, nephrotox, N/V, mild–mod leukopenia, lethargy & confusion, alopecia, ↑ LFT
Notes: Administer w/ mesna to prevent hemorrhagic cystitis; WBC nadir 10–14 d; recovery 21–28 d

Iloperidone (Fanapt)

BOX: Risk for torsades de pointes and ↑ QT. Elderly pts at ↑ risk of death, CVA
Uses: *Acute schizophrenia*
Acts: Atypical antipsychotic
Dose: Initial: 1 mg PO bid then ↑ daily to goal 6–12 mg bid, max titration 4 mg/d
W/P: [?/–] CI: Component hypersens
Disp: Tabs 1, 2, 4, 6, 8, 10, 12 mg
SE: Orthostatic ↓ BP, dizziness, dry mouth, ↑ Wt
Notes: Titrate to ↓ BP risk. Monitor QT interval
**Imiquimod Cream** (Aldara, Zyclara) **Uses:** *Anogenital warts, HPV, condylomata acuminata (Aldara, Zyclara); actinic keratosis (Zyclara); basal cell carcinoma (Aldara)* **Acts:** Unknown; ? cytokine induction **Dose:** Adults/Peds > 12 yr. Warts: 1 × day up to 8 wk (Zyclara); apply 3×/wk, leave on 6–10 h & wash off w/ soap & water, continue 16 wk max (Aldara); Actinic keratosis: apply daily two 2 × wk cycle separate by 2 wk; Basal cell: apply 5 d/wk × 6 wk, dose based on lesion size (see label) **W/P:** [B, ?] Topical only, not intravaginal or
Immune Globulin

Immune Globulin, IV (Gamimune N, Gammaplex, Gamma IV, Sandoglobulin, Others)  
Uses: *IgG deficiency Dz states, B-cell CLL, CIDP, HIV, hep A prophylaxis, ITP*, Kawasaki Dz, travel to ↑ prevalence area, and hep A vaccination w/in 2 wk of travel  
Acts: IgG supl  
Dose: Adults & Peds. Immunodeficiency: 200-(300 Gammaplex)-800 mg/kg/mo IV at 0.01–0.04 (0.08 Gammaplex) mL/kg/min; initial dose 0.01 mL/kg/min. B-cell CLL: 400 mg/kg/dose IV q3wk, CIDP: 2000 mg/kg ÷ doses over 2–4 d ITP: 400 mg/kg/dose IV daily × 5 d. BMT: 500 mg/kg/wk; ↓ in renal Insuff  
W/P: [C, ?] Separate live vaccines by 3 mo  
CI: IgA deficiency w/ Abs to IgA, severe ↓ plt, coag disorders  
Disp: Inj  
SE: Associated mostly w/ Inf rate; GI upset, thrombotic events, hemolysis, renal failure/dysfun, TRALI  
Notes: Monitor vitals during Inf; do not give if volume depleted; hep A prophylaxis w/ immunoglobulin is no better than w/ vaccination; advantages to using vaccination, cost similar

Immune Globulin, Subcutaneous (Hizentra)  
Uses: *Primary immunodeficiency*  
Acts: IgG supl  
Dose: See label for dosage calculation/adjustment; for SQ Inf only W/P: [C, ?]  
CI: Hx anaphylaxis to immune globulin; some IgA deficiency  
Disp: Soln for SQ Inj 0.2 g/mL (20%)  
SE: Inj site Rxns, HA, GI complaint, fatigue, fever, N, D, rash, sore throat  
Notes: May instruct in home administration; keep refrigerated; discard unused drug; use up to 4 Inj sites, max flow rate not > 50 mL/h for all sites combined

Inamrinone [Amrinone] (Inocor)  
Uses: *Acute CHF, ischemic cardiomyopathy*  
Acts: Inotrope w/ vasodilator  
Dose: Adults. IV bolus 0.75 mg/kg over 2–3 min; maint 5–10 mcg/kg/min; 10 mg/kg/d max; ↓ if CrCl < 30 mL/min Peds. ECC 2010. CHF in postop CV surg pts, shock w/ ↑ SVR: 0.75–1 mg/kg IV/IO load over 5 min; repeat × 2 PRN; max 3 mg/kg; cont Inf 5–10 mcg/kg/min W/P: [C, ?]  
CI: Bisulfite allergy  
Disp: Inj 5 mg/mL  
SE: Monitor fluid, lyte, & renal changes  
Notes: Incompatible w/ dextrose solns, ✓ LFTs, observe for arrhythmias

Indacaterol Inhalation Powder (Arcapta Neohaler)  
BOX: LABA increase risk of asthma related deaths. Considered a class effect of all LABA.  
Uses: *Daily maint of COPD (chronic bronchitis/emphysema)*  
Acts: Long-acting β₂-adrenergic agonist (LABA)  
Dose: 75-mcg capsule inhaled 1×/day w/ Neohaler inhaler only W/P: [C, ?–] Not for acute deterioration of COPD or asthma; paradoxical bronchospasm possible; excessive use or use w/ other LABA can cause cardiac effects and can be fatal; caution w/ Sz disorders, thyrotoxicosis or sympathomimetic sensitivity; w/ meds that can ↓ K⁺ or ↑ QTc; β-blockers may ↓ effect  
CI: All LABA CI in asthma w/o use of long term asthma control med; not indicated for asthma  
Disp: Inhal hard cap 75 mcg (30 blister pack w/ 1 Neohaler)  
SE: Cough, oropharyngeal pain, nasopharyngitis, HA, N  
Notes: Inform patient not to swallow caps
Indapamide (Lozol, Generic)  Uses: *HTN, edema, CHF*  Acts: Thiazide diuretic; ↑ Na, Cl, & H₂O excretion in distal tubule  Dose: 1.25–5 mg/d PO  W/P: [D, ?] ↑ Effect w/ loop diuretics, ACE inhib, cyclosporine, digoxin. Li  CI: Anuria, thiazide/sulfonamide allergy, renal Insuff, PRG  Disp: Tabs 1.25, 2.5 mg  SE: ↓ BP, dizziness, photosens  Notes: No additional effects w/ doses > 5 mg; take early to avoid nocturia; use sunscreen; OK w/ food/milk

Indinavir (Crixivan)  Uses: *HIV Infxn*  Acts: Protease inhib; ↓ maturation of noninfectious virions to mature infectious virus  Dose: Typical 800 mg PO q8h in combo w/ other antiretrovirals (dose varies); on empty stomach; ↓ w/ hepatic impair  W/P: [C, ?] Numerous interactions, especially CYP3A4 inhib (Table 10, p 346)  CI: w/ Triazolam, midazolam, pimozide, ergot alkaloids, simvastatin, lovastatin, sildenafil, St. John’s wort, amiodarone, salmeterol, PDE5 inhib, alpha 1-adr-noreceptor antagonist (alfuzosin); colchicine  Disp: Caps 200, 400 mg  SE: Nephrolithiasis, dyslipidemia, lipodystrophy, N/V, ↑ bili  Notes: Drink six 8-oz glasses of water/d

Indomethacin (Indocin, Tivorbex, Generic)  BOX: May ↑ risk of CV events & GI bleeding; not for post CABG pain  Uses: *Arthritis (gouty, osteo, rheumatoid); ankylosing spondylitis; close ductus arteriosus; Tivorbex: acute pain*  Acts: ↓ Prostaglandins  Dose: Adults. 25–50 mg PO bid-tid, max 200 mg/d  Infants. 0.2–0.25 mg/kg/dose IV; may repeat in 12–24 h, max 3 doses; w/ food  W/P: [C, ?] ASA/NSAID sensitivity, peptic ulcer/active GI bleed, precipitation of asthma/urticaria/rhinitis by NSAIDs/ASA, premature neonates w/ NEC, ↓ renal Fxn, active bleeding, thrombocytopenia, 3rd tri PRG  Disp: Inj 1 mg/vial; caps 25, 50 mg; susp 25 mg/5 mL; Tivorbex: 20, 40 mg caps  SE: GI bleeding or upset, dizziness, edema  Notes: Monitor renal Fxn

Infliximab (Remicade)  BOX: TB, invasive fungal Infxns, & other opportunistic Infxns reported, some fatal; perform TB skin testing prior to use; possible association w/ rare lymphoma  Uses: *Mod–severe Crohn Dz; fistulizing Crohn Dz; UC; RA (w/ MTX) psoriasis, ankylosing spondylitis*  Acts: IgG1K neutralizes TNF-α  Dose: Adults. Crohn Dz: Induction: 5 mg/kg IV Inf, w/ doses 2 & 6 wk after. Maint: 5 mg/kg IV Inf q8wk. RA: 3 mg/kg IV Inf at 0, 2, 6 wk, then q8wk.  Peds > 6 y. 5 mg/kg IV q8wk  W/P: [B, ?/−] Active Infxn, hepatic impair, Hx or risk of TB, hep B CI: Murine allergy, mod–severe CHF, w/ live vaccines (eg, smallpox)  Disp: 100-mg Inj  SE: Allergic Rxns; HA, fatigue, GI upset, Inf Rxns; hepatotoxic; reactivation hep B, pneumonia, BM suppression, systemic vasculitis, pericardial effusion, new psoriasis  Notes: Monitor LFTs, PPD at baseline, monitor hep B carrier, skin exam for malignancy w/ psoriasis; can premedicate w/ antihistamines, APAP, and/or steroids to ↓ Inf Rxns

Influenza Vaccine, Inactivated, Quadrivalent (IIV₄) (Fluarix Quadrivalent, Fluzone Quadrivalent)  See Table 13, p 352  Uses: *Prevent influenza* all ≥ 6 mo  Acts: Active immunization  Dose: Adults and Peds > 9 y. 0.5 mL/dose IM annually  Peds 6–35 mo. (Fluzone) 0.25 mL IM annually;
0.25 mL IM × 2 doses 4 wk apart for 1st vaccination; give 2 doses in 2nd vaccination year if only 1 dose given in 1st year. 3–8 y. 0.5 mL IM annually; 0.5 mL IM × 2 doses 4 wk apart for 1st vaccination W/P: [C, +] Hx Guillain-Barré synd w/in 6 wk of previous flu vaccine; syncope may occur w/ admin; immunocompromised w/ ↓ immune response CI: Hx allergy to egg protein, latex (Fluarix); egg protein (Fluzone) Disp: Based on manufacturer, 0.25-, 0.5-mL prefilled syringe, single-dose vial SE: Inj site soreness, fever, chills, HA, insomnia, myalgia, malaise, rash, urticaria, anaphylactoid Rxns, Guillain-Barré synd Notes: US Oct-Nov best, protection 1–2 wk after, lasts up to 6 mo; given yearly, vaccines based on predictions of flu season (Nov-April in US, w/ sporadic cases all year); refer to ACIP annual recs (www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html)

Influenza Vaccine, Inactivated, Trivalent (IIV₃) (Afluria, Fluarix, Flucelvax, FluLaval, Fluvirin, Fluzone, Fluzone High Dose, Fluzone Intradermal) See Table 13, p 352 Uses: *Prevent influenza* all persons ≥ 6 mo Acts: Active immunization Dose: Adult/Peds > 9 y. 0.5 mL/dose IM annually; or 0.1 mL intradermal Inj annually (Fluzone Intradermal for adults 18–64 y). Peds 6–35 mo. 0.25 mL IM annually; 0.25 mL IM × 2 doses 4 wk apart for 1st vaccination; give 2 doses in 2nd vaccination year if only 1 dose given in 1st year. 3–8 y. 0.5 mL IM annually; 0.5 mL IM × 2 doses 4 wk apart for 1st vaccination W/P: [B, +] Hx Guillain-Barré synd w/in 6 wk of previous influenza vaccine; syncope may occur w/ admin; immunocompromised w/ ↓ immune response CI: Hx allergy to egg protein, neomycin, polymyxin (Afluria); egg protein, latex, gentamicin (Fluarix); latex (Flucelvax); egg protein (Flulaval); egg protein, latex, polymyxin, neomycin (Fluvirin); egg protein, latex (Fluzone); thimerosal allergy (Flulaval, Fluvirin, & multi-dose Afluria, Fluzone); single-/multi-dose vials latex free; acute resp or febrile illness Disp: Based on manufacturer, 0.25-, 0.5-mL prefilled syringe, single-/multi-dose vial SE: Inj site soreness, fever, chills, HA, insomnia, myalgia, malaise, rash, urticaria, anaphylactoid Rxns, Guillain-Barré synd Notes: Afluria not be used in children 6–8 y due to increased risk of febrile Rxn; US Oct-Nov best, protection 1–2 wk after, lasts up to 6 mo; given yearly, vaccines based on predictions of flu season (Nov-April in US, w/ sporadic cases all year); refer to ACIP annual recs (www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html)

Influenza Vaccine, Live Attenuated, Quadrivalent (LAIV₄) (FluMist) See Table 13, p 352 Uses: *Prevent influenza* Acts: Live attenuated vaccine Dose: Adults and Peds 9–49 y. 0.1 mL each nostril annually Peds 2–8 y. 0.1 mL each nostril annually; initial 0.1 mL each nostril × 2 doses 4 wk apart in 1st vaccination year W/P: [B, ?/−] Hx Guillain-Barré synd w/in 6 wk of previous influenza vaccine; ↑ risk of wheezing w/ asthma; use w/ influenza A/B antiviral drugs may ↓ efficacy CI: Hx allergy to egg protein, gentamicin, gelatin, or arginine; peds 2–17 y on ASA, PRG, known/suspected immune deficiency, asthma/reactive airway Dz, acute febrile illness Disp: Single-dose, nasal sprayer 0.2 mL; shipped frozen, store
Insulin, Injectable

35–46°F SE: Runny nose, nasal congestion, HA, cough, fever, sore throat Notes: Do not give w/ other vaccines; avoid contact w/ immunocompromised individuals for 21 d; live influenza vaccine more effective in children than inactivated flu vaccine; refer to ACIP annual recs (www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html)

**Influenza Vaccine, Recombinant, Trivalent (RIV3) (FluBlok)** See Table 13, p 352

Uses: *Prevent influenza* ACTs: Active immunization Dose: Adults 18–49 y. 0.5 mL/dose IM annually W/P: [B, ?]– Hx Guillain-Barré synd w/in 6 wk of previous flu vaccine; immunocompromised w/ ↓ immune response CI: Hx component allergy (contains no egg protein, antibiotics, preservatives, latex) Disp: 0.5-mL single-dose vial SE: Inj site soreness, HA, fatigue, myalgia Notes: Adolescents and adults of age 18 yrs and older with egg allergy of any severity can receive the recombinant; US Oct-Nov best, protection 1–2 wk after, lasts up to 6 mo; given yearly, vaccines based on predictions of flu season (Nov-April in US, w/sporadic cases all year); refer to ACIP annual recs (www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html)

**Ingenol Mebutate (Picato)** Uses: *Actinic keratosis* ACTs: Necrosis by neutrophil activation Dose: Adults. 25 cm² area (1 tube), evenly spread; 0.015% to face daily × 3 d; 0.05% to trunk/neck daily × 2 d W/P: [C, ?/–] CI: None Disp: Gel: 0.015%, 0.25 g/tube × 3 tubes; 0.05% 0.25 g/tube × 2 tubes SE: Local skin reactions Notes: From plant sap Euphorbia peplus; allow to dry × 15 min; do not wash/touch × 6 h; avoid eye contact

**Insulin human inhalation powder (Afrezza)** BOX: Acute bronchospasm possible; CI w/COPD; r/o lung disease Uses: *DM; w/type 1 use w/ long act insulin; not for DKA; not rec in smokers* ACTs: rapid acting insulin Dose: Individualize; 1 inhal/cartridge at start of meal; ↑ prn W/P: [C, ?] H&P and spirometry (FEV1) before to R/O lung disease; w/ anti-adrenergic meds (beta-blockers, etc) may mask low blood sugar; w/drugs that alter glucose metabolism; do not use w/lung Ca; anaphylaxis possible; monitor for changes in insulin dose; fluid retention w/thiazolidinediones (eg, pioglitazone, rosiglitazone); ↓ K+ CI: Component sensitivity, w/hypoglycemia, w/COPD Disp: Single-use cartridges 4, 8 units SE: ↓ glucose, cough, throat pain/irritation Notes: reassess PFT 6 mo after start

**Insulin, Injectable (See Table 4, p 322)** Uses: *Type 1 or type 2 DM refractory to diet or PO hypoglycemic agents; acute life-threatening ↑ K+* ACTs: Insulin supl Dose: Based on serum glucose; usually SQ (upper arms, Abd wall [most rapid absorption site], upper legs, buttocks); can give IV (only regular)/IM; type 1 typical start dose 0.5–1 units/kg/d; type 2 0.2–0.4 units/kg/d; renal failure ↓ insulin needs W/P: [B, +] CI: Hypoglycemia Disp: Table 4, p 322. Some can dispensed w/ preloaded insulin cartridge pens w/ 29-, 30-, or 31-gauge needles and dosing adjustments. SE: Hypoglycemia. Highly purified insulins ↑ free insulin; monitor for several weeks when changing doses/agents Notes: Specific agent/regimen based on pt and physician choices that maintain glycemic control.
Typical type 1 regimens use a basal daily insulin w/ premeal Inj of rapidly acting insulins. Insulin pumps may achieve basal insulin levels. ↑ malignancy risk w/ glargine controversial

**Interferon Alpha-2b (Intron-A)**  
BOX: Can cause or aggravate fatal or life-threatening neuropsychiatric autoimmune, ischemic, and infectious disorders. Monitor closely  
Uses: *HCL, Kaposi sarcoma, melanoma, CML, chronic hep B & C, follicular NHL, condylomata acuminata*  
Acts: Antiproliferative; modulates host immune response; ↓ viral replication in infected cells  
Dose:  
Adults. Per protocols.  
**HCL:** 2 mill units/m² IM/SQ 3×/wk for 2–6 mo.  
**Chronic hep B:** 5 mill units/d or 10 mill units 3×/wk IM/SQ × 16 wk.  
**Follicular NHL:** 5 mill units SQ 3×/wk × 18 mo.  
**Melanoma:** 20 mill units/m² IV × 5 d/wk × 4 wk, then 10 mill units/m² SQ 3×/wk × 48 wk.  
**Kaposi sarcoma:** 30 mill units/m² IM/SQ 3×/wk until Dz progression or maximal response achieved.  

**Interferon Alphacon-1 (Infergen)**  
BOX: Can cause or aggravate fatal or life-threatening neuropsychiatric, autoimmune, ischemic, & infectious disorders; combo therapy w/ ribavirin. Monitor closely  
Uses: *Chronic hep C*  
Acts: Biological response modifier  
Dose:  
**Monotherapy:** 9 mcg 3×/wk × 24 wk (initial Rx) or 15 mcg 3×/wk up to 48 wk (retreatment).  
**Combo:** 15 mcg/d w/ ribavirin  
1000 or 1200 mg (Wt < 75 kg and ≥ 75 kg) qd up to 48 wk (retreatment); ↓ dose w/ SAE  
W/P: [C, M]  
CI: E. coli product allergy, decompensated liver Dz, autoimmune hep immunosuppressed, PRG, CrCl < 50 mL/min in combo w/ ribavirin  
Disp: Inj forms: powder 10/18/50 mill Int units; soln 6/10 mill Int units/mL (see also polyethylene glycol [PEG]-interferon)  
SE: Flu-like Sxs, fatigue, anorexia, neurotox at high doses; up to 40% neutralizing Ab w/ Rx

**Interferon Beta-1a (Avonex, Rebif)**  
Uses: *MS, relapsing*  
Acts: Biological response modifier  
Dose: (Rebif) Give SQ for target dose 44 mcg 3×/wk: start 8.8 mcg 3×/wk × 2 wk then 22 mcg 3×/wk × 2 wk then 44 mcg 3×/wk × 2 wk; target dose 22 mcg: 4.4 mcg 3×/wk × 2 wk, then 11 mcg 3×/wk × 2 wk then 22 mcg SQ 3×/wk; (Avonex) 30 mcg SQ 1×/wk  
W/P: [C, ?/–] w/ Hepatic impair, depression, Sz disorder, thyroid Dz  
CI: Human albumin allergy  
Disp: 0.5-mL prefilled syringes w/ 29-gauge needle Titrate Pak 8.8 and 22 mcg; 22 or 44 mcg  
SE: Inj site Rxn, HA, flu-like Sx, malaise, fatigue, rigors, myalgia, depression w/ suicidal ideation, hepatotox, ↓ BM  
Notes: Dose > 48 h apart; ✓ CBC 1, 3, 6 mo; ✓ TFTs q6mo w/ Hx thyroid Dz
**Interferon Beta-1b (Betaseron, Extavia)**  
*Uses:* *MS, relapsing/remitting/secondary progressive*  
*Acts:* Biologic response modifier  
*Dose:* 0.0625 mg (2 mill units) q other day SQ, ↑ by 0.0625 mg q2wk to target dose 0.25 mg (1 mL) q other day  
*W/P:* [C, −]  
*CI:* Human albumin sensitivity  
*Disp:* Powder for Inj  
*SE:* Flu-like synd, depression, suicide, blood dyscrasias, ↑ AST/ALT/GGT, Inj site necrosis, anaphylaxis  
*Notes:* Teach pt self-injection, rotate sites; ✓ LFTs, CBC 1, 3, 6 mo; TFT q6mo; consider stopping w/ depression

**Interferon Gamma-1b (Actimmune)**  
*Uses:* *↓ Incidence of serious Infxns in chronic granulomatous Dz (CGD), severe malignant osteopetrosis*  
*Acts:* Biologic response modifier  
*Dose:* 50 mcg/m² SQ (1.5 mill units/m²) BSA > 0.5 m²; if BSA < 0.5 m², give 1.5 mcg/kg/dose; given 3×/wk  
*W/P:* [C, −]  
*CI:* Allergy to *E. coli*-derived products  
*Disp:* Inj 100 mcg (2 mill units)  
*SE:* Flu-like synd, depression, blood dyscrasias, dizziness, altered mental status, gait disturbance, hepatic tox  
*Notes:* may ↑ deaths in interstitial pulm fibrosis

**Ipilimumab (Yervoy)**  
*BOX:* Severe fatal immune Rxns possible; D/C and Tx w/ high-dose steroids w/ severe Rxn; assess for enterocolitis, dermatitis, neuropathy, endocrinopathy before each dose  
*Uses:* *Unresectable/metastatic melanoma*  
*Acts:* Human cytotoxic T-lymphocyte antigen 4 (CTLA-4)-blocking Ab; ↑ T cell proliferation/activation  
*Dose:* 3 mg/kg IV q3wk × 4 doses; Inf over 90 min  
*W/P:* [C, −]  
*CI:* None  
*Disp:* IV 50 mg/10 mL, 200 mg/40 mL  
*SE:* Fatigue, D, pruritus, rash, colitis  
*Notes:* ✓ LFTs, TFT, chemistries baseline/pre-Inf

**Ipratropium (Atrovent HFA, Atrovent Nasal)**  
*Uses:* *Bronchospasm w/ COPD, rhinitis, rhinorrhea*  
*Acts:* Synthetic anticholinergic similar to atropine; antagonizes acetylcholine receptors, inhibits mucous gland secretions  
*Dose:*  
*Adults & Peds > 12 y.* 2–4 puffs qid, max 12 Inh/d *Nasal:* 2 sprays/nostril bid-tid; *Nebulization:* 500 mcg 3–4 ×/d; *ECC 2010.* Asthma: 250–500 mcg by neb/MDI q20min × 3  
*W/P:* [B, ?/M] w/ Inhaled insulin  
*CI:* Allergy to soya lecithin-related foods  
*Disp:* HFA Metered-dose inhaler 17 mcg/dose; Inh soln 0.02%; nasal spray 0.03, 0.06%  
*SE:* Nervousness, dizziness, HA, cough, bitter taste, nasal dryness, URI, epistaxis  
*Notes:* Not for acute bronchospasm unless used w/ inhaled β-agonist

**Irbesartan (Avapro)**  
*BOX:* D/C immediately if PRG detected  
*Uses:* *HTN, DN*, CHF  
*Acts:* Angiotensin II receptor antagonist  
*Dose:* 150 mg/d PO, may ↑ to 300 mg/d  
*W/P:* [C (1st tri; D 2nd/3rd tri), ?/−]  
*CI:* PRG, component sensitivity  
*Disp:* Tabs 75, 150, 300 mg SE: Fatigue, ↓ BP, ↑ K

**Irinotecan (Camptosar, Generic)**  
*BOX:* D & myelosuppression administered by experienced physician  
*Uses:* *Colorectal* & lung CA  
*Acts:* Topoisomerase I inhib; ↓ DNA synth  
*Dose:* Per protocol; 125–350 mg/m² qwk–q3wk (↓ hepatic dysfunction, as tolerated per tox)  
*W/P:* [D, −]  
*CI:* Allergy to component  
*Disp:* Inj
Iron Dextran

20 mg/mL SE: ↓ BM, N/V/D, Abd cramping, alopecia; D is dose limiting; Rx acute D w/ atropine; Rx subacute D w/ loperamide Notes: D correlated to levels of metabolite SN-38

Iron Dextran (Dexferrum, INFeD) BOX: Anaphylactic Rxn w/ death reported; proper personnel and equipment should be available. Use test dose on only if PO iron not possible Uses: *Iron-deficiency anemia where PO administration not possible* Dose: See also label for tables/formula to calculate dose. Estimate Fe deficiency; total dose (mL) = [0.0442 × (desired Hgb – observed Hgb) × lean body Wt] + (0.26 × lean body Wt); Fe replacement, blood loss: total dose (mg) = blood loss (mL) × Hct (as decimal fraction) max 100 mg/d. IV use: Test Dose: 0.5 mL IV over 30 s, if OK, 2 mL or less daily IV over 1 mL/min to calculated total dose IM use: Test dose 0.5 mL deep IM in buttock. Administer calculated total dose not to exceed daily doses as follows: Infants < 5 kg: 1.0 mL; children < 10 kg; all others 2.0 mL (100 mg of iron). W/P: [C, M] w/Hx allergy/asthma. Keep Epi available (1:1000) for acute Rxn CI: Component hypersens, non–Fe-deficiency anemia Disp: Inj 50 mg Fe/mL in 2 mL vials (INFeD) and 1 & 2 mL vials (Dexferrum) Notes: Not rec in infants < 4 mo. ✓ Hgb/Hct. Also Fe, TIBC and % saturation transferrin may be used to monitor. Reticulocyte count best early indicator of response (several days). IM use “Z-track” technique

Iron Sucrose (Venofer) Uses: *Iron-deficiency anemia in CKD, w/ wo dialysis, w/ wo erythropoietin* Acts: Fe supl Dose: 100 mg on dialysis; 200 mg slow IV over 25 min × 5 doses over 14 d. Total cum dose 1000 mg W/P: [B, M] Hyper-sens, ↓ BP, Fe overload, may interfere w/ MRI CI: Non–Fe-deficiency anemia; Fe overload; component sens Disp: Inj 20 mg Fe/mL, 2.5, 5, 10 mL vials SE: Muscle cramps, N/V, strange taste in the mouth, diarrhea, constipation, HA, cough, back/jt pain, dizziness, swelling of the arms/legs Notes: Safety in peds not established

Isoniazid (INH) BOX: Severe & sometimes fatal hep may occur usually w/in 1st 3 mo of Tx, although may develop after mo of Tx Uses: *Rx & prophylaxis of TB* Acts: Bactericidal; interferes w/ mycolic acid synth, disrupts cell wall Dose: Adults. Active TB: 5 mg/kg/24 h PO or IM (usually 300 mg/d) or DOT: 15 mg/kg (max 900 mg) 3x/wk. Prophylaxis: 300 mg/d PO for 6–12 mo or 900 mg 2x/wk. Peds. Active TB: 10–15 mg/kg/d daily PO or IM 300 mg/d max. Prophylaxis: 10 mg/kg/24 h PO; ↓ in hepatic/renal dysfunction W/P: [C, +] Liver Dz, dialysis; avoid EtOH CI: Acute liver Dz, Hx INH hep Disp: Tabs 100, 300 mg; syrup 50 mg/5 mL; Inj 100 mg/ mL SE: Hep, peripheral neuropathy, GI upset, anorexia, dizziness, skin Rxn Notes: Use w/ 2–3 other drugs for active TB, based on INH resistance patterns when TB acquired & sensitivity results; prophylaxis usually w/ INH alone. IM rarely used. ↓ Peripheral neuropathy w/ pyridoxine 50–100 mg/d. See CDC guidelines (http://www.cdc.gov/tb/) for current TB recommendations

Isoproterenol (Isuprel) Uses: *Shock, cardiac arrest, AV nodal block* Acts: β₁- & β₂-receptor stimulants Dose: Adults. 2–10 mcg/min IV Inf; titrate;
Isradipine

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2–10 mcg/min titrate (ECC 2005) Peds. 0.2–2 mcg/kg/min IV Inf; titrate W/P: [C, ?] CI: Angina, tachyarrhythmias (digitalis-induced or others) Disp: 0.02 mg/mL, 0.2 mg/mL SE: Insomnia, arrhythmias, HA, trembling, dizziness Notes: Pulse > 130 BPM may induce arrhythmias

Isosorbide Dinitrate (Dilatrate-SR, Isordil, Sorbitrate, Generic)
Uses: *Rx & prevent angina*, CHF (w/ hydralazine) Acts: Relaxes vascular smooth muscle Dose: Acute angina: 5–10 mg PO (chew tabs) q2–3h or 2.5–10 mg SL PRN q5–10 min; do not give > 3 doses in a 15- to 30-min period. Angina prophylaxis: 5–40 mg PO q6h; do not give nitrates on a chronic q6h or qid basis > 7–10 d; tolerance may develop; provide 10- to 12-h drug-free intervals; dose in CHF: initial 20 mg 3–4×/d, target 120–160 mg/d W/P: [C, ?] CI: Severe anemia, NAG, postural ↓ BP, cerebral hemorrhage, head trauma (can ↑ ICP), w/ sildenafil, tadalafil, vardenafil Disp: Tabs 5, 10, 20, 30; SR tabs 40 mg; SL tabs 2.5, 5 mg; SR caps 40 mg SE: HA, ↓ BP, flushing, tachycardia, dizziness Notes: Higher PO dose needed for same results as SL forms

Isosorbide Mononitrate (Ismo, Imdur, Monoket)
Uses: *Prevention/Rx of angina pectoris* Acts: Relaxes vascular smooth muscle Dose: 5–20 mg PO bid, w/ doses 7 h apart or XR (Imdur) 30–60 mg/d PO, max 240 mg W/P: [B, ?] CI: Severe hypotension w/ paradoxical bradycardia, hypertrophic cardiomyopathy; head trauma/cerebral hemmorrhage (can ↑ ICP) CI: w/ Sildenafil, tadalafil, vardenafil Disp: Tabs 10, 20 mg; XR 30, 60, 120 mg SE: HA, dizziness, ↓ BP

Isotretinoin (Amnesteem, Claravis, Myorisan, Sotret, Zentane, Generic) BOX: Do not use in pts who are/may become PRG; ↑ risk severe birth defects; available only through iPLEDGE restricted distribution program; pts, prescribers, pharmacies, and distributors must enroll Uses: *Severe nodular acne resistant to other Tx* Acts: Inhib sebaceous gland Fxn & keratinization Dose: Adults and Peds ≥ 12 y. 0.5–1 mg/kg/d 2 ÷ doses × 15–20 wk, do NOT take only 1×/d; PRG test prior to Rx each mo, end of Tx, and 1 mo after D/C W/P: [X, –] CI: Micro-dosed progesterone BCPs NOT an acceptable method of birth control; depression, suicidal thoughts and behaviors, psychosis/aggressive/violent behavior; pseudotumor cerebri; TEN, SJS, ↓ hearing, corneal opacities, ↓ night vision; IBD, pancreatitis, hepatic toxicity, ↑ lipids/LFTs regularly; back/joint pain, osteopenia, premature epiphyseal closure; ↑ chol, ↑ triglycerides, ↓ HDL; ↑ CK; ↑ glu CI: PRG, hypersens Disp: Caps 10, 20, 30, 40 mg SE: Dry/chapped lips, cheilitis, dry skin, dermatitis, dry eye, ↓ vision, HA, epistaxis, nasopharyngitis, URI, back pain Notes: ↑ Lipids/LFTs before; vit A may ↑ adverse events; avoid tetracyclines and any meds that may interfere w/ BCP effectiveness

Isradipine (DynaCirc) Uses: *HTN* Acts: CCB Dose: 2.5–5 mg PO bid; IR 2.5–10 mg bid; CR 5–20 qd W/P: [C, ?/] CI: Severe heart block, sinus bradycardia, CHF, dosing w/in several hours of IV β-blockers CI: Hypotension < 90 mm Hg systolic Disp: Caps 2.5, 5 mg; tabs CR 5, 10 mg SE: HA, edema, flushing, fatigue, dizziness, palpitations
Itraconazole (Onmel, Sporanox, Generic) BOX: CI w/ cisapride, pimozide, quinidine, dofetilide, or levacetylmethadol. Serious CV events (eg, ↑ QT, torsades de pointes, VT, cardiac arrest, and/or sudden death) reported w/ these meds and other CYP3A4 inhibit. Do not use for onychomycosis w/ ventricular dysfunction. Negative inotropic effects have been observed following IV administration D/C/reasses use if S/Sxs of HF occur during Tx Uses: *Fungal Infxns (aspergillosis, blastomycosis, histoplasmosis, candidiasis, onychomycosis)* Acts: Azole antifungal, ↓ ergosterol synth Dose: Dose based on indication. 200 mg PO daily-tid (caps w/ meals or cola/grapefruit juice); PO soln on empty stomach; avoid antacids W/P: [C, –] Numerous interactions CI: See Box; PRG or considering PRG; ventricular dysfunction CHF Disp: Caps 100 mg; soln 10 mg/mL SE: N/V, rash, hepatotoxic, ↓ K+, CHF, ↑ BP, neuropathy Notes: Soln & caps not inter-changeable; useful in pts who cannot take amphotericin B; follow LFTs

Ivacaftor (Kalydeco) Uses: *Cystic fibrosis w/ G551D mutation transmembrane conductance regulator (CFTR) gene* Acts: ↑ Chloride transport Dose: Adult & Peds > 6 y. 150 mg bid; w/ fatty meal; ↓ hepatic impair or w CYP3A inhibit W/P: [B, ?/–] w/ CYP3A inhibit (ketoconazole, itraconazole, clarithromycin); may ↑ digoxin, cyclosporin, tacrolimus, benzodiazipine levels; w/ hepatic impair Child-Pugh Class C; severe renal impair CI: None Disp: Tabs 150 mg SE: HA, URI, oropharyngeal pain, Abd pain, N/D Notes: ✓ LFTs q3mo × 4, then yearly; D/C if AST/ALT 5 × ULN

Ivermectin, Oral (Stromectol) Uses: *Strongyloidiasis (intestinal), onchocerciasis* Acts: Binds glutamate-gated chloride channels in nerve and muscle cells, paralysis and death of nematodes Dose: Adults & Peds. Based on Wt and condition: intestinal strongyloidiasis 1 tab 15–24 kg, 2 tabs 25–35 kg, 3 tabs 36–50 kg, 4 tabs 51–65 kg, 5 tabs 66–79 kg, 80 or > 200 mcg/kg; onchocerciasis repeat dose × 1 in 2 wk, 1 tab 15–25 kg, 2 tabs 26–44 kg, 3 tabs 45–64 kg, 4 tabs 65–84 kg; 85 or > 150/mcg/kg; on empty stomach W/P: [C, ?/–] Potential severe allergic/inflammatory Rxn Tx of onchocerciasis CI: Hypersensitivity Disp: Tabs 3 mg SE: N/V/D, dizziness, pruritus ↑ AST/ALT; ↓ WBC, RBC Notes: From fermented Streptomyces avermitilis; does not kill adult onchocerca, requires redosing

Ivermectin, Topical (Sklice) Uses: *Head lice* Acts: Binds to glutamate-gated chloride channels in nerve and muscle cells, paralysis and death of lice Dose: Adult & Peds > 6 mo. Coat hair/scalp W/P: [C, ?/–] CI: None Disp: Lotion 0.5%, 4-oz tube SE: Conjunctivitis, red eye, dry skin Notes: From fermented Streptomyces avermitilis; coat dry hair and scalp thoroughly; avoid eye contact; use w/ lice management plan

Ixabepilone Kit (Ixempra) BOX: CI in combo w/ capecitabine w/ AST/ALT > 2.5 × ULN or bili > 1× ULN d/t ↑ tox and neutropenia-related death Uses: *Metastatic/locally advanced breast CA after failure of an anthracycline, a taxane, and capecitabine* Acts: Microtubule inhibit Dose: 40 mg/m² IV over 3 h q3wk 88 mg max W/P: [D, ?/–] CI: Hypersens to Cremophor EL; baseline ANC < 1500 cells/mm³ or
Ketoconazole, Topical

plt < 100,000 cells/mm³; AST/ or ALT > 2.5 × ULN, bili > 1 × ULN capecitabine

Disp: Inj 15, 45 mg (use supplied diluent) SE: Neutropenia, leukopenia, anemia, thrombocytopenia, peripheral sensory neuropathy, fatigue/asthenia, myalgia/arthralgia, alopecia, N/V/D, stomatitis/mucositis Notes: Substrate CYP3A4, adjust dose w/ strong CYP3A4 inhib/inducers

Japanese Encephalitis Vaccine, Inactivated, Adsorbed (Ixiaro, Je-Vax) Uses: *Prevent Japanese encephalitis* Acts: Inactivated vaccine Dose: Adults. 0.5 mL IM, repeat 28 d later given at least 1 wk prior to exposure Peds. Use Je-Vax, 1–3 y: Three 0.5 mL SQ doses day 0, 7, 30; > 3 y: Three 1 mL SQ doses on day 0, 7, 30 W/P: [B (Ixiaro)/ ?] Severe urticaria or angio edema may occur up to 10 d after vaccination SE: HA, fatigue, Inj site pain, flu-like syndrome, hypersens Rxns Notes: Abbrev admin schedules of 3 doses on day 0, 7, and 14; booster dose recommended after 2 y. Avoid EtOH 48 h after dose, use is not recommended for all travelling to Asia

Ketamine (Ketalar, Generic) [C-III] Uses: *Induction/maintenance of anesthesia* (in combo w/ sedatives), sedation, analgesia Acts: Dissociative anesthesia; IV onset 30 s, duration 5–10 min Dose: Adults. 1–4.5 mg/kg IV, typical 2 mg/kg; 3–8 mg/kg IM Peds. 0.5–2 mg/kg IV; 0.5–1 mg/kg for minor procedures (also IM/PO regimens) W/P: w/ CAD, ↑ BP, tachycardia, EtOH use/abuse CI: When ↑ BP hazardous Disp: Soln 10, 50, 100 mg/mL SE: Arrhythmia, ↑ / ↓ HR, ↑ / ↓ BP, N/V, resp depression, emergence Rxn, ↑ CSF pressure. CYP2B6 inhibs w/ ↓ metabolism Notes: Used in RSI protocols; street drug of abuse

Ketoconazole (Nizoral, Generic) BOX: (Oral use) Risk of fatal hepatotoxic. Concomitant terfenadine, astemizole, and cisapride are CI d/t serious CV adverse events Uses: *Systemic fungal Infxns (Candida, blastomycosis, histoplasmosis, etc); refractory topical dermatophyte Infxn*; PCa when rapid ↓ testosterone needed or hormone refractory Acts: Azole, ↓ fungal cell wall synth; high dose blocks P450, to ↓ testosterone production Dose: PO: 200 mg PO daily; ↑ to 400 mg PO daily for serious Infxn. PCA: 400 mg PO tid; best on empty stomach W/P: [C, −/−] w/ Any agent that ↑ gastric pH (↓ absorption); may enhance anticoagulants; w/ EtOH (disulfiram-like Rxn); numerous interactions including statins, niacin; do not use w/ clopidogrel (↓ effect) CI: CNS fungal Infxns, w/ astemizole, triazolam Disp: Tabs 200 mg SE: N, rashes, hair loss, HA, ↑ Wt gain, dizziness, disorientation, fatigue, impotence, hepatox, adrenal suppression, acquired cutaneous adherence (“sticky skin synd”) Notes: Monitor LFTs; can rapidly ↓ testosterone levels

Ketoprofen (Orudis, Oruvail) BOX: May ↑ risk of fatal CV events & GI bleeding; CI for perioperative pain in CAbG surgery. Uses: *Arthritis (RA/OA), pain* Acts: NSAID; ↓ prostaglandins Dose: 25–75 mg PO tid-qid, 300 mg/d/max; SR 200 mg/d; w/ food; ↓ w/ hepatic/renal impair, elderly W/P: [C (D 3rd tri), −] w/ ACE, diuretics; ↑ warfarin, Li, MTX, avoid EtOH CI: NSAID/ASA sensitivity Disp: Caps 50, 75 mg; caps, SR 200 mg SE: GI upset, peptic ulcers, dizziness, edema, rash, ↑ BP, ↑ LFTs, renal dysfunction

Ketorolac (Toradol) BOX: For short-term (≤ 5 d) Rx of mod–severe acute pain; CI w/ PUD, GI bleed, post CABG, anticipated major surgery, severe renal Insuff, bleeding diathesis, L&D, nursing, and w/ ASA/NSAIDs. NSAIDs may cause ↑ risk of CV/thrombotic events (MI, stroke). PO CI in peds < 16 y, dose adjustments for < 50 kg Uses: *Pain* Acts: NSAID; ↓ prostaglandins Dose: Adults. 15–30 mg IV/IM q6h; 10 mg PO qid only as continuation of IM/IV; max IV/IM 120 mg/d, max PO 40 mg/d. Peds 2–16 y. 1 mg/kg IM × 1 dose; 30 mg max; IV: 0.5 mg/kg, 15 mg max; do not use for > 5 d; ↓ if > 65 y, elderly, w/ renal impair, < 50 kg W/P: [C (D 3rd tri), −] w/ ACE inhib, diuretics, BP meds, warfarin CI: See Box Disp: Tabs 10 mg; Inj 15 mg/mL, 30 mg/mL SE: Bleeding, peptic ulcer Dz, ↑ Cr & LFTs, ↑ BP, edema, dizziness, allergy

Ketorolac, Nasal (Sprix) BOX: For short-term (5 d) use; CI w/ PUD, GI bleed, suspected bleeding risk, postop CABG, advanced renal Dz or risk of renal failure w/ vol depletion; risk CV thrombotic events (MI, stroke). Not indicated for use in children Uses: *Short-term (< 5 d) Rx pain requiring opioid level analgesia* Acts: NSAID; ↓ prostaglandins Dose: < 65 y. 31.5 mg (one 15.75-mg spray each nostril) q6–8h; max 126 mg/d. ≥ 65 y, w/ renal impair or < 50 kg. 15.75 mg (one 15.75-mg spray in only 1 nostril) q6–8h; max 63 mg/d W/P: [C (D 3rd tri), −] Do not use w/ other NSAIDs; can cause severe skin Rxs; do not use w/ critical bleeding risk; w/ CHF CI: See Box; prophylactic to major surgery/L&D, w/ Hx allergy to other NSAIDs recent or Hx of GI bleed or perforation Disp: Nasal spray 15.75-mg ketorolac/100-mcL spray (8 sprays/bottle) SE: Nasal discomfort/rhinitis, ↑ lacrimation, throat irritation, oliguria, rash, ↓ HR, ↓ urine output, ↑ ALT/AST, ↑ BP Notes: Discard open bottle after 24 h

Ketorolac Ophthalmic (Acular, Acular LS, Acular PF, Acuvail) Uses: *Ocular itching w/ seasonal allergies; inflammation w/ cataract extraction* Acts: NSAID Dose: 1 gtt qid W/P: [C, +] Possible cross-sensitivity to NSAIDs, ASA CI: Hypersens Disp: Acular LS: 0.4% 5 mL; Acular: 0.5% 3, 5, 10 mL; Acular PF: Soln 0.5% Acuvail soln 0.45% SE: Local irritation, ↑ bleeding ocular tissues, hyphemas, slow healing, keratitis Notes: Do not use w/ contacts

Ketotifen (Alaway, Claritin Eye, Zaditor, Zyrtec Itchy Eye) [OTC] Uses: *Allergic conjunctivitis* Acts: Antihistamine H₁-receptor antagonist, mast cell stabilizer Dose: Adults & Peds > 3 y. 1 gtt in eye(s) q8–12h W/P: [C, ?/−]
Lactulose

Disp: Soln 0.025%/5 & 10 mL
SE: Local irritation, HA, rhinitis, keratitis, mydriasis
Notes: Wait 10 min before inserting contacts

Kunecatechins [Sinecatechins] (Veregen) Uses: *External genital/perianal warts*
Acts: Unknown; green tea extract
Dose: Apply 0.5-cm ribbon to each wart 3×/d until all warts clear; not > 16 wk
W/P: [C, ?]
Disp: Oint 15%
SE: Erythema, pruritus, burning, pain, erosion/ulceration, edema, induration, rash, phimosis
Notes: Wash hands before/after use; not necessary to wipe off prior to next use; avoid on open wounds, may weaken condoms & Vag diaphragms, use in combo is not recommended

Labetalol (Trandate) Uses: *HTN* & hypertensive emergencies (IV)
Acts: α- & β-Adrenergic blockers
Dose: Adults. HTN: Initial, 100 mg PO bid, then 200–400 mg PO bid. Hypertensive emergency: 20–80 mg IV bolus, then 2 mg/min IV Inf, titrate up to 300 mg; ECC 2010. 10 mg IV over 1–2 min; repeat or double dose q10min (150 mg max); or initial bolus, then 2–8 mg/min Peds. PO: 1–3 mg/kg/d in + doses, 1200 mg/d max. Hypertensive emergency: 0.4–1.5 mg/kg/h IV cont Inf W/P: [C (D in 2nd or 3rd tri), +] CI: Asthma/COPD, cardiogenic shock, uncompensated CHF, heart block, sinus bradycardia Disp: Tabs 100, 200, 300 mg; Inf 5 mg/mL
SE: Dizziness, N, ↓BP, fatigue, CV effects

Lacosamide (Vimpat) Uses: *Adjunct in partial-onset Szs*
Acts: Anti-convulsant
Dose: Initial: 50 mg IV or PO bid, ↑ weekly; Maint: 200–400 mg/d; 300 mg/d max if CrCl < 30 mL/min or mild–mod hepatic Dz
W/P: [C, ?] DRESS ↑ PR [C–V] Antiepileptics associated w/ ↑ risk of suicide ideation
CI: None
Disp: IV: 200 mg/20 mL; Tabs: 50, 100, 150, 200 mg; oral soln 10 mg/mL
SE: Dizziness, N/V, ataxia
Notes: ✓ ECG before dosing

Lactic Acid/Ammonium Hydroxide [Ammonium Lactate] (Lac-Hydrin) [OTC] Uses: *Severe xerosis & ichthyosis*
Acts: Emollient moisturizer, humectant
Dose: Apply bid W/P: [B, ?]
Disp: Cream, lotion, lactic acid 12% w/ammonium hydroxide
SE: Local irritation, photosens
Notes: Shake well before use

Lactobacillus (Lactinex Granules) [OTC] Uses: *Control of D*, especially after antibiotic Rx
Acts: Replaces nl intestinal flora, lactase production; Lactobacillus acidophilus and Lactobacillus helveticus.
Dose: Adults & Peds > 3 y. 1 packet, 1–2 caps, or 4 tabs qd-qid W/P: [A, +] Some products may contain whey
CI: Milk/lactose allergy
Disp: Tabs, caps; granules in packets (all OTC)
SE: Flatulence
Notes: May take granules on food

Lactulose (Constulose, Enulose, Generlac, Others) Uses: *Hepatic encephalopathy; constipation*
Acts: Acidifies the colon, allows ammonia to diffuse into colon; osmotic effect to ↑ peristalsis
Dose: Acute hepatic encephalopathy: 30–45 mL PO q1h until soft stools, then tid-qid, adjust 2–3 stool/d. Constipation: 15–30 mL/d, ↑ to 60 mL/d 1–2 + doses, adjust to 2–3 stools. Rectally: 200 g in 700 mL of H2O PR, retain 30–60 min q4–6h Peds Infants. 2.5–10 mL/24 h + tid-qid Other Peds. 40–90 mL/24 h + tid-qid. Peds constipation: 1–3 mL/kg/d + doses (max 60 mL/d) PO after breakfast W/P: [B, ?] CI: Galactosemia
Disp: Syrup 10 g/15 mL, soln
Lamivudine (Epivir, Epivir-HBV, 3TC [Many Combo Regimens])

**BOX:** Lactic acidosis & severe hepatomegaly w/ steatosis reported w/ nucleoside analogs do not use Epivir-HBV for Tx of HIV, monitor pts closely following D/C of therapy for hep B

**Uses:** *HIV Infxn, chronic hep B*

**Acts:** NRTI, ↓ HIV RT & hep B viral polymerase, causes viral DNA chain termination

**Dose:** HIV:
- **Adults & Peds > 16 y:** 150 mg PO bid or 300 mg PO daily
- **Peds able to swallow pills:** 14–21 kg: 75 mg bid; 22–29 kg: 75 mg q a.m., 150 mg q p.m. > 30 kg: 150 mg bid

- **Neonates < 30 d:**
  - 3–14 kg: 75 mg q6h;
  - 15–25 kg: 75 mg q4h

**Epivir-HBV:**
- **Adults:** 100 mg/d PO
- **Peds 2–17 y:** 3 mg/kg PO, ↓ w/ CrCl < 50 mL/min

**W/P:** [C, ?] w/ Interferon-α and ribavirin may cause liver failure; do not use w/ zalcitabine or w/ ganciclovir/valganciclovir

**Disp:** Tabs 100 mg (Epivir-HBV) 150 mg, 300 mg; soln 5 mg/mL (Epivir-HBV), 10 mg/mL

**SE:** Malaise, fatigue, N/V/D, HA, pancreatitis, lactic acidosis, peripheral neuropathy, fat redistribution, rhabdomyolysis, hyperglycemia, nasal Sxs

**Notes:** Differences in formulations; do not use Epivir-HBV for hep in pt w/ unrecognized HIV d/t rapid emergence of HIV resistance

Lamotrigine (Lamictal)

**BOX:** Life-threatening rashes, including Stevens-Johnson syndrome and toxic epidermal necrolysis, and/or rash-related death reported; D/C at 1st sign of rash

**Uses:** *Epilepsy adjunct > 2 y or monoRx > 16 y old; bipolar disorder > 18 y old*

**Acts:** Phenyltriazine antiepileptic, ↓ glutamate, stabilize neuronal membrane

**Dose:** Adults.
- **Szs:** Initial 50 mg/d PO, then 50 mg PO bid × 1–2 wk, maint 300–500 mg/d in 2 ÷ doses.
- **Bipolar:** Initial 25 mg/d PO × 1–2 wk, 50 mg PO daily for 2 wk, 100 mg PO daily for 1 wk, maint 200 mg/d.

**Peds:**
- 0.6 mg/kg in 2 ÷ doses for wk 1 & 2, then 1.2 mg/kg for wk 3 & 4, q1–2wk to maint 5–15 mg/kg/d (max 400 mg/d) in 1–2 ÷ doses;
- ↓ hepatic Dz or w/ enzyme inducers or valproic acid

**W/P:** [C, –] ↑ suicide risk, higher for those w/ epilepsy vs psych use. Interact w/ other antiepileptics, estrogen, rifampin

**Disp:** (color-coded for use w/interacting meds); starter titrate kits; tabs 25, 100, 150, 200 mg; chew tabs 2, 5, 25 mg; ODT 25, 50, 100, 200 mg

**SE:** Photosens, HA, GI upset, dizziness, diplopia, blurred vision, blood dyscrasias, ataxia, rash (more lifethreatening in peds vs adults), aseptic meningitis

**Notes:** Value of therapeutic monitoring uncertain, taper w/ D/C

Lamotrigine, Extended-Release (Lamictal XR)

**BOX:** Life-threatening rashes, including Stevens-Johnson synd and toxic epidermal necrolysis, and/or rash-related death reported; D/C at 1st sign of rash

**Uses:** *Adjunct primary generalized tonic-clonic Sz, conversion to monoRx in pt > 13 y w/ partial Szs*

**Acts:** Phenyltriazine antiepileptic, ↓ glutamate, stabilize neuronal membrane

**Dose:** Adjunct target 200–600 mg/d; monoRx conversion target dose 250–300 mg/d

**Adults. w/ Valproate:** wk 1–2 25 mg qod, wk 3–4 25 mg qd, wk 5 50 mg qd, wk 6 100 mg qd, wk 7 150 mg qd, then maint 200–250 mg qd. w/o Carbamazepine, phenytoin, phenobarbital, primidone, or valproate: wk 1–2 25 mg qd,
Leflunomide

wk 3–4 50 mg qd, wk 5 100 mg qd, wk 6 150 mg qd, wk 7 200 mg qd, then maint 300–400 mg qd. Convert IR to ER tabs: Initial dose = total daily dose of IR. Convert adjunctive to monoRx: Maint: 250–300 mg qd. See label. w/OCP: See insert. Peds > 13 y. See adult W/P: [C, −] interactns w/ other antiepileptics, estrogen (OCP), rifampin; valproic acid ↑ levels at least 2x; ↑ suicidal ideation; withdrawal Szs CI: Component hypersens (see Box) Disp: Tabs 25, 100, 150, 200 mg SE: Dizziness, tremor/intention tremor, V, diplopia, rash (more lifethreatening in peds than adults), aseptic meningitis, blood dyscrasias Notes: Taper over 2 wk w/ D/C

Lansoprazole (Prevacid, Prevacid 24HR [OTC]) Uses: *Duodenal ulcers, prevent & Rx NSAID gastric ulcers, active gastric ulcers, H. pylori Infxn, erosive esophagitis, & hypersecretory conditions, GERD* Acts: Proton pump inhibit Dose: 15–30 mg/d PO; NSAID ulcer prevention: 15 mg/d PO = 12 wk. NSAID ulcers: 30 mg/d PO × 8 wk; hypersecretory condition: 60 mg/d before food doses of 90 mg bid have been used; ↓ w/ severe hepatic impair W/P: [B, ?/−] w/ Clopidogrel Disp: Prevacid: DR caps 15, 30 mg; Prevacid 24HR [OTC] 15 mg; Prevacid SoluTab (ODT) 15 mg (contains phenylalanine) SE: N/V, Abd pain, HA, fatigue Notes: Do not crush/chew; granules can be given w/ applesauce or apple juice (NG tube) only; ↑ risk of fractures w/ all PPI; caution w/ ODT in feeding tubes; risk of hypomagnesemia w/ long-term use; monitor

Lanthanum Carbonate (Fosrenol) Uses: *Hyperphosphatemia in end-stage renal Dz* Acts: Phosphate binder Dose: 750–1500 mg PO daily in ÷ doses, w/ or immediately after meal; titrate q2–3wk based on PO 4 levels W/P: [C, ?/−] No data in GI Dz; not for peds CI: Bowel obstruction, fecal impaction, ileus Disp: Chew tabs 500, 750, 1000 mg SE: N/V, graft occlusion, HA, ↓ BP Notes: Chew tabs before swallowing; separate from meds that interact w/ antacids by 2 h

Lapatinib (Tykerb) BOX: Hepatotox has been reported (severe or fatal) Uses: *Advanced breast CA w/ capecitabine w/ tumors that over express HER2 and failed w/ anthracycline, taxane, & trastuzumab* and in combo w/ letrozole in postmenopausal women Acts: TKI Dose: Per protocol, 1250 mg PO days 1–21 w/ capecitabine 2000 mg/m²/d ÷ 2 doses/d on days 1–14; 1500 mg PO daily in combo w/ letrozole ↓ w/ severe cardiac or hepatic impair W/P: [D, ?/+] Avoid CYP3A4 inhib/inducers CI: Component hypersens Disp: Tabs 250 mg SE: N/V/D, anemia, ↓ plt, neutropenia, ↑ QT interval, hand-foot synd, ↑ LFTs, rash, ↓ left ventricular ejection fraction, interstitial lung Dz and pneumonitis Notes: Consider baseline LVEF & periodic ECG: LFTs at baseline & during Tx

Latanoprost (Xalatan) Uses: *Open-angle glaucoma, ocular HTN* Acts: Prostaglandin, ↑ outflow of aqueous humor Dose: 1 gtt eye(s) hs W/P: [C, M] Disp: 0.005% soln SE: May darken light irides; blurred vision, ocular stinging, & itching, ↑ number & length of eyelashes Notes: Wait 15 min before using contacts; separate from other eye products by 5 min

Leflunomide (Arava) BOX: PRG must be excluded prior to start of Rx; hepatotox; Tx should not be initiated in pts w/ acute or chronic liver Dz

Uses: PRG must be excluded prior to start of Rx; hepatotox; Tx should not be initiated in pts w/ acute or chronic liver Dz
Lenalidomide (Revlimid) BOX: Significant teratogen; pt must be enrolled in RevAssist risk-reduction program; hematologic tox, DVT & PE risk

**Uses:** *MDS, combo w/ dexamethasone in multiple myeloma in pt failing one prior Rx*  
**Acts:** Thalidomide analog, immune modulator  
**Dose:** Adults. MDS: 10 mg PO daily; swallow whole w/ water; multiple myeloma 25 mg/d days 1–21 of 28-d cycle w/ protocol dose of dexamethasone  
**W/P:** [X, –] w/ Renal impair  
**CI:** PRG  
**Disp:** Caps 5, 10, 15, 25 mg  
**SE:** D, pruritus, rash, fatigue, night sweats, edema, nasopharyngitis, ↓ BM (plt, WBC), ↑ K⁺, ↑ LFTs, thromboembolism  
**Notes:** Monitor CBC and for thromboembolism, hepatotox; routine PRG tests required; Rx only in 1-mo increments; limited distribution network; males must use condom and not donate sperm; use at least 2 forms contraception > 4 wk beyond D/C; see pkg insert for dose adjustments based on nonhematologic & hematologic tox

Lepirudin (Refludan)  
**Uses:** *HIT*  
**Acts:** Direct thrombin inhib  
**Dose:** Bolus: 0.4 mg/kg IV push then 0.15 mg/kg/h Inf; if > 110 kg 44 mg of Inf 16.5 mg/h max; ↓ dose & Inf rate w/ if CrCl < 60 mL/min or if used w/ thrombolytics  
**W/P:** [B, ?/–] Hemorrhagic event or severe HTN  
**CI:** Active bleeding  
**Disp:** Inj 50 mg  
**SE:** Bleeding, anemia, hematoma, anaphylaxis  
**Notes:** Adjust based on aPTT ratio, maintain aPTT 1.5–2.5 × control; S/Sxs of bleeding

Letrozole (Femara)  
**Uses:** *Breast CA: Adjuvant w/postmenopausal hormone receptor positive early Dz; adjuvant in postmenopausal women w/ early breast CA w/ prior adjuvant tamoxifen therapy; 1st/2ndline in postmenopausal w/ hormone receptor positive or unknown*  
**Acts:** Nonsteroidal aromatase inhib  
**Dose:** 2.5 mg/d PO; q other day w/ severe liver Dz or cirrhosis  
**W/P:** [D, ?] [X, ?/–] CI: PRG, women who may become pregnant  
**Disp:** Tabs 2.5 mg  
**SE:** Anemia, N, hot flashes, arthralgia, hypercholesterolemia, decreased BMD, CNS depression  
**Notes:** Monitor CBC, thyroid Fxn, lytes, LFTs, SCr, BP, bone density, cholesterol

Leucovorin (Generic)  
**Uses:** *OD of folic acid antagonist; megaloblastic anemia, augment 5-FU, impaired MTX elimination; w/ 5-FU in colon CA*  
**Acts:** Reduced folate source; circumvents action of folate reductase inhib (eg, MTX)  
**Dose:** Leucovorin rescue: 10 mg/m² PO/IM/IV q6h; start w/in 24 h after dose or 15 mg PO/IM/IV q6h, for 10 doses until MTX level < 0.05 micromole/L. Folate antagonist OD (eg, Pemetrexed) 100 mg/m² IM/IV × 1 then 50 mg/m² IM/IV q6h × 8 d; 5-FU adjuvant Tx, colon CA per protocol; low dose: 20 mg/m²/d IV × 5 d w/
5-FU 425 mg/m²/d IV × 5 d, repeat q4–5wk × 6; high dose: 200 mg/m² in combo w/ 5-FU 370 mg/m² Megaloblastic anemia: 1 mg IM/IV daily W/P: [C, ?/–] CI: Pernicious anemia or vit B₁₂ deficient megaloblastic anemias Disp: Tabs 5, 10, 15, 25 mg; Inj 50, 100, 200, 350, 500 mg SE: Allergic Rxn, N/V/D, fatigue, wheezing, ↑ plt Notes: Monitor Cr, methotrexate levels q24h w/ leucovorin rescue; do not use intrathecally/intraventricularly; w/ 5-FU CBC w/ diff, plt, LFTs, lytes

Leuprolide (Eligard, Lupron, Lupron DEPOT, Lupron DEPOT-Ped, Generic)

Uses: *Advanced PCa (all except Depot-Ped), endometriosis (Lupron), uterine fibroids (Lupron), & precocious puberty (Lupron-Ped)*

Acts: LHRH agonist; paradoxically ↓ release of GnRH w/ ↓ LH from anterior pituitary; in men ↓ testosterone, in women ↓ estrogen

Dose: Adults. PCa: Lupron DEPOT: 7.5 mg IM q28d or 22.5 mg IM q3mo or 30 mg IM q4mo or 45 mg IM q6mo. Eligard: 7.5 mg SQ q28d or 22.5 mg SQ q3mo or 30 mg SQ q4mo or 45 mg SQ 6 mo. Endometriosis (Lupron DEPOT): 3.75 mg IM qmo × 6 or 11.25 IM q3mo × 2. Fibroids: 3.75 mg IM qmo × 3 or 11.25 mg IM × 1. Peds. CPP (Lupron DEPOT-Ped): 50 mcg/kg/d SQ Inj; ↑ by 10 mcg/kg/d until total downregulation achieved.

Lupron DEPOT: < 25 kg: 7.5 mg IM q4wk; > 25–37.5 kg: 11.25 mg IM q4wk; > 37.5 kg: 15 mg IM q4wk, ↑ by 3.75 mg q4wk until response W/P: [X, –] w/ Impending cord compression in PCa, ↑ QT w/ meds or preexisting CV Dz CI: AUB, implant in women/peds; PRG Disp: Inj 5 mg/mL; Lupron DEPOT: 3.75 mg (1 mo for fibroids, endometriosis); Lupron DEPOT for PCa: 7.5 mg (1 mo), 11.25 (3 mo), 22.5 (3 mo), 30 mg (4 mo), 45 mg (6 mo); Eligard depot for PCA: 7.5 (1 mo); 22.5 (3 mo), 30 (4 mo), 45 mg (6 mo); Lupron DEPOT-Ped: 7.5, 11.25, 15, 30 mg SE: Hot flashes, gynecomastia, N/V, alopecia, anorexia, dizziness, HA, insomnia, paresthesias, depression exacerbation, peripheral edema, & bone pain (transient “flare Rxn” at 7–14 d after the 1st dose [LH/testosterone surge before suppression]); ↓ BMD w/ > 6 mo use, bone loss possible, abnormal menses, hyperglycemia Notes: Nonsteroidal antiandrogen (eg, bicalutamide) may block flare in men w/ PCa; Viadur unavail to new Rx

Leuprolide Acetate/Norethindrone Acetate Kit (Lupaneta Pack)

Uses: *Painful endometriosis* Acts: GnRH agonist w/ a progestin Dose: Leuprolide 11.25 mg IM q3mo × 2 w/ norethindrone 5 mg PO daily, 6 mo total; if symptoms recur, consider another 6 mo Tx W/P: [B, ?/–] Assess BMD before; monitor for depression; D/C w/ vision loss/changes CI: Component sens; AUB, PRG, breast-feeding, Hx breast/hormonally sens Ca, thrombosis, liver tumor or Dz Disp: Co-packaged leuprolide 11.25 mg depot w/ 90 norethindrone 5 mg tabs SE: Leuprolide: hot flashes/sweats, HA/migraine, depression/emotional lability, N/V, nervousness/anxiety, insomnia, pain, acne, asthenia, vaginitis, ↑ Wt, constipation/diarrhea; norethindrone: breakthrough bleeding/spotting Notes: Use non-hormonal methods of contraception

Levalbuterol (Xopenex, Xopenex HFA)

Uses: *Asthma (Rx & prevention of bronchospasm)* Acts: Sympathomimetic bronchodilator; R-isomer of
albuterol $\beta_2$-agonist **Dose:** Based on NIH Guidelines 2007 **Adults.** Acute–severe exacerbation Xopenex HFA 4–8 puffs q20min up to 4 h, the q1–4h PRN or nebulizer 1.25–2.5 mg q20min × 3, then 1.25–5 mg q1–4h PRN; **Peds < 5 y.** Quick relief 0.31–1.25 mg q4–6h PRN, severe 1.25 mg q20min × 3, then 0.075–0.15 mg/kg q1–4h PRN, 5 mg max. **5–11 y:** Acute–severe exacerbation 1.25 mg q20min × 3, then 0.075–0.15 mg/kg q1–4h PRN, 5 mg max, quick relief: 0.31–0.63 q8h PRN. > **12 y:** 0.63–1.25 mg nebulizer q8h **W/P:** [C, M] w/ Non–K$^+$-sparing diuretics, CAD, HTN, arrhythmias, ↓ K$^+$, hyperthyroidism, glaucoma, diabetes **CI:** Component hypersens **Disp:** Multidose inhaler (Xopenex HFA) 45 mcg/puff (15 g); soln nebulizer 0.31, 0.63, 1.25 mg/3 mL; concentrate 1.25 mg/0.5 mL **SE:** Paradox bronchospasm, anaphylaxis, angioedema, tachycardia, nervousness, V, ↓ K$^+$ **Notes:** May ↓ CV SEs compared w/ albuterol; do not mix w/ other nebs or dilute

**Levetiracetam (Keppra, Keppra XR)** **Uses:** *Adjunctive PO Rx in partial onset Sz (adults & peds ≥ 4 y), myoclonic Szs (adults & peds ≥ 12 y) w/ juvenile myoclonic epilepsy (JME), primary generalized tonic-clonic (PGTC) Szs (adults & peds ≥ 6 y) w/ idiopathic generalized epilepsy. Adjunctive Inj Rx partial-onset Szs in adults w/ epilepsy; myoclonic Szs in adults w/ JME. Inj alternative for adults (≥ 16 y) when PO not possible* **Acts:** Unknown **Dose:** **Adults & Peds > 16 y.** 500 mg PO bid, titrate q2wk, may ↑ 3000 mg/d max. **Peds 4–15 y.** 10 mg/kg/d ÷ in 2 doses to max 60 mg/kg/d (↓ in renal Insuff) **W/P:** [C, ?/–] Elderly, w/ renal impairment, psychological disorders; ↑ suicidality risk for antiepileptic drugs, higher for those w/ epilepsy vs those using drug for psychological indications; Inj not for < 16 y **CI:** Component allergy **Disp:** Tabs 250, 500, 750, 1000 mg, ER 500, 750 mg soln 100 mg/mL; Inj 100 mg/mL **SE:** Dizziness, somnolence, HA, N/V, hostility, aggression, hallucinations, hematologic abnormalities, impaired coordination **Notes:** Do not D/C abruptly; postmarket hepatic failure and pancytopenia reported

**Levobunolol (A-K Beta, Betagan)** **Uses:** *Open-angle glaucoma, ocular HTN* **Acts:** $\beta$-Adrenergic blocker **Dose:** 1 gtt daily-bid **W/P:** [C, M] w/ Verapamil or systemic $\beta$-blockers **CI:** Asthma, COPD, sinus bradycardia, heart block (2nd-, 3rd-degree) CHF **Disp:** Soln 0.25, 0.5% **SE:** Ocular stinging/burning, ↓ HR, ↓ BP **Notes:** Possible systemic effects if absorbed

**Levocetirizine (Xyzal)** **Uses:** *Perennial/seasonal allergic rhinitis, chronic urticaria* **Acts:** Antihistamine **Dose:** **Adults.** 5 mg qd **Peds.** 6 mo–5 y: 1.25 mg once daily 6–11 y 2.5 mg qd **W/P:** [B, ?/–] ↓ Adult dose w/ renal impair, CrCl 50–80 mL/min 2.5 mg daily, 30–50 mL/min 2.5 mg other day, 10–30 mL/min 2.5 mg 2×/wk **CI:** Peds 6–11 y, w/ renal impair, adults w/ ESRD **Disp:** Tab 5 mg, soln 0.5 mL/mL (150 mL) **SE:** CNS depression, drowsiness, fatigue, xerostomia **Notes:** Take in evening

**Levofloxacin (Levaquin, Generic)** **BOX:** ↑ Risk Achilles tendon rupture and tendinitis, may exacerbate muscle weakness related to myasthenia gravis **Uses:** *Skin/skin structure Infxn (SSSI), UTI, chronic bacterial prostatitis, acute
Levomilnacipran

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pyelo, acute bacterial sinusitis, acute bacterial exacerbation of chronic bronchitis, CAP, including multidrug-resistant *S. pneumoniae*, nosocomial pneumonia; Rx inhalational anthrax in adults & peds ≥ 6 mo*

**Acts:** Quinolone, ↓ DNA gyrase.

**Spectrum:** Excellent gram(+) except MRSA & *E. faecium*; excellent gram(−) except *Stenotrophomonas maltophilia* & *Acinetobacter* sp; poor anaerobic

**Dose:**

**Adults ≥ 18 y:** IV/PO: Bronchitis: 500 mg qd × 7 d. CAP: 500 mg qd × 7–14 d or 750 mg qd × 5 d. Sinusitis: 500 mg qd × 10–14 d or 750 mg qd × 5 d. Prostatitis: 500 mg qd × 28 d. Comp SSSI: 500 mg qd × 7–10 d. Comp SSSI/nosocomial pneumonia: 750 mg qd × 7–14 d. Anthrax: 500 mg qd × 60 d; Uncomp UTI: 250 mg qd × 3 d. Comp UTI/acute pyelo: 250 mg qd × 10 d or 750 mg qd × 5 d. CrCl 10–19 mL/min: 500 mg then 250 mg q other day or 750 mg, then 500 mg q48h.

**Hemodialysis:** 750 mg, then 500 mg q48h. **Peds ≥ 6 mo. Anthrax > 50 kg:** 500 mg q 24h × 60 d, < 50 kg 8 mg/kg (250 mg/dose max) q12h for 60 d ↓ w/ renal avoid antacids w/ PO; oral soln 1 h before, 2 h after meals CAP: ≥ 6 mo– ≤ 4 y 8 mg/kg/dose q12h (max 750 mg/d), 5–16 y 8 mg/kg/dose once daily (750 mg/d)

**W/P:** [C, −] w/ Cation-containing products (eg, antacids), w/ drugs that ↑ QT interval

**CI:** Quinolone sensitivity

**Disp:** Tabs 250, 500, 750 mg; premixed IV 250, 500, 750 mg, Inj 25 mg/mL; Leva-Pak 750 mg × 5 d

**SE:** N/D, dizziness, rash, GI upset, photosens, CNS stimulant w/ IV use, *C. difficile* enterocolitis; rare fatal hepatox, peripheral neuropathy risk

**Notes:** Use w/ steroids ↑ tendon rupture risk; only for anthrax in peds

**Levofloxacin Ophthalmic (Quixin, Iquix)**

**Uses:** *Bacterial conjunctivitis*

**Acts:** See levofloxacin

**Dose:** Ophthal: 1–2 gtt in eye(s) q2h while awake up to 8×/d × 2 d, then q4h while awake × 5 d

**W/P:** [C, −] CI: Quinolone sensitivity

**Disp:** 25 mg/mL ophthal soln 0.5% (Quixin), 1.5% (Iquix)

**SE:** Ocular burning/ pain, ↓ vision, fever, foreign body sensation, HA, pharyngitis, photophobia

**Levomilnacipran (Fetzima)**

**BOX:** Risk of suicidal thoughts/behavior in children, adolescents, and young adults; monitor for worsening depression and emergence of suicidal thoughts/behaviors

**Uses:** *Depression in adults*

**Acts:** SNRI

**Dose:** Adults. 20 mg 1 × daily for 2 days, then 40 mg 1 × daily, may ↑ by 40 mg every 2 days to 120 mg max; usual 40–120 mg/d; ↓ w/ CrCl < 60 mL/min

**Peds.** Not approved **W/P:** [C, ?/-] CDC rec: HIV-infected mothers not breastfeed (transmission risk); see Box; serotonin synd w/ certain meds: tricyclics, lithium, triptans, fentanyl, tramadol, buspiron, St John’s Wort; SSRIs & SNRIs may cause ↓ Na; ↑ BP, ↑ HR; ↑ risk of bleeding w/ASA, NSAIDs, warfarin; urinary retention/hesitancy; may elicit mania in bipolar patients presenting w/ depression

**Disp:** ER caps, 20, 40, 80, 120 mg CI: Hypersens; do not use w/MAOI, linezolid, or methylene blue (serotonin synd risk); uncontrolled NAG, ESRD SE: N, V, ED, testicular pain, ejaculation disorder, hyperhidrosis

**Notes:** 80 mg/d max w/strong CYP3A4 inhibit; with abrupt D/C confusion, dysphoria, irritability, agitation, anxiety, insomnia, paresthesias, HA & insomnia can occur; taper dose and monitor w/D/C; EtOH may accelerate drug release
Levonorgestrel (Next Choice, Plan B One-Step, Generic [OTC])

**Uses:** *Emergency contraceptive (“morning-after pill”)*

**Acts:** Prevents PRG if taken < 72 h after unprotected sex/contraceptive failure; progestin, alters tubal transport & endometrium to implantation

**Dose:** Adults & Peds (postmenarche ♀)

\[
\text{Next Choice } 0.75 \text{ mg } q12h \times 2; \quad \text{Plan B One-Step } 1.5 \text{ mg } \times 1
\]

**W/P:** [X, M] w/ AUB; may ↑ ectopic PRG risk

**CI:** Known/suspected PRG

**Disp:** Next Choice tab, 0.75 mg, 2 blister packs; Plan B One-Step tab, 1.5 mg, 1 blister pack

**SE:** N/V/D, Abd pain, fatigue, HA, menstrual changes, dizziness, breast changes

**Notes:** Will not induce Ab w/ PRG; federal court ruling in 2013 made these emergency contraceptives OTC w/o age or point-of-sale restrictions (label update pending)

Levonorgestrel IUD (Mirena)

**Uses:** *Contraception, long-term*

**Acts:** Progestin, alters endometrium, thicken cervical mucus, inhibits ovulation and implantation

**Dose:** Up to 5 y, insert w/in 7 d menses onset or immediately after 1st-tri Ab; wait 6 wk if postpartum; replace any time during menstrual cycle

**W/P:** [X, M]

**CI:** PRG, w/ active hepatic Dz or tumor, uterine anomaly, breast CA, acute/ Hx of PID, postpartum endometriosis, infected Ab last 3 mo, gynecological neoplasm, abnormal Pap, AUB, untreated cervicitis/vaginitis, multiple sex partners, ↑ susceptibility to Infxn

**Disp:** 52 mg IUD

**SE:** Failed insertion, ectopic PRG, sepsis, PID, infertility, PRG comps w/ IUD left in place, Ab, embedment, ovarian cysts, perforation uterus/cervix, intestinal obst/perforation, peritonitis, N, Abd pain, ↑ BP, acne, HA

**Notes:** Inform pt does not protect against STD/HIV; see PI for insertion instructions; reexamine placement after 1st menses; 80% PRG w/in 12 mo of removal

Levorphanol (Levo-Dromoran) [C-II]

**Uses:** *Mod–severe pain; chronic pain*

**Acts:** Narcotic analgesic, morphine derivative

**Dose:** 2–4 mg PO PRN q6–8h; ↓ in hepatic impair

**W/P:** [B/D (prolonged use/high doses at term), ?] w/ ↑ ICP, head trauma, adrenal Insuff

**CI:** Component allergy, PRG

**Disp:** Tabs 2 mg SE

**SE:** Tachycardia, ↓ BP, drowsiness, GI upset, constipation, resp depression, pruritus

Levothyroxine (Synthroid, Levoxyl, Others)

**BOX:** Not for obesity or Wt loss; tox w/ high doses, especially when combined w/ sympathomimetic amines

**Uses:** *Hypothyroidism, pituitary thyroid-stimulating hormone (TSH) suppression, myxedema coma*

**Acts:** T₄ supl l-thyroxine

**Dose:** Adults. Hypothyroid

titrate until euthyroid > 50 y w/o heart Dz or < 50 w/ heart Dz 25–50 mcg/d, ↑ q6–8wk; > 50 y w/ heart Dz 12.5–25 mcg/d, ↑ q6–8wk; usual 100–200 mcg/d.

**Myxedema:** 200–500 mcg IV, then 100–300 mcg/d.

**Peds. Hypothyroid:** 1–3 mo: 10–15 mcg/kg/24 h PO; 3–6 mo: 8–10 mcg/kg/d PO; 6–12 mo: 6–8 mcg/kg/d PO; 1–5 y: 5–6 mcg/kg/d PO; 6–12 y: 4–5 mcg/kg/d PO; > 12 y: 2–3 mcg/kg/d PO; if growth and puberty complete 1.7 mcg/kg/d; ↓ dose by 50% if IV; titrate based on response & thyroid tests; dose can ↑ rapidly in young/middle-aged; best on empty stomach

**W/P:** [A, M] Many drug interactions; in elderly w/ CV Dz; thyrotoxicosis; w/ warfarin monitor INR

**CI:** Recent MI, uncorrected adrenal Insuff

**Disp:**
Lidocaine

Tabs 25, 50, 75, 88, 100, 112, 125, 137, 150, 175, 200, 300 mcg; Inj 100, 500 mcg

SE: Insomnia, Wt loss, N/V/D, ↑ LFTs, irregular periods, ↓ BMD, alopecia, arrhythmia Notes: Take w/ full glass of water (prevents choking); PRG may ↑ need for higher doses; takes 6 wk to see effect on TSH; wait 6 wk before checking TSH after dose change

Linagliptin (Tradjenta) Uses: *Type 2 DM * Acts: Dipeptidyl peptidase-4 (DPP-4) inhibitor; ↑ active incretin hormones (↑ insulin release, ↓ glucagon) Dose: Adults. 5 mg daily W/P: [B, ?/–] CI: Hypersensitivity Disp: Tabs 5 mg SE: Hypoglycemia w/ sulfonylurea; nasopharyngitis, pancreatitis Notes: Inhibitor of CYP3A4

Lidocaine, Systemic (Xylocaine, Others) Uses: *Rx cardiac arrhythmias* Acts: Class IB antiarrhythmic Dose: Adults. Antiarrhythmic, ET: 5 mg/kg; follow w/ 0.5 mg/kg in 10 min if effective. IV load: 1 mg/kg/dose bolus over 2–3 min; repeat in 5–10 min; 200–300 mg/h max; cont Inf 20–50 mcg/kg/min or 1–4 mg/min; ECC 2010. Cardiac arrest from VF/VT refractory VF: Initial: 1–1.5 mg/kg IV/IO, additional 0.5–0.75 mg/kg IV push, repeat in 5–10 min, max total 3 mg/kg. ET: 2–4 mg/kg as last resort. Reperfusing stable VT, wide complex tachycardia, or ectopy: Doses of 0.5–0.75 mg/kg to 1–1.5 mg/kg may be used initially; repeat 0.5–0.75 mg/kg q5–10min; max dose 3 mg/kg. Peds. ECC 2010. VF/pulseless VT, wide-complex tach (w/ pulses): 1 mg/kg IV/IO, then maint 20–50 mcg/kg/min (repeat bolus if Inf started > 15 min after initial dose); RSI: 1–2 mg/kg IV/IO W/P: [B, M] ↓ Dose in severe hepatic impairment CI: Adams-Stokes synd; heart block; corn allergy Disp: Inf IV: 1% (10 mg/mL), 2% (20 mg/mL); admixture 4, 10, 20%. IV Inf: 0.2, 0.4% SE: Dizziness, paresthesias, & convulsions associated w/ tox Notes: 2nd line to amiodarone in ECC; dilute ET dose 1–2 mL w/ NS; for IV forms, or CHF; Systemic levels: steady state 6–12 h; Therapeutic: 1.2–5 mcg/mL; Toxic: > 6 mcg/mL; half-life: 1.5 h; constant ECG monitoring is necessary during IV admin

Lidocaine; Lidocaine w/ Epinephrine (Anestacon Topical, Xylocaine, Xylocaaine Viscous, Xylocaine MPF, Others) BOX: Lidocaine gel should not be used for infant teething Uses: *Local anesthetic, epidural/caudal anesthesia, regional nerve blocks, topical on mucous membranes (mouth/pharynx/urethra)* Acts: Anesthetic; stabilizes neuronal membranes; inhibits ionic fluxes required for initiation and conduction Dose: Adults. Local Inj anesthetic: 4.5 mg/kg max total dose or 300 mg; w/ epi 7 mg/kg or total 500 mg max dose. Oral: 15 mL viscous swish and spit or pharyngeal gargle and swallow, do not use < 3-h intervals or > 8 x in 24 h. Urethra: Jelly 5–30 mL (200–300 mg) jelly in men, 3–5 mL female urethra; 600 mg/24 h max. Peds. Topical: Apply max 3 mg/kg/dose. Local Inj anesthetic: Max 4.5 mg/kg (Table 1, p 318) W/P: [B, +] Epi-containing soln may interact w/ TCA or MAOI and cause severe ↑ BP CI: Do not use lidocaine w/ epi on digits, ears, or nose (vasoconstriction & necrosis) Disp: Inf local: 0.5, 1, 1.5, 2, 4, 10, 20%; Inf w/ epi 0.5%/1:200,000, 1%/1:100,000, 2%/1:100,000; (MPF) 1%/1:200,000, 1.5%/1:200,000, 2%/1:200,000; Dental formulations:
Lidocaine/Prilocaine

Uses: *Topical anesthetic for intact skin or genital mucous membranes*; adjunct to phlebotomy or dermal procedures

 Acts: Amide local anesthetics

Dose: Adults. *EMLA* cream, thick layer 2–2.5 g to intact skin over 20–25 cm² of skin surface, cover w/ occlusive dressing (eg, Tegaderm) for at least 1 h. *Anesthetic disc*: 1 g/10 cm² for at least 1 h.

Peds. *Max dose*: < 3 mo or < 5 kg: 1 g/10 cm² for 1 h. 3–12 mo & > 5 kg: 2 g/20 cm² for 4 h. 1–6 y & > 10 kg: 10 g/100 cm² for 4 h. 7–12 y & > 20 kg: 20 g/200 cm² for 4 h

W/P: [B, +]

CI: Methemoglobinemia use on mucous membranes, broken skin, eyes; allergy to amide-type anesthetics

Disp: Cream 2.5% lidocaine/2.5% prilocaine; anesthetic disc (1 g); periodontal gel 2.5/2.5%

SE: Burning, stinging, methemoglobinemia

Notes: Longer contact time ↑ effect

Lidocaine/Tetracaine, Patch (Synera) Cream (Pliaglis)

Uses: *Topical anesthesia for venipuncture and dermatologic procedures (Synera); dermatologic procedures (Pliaglis)*

 Acts: Combo amide and ester local anesthetic

Dose: Adults & Peds. *Synera*: apply patch 20–30 min before procedure. *Adults. Pliaglis*: apply cream 20–60 min before procedure, volume based on site surface (see label)

W/P: [B, ?/–]

Use on intact skin only; avoid eyes; not for mucous membranes; do not use w/ Hx methemoglobinemia anaphylaxis reported; caution w/ Class I antiarrhythmic drugs; remove before MRI

CI: Component sensitivity (PABA or local anesthetics)

Disp: *Synera*: 70 mg lidocaine/70 mg tetracaine in 50-cm² patch; *Pliaglis*: 70 mg lidocaine/70 mg tetracaine/gm (7%/7%) cream 30-, 60-, 100-gm tube

SE: Erythema, blanching, and edema

Linaclotide (Linzess)

BOX: CI peds < 6 y; avoid in peds 6–17 y; death in juvenile mice

Uses: *IBS w/ constipation, chronic idiopathic constipation* Act: Guanylate cyclase-C agonist

Dose: *IBS-C*: 290 mcg PO daily; *CIC*: 145 mcg PO daily; on empty stomach 30 min prior to 1st meal of the day; swallow whole

W/P: [C, ?/–]

CI: Pts < 6 y; GI obstruction

Disp: Caps 145, 290 mcg

SE: D, Abd pain/distention, flatulence

Linagliptin/Metformin (Jentadueto)

BOX: Lactic acidosis w/ metformin accumulation; ↑ risk w/ sepsis, vol depletion, CHF, renal/hepatic impair; excess alcohol; w/ lactic acidosis suspected D/C and hospitalize

Uses: *Combo type 2 DM* Act: DDP-4 inhib; ↑ insulin synth/release w/ biguanide; ↓ hepatic glucose prod & absorption; ↑ insulin sens

Dose: Titrate as needed; give bid w/ meals, gradual ↑ dose due to GI SE (metformin), max 2.5/1000 mg bid

W/P: [X, –]

May cause lactic acidosis, pancreatitis, hepatic failure, hypersens Rxn; vit B12 def

CI: Component hypersens, renal impair, metabolic acidosis

Disp: Tabs (linagliptin mg/metformin mg) 2.5/500, 2.5/850, 2.5/1000

SE: ↓ Glucose, nasopharyngitis, D

Notes: Warn against excessive EtOH intake, may ↑ metformin lactate effect; temp D/C w/ surgery or w/ iodinated contrast studies
**Lindane (Generic)**  
BOX: Only for pts intolerant/failed 1st-line Rx w/ safer agents. Szs and deaths reported w/ repeated/prolonged use. Caution d/t increased risk of neurotox in infants, children, elderly, w/ other skin conditions, and if < 50 kg. Instruct pts on proper use and inform that itching occurs after successful killing of scabies or lice  
**Uses:** *Head lice, pubic “crab” lice, body lice, scabies*  
**Acts:** Ecto-parasiticide & ovicide  
**Dose:** Adults & Peds. Cream or lotion: Thin layer to dry skin after bathing, leave for 8–12 h, rinse; also use on laundry. Shampoo: Apply 30 mL to dry hair, develop a lather w/ warm water for 4 min, comb out nits  
**W/P:** [C, −]  
**CI:** Premature infants, uncontrolled Sz disorders, norwegian scabies open wounds  
**Disp:** Lotion 1%; shampoo 1%  
**SE:** Arrhythmias, Szs, local irritation, GI upset, ataxia, alopecia, N/V, aplastic anemia  
**Notes:** Caution w/ overuse (may be absorbed); caution w/ hepatic in pts may repeat Rx in 7 d; try OTC first w/ pyrethrins (Pronto, Rid, others)  

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**Linezolid (Zyvox)**  
**Uses:** *Infxns caused by gram(+) bacteria (including VRE), pneumonia, skin Infxns*  
**Acts:** Unique, binds ribosomal bacterial RNA; bacteriocidal for streptococci, bacteriostatic for enterococci & staphylococci.  
**Spectrum:** Excellent gram(+) including VRE & MRSA  
**Dose:** Adults. 600 mg IV or PO q12h. Peds ≤ 11 y. 10 mg/kg IV or PO q8h (q12h in preterm neonates)  
**W/P:** [C, ?/]  
**CI:** Concurrent MAOI use or w/in 2 wk, uncontrolled HTN, thyrotoxicosis, vasopressive agents, carcinoid tumor, SSRIs, tricyclics, w/ MAOI (may cause serotonin syndrome when used w/ these psych meds), avoid foods w/ tyramine & cough/cold products w/ pseudoephedrine; w/ ↓ BM  
**Disp:** Inj 200, 600 mg; tabs 600 mg; susp 100 mg/5 mL  
**SE:** Lactic acidosis, peripheral/optic neuropathy, HTN, N/D, HA, insomnia, GI upset, ↓ BM, tongue discoloration prolonged use-C. diff Infxn  
**Notes:** ✓ Weekly CBC; not for gram(−) Infxn, ↑ deaths in catheter-related Infxns; MAOI activity  

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**Liothyronine (Cytomel, Triostat, T₃)**  
**BOX:** Not for obesity or Wt loss  
**Uses:** *Hypothyroidism, nontoxic goiter, myxedema coma*  
**Acts:** T₃ replacement  
**Dose:** Adults. Initial 25 mcg/24 h, titrate q1–2wk to response & TFT; maint of 25–100 mcg/d PO. Myxedema coma: 25–50 mcg IV. Myxedema: 5 mcg/d, PO ↑ 5–10 mcg/d q1–2wk; maint 50–100 mcg/d. Nontoxic goiter: 5 mcg/d PO, ↑ 5–10 mcg/d q1–2wk, usual dose 75 mcg/d. T₃ suppression test: 75–100 mcg/d × 7d; ↓ in elderly & CV Dz  
**Peds.** Initial 5 mcg/24 h, titrate by 50-mcg/24-h increments at q3–4d intervals; maint. Infants–12 mo: 20 mcg/d Peds 1–3 y: 50 mcg/d > 3 y: Adult dose  
**W/P:** [A, +]  
**CI:** Recent MI, uncorrected adrenal Insuff, uncontrolled HTN, thyrotoxicosis, artificial rewarming  
**Disp:** Tabs 5, 25, 50 mcg; Inj 10 mcg/mL  
**SE:** Alopecia, arrhythmias, CP, HA, sweating, twitching, ↑ HR, ↑ BP, MI, CHF, fever  
**Notes:** Monitor TFT; separate antacids by 4 h; monitor glucose w/ DM meds; when switching from IV to PO, taper IV slowly  

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**Liraglutide, Recombinant (Victoza)**  
**BOX:** CI w/ personal or fam Hx of medullary thyroid CA (MTC) or w/ multiple endocrine neoplasia synd type 2 (MEN2)  
**Uses:** *Type 2 DM*  
**Acts:** Glucagon-like peptide-1 receptor agonist  
**Dose:** 1.8 mg/d; begin 0.6 mg/d any time of day SQ (Abd/thigh/upper arm), ↑ to 1.2 mg after 1 wk,
Lisdexamfetamine Dimesylate (Vyvanse) [C-II] BOX: Amphetamines have ↑ potential for abuse; prolonged administration may lead to dependence; may cause sudden death and serious CV events in pts with preexisting structural cardiac abnormalities. Uses: *ADHD* Acts: CNS stimulant. Dose: Adults & Peds 6–12 y. 30 mg daily, ↑ qwk 10–20 mg/d, 70 mg/d max. W/P: [C, ?/-] w/ Potential for drug dependency in pt w/ psychological or Sz disorder, Tourette synd, HTN. CI: Severe arteriosclerotic CV Dz, mod–severe ↑ BP, ↑ thyroid, sensitivity to sympathomimetic amines, NAG, agitated states, Hx drug abuse, w/ or w/in 14 d of MAOI. Disp: Caps 20, 30, 40, 50, 60, 70 mg. SE: HA, insomnia, decreased appetite. Notes: AHA statement April 2008: All children diagnosed w/ ADHD who are candidates for stimulant meds should undergo CV assessment prior to use; may be inappropriate for geriatric use.

Lisinopril (Prinivil, Zestril) BOX: ACE inhib can cause fetal injury/death in 2nd/3rd tri; D/C w/ PRG. Uses: *HTN, CHF, prevent DN & AMI*. Acts: ACE inhib. Dose: 5–40 mg/24 h PO daily-bid, CHF target 40 mg/d. AMI: 5 mg w/in 24 h of MI, then 5 mg after 24 h, 10 mg after 48 h, then 10 mg/d; ↓ in renal Insuff; use low dose, ↑ slowly in elderly. W/P: [C (1st tri) D (2nd, 3rd tri), –] w/ Aortic stenosis/ cardiomyopathy. CI: PRG, ACE inhib sensitivity, idiopathic or hereditary angiodema. Disp: Tabs 2.5, 5, 10, 20, 30, 40 mg. SE: Dizziness, HA, cough, ↓ BP, angioedema, ↑ K⁺, ↑ Cr, rare ↓ BM. Notes: To prevent DN, start when urinary microalbuminuria begins; ✅ BUN, Cr, K⁺, WBC.

Lisinopril/Hydrochlorothiazide (Prinzide, Zestoretic, Generic) BOX: ACE inhib can cause fetal injury/death in 2nd/3rd tri; D/C w/ PRG. Uses: *HTN*. Acts: ACE inhib w/ diuretic (HCTZ). Dose: Initial 10 mg lisinopril/12.5 mg HCTZ, titrate upward to effect; > 80 mg/d lisinopril or > 50 mg/day HCTZ are not recommended; ↓ in renal Insuff; use low dose, ↑ slowly in elderly. W/P: [C 1st tri, D after, –] w/ Aortic stenosis/cardioangiopathy, bilateral RAS. CI: PRG, ACE inhib, idiopathic or hereditary angiodyplasia, sensitivity (angioedema). Disp: Tabs (mg lisinopril/mg HCTZ) 10/12.5, 20/12.5; Zestoretic also available as 20/25. SE: Anaphylactoid Rxn (rare), dizziness, HA, cough, fatigue, ↓ BP, angioedema, ↑ / ↓ K⁺, ↑ Cr, rare ↓ BM/cholestatic jaundice. Notes: Use only when monotherapy fails; ✅ BUN, Cr, K⁺, WBC.

Lithium Carbonate, Citrate (Generic) BOX: Li tox related to serum levels and can be seen at close to therapeutic levels. Uses: *Manic episodes of bipolar Dz*, augment antidepressants, aggression, PTSD. Acts: ?, Effects shift toward intraneuronal metabolism of catecholamines. Dose: Adults: Bipolar, acute mania: 1800 mg/d PO in 2–3 ÷ doses (target serum 1–1.5 mEq/L ✅ 2x/wk until stable). Bipolar maint: 900–1800/d PO in 2–3 ÷ doses (target serum 0.6–1.2 mEq/L). Peds ≥ 12 y. See Adults; ↓ in renal Insuff, elderly W/P: [D, –] Many drug interactions; avoid ACE inhib or diuretics; thyroid Dz, caution in pts at risk of suicide.
CI: Severe renal impair or CV Dz, severe debilitation, dehydration, PRG, sodium depletion
Disp: Carbonate: caps 150, 300, 600 mg; tabs 300, 600 mg; SR tabs 300 mg, CR tabs 450 mg; citrate: syrup 300 mg/5 mL
SE: Polyuria, polydipsia, nephrogenic DI, long-term may affect renal conc ability and cause fibrosis; tremor; Na\(^+\) retention or diuretic use may ↑ tox; arrhythmias, dizziness, alopecia, goiter ↓ thyroid, N/V/D, ataxia, nystagmus, ↓ BP
Notes: Levels: Trough: Just before next dose: Therapeutic: 0.8–1.2 mEq/mL; Toxic: > 1.5 mEq/mL half-life: 18–20 h
Follow levels q1–2mo on maint, draw concentrations 8–12 h postdose

Lodoxamide (Alomide) Uses: *Vernal conjunctivitis/keratitis* Acts: Stabilizes mast cells
Dose: Adults & Peds > 2 y. 1–2 gtt in eye(s) qid = 3 mo
Disp: Soln 0.1%
SE: Ocular burning, stinging, HA
Notes: Do not use soft contacts during use

Lomitapide (Juxtapid) BOX: May cause ↑ transaminases and/or hepatic steatosis. Monitor ALT/AST & bili at baseline & regularly; adjust dose if ALT/AST > 3× ULN (see label); D/C w/ significant liver tox Uses: *Homozygous familial hypercholesterolemia* Acts: Microsomal triglyceride transfer protein inhib
Dose: Adults. 5 mg PO daily; ↑ to 10 mg after 2 wk, then at 4-wk intervals to 20, 40 mg; 60 mg max based on safety/tolerability; swallow whole w/ water > 2 h after evening meal; 40 mg max w/ ESRD on dialysis or mild hepatic impair; 30 mg max w/ weak CYP3A4 inhib (see label) W/P: [X, –] Avoid grapefruit; adjust w/ warfarin, P-glycoprotein substrates, simvastatin, lovastatin CI: PRG, w/ strong-mod CYP3A4 inhibitors, mod-severe hepatic impair
Disp: Caps 5, 10, 20 mg
SE: N/V/D, hepatotox, dyspepsia, Abd pain, flatulence, CP, influenza, fatigue, ↓ Wt, ↓ abs fat-soluble vits
Notes: Limited distribution JUXTAPID REMS Program; PRG test before; use w/ low-fat diet (<20% fat energy); take daily vit E, linoleic acid, ALA, EPA, DHA supl

Loperamide (Diamode, Imodium) [OTC] Uses: *D* Acts: Slows intestinal motility
Dose: Adults. Initial 4 mg PO, then 2 mg after each loose stool, up to 16 mg/d. Peds 2–5 y, 13–20 kg. 1 mg PO tid; 6–8 y, 20–30 kg: 2 mg PO bid; 8–12 y, > 30 kg: 2 mg PO tid W/P: [C, –] Not for acute D caused by Salmonella, Shigella, or C. difficile; w/ HIV may cause toxic megacolon CI: Pseudomembranous colitis, bloody D, Abd pain w/o D, < 2 y
Disp: Caps 2 mg; tabs 2 mg; liq 1 mg/5 mL, 1 mg/7.5 mL (OTC) SE: Constipation, sedation, dizziness, Abd cramp, N

Lopinavir/Ritonavir (Kaletra) Uses: *HIV Infxn* Acts: Protease inhib
Dose: Adults. TX naïve: 800/200 mg PO daily or 400/100 mg PO bid; TX Tx-experienced pt: 400/100 mg PO bid (↑ dose if w/ amprenavir, efavirenz, fosamprenavir, nelfinavir, nevirapine); do not use qd dosing w/ concomitant Rx. Peds 7–15 kg. 12/2.5 mg/kg PO bid. 15–40 kg: 10/2.5 mg/kg PO bid. > 40 kg: Adult dose; w/ food W/P: [C, ?/–] Numerous interactions, w/ hepatic impair; do not use w/ salmeterol, colchicine (w/ renal/hepatic failure); adjust dose w/ bosantan, tadalafil for PAH, ↑ QT w/ QT-prolonging drugs, hypokalemia, congenital long QT syndrome, immune reconstitution syndrome CI: w/ Drugs dependent on CYP3A/CYP2D6 (Table 10, p 346), lovastatin, rifampin, statins, St. John’s wort, fluconazole; w/ alpha 1-adrenoreceptor antagonist (alfuzosin); w/ PDE5 inhibitor
sildenafil Disp: (mg lopinavir/mg ritonavir) Tab 100/25, 200/50, soln 400/100/5 mL
SE: Avoid disulfiram (soln has EtOH), metronidazole; GI upset, asthenia, ↑ cholesterol/triglycerides, pancreatitis; protease metabolic synd

**Loratadine (Claritin, Alavert)**

**Uses:** *Allergic rhinitis, chronic idiopathic urticaria*

**Acts:** Nonsedating antihistamine

**Dose:** **Adults.** 10 mg/d PO. **Peds 2–5 y.** 5 mg PO daily. > 6 y: Adult dose; on empty stomach; ↓ in hepatic Insuff; q other day dose w/ CrCl < 30 mL/min

**W/P:** [B, +/−] CI: Component allergy

Disp: Tabs 10 mg (OTC); chew tabs 5 mg; syrup 1 mg/mL

**SE:** HA, somnolence, xerostomia, hyperkinesis in peds

**Lorazepam (Ativan, Others) [C-IV]**

**Uses:** *Anxiety & anxiety w/ depression; sedation; control status epilepticus*; EtOH withdrawal; antiemetic

**Acts:** Benzodiazepine; antianxiety agent; works via postsynaptic GABA receptors

**Dose:** **Adults.** Anxiety: 1–10 mg/d PO in 2–3 + doses. Preop: 0.05 mg/kg–4 mg max IM 2 h before or 0.044 mg/kg–2 mg dose max IV 15–20 min before surgery. **Insomnia:** 2–4 mg PO hs. **Status epilepticus:** 4 mg/dose slow over 2–5 min IV PRN q10–15 min; usual total dose 8 mg. **Antiemetic:** 0.5–2 mg IV or PO q4–6h PRN. **EtOH withdrawal:** 1–4 mg IV or 2 mg PO initial depending on severity; titrate. **Peds. Status epilepticus:** 0.05–0.1 mg/kg/dose IV over 2–5 min, max 4 mg/dose repeat at 10- to 15-min intervals × 2 PRN. **Antiemetic, 2–15 y:** 0.05 mg/kg (to 2 mg/dose) prechemotherapy; ↓ in elderly; do not administer IV > 2 mg/min or 0.05 mg/kg/min W/P: [D, −] w/ Hepatic impair, other CNS depression, COPD; ↓ dose by 50% w/ valproic acid and probenecid CI: Severe pain, severe ↓ BP, sleep apnea, NAG, allergy to propylene glycol or benzyl alcohol, severe resp Insuff (except mechanically ventiated)

Disp: Tabs 0.5, 1, 2 mg; soln, PO conc 2 mg/mL; Inj 2, 4 mg/mL

**SE:** Sedation, memory impairment, EPS, dizziness, ataxia, tachycardia, ↓ BP, constipation, resp depression, paradoxical reactions, fall risk, abuse potential, rebound/withdrawal after abrupt D/C

**Notes:** ~10 min for effect if IV; IV Inf requires inline filter

**Lorcaserin (Belviq)**

**Uses:** *Manage Wt w/ BMI ≥ 30 kg/m² or ≥ 27 kg/m² w/ Wt-related comorbidity*

**Acts:** Serotonin 2C receptor agonist

**Dose:** **Adults.** 10 mg PO bid; D/C if not 5% Wt loss by wk 12 W/P: [X, −] ↑ glucose w/ diabetic meds; monitor for depression/suicidal thoughts, serotonin or neuroleptic malignant synd, cognitive impair, psych disorders, valvular heart Dz, priapism; risk of serotonin synd when used w/ other serotonergic drugs; caution w/ drugs that are CYP2D6 substrates CI: PRG

Disp: Tabs 10 mg SE: HA, N, dizziness, fatigue, dry mouth, constipation, back pain, cough, hypoglycemia, euphoria, hallucination, dissociation, ↓ HR, ↑ prolactin

**Losartan (Cozaar)**

**BOX:** Can cause fetal injury and death if used in 2nd & 3rd tri. D/C Rx if PRG detected

**Uses:** *HTN, DN, prevent CV A in HTN and LVH*

**Acts:** Angiotensin II receptor antagonist

**Dose:** **Adults.** 25–50 mg PO daily-bid, max 100 mg; ↓ in elderly/hepatic impair. **Peds ≥ 6 y.** HTN: Initial 0.7 mg/kg qd, ↑ to 50 mg/d PRN; 1.4 mg/kg/d or 100 mg/d max W/P: [C (1st tri, D 2nd & 3rd tri), ?/−] w/ NSAIDs; w/ K⁺-sparing diuretics, supl may cause ↑ K⁺; w/ RAS, hepatic impair CI: PRG, component sensitivity

Disp: Tabs 25, 50, 100 mg SE: ↓ BP in pts
Luliconazole

on diuretics; ↑ K⁺; GI upset, facial/angioedema, dizziness, cough, weakness, ↓ renal Fxn

**Loteprednol (Alrex, Lotemax)**  **Uses:** *Lotemax*: Steroid responsive inflammatory disorders of conjunctiva/cornea/anterior globe (keratitis, iritis, post-op); *Alrex*: seasonal allergic conjunctivitis  **Acts:** Anti-inflammatory/steroid  **Dose:** *Adults.*  
*Lotemax:* 1 drop conjunctival sac qid up to every h initially; *Alrex* 1 drop qid  **W/P:** [C, ?/–] glaucoma  **CI:** Viral Dz corneal and conjunctiva, varicella, mycobacterial and fungal Infxns; hypersens  **Disp:** *Lotemax* 0.5% susp, 2.5, 5, 10, 15 mL; *Alrex* 0.2% susp, 2.5, 5, 10 mL  **SE:** Glaucoma; ↑ risk Infxn; cornea/sclera thinning; HA, rhinitis  **Notes:** May delay cataract surg healing; avoid use > 10 d; shake before use

**Lovastatin (Altoprev, Mevacor)**  **Uses:** *Hypercholesterolemia to ↓ risk of MI, angina*  **Acts:** HMG-CoA reductase inhibit  **Dose:** *Adults.*  
20 mg/d PO w/ p.m. meal; may ↑ at 4-wk intervals to 80 mg/d max or 60 mg ER tab; take w/ meals. See pkg insert for dose limits w/ concurrent therapy (amiodarone, verapamil, diltiazem)  **Peds** 10–17 y (at least 1-y postmenarchal).  **Familial ↑ cholesterol:** 10 mg PO qd, ↑ q4wk PRN to 40 mg/d max (immediate release w/ p.m. meal)  **W/P:** [X, –] Avoid w/ grapefruit juice, gemfibrozil; use caution, carefully consider doses > 20 mg/d w/ renal impair  **CI:** Active liver Dz, PRG, lactation  **Disp:** Tabs generic 10, 20, 40 mg; *Mevacor* 20, 40 mg; *Altoprev* ER tabs 20, 40, 60 mg  **SE:** HA & GI intolerance common; promptly report any unexplained muscle pain, tenderness, or weakness (myopathy)  **Notes:** Maintain cholesterol-lowering diet; LFTs q12wk × 1 y, then q6mo; may alter TFT

**Lubiprostone (Amitiza)**  **Uses:** *Chronic idiopathic constipation in adults, IBS w/ constipation in females > 18 y*  **Acts:** Selective Cl⁻ channel activator; ↑ intestinal motility  **Dose:** *Adults.* Constipation: 24 mcg PO bid w/ food. *IBS:* 8 mcg bid; w/ food  **CI:** Mechanical GI obst  **W/P:** [C, ?/–] Severe D, ↓ dose mod–severe hepatic impair  **Disp:** Gelcaps 8, 24 mcg  **SE:** ET tube reflux/obstruction, pallor, bradycardia, oxygen desaturation, anemia, jaundice, metabolic/respiratory acidosis, hyperglycemia, ↓ Na, pneumonia, ↓ BP  **Notes:** Not approved in males; requires (–) PRG test before; use contraception; periodically reassess drug need; not for chronic use; may experience severe dyspnea w/in 1 h of dose, usually resolves w/in 3 h

**Lucinactant (Surfaxin)**  **Uses:** *Prevention of RDS*  **Acts:** Pulmonary surfactant  **Dose:** *Peds.* 5.8 mL/kg birth Wt intratracheally no more often than q6h; max 4 doses in first 48 h of life  **W/P:** [N/A, N/A] Frequent clinical assessments; interrupt w/ adverse Rxns and assess/stabilize infant; not for ARDS  **CI:** None  **Disp:** Susp 8.5 mL/vial  **SE:** ET tube reflux obstruction, pallor, bradycardia, oxygen desaturation, anemia, jaundice, metabolic/respiratory acidosis, hyperglycemia, ↓ Na, pneumonia, ↓ BP  **Notes:** Warm vial for 15 min; shake prior to use; discard if not used w/in 2 h of warming

**Luliconazole (Luzu)**  **Uses:** *Tinea pedis, tinea cruris, tinea corporis*  **Acts:** Azole antifungal, inhibits ergosterol synthesis  **Dose:** *Tinea pedis:* apply 1 ×/d for 2 wk; *tinea corporis, tinea cruris:* apply 1 ×/d for 1 wk  **W/P:** [C, ?/–]  **CI:** None  **Disp:** Cream, 1%; 30/60 gm  **SE:** Site reaction, rare
Lurasidone (Latuda) BOX: Elderly w/ dementia-related psychosis at ↑ death risk. Not approved for dementia-related psychosis Uses: *Schizophrenia* Acts: Atypical antipsychotic: central DA type 2 (D2) and serotonin type 2 (5HT2A) receptor antagonist Dose: 40–80 mg/d PO w/ food; 40 mg max w/ CrCl 10–49 mL/min OR mod–severe hepatic impair W/P: [B, −] CI: w/ Strong CYP3A4 inhib/inducer Disp: Tabs 20, 40, 80, 120 mg SE: Somnolence, agitation, tardive dyskinesia, akathisia, parkinsonism, stroke, TIAs, Ss, orthostatic hypotension, syncope, dysphagia, neuroleptic malignant syndrome, body temp dysregulation, N, ↑ Wt, type 2 DM, ↑ lipids, hyperprolactinemia, ↓ WBC Notes: w/ DM risk ✓ glucose

Lymphocyte Immune Globulin [Antithymocyte Globulin, ATG] (Atgam) BOX: Should only be used by physician experienced in immunosuppressive therapy or management of solid-organ and/or BMT pts. Adequate lab and supportive resources must be readily available Uses: *Allograft rejection in renal transplant pts; aplastic anemia if not candidates for BMT*, prevent rejection of other solid-organ transplants, GVHD after BMT Acts: ↓ Circulating antigen-reactive T lymphocytes; human, & equine product Dose: Adults. Prevent rejection: 15 mg/kg/d IV × 14 d, then q other day × 7 d for total 21 doses in 28 d; initial w/in 24 h before/after transplant. Rx rejection: Same but use 10–15 mg/kg/d; max 21 doses in 28 d, qd first 14 d. Aplastic anemia: 10–20 mg/kg/d × 8–14 d, then q other day × 7 doses for total 21 doses in 28 d. Peds. Prevent renal allograft rejection: 5–25 mg/kg/d IV; aplastic anemia 10–20 mg/kg/day IV 8–14 d then q other day for 7 more doses W/P: [C, ?/−] D/C if severe unremitting thrombocytopenia, leukopenia CI: Hx previous Rxn or Rxn to other equine γ-globulin prep, ↓ plt and WBC Disp: Inj 50 mg/mL SE: D/C w/ severe ↓ plt and WBC, rash, fever, chills, ↓ BP, HA, CP, edema, N/V/D, lightheadedness Notes: Test dose: 0.1 mL 1:1000 dilution in NS, a systemic Rxn precludes use; give via central line; pretreat w/ antipyretic, antihistamine, and steroids; monitor WBC, plt; plt counts usually return to nl w/o D/C Rx 4 h Inf

Macitentan (Opsumit) BOX: Do not use w/ PRG, may cause fetal harm; exclude PRG before and 1 mo after stopping; use contraception during and 1 mo past stopping; for females, only available through a restricted distribution program Uses: *Pulm hypertension to prevent progression* Acts: Endothelin receptor antag Dose: 10 mg 1 ×/d W/P: [X, −] May cause hepatic failure/toxicity; ↓ Hct; pulm edema w PE, ↓ sperm count CI: PRG Disp: Tab 10 mg SE: ↓ Hct, HA, UTI, influenza, bronchitis, nasopharyngitis, pharyngitis Notes: ✓ LFTs before and monitor; w/ PE D/C, may cause pulm edema; avoid w/ CYP3A4 inducers/inhibitors

Magaldrate/Simethicone (Riopan-Plus) [OTC] Uses: *Hyperacidity associated w/ peptic ulcer, gastritis, & hiatal hernia* Acts: Low-Na+ antacid Dose: 5–10 mL PO between meals & hs, on empty stomach W/P: [C, ?/+] CI: UC, diverticulitis, appendicitis, ileostomy/colostomy, renal Insuff (d/t Mg2+ content)
Disp: Susp magaldrate/simethicone 540/20 mg/5 mL (OTC) SE: ↑ Mg\(^{2+}\), ↓ PO\(_4\), white-flecked feces, constipation, N/V/D Notes: < 0.3 mg Na\(^{+}\)/tab or tsp

Magnesium Sulfate (Various) [OTC] Uses: *Replace low Mg\(^{2+}\); preeclampsia, eclampsia, & premature labor, cardiac arrest, AMI arrhythmias, cerebral edema, barium poisoning, Szs, pediatric acute nephritis*; refractory ↓ K\(^{+}\) & ↓ Ca\(^{2+}\) Acts: Mg\(^{2+}\) supl, bowel evacuation, ↓ acetylcholine in nerve terminals, ↓ rate of sinoatrial node firing Dose: Adults. 1 gm q6h IM × 4 doses & PRN 1–2 gm q3–6h IV then PRN to correct deficiency. Preeclampsia/premature labor: 4-g load then 1–2 g/h IV Inf. ECC 2010. VF/pulseless VT arrest w/ torsade de pointes: 1–2 g IV push (2–4 mL 50% soln) in 10 mL D5W. If pulse present, then 1–2 g in 50–100 mL D5W over 5–60 min. Peds & Neonates. 25–50 mg/kg/dose IV, repeat PRN; max 2 g single dose ECC 2010. Pulseless VT w/ torsades or hypomagnesemia: 25–50 mg/kg IV/IO bolus; max dose 2 g; Pulseless VT w/ torsades or hypomagnesemia: 25–50 mg/kg IV/IO over 10–20 min; max dose 2 g; Status asthmaticus: 25–50 mg/kg IV/IO over 15–30 min W/P: [A/C (manufacturer specific), +] w/ Neuromuscular Dz; interactions see Magnesium Oxide and aminoglycosides CI: Heart block, myocardial damage Disp: Premix Inj: 10, 20, 40, 80 mg/mL; Inj 125, 500 mg/mL; oral/topical powder
Mannitol, Inhalation

**Mannitol, Inhalation (Aridol)**

**BOX:** Powder for Inh; use may result in severe bronchospasm, testing only done by trained professionals

**Uses:** *Assess bronchial hyperresponsiveness in pts w/o clinically apparent asthma*

**Acts:** Bronchoconstrictor, ? mechanism

**Dose:** Adults, Peds > 6 y. Inhal caps ↑ dose (see disp) until + test (15% ↓ FEV1 or 10% ↓ FEV1 between consecutive doses) or all caps inhaled

**W/P:** [C, ?/M] Pt w/ comorbid cond that may ↑ effects

**CI:** Mannitol/gelatin hypersens

**Disp:** Dry powder caps graduated doses: 0, 5, 10, 20, 40 mg

**SE:** HA, pharyngeal pain, irritation, N, cough, rhinorrhea, dyspnea, chest discomfort, wheezing, retching, dizziness

**Notes:** Not a stand-alone test or screening test for asthma

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Mannitol, Intravenous (Generic)

**Uses:** *Cerebral edema, ↑ IOP, renal impair, poisonings*

**Acts:** Osmotic diuretic

**Dose:** Test dose: 0.2 g/kg/dose IV over 3–5 min; if no diuresis w/in 2 h, D/C. Oliguria: 50–100 g IV over 90 min ↑ IOP: 0.25–2 g/kg IV over 30 min. Cerebral edema: 0.25–1.5 g/kg/dose IV q6–8h PRN, maintain serum osmolarity < 300–320 mOsm/kg

**W/P:** [C, ?/M] w/ CHF or vol overload, w/ nephrotoxic drugs & lithium

**CI:** Anuria, dehydration, heart failure, PE intracranial bleeding

**Disp:** Inj 5, 10, 15, 20, 25%

**SE:** May exacerbate CHF, N/V/D, ↓/↑ BP, ↑ HR

**Notes:** Monitor for vol depletion

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Maraviroc (Selzentry)

**BOX:** Possible drug-induced hepatotox

**Uses:** *Tx of CCR5-tropic HIV Infxn*

**Acts:** Antiretroviral, CCR5 coreceptor antagonist

**Dose:** 300 mg bid

**W/P:** [B, –] w/ Concomitant CYP3A inducers/inhib and ↓ renal function, caution in mild–mod hepatic impair

**CI:** Pts w/ severe renal impairment/ESRD taking potent CXP3A4 inhib/inducer

**Disp:** Tab 150, 300 mg

**SE:** Fever, URI, cough, rash; HIV attaches to the CCR5 receptor to infect CD4+ T cells

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Measles/Mumps/Rubella Vaccine Live (MMR) (M-M-R II)

**Uses:** *Vaccination against measles, mumps, & rubella 12 mo and older*

**Acts:** Active immunization, live attenuated viruses

**Dose:** 1 (0.5-mL) SQ Inj, 1st dose 12 mo 2nd dose 4–6 y, at least 3 mo between doses (28 d if > 12 y), adults born after 1957 unless CI, Hx measles & mumps or documented immunity and childbearing age women w/ rubella immunity documented

**W/P:** [C, ?/M] Hx of cerebral injury, Szs, fam Hx Szs (febrile Rxn), ↓ plt

**CI:** Component and gelatin sensitivity, Hx anaphylaxis to neomycin, blood dyscrasia, lymphoma, leukemia, malignant neoplasias affecting BM, immunosuppression, fever, PRG, Hx of active untreated TB

**Disp:** Inj, single dose

**SE:** Fever, febrile Szs (5–12 d after vaccination), Inj site Rxn, rash, ↓ plt

**Notes:** Per FDA, CDC ↑ of febrile Sz (2×) w/ MMRV vs MMR and varicella separately; preferable to use 2 separate vaccines; allow 1 mo between Inj & any other measles vaccine or 3 mo between any other varicella vaccine; limited avail of MMRV; avoid those who have not been exposed to varicella for 6 wk post-Inj; may contain albumin or trace egg antigen; avoid salicylates for 6 wk
Mechlorethamine Gel

postvaccination; avoid PRG for 3 mo following vaccination; do not give w/in 3 mo of transfusion or immune globulin

**Measles/Mumps/Rubella/Varicella Virus Vaccine Live [MMRV] (ProQuad)**  
**Uses:** Vaccination against measles, mumps, rubella, & varicella  
**Acts:** Active immunization, live attenuated viruses  
**Dose:** 1 (0.5-mL) vial SQ Inj  
12 mo–12 y or for 2nd dose of measles, mumps, & rubella (MMR)*, at least 3 mo between doses (28 d if > 12 y)  
**W/P:** [C, ?/M] Hx of cerebral injury or Szs & fam Hx Szs (febrile Rxn), ↓ plt  
**CI:** Component and gelatin sensitivity, Hx anaphylaxis to neomycin, blood dyscrasia, lymphoma, leukemia, malignant neoplasias affecting BM, immunosuppression, fever, active untreated TB, PRG  
**Disp:** Inj  
**SE:** Fever, febrile Szs, (5–12 d after vaccination), Inj site Rxn, rash, ↓ plt, Notes: Per FDA, CDC ↑ of febrile Szs (2 × risk) w/ combo vaccine (MMRV) vs MMR and varicella separately; preferable to use 2 separate vaccines; allow 1 mo between Inj & any other measles vaccine or 3 mo between any other varicella vaccine; limited avail of MMRV; substitute MMR II and/or Varivax; avoid those not been exposed to varicella for 6 wk post-Inj; may contain albumin or trace egg antigen; avoid salicylates

**Mecasermin (Increlex, Iplex)**  
**Uses:** Growth failure in severe primary IGF-1 deficiency or human growth hormone (HGH) antibodies*  
**Acts:** Human IGF-1 (recombinant DNA origin)  
**Dose:** Peds. Increlex ≥ 2 y 0.04–0.08 mg/kg SQ bid; may ↑ by 0.04 mg/kg per dose to 0.12 mg/kg bid; take w/in 20 min of meal d/t insulin-like hypoglycemic effect; Iplex ≥ 3 y 0.5 mg/kg once daily ↑ to 1–2 mg/kg/day hold if hypoglycemia  
**W/P:** [C, ?/M] Contains benzyl alcohol  
**CI:** Closed epiphysis, neoplasia, not for IV  
**Disp:** Vial 10 mg/mL (40 mL)  
**SE:** Tonsillar hypertrophy, ↑ AST, ↑ LDH, HA, Inj site Rxn, V, hypoglycemia  
**Notes:** Rapid dose ↑ may cause hypoglycemia; initial funduscopic exam and during Tx; consider monitoring glucose until dose stable; limited distribution; rotate Inj site

**Mechlorethamine (Mustargen)**  
**BOX:** Highly toxic, handle w/ care, limit use to experienced physicians; avoid exposure during PRG; vesicant  
**Uses:** Hodgkin Dz (stages III, IV), cutaneous T-cell lymphoma (mycosis fungoides), lung CA, CML, malignant pleural effusions, CLL, polycythemia vera*, psoriasis  
**Acts:** Alkylating agent, nitrogen analog of sulfur mustard  
**Dose:** Per protocol; 0.4 mg/kg single dose or 0.1 mg/kg/d for 4 d, or 0.2 mg/kg/d for 2 d, repeat at 4- to 6-wk intervals; MOPP: 6 mg/m² IV on days 1 & 8 of 28-d cycle; Intracavitary: 0.2–0.4 mg/kg × 1, may repeat PRN; Topical: 0.01–0.02% soln, lotion, oint  
**W/P:** [D, ?/–] Severe myelosuppression  
**CI:** PRG, known infect Dz  
**Disp:** Inj 10 mg; topical soln, lotion, oint  
**SE:** ↓ BM, thrombosis, thrombophlebitis at site; tissue damage w/ extrav (Na thiosulfate used topically to Rx); N/V/D, skin rash/allergic dermatitis w/ contact, amenorrhea, sterility (especially in men), secondary leukemia if treated for Hodgkin Dz, chromosomal alterations, hepatotox, peripheral neuropathy  
**Notes:** Highly volatile and emetogenic; give w/in 30–60 min of prep

**Mechlorethamine Gel (Valchlor)**  
**Uses:** Stage 1A and 1B mycosis fungoides-type cutaneous T-cell lymphoma*  
**Acts:** Alkylating agent  
**Dose:** Apply
Meclizine

thin film daily, if skin ulceration/blistering or mod dermatitis, D/C; w/ improvement, restart w/ ↓ dose to q3d; must be refrigerated, apply w/in 30 min, apply to dry skin and no shower for 4 h or wait 30 min after shower to apply W/P: [D, –] Mucosal injury may be severe; w/ eye contact irrigate immediately × 15 min and seek consultation, may cause blindness; dermatitis including blisters, swelling, pruritus, redness, ulceration; caregivers/others must avoid skin contact w/ pt; non-melanoma skin Ca risk; flammable CI: Hypersensitivity Disp: Gel 60-gm tube SE: Dermatitis, pruritus, skin/ulceration/blistering/hyperpigmentation/skin Infxn Notes: Caregivers must wear disposable nitrile gloves and wash hands thoroughly

Meclizine (Antivert, Generic) (Dramamine [OTC]) Uses: *Motion sickness, vertigo* Acts: Antiemetic, anticholinergic, & antihistaminic properties Dose: Adults & Peds > 12 y. Motion sickness: 12.5–25 mg PO 1 h before travel, repeat PRN q12–24h. Vertigo: 25–100 mg/d ÷ doses W/P: [B, ?/−] NAG, BPH, BOO, elderly, asthma Disp: Tabs 12.5, 25, 50 mg; chew tabs 25 mg; caps 12.5 mg (OTC) SE: Drowsiness, xerostomia, blurred vision, thickens bronchial secretions

Medroxyprogesterone (Provera, Depo-Provera, Depo-Sub Q Provera, Generic) BOX: Do not use in the prevention of CV Dz or dementia; ↑ risk MI, stroke, breast CA, PE, & DVT in postmenopausal women (50–79 y). ↑ Dementia risk in postmenopausal women (≥ 65 y). Risk of sig bone loss; does not prevent against STD or HIV, long-term use > 2 y should be limited to situations where other birth control methods are inadequate Uses: *Contraception; secondary amenorrhea; endometrial CA, ↓ endometrial hyperplasia* AUB caused by hormonal imbalance Acts: Progestin supl Dose: Contraception: 150 mg IM q3mo depo or 104 mg SQ q3mo (depo SQ). Secondary amenorrhea: 5–10 mg/d PO for 5–10 d. AUB: 5–10 mg/d PO for 5–10 d beginning on the 16th or 21st d of menstrual cycle. Endometrial CA: 400–1000 mg/wk IM. Endometrial hyperplasia: 5–10 mg/d × 12–14 d on day 1 or 16 of cycle; ↓ in hepatic Insuff W/P: Provera [X, –] Depo Provera [X, +] CI: Thrombophlebitis/embolic disorders, cerebral apoplexy, severe hepatic dysfunction, CA breast/genital organs, undiagnosed Vag bleeding, missed Ab, PRG, as a diagnostic test for PRG Disp: Provera tabs 2.5, 5, 10 mg; depot Inj 150, 400 mg/mL; depo SQ Inj 104 mg/0.65 mL SE: Breakthrough bleeding, spotting, altered menstrual flow, breast tenderness, galactorrhea, depression, insomnia, jaundice, N, Wt gain, acne, hirsutism, vision changes Notes: Perform breast exam & Pap smear before contraceptive Rx; obtain PRG test if last Inj > 3 mo

Megestrol Acetate (Megace, Megace-ES, Generic) Uses: *Breast/ endometrial CAs; appetite stimulant in cachexia (CA & HIV)* Acts: Hormone; anti-leuteinizing; progesterone analog Dose: CA: 40–320 mg/d PO in ÷ doses. Appetite: 800 mg/d PO ÷ dose or Megace-ES 625 mg/d W/P: [D (tablet)/X (suspension), –] Thromboembolism; handle w/ care CI: PRG Disp: Tabs 20, 40 mg; susp 40 mg/mL, Megace-ES 125 mg/mL SE: DVT, edema, menstrual bleeding, photosens, N/V/D, HA, mastodynia, ↑ Ca, ↑ glucose, insomnia, rash, ↓ BM, ↑ BP, CP, palpitations,
Meningococcal Conjugate Vaccine

Notes: Do not D/C abruptly; Megace-ES not equivalent to others mg/mg; Megace-ES approved only for anorexia

Meloxicam (Mobic, Generic) BOX: May ↑ risk of CV events & GI bleeding; CI in postop CABG Uses: *OA, RA, JRA* Acts: NSAID w/ ↑ COX-2 activity Dose: Adults. 7.5–15 mg/d PO. Peds ≥ 2 y. 0.125 mg/kg/d, max 7.5 mg; ↓ in renal Insuff; take w/ food W/P: [C, D (3rd tri), ?/−] w/ Severe renal Insuff, CHF, ACE inhib, diuretics, Li2+, MTX, warfarin, ↑ K+ CI: Peptic ulcer, NSAID, or ASA sensitivity, PRG, postop CABG Disp: Tabs 7.5, 15 mg; susp. 7.5 mg/5 mL SE: HA, dizziness, GI upset, GI bleeding, edema, ↑ BP, renal impair, rash (SJS), ↑ LFTs

Melphalan [L-PAM] (Alkeran, Generic) BOX: Administer under the supervision of a qualified physician experienced in the use of chemotherapy; severe BM depression, leukemogenic, & mutagenic hypersens (including anaphylaxis in ~2%) Uses: *Multiple myeloma, ovarian CAs*, breast & testicular CA, melanoma; allogenic & ABMT (high dose), neuroblastoma, rhabdomyosarcoma Acts: Alkylating agent, nitrogen mustard Dose: Adults. Multiple myeloma: 16 mg/m² IV q2wk × 4 doses then at 4-wk intervals after tox resolves; w/ renal impair ↓ IV dose 50% or 6 mg PO qd × 2–3 wk, then D/C up to 4 wk, follow counts then 2 mg qd. Ovarian CA: 0.2 mg/kg qd × 5 d, repeat q4–5wk based on counts, ↓ in renal Insuff W/P: [D, ?/−] w/ Cisplatin, digitalis, live vaccines extravasation, need central line CI: Allergy or resistance Disp: Tabs 2 mg; Inj 50 mg SE: N/V, secondary malignancy, AF, ↓ LVEF, ↓ BM, secondary leukemia, alopecia, dermatitis, stomatitis, pulm fibrosis; rare allergic Rxns, thrombocytopenia Notes: Take PO on empty stomach, false(+) direct Coombs test

Memantine (Namenda) Uses: *Mod–severe Alzheimer Dz*, mild–mod vascular dementia, mild cognitive impair Acts: N-methyl-d-aspartate (NMDA) receptor antagonist Dose: Namenda: Target 20 mg/d, start 5 mg/d, ↑ 5–20 mg/d, wait > 1 wk before ↑ dose; use bid if > 5 mg/d. Vascular dementia: 10 mg PO bid; Namenda XR (Alzheimer) 7 mg initial 1× qd, ↑ by 7 mg /wk each week to maint 28 mg/d × 1; ↓ to 14 mg w/ severe renal impair W/P: [B, ?/m] Hepatic/mod renal impair; Sx disorders, cardiac Dz Disp: Namenda tabs 5, 10 mg, combo pack: 5 mg × 28 + 10 mg × 21; soln 2 mg/mL CI: Component hypersens SE: Dizziness, HA, D Notes: Renal clearance ↓ by alkaline urine (↓ 80% at pH 8)

Meningococcal Conjugate Vaccine [Quadrivalent, MCV4] (Menactra, Menevo) Uses: *Immunize against N. meningitidis (meningococcus) high-risk 2–10 and 19–55 y and everyone 11–18 y* high-risk (college freshmen, military recruits, travel to endemic areas, terminal complement deficiencies, asplenia); if given age 11–12 y, give booster at 16, should have booster w/in 5 y of college Acts: Active immunization; N. meningitidis A, C, Y, W-135 polysaccharide conjugated to diphtheria toxoid (Menactra) or lyophilized conjugate component (Menevo) Dose: Adults 18–55 y & Peds > 2 y. 0.5 mL 1M × 1 W/P: [B/C, (manufacturer dependent) ?/m] w/ Immunosuppression (↓ response) and
bleeding disorders, Hx Guillain-Barré CI: Allergy to class/diphtheria toxoid/compound/latex Disp: Inj SE: Inj site Rxns, HA, N/V/D, anorexia, fatigue, irritability, arthralgia, Guillain-Barré Notes: IM only, reported accidental SQ; keep epi available for Rxns; use polysaccharide Menomune (MPSV4) if > 55 y; do not confuse w/ Menactra, Menveo; ACIP rec: MCV4 for 2–55 y, ↑ local Rxn compared to Menomune (MPSV4) but ↑ Ab titers; peds 2–10, Ab levels ↓ 3 y w/ MPSV4, revaccinate in 2–3 y, use MCV4 revaccination

Meningococcal Groups C and Y and Haemophilus b Tetanus Toxoid Conjugate Vaccine (Menhibrix) Uses: *Prevent meningococcal Dz and Haemophilus influenzae type b (Hib) in infants/young children* Acts: Active immunization; antibodies specific to organisms Dose: Peds 6 wk–18 mo. 4 doses 0.5 mL IM at 2, 4, 6, and 12–15 mo W/P: [C, N/A] Apnea in some infants reported; w/ Hx Guillain Barré; fainting may occur CI: Severe allergy to similar vaccines Disp: Inj 40 mg/mL/vial SE: Inj pain, redness; irritability; drowsiness; ↓ appetite; fever Notes: New in 2012

Meningococcal Polysaccharide Vaccine [MPSV4] (Menomune A/C/Y/W-135) Uses: *Immunize against N. meningitidis (meningococcus)* in highrisk (college freshmen, military recruits, travel to endemic areas, terminal complement deficiencies, asplenia) Acts: Active immunization Dose: Adults & Peds > 2 y. 0.5 mL SQ only; Children < 2 y not recommended; 2 doses 3 mo apart may repeat in 3–5 y if high risk; repeat in 2–3 y if 1st dose given 2–4 y W/P: [C, ?/M] if immunocompromised (↓ response) CI: Thimerosal/latex sensitivity; w/ pertussis or typhoid vaccine, < 2 y Disp: Inj SE: Peds 2–10 y: Inj site Rxns, drowsiness, irritability 11–55 y: Inj site Rxns, HA, fatigue, malaise, fever, D Notes: Keep epi (1:1000) available for Rxns. Recommended > 55 y, but also alternative to MCV4 in 2–55 y if no MCV4 available (MCV4 is preferred). Active against serotypes A, C, Y, & W-135 but not group B; antibody levels ↓ 3 y; high risk: revaccination q3–5y (use MCV4)

Meperidine (Demerol, Meperitab, Generic) [C–II] Uses: *Mod–severe pain*, postoperative shivering, rigors from amphotericin B Acts: Narcotic analgesic Dose: Adults. 50–150 mg PO or IV/IM/SQ q3–4h PRN. Peds. 1–1.5 mg/kg/dose PO or IM/SQ q3–4h PRN, up to 100 mg/dose; hepatic impair, avoid in renal impair, avoid use in elderly W/P: [C, –] ↓ Sz threshold, adrenal Insuff, head injury, ↑ ICP, hepatic impair, not OK in sickle cell Dz CI: w/ MAOIs Disp: Tabs 50, 100 mg; syrup/soln 50 mg/5 mL; Inj 25, 50, 75, 100 mg/mL SE: Resp/CNS depression, Szs, sedation, constipation, ↓ BP, rash N/V, biliary and urethral spasms, dyspnea Notes: Analgesic effects potentiated w/ hydroxyzine; 75 mg IM = 10 mg morphine IM; not best in elderly; do not use oral for acute pain; not OK for repetitive use in ICU setting, naloxone does not reverse neurotox, used as analgesic, is not recommended, limit Tx to < 48 h

Meprobamate (Generic) [C-IV] Uses: *Short-term relief of anxiety* muscle spasm, TMJ relief Acts: Mild tranquilizer; antianxiety Dose: Adults. 400 mg PO tid-qid, max 2400 mg/d. Peds 6–12 y. 100–200 mg PO bid-tid; ↓ in renal
Impair W/P: [D, +/−] Elderly, Sz Dz, caution w/ depression or suicidal tendencies
Cl: Acute intermittent prophyria Disp: Tabs 200, 400 mg Se: Drowsiness, syncope, tachycardia, edema, rash (SJS), N/V/D, ↓ WBC, agranulocytosis Notes: Do not abruptly D/C

Mercaptopurine [6-MP] (Purinethol, Generic) Uses: *ALL* 2nd-line Rx for CML & NHL, maint ALL in children, immunosuppressant w/ autoimmune Dzs (Crohn Dz, UC) Acts: Antimetabolite, mimics hypoxanthine Dose: Adults. All induction: 1.5–2.5 mg/kg/d; maint 60 mg/m²/d w/ allopurinol use 67–75% ↓ dose of 6-MP (interference w/ xanthine oxidase metabolism). Peds. All induction: 1.5–2.5 mg/kg/d maint 1.5–2.5 mg/kg/d PO or 60 mg/m²/d w/ renal/hepatic Insuff; take on empty stomach W/P: [D, ?] w/ Allopurinol, immunosuppression, TMP-SMX, warfarin, salicylates, severe BM Dz, PRG CI: Prior resistance, PRG Disp: Tabs 50 mg Se: Mild hematotoxicity, mucositis, stomatitis, D, rash, fever, eosinophilia, jaundice, hep, hyperuricemia, hyperpigmentation, alopecia Notes: Handle properly; limit use to experienced physicians; ensure adequate hydration; for ALL, evening dosing may ↓ risk of relapse; low emetogenicity, TPMT deficiency ↑ immunosuppressive effect

Meropenem (Merrem, Generic) Uses: *Intra-Abd Infxns, bacterial meningitis* Acts: Carbapenem; ↓ cell wall synth. Spectrum: Excellent gram(+) (except MRSA, methicillin-resistant S. epidermidis [MRSE] & E. faecium); excellent gram(−) including extended-spectrum β-lactamase producers; good anaerobic Dose: Adults. Abd Infxn: 1–2 g IV q8h. Skin Infxn: 500 mg IV q8h. Meningitis: 2 g IV q8h. Peds > 3 mo, < 50 kg. Abd Infxn: 20 mg/kg IV q8h. Skin Infxn: 10 mg/kg IV q8h. Meningitis: 40 mg/kg IV q8h; Peds > 50 kg. Use adult dose; max 2 g IV q8h; ↓ in renal Insuff (see PI) W/P: [B, ?/M] w/ Probenecid, VPA CI: β-Lactam anaphylaxis Disp: Inj 1 g, 500 mg Se: Less Sz potential than imipenem; C. difficile enterocolitis, D, ↓ plt Notes: Overuse ↑ bacterial resistance

Mesalamine (Apriso, Asacol, Asacol HD, Canasa, Lialda, Pentasa, Rowasa, Generic) Uses: *Rectal: mild–mod distal UC, proctosigmoiditis, proctitis; oral: treat/maint of mild–mod ulcerative colitis* Acts: 5-ASA derivative, may inhibit prostaglandins, may ↓ leukotrienes and TNF-α Dose: Rectal: 60 mL qhs, retain 8 h (enema), PO: Caps: 1 g PO qid; tab: 1.6–2.4 g/d ↓ doses (tid-qid) × 6 wk; DR 2.4–4.8 g PO daily 8 wk max, do not cut/crush/chew w/ food; ↓ initial dose in elderly, maint: depends on formulation W/P: [B/C (product specific), M] w/ Digitalis, PUD, pyloric stenosis, renal Insuff, elderly CI: Salicylate sensitivity Disp: Tabs ER (Asacol) 400, (Asacol HD) 800 mg; ER caps (Pentasa) 250, 500 mg, (Apriso) 375 mg; DR tab (Lialda) 1.2 g; supp (Canasa) 1000 mg; (Rowasa) rectal susp 4 g/60 mL Se: Yellow-brown urine, HA, malaise, Abd pain, flatulence, rash, pancreatitis, pericarditis, dizziness, rectal pain, hair loss, intolerance synd (bloody D) Notes: Retain rectally 1–3 h; ✓ CBC, Cr, BUN; Sx may ↑ when starting
Mesna (Mesnex [Oral], Generic [Inf]) Uses: *Prevent hemorrhagic cystitis d/t ifosfamide or cyclophosphamide* Acts: Antidote, reacts w/ acrolein and other metabolites to form stable compounds Dose: Per protocol; dose as % of ifosfamide or cyclophosphamide dose. IV bolus: 20% (eg, 10–12 mg/kg) IV at 0, 4, & 8 h; IV Inf: 20% prechemotherapy, 40% w/ chemotherapy for 12–24 h; Oral: 100% ifosfamide dose given as 20% IV at hour 0 then 40% PO at hours 4 & 8; if PO dose vomited repeat or give dose IV; mix PO w/ juice W/P: [B; ?/−] CI: Thiol sensitivity Disp: Inj 100 mg/mL; (Mesnex) tabs 400 mg SE: ↓ BP, ↓ plt, ↑ HR, ↑ RR allergic Rxns, HA, GI upset, taste perversion Notes: Hydration helps ↓ hemorrhagic cystitis; higher dose for BMT; IV contains benzyl alcohol

Metaproterenol (Generic) Uses: *Asthma & reversible bronchospasm, COPD* Acts: Sympathomimetic bronchodilator Dose: Adults. Nebulized: 5% 2.5 mL q4–6h or PRN. MDI: 1–3 Inh q3–4h, 12 Inh max/24 h; wait 2 min between Inh. PO: 20 mg q6–8h. Peds ≥ 12 y. MDI: 2–3 Inh q3–4h, 12 Inh/d max. Nebulizer: 2.5 mL (soln 0.4, 0.6%) tid-qid, up to q4h. Peds > 9 y or ≥ 27 kg: 20 mg PO tid-qid; 6–9 y or < 27 kg: 10 mg PO tid-qid; ↓ in elderly W/P: [C, ?/−] w/ MAOI, TCA, sympathomimetics; avoid w/ β-blockers CI: Tachycardia, other arrhythmias Disp: Aerosol 0.65 mg/Inh; soln for Inh 0.4%, 0.6%; tabs 10, 20 mg; syrup 10 mg/5 mL SE: Nervousness, tremor, tachycardia, HTN, ↑ glucose, ↓ K+, ↑ IOP Notes: Fewer β₁ effects than isoproterenol & longer acting, but not a 1st-line β-agonist. Use w/ face mask < 4 y; oral ↑ ADR; contains ozone-depleting CFCs; will be gradually removed from US market

Metaxalone (Skelaxin) Uses: *Painful musculoskeletal conditions* Acts: Centrally acting skeletal muscle relaxant Dose: 800 mg PO tid-qid W/P: [C, ?/−] w/ Elderly, EtOH & CNS depression, anemia CI: Severe hepatic/renal impair; drug-induced, hemolytic, or other anemias Disp: Tabs 800 mg SE: N/V, HA, drowsiness, hep

Metformin (Fortmet, Glucophage, Glucophage XR, Glumetza, Riomet, Generic) BOX: Associated w/ lactic acidosis, risk ↑ w/ sepsis, dehydration, renal/hepatic impair, ↑ alcohol, acute CHF; Sxs include myalgias, malaise, resp distress, Abd pain, somnolence; Labs: ↓ pH, ↑ anion gap, ↑ blood lactate; D/C immediately & hospitalize if suspected Uses: *Type 2 DM*, polycystic ovary synd (PCOS), HIV lipodystrophy Acts: Biguanide; ↓ hepatic glucose production & intestinal absorption of glucose; ↑ insulin sensitivity Dose: Adults. Initial: 500 mg PO bid; or 850 mg daily, titrate 1- to 2-wk intervals may ↑ to 2550 mg/d max; take w/ a.m. & p.m. meals; can convert total daily dose to daily dose of XR. Peds 10–16 y. 500 mg PO bid, ↑ 500 mg/wk to 2000 mg/d max in + doses; do not use XR formulation in peds W/P: [B, +/−] Avoid EtOH; hold dose before & 48 h after ionic imaging contrast; hepatic impair, elderly CI: SCr ≥ 1.4 mg/dL in females or ≥ 1.5 mg/dL in males; hypoxemic conditions (eg, acute CHF/sepsis); metabolic acidosis, abnormal CrCl from any cause (AMI, shock) Disp: Tabs 500, 850, 1000 mg; XR
Methimazole

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tabs 500, 750, 1000 mg; (Riomet) soln 100 mg/mL SE: Anorexia, N/V/D, flatulence, weakness, myalgia, rash

**Methadone (Dolophine, Methadose, Generic) [C-II]**

BOX: Deaths reported during initiation and conversion of pain pts to methadone Rx from Rx w/ other opioids. For PO only; tabs contain excipient. Resp depression and QT prolongation, arrhythmias observed. Only dispensed by certified opioid Tx programs for addiction. Analgesic use must outweigh risks

**Uses:** *Severe pain not responsive to non-narcotics; detox w/ maint of narcotic addiction*

**Acts:** Narcotic analgesic

**Dose:**

**Adults.** 2.5 mg IM/IV/SQ q8–12h or PO q8h; titrate as needed; see PI for conversion from other opioids.

**Peds.** (Not FDA approved) 0.1 mg/kg q4–12h IV; ↑ slowly to avoid resp depression; ↓ in renal impair

**W/P:** [C, –] Avoid w/ severe liver Dz

**CI:** Resp depression, acute asthma, ileus w/ selegiline

**Disp:** Tabs 5, 10 mg; tab dispersible 40 mg; PO soln 5, 10 mg/5 mL; PO conc 10 mg/mL; Inj 10 mg/mL

**SE:** Resp depression, acute asthma, ileus w/ selegiline, ↓ K⁺, ↓ Mg²⁺

**Notes:** Parenteral:oral 1:2; equianalgesic w/ parenteral morphine; longer 1/2; resp depression occurs later and lasts longer than analgesic effect, use w/ caution to avoid iatrogenic OD

**Methenamine Hippurate (Hiprex), Methenamine Mandelate (Urex, Uroquid-Acid No. 2)**

**Uses:** *Suppress recurrent UTI long-term. Use only after Infxn cleared by antibiotics*

**Acts:** Converted to formaldehyde & ammonia in acidic urine; nonspecific bactericidal action

**Dose:** **Adults. Hippurate:** 1 g PO bid. **Mandelate:** initial 1 g qid PO pc & hs, maint 1–2 g/d. **Peds 6–12 y. Hippurate:** 0.5–1 g PO × bid. > 2 y: **Mandelate:** 50–75 mg/kg/d PO × qid; take w/ food, ascorbic acid w/ hydration

**W/P:** [C, +] Renal Insuff, severe hepatic Dz, & severe dehydration w/ sulfonamides (may precipitate in urine)

**Disp:** Methenamine hippurate: Tabs 1 g. Methenamine mandelate: 500 mg, 1 g EC tabs

**SE:** Rash, GI upset, dysuria, ↑ LFTs, super Infxn w/ prolonged use, *C. difficile*-associated diarrhea. **Notes:** Hippurate not indicated in peds < 6 y. Not for pts w/ indwelling catheters as dwell time in bladder required for action; “Urex” used internationally for many meds

**Methenamine, Phenyl Salicylate, Methylene Blue, Benzoic Acid, Hyoscyamine (Prosed)**

**Uses:** *Lower urinary tract discomfort*

**Acts:** Methenamine in acid urine releases formaldehyde (antiseptic), phenyl salicylate mild analgesic methylene blue/benzoic acid mild antiseptic, hyoscyamine parasympatholytic ↓ muscle spasm

**Dose:** **Adults Peds > 12 y.** 1 tab PO qid w/ liberal fluid intake.

**W/P:** [C, ?/] Avoid w/ sulfonamides, NAG, pyloric/duodenal obst, BOO, coronary artery spasm

**CI:** Component hypersens

**Disp:** Tabs

**SE:** Rash, dry mouth, flushing, ↑ pulse, dizziness, blurred vision, urine/feces discoloration, voiding difficulty/retention

**Notes:** Take w/ plenty of fluid, can cause crystalluria; not rec in peds ≤ 6 y

**Methimazole (Tapazole, Generic)**

**Uses:** *Hyperthyroidism, thyrotoxicosis*, prep for thyroid surgery or radiation

**Acts:** Blocks T₃ & T₄ formation, but does not inactivate circulating T₃, T₄

**Dose:** **Adults.** Initial based on severity: 15–60
Methocarbamol (Robaxin, Generic)

**Uses:** *Relief of discomfort associated w/ painful musculoskeletal conditions*

**Acts:** Centrally acting skeletal muscle relaxant

**Dose:**
- **Adults & Peds ≥ 16 y.** 1.5 g PO qid for 2–3 d, then use PO, max dose 24 g/d; < 16 y: 15 mg/kg/dose or 500 mg/m²/dose IV, may repeat PRN (tetanus only), max 1.8 g/m²/d × 3 d

**W/P:** Sz disorders, hepatic & renal impair [C, ?, M] CI: MyG, renal impair w/ IV

**Disp:** Tabs 500, 750 mg; Inj 100 mg/mL

**SE:** Can discolor urine, lightheadedness, drowsiness, GI upset, ↓ HR, ↓ BP

**Notes:** Tabs can be crushed and added to NG, do not operate heavy machinery; max rate IV = 3 mL/min

Methotrexate (Otrexup, Rheumatrex Dose Pack, Trexall, Generic)

**BOX:** Administration only by experienced physician; do not use in women of childbearing age unless absolutely necessary (teratogenic); impaired elimination w/ impaired renal Fxn, ascites, pleural effusion; severe ↓ BM w/ NSAIDs; hepatotoxic, occasionally fatal; can induce life-threatening pneumonitis; D and ulcerative stomatitis require D/C; lymphoma risk; may cause tumor lysis synd; can cause severe skin Rxn, opportunistic Infxns; w/ RT can ↑ tissue necrosis risk. Preservatives make this agent unsuitable for intrathecal IT or higher dose use

**Uses:** *ALL, AML, leukemic meningitis, trophoblastic tumors (choriocarcinoma, hydatidiform mole), breast, lung, head, & neck CAs, Burkitt lymphoma, mycosis fungoides, osteosarcoma, Hodgkin Dz & NHL, psoriasis; RA, JRA, SLE*

**Acts:** ↓ Dihydrofolate reductase-mediated prod of tetrahydrofolate, ↓ DNA synth

**Dose:**
- **Adults.** CA: Per protocol. RA: 7.5 mg/wk PO 1/wk or 2.5 mg q12h PO for 3 doses/wk. Psoriasis: 2.5–5 mg PO q12h × 3d/wk or 10–25 mg PO/IM qwk. Chronic: 15–25 mg IM/SQ qwk, then 15 mg/wk. Peds. JIA: 10 mg/m² PO/IM qwk, then 5–14 mg/m² × 1 or as 3 divided doses 12 h apart; ↓ elderly, w/ renal/hepatic impair W/P: [X, –] w/ Other nephro-/hepatotoxic meds, multiple interactions, w/ Sz, profound ↓ BM other than CA related CI: Severe renal/hepatic impair, PRG/lactation

**Disp:** Dose pack 2.5 mg in 8, 12, 16, 20, or 24 doses; tabs 2.5, 5, 7.5, 10, 15 mg; Inj 25 mg/mL; Inj powder 20 mg, 1 g; Otrexup: 10/15/20/25 mg per 0.4 mL weekly self-admin kit

**SE:** ↓ BM, N/V/D, anorexia, mucositis, hepatotoxic (transient & reversible; may progress to atrophy, necrosis, fibrosis, cirrhosis), rashes, dizziness, malaise, blurred vision, alopecia, photosens, renal failure, pneumonitis; rare pulm fibrosis; chemical arachnoiditis & HA w/ IT delivery

**Notes:** Monitor CBC, LFTs, Cr, MTX levels & CXR; “high dose” > 500 mg/m² requires leucovorin rescue to ↓ tox; w/ IT, use preservative-/alcohol-free soln; systemic levels: Therapeutic: > 0.01 micromole; Toxic: > 10 micromole over 24 h; administer Otrexup in abdomen or thigh SQ

**Methyldopa (Generic)**

**Uses:** *HTN*

**Acts:** Centrally acting antihypertensive, ↓ sympathetic outflow

**Dose:** **Adults.** 250–500 mg PO bid-tid (max 2–3 g/d)
Methylphenidate, Oral

201 or 250 mg–1 g IV q6–8h. **Peds Neonates.** 2.5–5 mg/kg PO/IV q8h. **Other peds.** 10 mg/kg/24 h PO in 2–3 × doses or 5–10 mg/kg/dose IV q6–8h to max 65 mg/kg/24 h; ↓ in renal Insuff/elderly **W/P:** [B, +] **CI:** Liver Dz, w/ MAOIs, bisulfate allergy **Disp:** Tabs 250, 500 mg; Inj 50 mg/mL **SE:** Initial transient sedation/drowsiness, edema, hemolytic anemia, hepatic disorders, fevers, nightmares **Notes:** Tolerance may occur, false(+) Coombs test; often considered DOC for PRG

**Methylene Blue (Urolene Blue, Various)** **Uses:** *Methemoglobinemia, vasoplegic synd, ifosfamide-induced encephalopathy, cyanide poisoning, dye in therapeutics/diagnosis* **Acts:** Low IV dose converts methemoglobin to hemoglobin; excreted, appears in urine as green/green-blue color; MAOI activity **Dose:** 1–2 mg/kg or 25–50 mg/m² IV over 5–10 min, repeat q1h; direct instillation into fistulous tract **W/P:** [X, –] w/ Severe renal impair w/ psych meds such as SSRI, SNRI, TCAs (may cause serotonin synd), w/ G6PD deficiency **CI:** Intra spinal Inj, severe renal Insuff **Disp:** 1, 10 mL **SE:** IV use: N, Abd, CP, sweating, fecal/urine discoloration, hemolytic anemia **Notes:** Component of other medications; stains tissue blue, limits repeat use in surgical visualization

**Methylergonovine (Methergine)** **Uses:** *Postpartum bleeding (atony, hemorrhage)* **Acts:** Ergotamine derivative, rapid and sustained uterotonie effect **Dose:** 0.2 mg IM after anterior shoulder delivery or puerperium, may repeat in 2- to 4-h intervals or 0.2–0.4 mg PO q6–12h for 2–7 d **W/P:** [C, ?] w/ Sepsis, obliterative vascular Dz, hepatic/renal impair, w/ CYP3A4 inhib (Table 10, p 346) **CI:** HTN, PRG, toxemia **Disp:** Inj 0.2 mg/mL; tabs 0.2 mg **SE:** HTN, N/V, CP, ↓ BP, Sz **Notes:** Give IV only if absolutely necessary over > 1 min w/ BP monitoring

**Methylnaltrexone Bromide (Relistor)** **Uses:** *Opioid-induced constipation in pt w/ advanced illness such as CA* **Acts:** Peripheral opioid antagonist **Dose:** **Adults.** Wt-based < 38 kg: 0.15 mg/kg SQ; 38–61 kg: 8 mg SQ; 62–114 kg: 12 mg SQ >114 kg: 0.15 mg/kg, round to nearest 0.1 mL, dose q other day PRN, max 1 dose q24h **W/P:** [B, ?/M] w/ CrCl < 30 mL/min ↓ dose 50% **Disp:** Inj 12 mg/0.6 mL **SE:** N/D, Abd pain, dizziness **Notes:** Does not affect opioid analgesic effects or induce withdrawal

**Methylphenidate, Oral (Concerta, Metadate CD, Metadate SR, Methylin, Ritalin, Ritalin LA, Ritalin SR, Quillivant XR) [C-II]** **Uses:** w/ Hx of drug or alcohol dependence, avoid abrupt D/C; chronic use can lead to dependence or psychotic behavior; observe closely during withdrawal of drug **Uses:** *ADHD, narcolepsy*, depression **Acts:** CNS stimulant, blocks reuptake of norepinephrine and DA **Dose:** **Adults.** **Depression:** 10 mg PO 2–3×/d, 60 mg/d max. **Adults & Peds > 6 y. ADHD:** IR: 5 mg PO bid, ↑ 5–10 to 60 mg/d, max (2 mg/kg/d), ER SR use total IR dose qd. CD/LA 20 mg PO qd, ↑ 10–20 mg qwk to 60 mg/d max. **Concerta:** 18 mg PO q a.m. Rx naïve or already on 20 mg/d, 36 mg PO q a.m. if on 30–45 mg/d, 54 mg PO q a.m. if on 40–60 mg/d, 72 mg PO q a.m.
Methylphenidate, Transdermal

W/P: [C, M] w/ Hx EtOH/drug abuse, CV Dz, HTN, bipolar Dz, Sz; separate from MAOIs by 14 d
Disp: Chew tabs 2.5, 5, 10 mg; tabs scored IR (Ritalin) 5, 10, 20 mg; Caps ER (Ritalin LA) 10, 20, 30, 40 mg Caps ER (Metadate CD) 10, 20, 30, 40, 50, 60 mg (Methylin ER) 10, 20 mg. Tabs SR (Metadate SR, Ritalin SR) 20 mg; ER tabs (Concerta) 18, 27, 36, 54 mg. Oral soln 5, 10 mg/5 mL; (QuilliVant XR) ER Susp 5 mg/mL
SE: CV/CNS stimulation, growth retard, GI upset, pancytopenia, ↑ LFTs, priapism
CI: Marked anxiety, tension, agitation, NAG, motor tics, family Hx or diagnosis of Tourette synd, severe HTN, angina, arrhythmias, CHF, recent MI, ↑ thyroid; w/ or w/in 14 d of MAOI
Notes: See also transdermal form; titrate dose; take 30–45 min ac; do not chew or crush; Concerta “ghost tablet” in stool, avoid w/ GI narrowing; Metadate contains sucrose, avoid w/ lactose/galactose problems. Do not use these meds w/ halogenated anesthetics; abuse and diversion concerns; AHA rec: all ADHD peds need CV assessment and consideration for ECG before Rx

Methylphenidate, Transdermal (Daytrana) [C-II]
BOX: w/ Hx of drug or alcohol dependence; chronic use can lead to dependence or psychotic behavior; observe closely during withdrawal of drug
Uses: *ADHD in children 6–17 y*
Acts: CNS stimulant, blocks uptake of norepinephrine and DA
Dose: Adults & Peds 6–17 y. Apply to hip in a.m. (2 h before desired effect), remove 9 h later; titrate 1st wk 10 mg/9 h, 2nd wk 15 mg/9 h, 3rd wk 20 mg/9 h, 4th wk 30 mg/9 h
W/P: [C, +/−] See methylphenidate, oral; sensitization may preclude subsequent use of oral forms; abuse and diversion concerns
CI: Significant anxiety, agitation; component allergy; glaucoma; w/ or w/in 14 d of MAOI; tics or family Hx Tourette synd
Disp: Patches 10, 15, 20, 30 mg
SE: Local Rxns, N/V , nasopharyngitis, ↓ Wt, ↓ appetite, lability, insomnia, tic, priapism
Notes: Titrate dose weekly; effects last hours after removal; evaluate BP, HR at baseline and periodically; avoid heat exposure to patch, may cause OD, AHA rec: all ADHD peds need CV assessment and consideration for ECG before Rx

Methylprednisolone (A-Methapred, Depo-Medrol, Medrol, Medrol Dosepak, Solu-Medrol, Generic) [See Steroids, p 272 and Table 2 & 3 pp 320 & 322]
Uses: *Steroid responsive conditions (endocrine, rheumatic, collagen, dermatologic, allergic, ophthalmic, respiratory, hematologic, neoplastic, edematous, GI, CNS, others)*
Acts: Glucocorticoid
Dose: See Steroids
Peds. ECC 2010.
Status asthmaticus, anaphylactic shock: 2 mg/kg IV/IO/IM (max 60 mg). Maint: 0.5 mg/kg IV q6h or 1 mg/kg q12h to 120 mg/d
W/P: [C, ?/M] may mask Infx, cataract w/ prolonged use; avoid vaccines
CI: Fungal Infx, component allergy
Disp: Oral (Medrol) 4, 8, 16, 32 mg, (Medrol Dosepak) 21 4-mg tabs taken over 6 d; Inj acetate (Depo-Medrol) 20, 40, 80 mg/mL; Inj succinate (Solu-Medrol) 40, 125, 500 mg, 1, 2 g
SE: Fluid and electrolyte disturbances, muscle weakness/loss, ulcers, impaired wound healing, others (see label)
Notes: Taper dose to avoid adrenal Insuff

Metoclopramide (Metozolv, Reglan, Generic)
BOX: Chronic use may cause tardive dyskinesia; D/C if Sxs develop; avoid prolonged use (> 12 wk)
Uses:
Metoprolol Succinate

*Diabetic gastroparesis, symptomatic GERD; chemo & postop N/V, facilitate small-bowel intubation & upper GI radiologic exam*. *GERD, diabetic gastroparesis (Metozolv) stimulate gut in prolonged postop ileus*. **Acts:** ↑ Upper GI motility; blocks dopamine in chemoreceptor trigger zone, sensitized tissues to ACH  

**Dose:** Adults. **Gastroparesis (Reglan):** 10 mg PO 30 min ac & hs for 2–8 wk PRN, or same dose IM/IV for 10 d, then PO. **Reflux:** 10–15 mg PO 30 min ac & hs. **Chemotherapy antiemetic:** 1–2 mg/kg/dose IV 30 min before chemo, then q2h × 2 doses, then q3h × 3 doses. **Postop:** 10–20 mg IV/IM q4–6h PRN. **Adults & Peds > 14 y. Intestinal intubation:** 10 mg IV × 1 over 1–2 min **Peds. Reflux:** 0.1–0.2 mg/kg/dose IV 30 min ac & hs.  

**Chemotherapy antiemetic:** 1–2 mg/kg/dose IV as adults. **Postop:** 0.25 mg/kg IV q6–8h PRN. **Peds. Intestinal intubation:** 6–14 y: 2.5–5 mg IV × 1 over 1–2 min; < 6 y: Use 0.1 mg/kg IV × 1  

**WP:** [B, M] Drugs w/ extrapyramidal ADRs, MAOIs, TCAs, sympathomimetics **CI:** w/ EPS meds, GI bleeding, pheochromocytoma, Sz disorders, GI obst  

**Disp:** Tabs 5, 10 mg; syrup 5 mg/5 mL; ODT (Metozolv) 5, 10 mg; Inj 5 mg/mL  

**SE:** Dystonic Rxs common w/ high doses (Rx w/ IV diphenhydramine), fluid retention, restlessness, D, drowsiness  

**Notes:** ↓ w/ Renal impair/elderly; ✓ baseline Cr  

**Metolazone (Zaroxolyn, Generic)**  

*Uses:* Mild–mod essential HTN & edema of renal Dz or cardiac failure* **Acts:** Thiazide-like diuretic; ↓ distal tubule Na reabsorption  

**Dose:** **HTN:** 2.5–5 mg/d PO qd **Edema:** 2.5–20 mg/d PO.  

**WP:** [B, –] Avoid w/ Li, gout, digitalis, SLE, many interactions **CI:** Anuria, hepatic coma or precoma  

**Disp:** Tabs 2.5, 5, 10 mg  

**SE:** Monitor fluid/lytes; dizziness, ↓ BP, ↓ K⁺, ↑ HR, ↑ uric acid, CP, photosens  

**Metoprolol Succinate (Toprol XL, Generic), Metoprolol Tartrate (Lopressor, Generic)**  

**BOX:** Do not acutely stop Rx as marked worsening of angina can result; taper over 1–2 wk  

**Uses:** *HTN, angina, AMI, CHF (XL form)*  

**Acts:** β₁-Adrenergic receptor blocker  

**Dose:** **Adults. Angina:** 50–200 mg PO bid max 400 mg/d; ER form dose qd. **HTN:** 50–200 mg PO bid max 450 mg/d, ER form dose qd. **AMI:** 5 mg IV q2min × 3 doses, then 50 mg PO q6h × 48 h, then 100 mg PO bid. **CHF:** (XL form preferred) 12.5–25 mg/d PO × 2 wk, ↑ 2-wk intervals, target: 200 mg max, use low dose w/ greatest severity; **ECC 2010. AMI:** 5 mg slow IV q5min, total 15 mg; then 50 mg PO, titrate to effect. **Peds 1–17 y. HTN** IR form 1–2 mg/kg/d PO, max 6 mg/kg/d (200 mg/d). ≥ 6 y: **HTN** ER form 1 mg/kg/d PO, initial max 50 mg/d, ↑ PRN to 2 mg/kg/d max; ↓ w/ hepatic failure; take w/ meals  

**WP:** [C, M] Uncompensated CHF, ↓ HR, heart block, hepatic impair, MyG, PVD, Raynaud, thyrotoxicosis **CI:** For HTN/angina SSS (unless paced), severe PVD, cardiogenic shock, severe PAD, 2nd-, 3rd-H block, pheochromocytoma. For MI sinus brady < 45 BPM, 1st-degree block (PR > 0.24 s), 2nd-, 3rd-degree block, SBP < 100 mm Hg, severe CHF, cardiogenic shock **Disp:** Tabs 25, 50, 100 mg; ER tabs 25, 50, 100, 200 mg; Inj 1 mg/mL  

**SE:** Drowsiness, insomnia, ED, ↓ HR, bronchospasm  

**Notes:** IR:ER 1:1 daily dose but ER/XL is qd. OK to split XL tab but do not crush/chew
**Metronidazole (Flagyl, Flagyl ER, MetroCream, MetroGel, MetroLotion)**

**BOX:** Carcinogenic in rats

**Uses:** *Bone/joint, endocarditis, intra-Abd, meningitis, & skin Infxns; amebiasis & amebic liver abscess; trichomoniasis in pt and partner; bacterial vaginosis; PID; giardiasis; antibiotic associated pseudomembranous colitis (C. difficile), eradicate H. pylori w/ combo Rx, rosacea, prophylactic in postop colorectal surgery*

**Acts:** Interferes w/ DNA synth.

**Spectrum:** Excellent anaerobic, C. difficile

**Dose:** **Adults.** Anaerobic Infxns: 500 mg IV q6–8h. Amebic dysentery: 500–750 mg/d PO q8h × 5–10 d. Trichomonas: 250 mg PO tid for 7 d or 2 g PO × 1 (Rx partner). C. difficile: 500 mg PO or IV q8h for 7–10 d (PO preferred; IV only if pt NPO), if no response, change to PO vancomycin. Vaginosis: 1 applicator intravag qd or bid × 5 d, or 500 mg PO bid × 7 d or 750 mg PO qd × 7 d. Acne rosacea/skin: Apply bid. Giardia: 500 mg PO bid × 5–7 d. H. pylori: 250–500 mg PO w/ meals & hs × 14 d, combine w/ other antibiotic & a proton pump inhib or H₂ antagonist. Peds. Anaerobic Infxns: PO: 15–35 mg/kg/d ÷ q8h IV: 30 mg/kg IV/d ÷ q6H, 4 g/d max ÷ dose. Amebic dysentery: 35–50 mg/kg/24 h PO in 3 ÷ doses for 5–10 d; Trichomonas: 15–30 mg/kg/d PO ÷ q8h × 7 d. C. difficile: 30 mg/kg/d PO ÷ q6H × 10 d, max 2 g/d; ↓ w/ severe hepatic/renal impair

**W/P:** [B, −] Avoid EtOH, w/ warfarin, CYP3A4 substrates (Table 10, p 346), ↑ Li levels

**CI:** 1st tri of PRG

**Disp:** Tabs 250, 500 mg; ER tabs 750 mg; caps 375 mg; IV 500 mg/100 mL; lotion 0.75%; gel 0.75, 1%; intravag gel 0.75% (5 g/applicator 37.5 mg in 70-g tube), cream 0.75, 1%

**SE:** Dizziness, HA, GI upset, anorexia, urine discoloration, flushing, metallic taste

**Notes:** For trichomoniasis, Rx pt’s partner; no aerobic bacteria activity; use in combo w/ serious mixed Infxns; wait 24 h after 1st dose to breast-feed or 48 h if extended Rx, take ER on empty stomach

**Mexiletine (Generic)**

**BOX:** Mortality risks noted for flecainide and/or encainide (class I antiarrhythmics). Reserve for use in pts w/ life-threatening ventricular arrhythmias

**Uses:** *Suppress symptomatic vent arrhythmias* DN

**Acts:** Class Ib antiarrhythmic (Table 9, p 345)

**Dose:** **Adults.** 200–300 mg PO q8h. Initial 200 mg q8h, can load w/ 400 mg if needed, ↑ q2–3d, 1200 mg/d max, ↓ dose w/ hepatic impairment or CHF, administer ATC & w/ food

**W/P:** [C, +] CHF, may worsen severe arrhythmias; interacts w/ hepatic inducers & suppressors

**CI:** Cardiogenic shock or 2nd-/3rd-degree AV block w/o pacemaker

**Disp:** Caps 150, 200, 250 mg

**SE:** Lightheadedness, dizziness, anxiety, incoordination, GI upset, ataxia, hepatic damage, blood dyscrasias, PVCs, N/V, tremor

**Notes:** ✓ LFTs, CBC, false(+) ANA

**Micafungin (Mycamine)**

**Uses:** *Candidemia, acute dissese and esophageal candidiasis, Candida peritonitis & abscesses; prophylaxis Candida Infxn w/ HSCT*

**Acts:** Echinocandin; ↓ fungal cell wall synth

**Dose:** Candidemia, acute disseminated candidiasis, Candida peritonitis & abscesses: 100 mg IV daily; Esophageal candidiasis: 150 mg IV daily; Prophylaxis of Candida Infxn: 50 mg IV daily over 1 h

**W/P:** [C, ?/–] Sirolimus, nifedipine, itraconazole dosage adj may be necessary

**CI:** Component or other echinocandin allergy

**Disp:** Inj 50, 100 mg
Midodrine 205

Midodrine

vials SE: N/V/D, HA, pyrexia, Abd pain, ↓ K⁺, ↓ plt, histamine Sxs (rash, pruritus, facial swelling, vasodilatation), anaphylaxis, anaphylactoid Rxn, hemolysis, hemolytic anemia, ↑ LFTs, hepatotoxic, renal impair

**Miconazole (Monistat 1 Combo, Monistat 3, Monistat 7) [OTC] (Monistat-Derm)**

**Uses:** *Candidal Infxns, dermatomycoses (tinea pedis/tinea cruris/tinea corporis/tinea versicolor/candidiasis)*

**Acts:** Azole antifungal, alters fungal membrane permeability

**Dose:** Intravag: 100 mg supp or 2% cream intravag qhs × 7 d or 200 mg supp or 4% cream intravag qhs × 3 d. **Derm:** Apply bid, a.m./p.m. **Tinea versicolor:** Apply qd. Treat tinea pedis and tinea corporis for 1 mo and other Infxns for 2 wk. **Peds ≥12 y.** 100 mg supp or 2% cream intravag qhs × 7 d or 200 mg supp or 4% cream intravag qhs × 3 d. Not for OTC use in children < 2 y

**W/P:** [C, ?] Azole sensitivity

**Disp:** Monistat-Derm: (Rx) Cream 2%; *Monistat 1 combo:* 2% cream w/ 1200 mg supp, Monistat 3: Vag cream 4%, supp 200 mg; Monistat 7: cream 2%, supp 100 mg; lotion 2%; powder 2%; effervescent tab 2%, oint 2%, spray 2%; Vag supp 100, 200, 1200 mg; Vag cream 2%, 4%; [OTC] SE: Vag burning; on skin contact dermatitis, irritation, burning

**Notes:** May interfere w/ condom and diaphragm, do not use w/ tampons

**Miconazole/Zinc Oxide/Petrolatum (Vusion)**

**Uses:** *Candidal diaper rash*

**Acts:** Combo antifungal

**Dose:** Peds ≥ 4 wk. Apply at each diaper change × 7 d

**W/P:** [C, ?] CI: None

**Disp:** Miconazole/zinc oxide/petrolatum oint 0.25/15/81.35%, 50-, 90-g tube

**SE:** None

**Notes:** Keep diaper dry, not for prevention

**Midazolam (Generic) [C-IV]**

**BOX:** Associated w/ resp depression and resp arrest especially when used for sedation in noncritical care settings. Reports of airway obst, desaturation, hypoxia, and apnea w/ other CNS depressants. Cont monitoring required; initial doses in elderly & debilitated should be conservative

**Uses:** *Preop sedation, conscious sedation for short procedures & mechanically ventilated pts, induction of general anesthesia*

**Acts:** Short-acting benzodiazepine

**Dose:**

- **Adults.** 1–5 mg IV or IM or 0.02–0.35 mg/kg based on indication; titrate to effect.
- **Peds. Preop:** > 6 mo: 0.5–0.75 mg/kg PO, 20 mg max. > 6 mo: 0.1–0.15 mg/kg IM × 1 max 10 mg. **General anesthesia:** 0.025–0.1 mg/kg IV q2min for 1–3 doses PRN to induce anesthesia (↓ in elderly, w/ narcotics or CNS depressants) **W/P:** [D, M] w/ CYP3A4 substrate (Table 10, p 346), multiple drug interactions CI: NAG; w/ fosamprenavir, atazanavir, nelfinavir, ritonavir, intrathecal/epidural Inj of parenteral forms. **Disp:** Inj 1, 5 mg/mL; syrup 2 mg/mL **SE:** Resp depression; ↓ BP w/ conscious sedation, N **Notes:** Reversal w/ flumazenil; monitor for resp depression

**Midodrine (Proamatine)**

**BOX:** Indicated for pts for whom orthohypotension significantly impairs daily life despite standard care

**Uses:** *Tx orthostatic hypotension*

**Acts:** Vasopressor/antihypotensive; α₁-agonist

**Dose:** 10 mg PO tid when pt plans to be upright **W/P:** [C, ?] CI: Pheochromocytoma, renal Dz, thyrotoxicosis, severe heart Dz, urinary retention, supine HTN **Disp:** Tabs 2.5, 5, 10 mg

**SE:** Supine HTN, paresthesia, urinary retention **Notes:** SBP ≥ 200 mm Hg in ~13% pts given 10 mg
**Mifepristone (Korlym)**

**BOX:** Antiprogestational; can cause termination of PRG. Exclude PRG before use or Rx is interrupted for > 14 d in ♀ of reproductive potential

**Uses:** *Control hyperglycemia w/ Cushing synd and type 2 DM in nonsurgical or failed surgical candidates*

**Acts:** Antiprogestin; glucocorticoid receptor blocker

**Dose:** Start 300 mg PO qd w/ meal, ↑ PRN 1200 mg/d max (20 mg/kg/d); mod renal hepatic impair 600 mg/d max

**W/P:** [X, −] Do not use w/ severe hepatic impair or w/ OCP; avoid w/ ↑ QT or drugs that ↑ QT; ✓ for adrenal insufficiency, ✓ K⁺; ✓ Vag bleed or w/ anticoagulants; caution w/ drugs metabolized by CYP3A, CYP2C8/2C9, CYP2B6 (eg, bupropion, efavirenz)

**CI:** PRG, w/ simvastatin, lovastatin, CYP3A substrates, long-term steroids, unexplained uterine bleed, endometrial hyperplasia/cancer

**Disp:** 300 mg tab

**SE:** N/V , fatigue, HA, ↓ K⁺, arthralgia, edema, ↑ BP, dizziness, ↓ appetite, endometrial hypertrophy

**Notes:** RU486 discontinued

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**Miglitol (Glyset)**

**Uses:** *Type 2 DM*

**Acts:** α-Glucosidase inhib; delays carbohydrate digestion

**Dose:** Initial 25 mg PO tid; maint 50–100 mg tid (w/ 1st bite of each meal), titrate over 4–8 wk

**W/P:** [B, −] w/ Digitalis & digestive enzymes, not rec w/ SCr > 2 mg/dL

**CI:** DKA, obstructive/inflammatory GI disorders; colonic ulceration

**Disp:** Tabs 25, 50, 100 mg

**SE:** Flatulence, D, Abd pain

**Notes:** Use alone or w/ sulfonylureas

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**Milnacipran (Savella)**

**BOX:** Antidepressants associated w/ ↑ risk of suicide ideation in children and young adults

**Uses:** *Fibromyalgia*

**Acts:** Antidepressant, SNRI

**Dose:** 50 mg PO bid, max 200 mg/d; ↓ to 25 mg bid w/ CrCl < 30 mL/min

**W/P:** [C, /?] Caution w/ hepatic impair, hepatox, serotonin syndrome, ↑ bleeding risk

**CI:** NAG, w/ recent MAOI

**Disp:** Tabs: 12.5, 25, 50, 100 mg

**SE:** HA, N/V , constipation, dizziness, ↑ HR, ↑ BP

**Notes:** Monitor HR and BP

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**Milrinone (Primacor)**

**Uses:** *CHF acutely decompensated*, Ca antagonist intoxication

**Acts:** Phosphodiesterase inhib, (+) inotrope & vasodilator; little chronotropic activity

**Dose:** 50 mcg/kg, IV over 10 min then 0.375–0.75 mcg/kg/min IV Inf; ↓ w/ renal impair

**W/P:** [C, ?] CI: Allergy to drug; w/ inamrinone

**Disp:** Inj 200 mcg/mL

**SE:** Arrhythmias, ↓ BP, HA

**Notes:** Monitor fluids, lytes, CBC, Mg²⁺, BP, HR; not for long-term use

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**Mineral Oil [OTC]**

**Uses:** *Constipation, bowel irritation, fecal impaction*

**Acts:** Lubricant laxative

**Dose:** Adults. *Constipation:* 15–45 mL PO/d PRN. *Fecal impaction or after barium:* 118 mL rectally × 1. *Peds > 6 y.* *Constipation:* 5–25 mL PO qd. 2–12 y: *Fecal impaction:* 59 mL rectally × 1. *W/P:* [?, ?] w/ N/V, difficulty swallowing, bedridden pts; may ↓ absorption of vits A, D, E, K, warfarin

**CI:** Colostomy/ileostomy, appendicitis, diverticulitis, UC

**Disp:** All [OTC] liq, PO microemulsion 2.5 mL/5 mL, rectal enema 118 mL

**SE:** Lipid pneumonia (aspiration of PO), N/V, temporary anal incontinence

**Notes:** Take PO upright, do not use PO in peds < 6 y

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**Mineral Oil/Pramoxine HCl/Zinc Oxide (Tucks Ointment [OTC])**

**Uses:** *Temporary relief of anorectal disorders (itching, etc)*

**Acts:**
Mipomersen

Topical anesthetic **Dose:** Adults & Peds ≥ 12 y. Cleanse, rinse, & dry, apply externally or into anal canal w/ tip 5x/d × 7 d max. **W/P:** [? ,?] Do not place into rectum

**CI:** None

**Disp:** Oint 1% 30-g tube

**SE:** Local irritation

**Notes:** D/C w/ or if rectal bleeding occurs or if condition worsens or does not improve w/in 7 d

Minocycline (Arestin, Dynacin, Minocin, Solodyn, Generic)

**Uses:** *Mod–severe nonnodular acne (Solodyn), anthrax, rickettsiae, skin Infxn, URI, UTI, nongonococcal urethritis, amebic dysentery, asymptomatic meningococcal carrier, Mycobacterium marinum, adjunct to dental scaling for periodontitis (Arestin)*

**Acts:** Tetracycline, bacteriostatic, ↓ protein synth

**Dose:** Adults & Peds > 12 y. *Usual:* 200 mg, then 100 mg q12h or 100–200 mg IV or PO, then 50 mg qid. *Gonococcal urethritis, men:* 100 mg q12h × 5 d. *Syphilis:* Usual dose × 10–15 d. *Meningococcal carrier:* 100 mg q12h × 5 d. *M. marinum:* 100 mg q12h × 6–8 wk. *Uncomp urethral, endocervical, or rectal Infxn:* 100 mg q12h × 7 d minimum. *Adults & Peds > 12 y. Acne:* (Solodyn) 1 mg/kg PO qd × 12 wk. > 8 y: 4 mg/kg initially then 2 mg/kg q12h w/ food to ↓ irritation, hydrate well, ↓ dose or extend interval w/ renal impair. **W/P:** [D, –] Associated w/ pseudomembranous colitis, w/ renal impair, may ↓ OCP, or w/ warfarin may ↑ INR

**CI:** Allergy, children < 8 y

**Disp:** Tabs 50, 75, 100 mg; tabs ER (Solodyn) 45, 65, 90, 115, 135 mg, caps (Minocin) 50, 100 mg, susp 50 mg/mL (Arestin) topical power

**SE:** D, HA, fever, rash, joint pain, fatigue, dizziness, photosens, hyperpigmentation, SLE synd, pseudotumor cerebri

**Notes:** Do not cut/crush/chew; keep away from children, tooth discoloration in < 8 y or w/ use last half of PRG

Minoxidil, Oral (Generic)

**Uses:** *Severe HTN*

**Acts:** Peripheral vasodilator

**Dose:** Adults & Peds > 12 y. 5 mg PO qd, titrate q3d, 100 mg/d max usual range 2.5–80 mg/d in 1–2 ÷ doses. *Peds.* 0.2–1 mg/kg/24 h ÷ PO q12–24h, titrate q3d, max 50 mg/d; ↓ w/ elderly, renal Insuff **W/P:** [C, –] Caution in renal impairment, CHF **CI:** Pheochromocytoma, component allergy

**Disp:** Tabs 2.5, 10 mg

**SE:** Pericardial effusion & vol overload w/ PO use; hypertrichosis w/ chronic use, edema, ECG changes, Wt gain

**Notes:** Avoid for 1 mo after MI

Minoxidil, Topical (Theroxidil, Rogaine) [OTC]

**Uses:** *Male & female pattern baldness*

**Acts:** Stimulates vertex hair growth

**Dose:** Apply 1 mL bid to area, D/C if no growth in 4 mo.

**W/P:** [? ,?] **CI:** Component allergy

**Disp:** Soln & aerosol foam

**SE:** Changes in hair color/texture

**Notes:** Requires chronic use to maintain hair

Mipomersen (Kynamro)

**BOX:** May cause pericardial effusion, occasional tamponade, and angina pectoris may be exacerbated. Only for nonresponders to max doses of 2 other antihypertensives and a diuretic. Administer under supervision w/ a β-blocker and diuretic. Monitor for ↓ BP in those receiving guanethidine w/ malignant HTN

**Uses:** *Severe HTN*

**Acts:** Peripheral vasodilator

**Dose:** Adults. 200 mg SQ, 1 × wk

**W/P:** [B, –] **CI:** Mod/severe liver Dz, unexplained ↑ ALT/AST

**Disp:** Single-use vial or
Mirabegron (Myrbetriq) **Uses:** *OAB*  
**Acts:** β-3 adrenergic agonist; relaxes smooth muscle  
**Dose:** **Adults.** 25 mg PO daily; ↑ to 50 mg daily after 8 wk PRN; 25 mg max daily w/ severe renal or mod hepatic impair; swallow whole  
**W/P:** [C, –] w/ Severe uncontrolled HTN; urinary retention w/ BOO & antimuscarinic drugs; w/ drugs metabolized by CYP2D6; do not use w/ ESRD or severe hepatic impair  
**CI:** None  
**Disp:** Tabs ER 25, 50 mg  
**SE:** HTN, HA, UTI, nasopharyngitis, N/D, constipation, Abd pain, dizziness, tachycardia, URI, arthralgia, fatigue

Mirtazapine (Remeron, Remeron SolTab, Generic) **BOX:** ↑ Risk of suicidal thinking and behavior in children, adolescents, and young adults w/ major depression and other psychological disorders. Not for peds  
**Uses:** *Depression*  
**Acts:** α₂-Antagonist antidepressant, ↑ norepinephrine & 5-HT  
**Dose:** 15 mg PO hs, up to 45 mg/d hs  
**W/P:** [C, M] Has anticholesterol effects, w/ Sz, clonidine, CNS depressant use, CYP1A2, CYP3A4 inducers/inhib w/ hepatic & renal impairment  
**CI:** MAOIs w/in 14 d  
**Disp:** Tabs 7.5, 15, 30, 45 mg; rapid dispersion tabs (SolTab) 15, 30, 45 mg  
**SE:** Somnolence, ↑ cholesterol, constipation, xerostomia, Wt gain, agranulocytosis, ↓ BP, edema, musculoskeletal pain  
**Notes:** Do not ↑ dose < q1–2wk; handle rapid tabs w/ dry hands, do not cut or chew; not FDA approved for Rx of bipolar depression; do not D/C abruptly

Misoprostol (Cytotec, Generic) **BOX:** Use in PRG can cause Ab, premature birth, or birth defects; do not use to ↓ decrease ulcer risk in women of childbearing age; must comply w/ birth control measures  
**Uses:** *Prevent NSAID-induced gastric ulcers; medical termination of PRG < 49 d w/ mifepristone*; induce labor (cervical ripening); incomplete & therapeutic Ab  
**Acts:** Prostaglandin (PGE-1); antisecretory & mucosal protection; induces uterine contractions  
**Dose:** Ulcer prevention: 100–200 mcg PO qid w/ meals; in females, start 2nd/3rd d of next nl period. **Induction of labor (term):** 25–50 mcg intravag. **PRG termination:** 400 mcg PO on day 3 of mifepristone; take w/ food  
**W/P:** [X, –]  
**CI:** PRG, component allergy  
**Disp:** Tabs 100, 200 mcg  
**SE:** Miscarriage w/ severe bleeding; HA, D, Abd pain, constipation.  
**Notes:** Not used for induction of labor w/ previous C-section or major uterine surgery

Mitomycin (Mitosol [Topical], Generic) **BOX:** Administer only by physician experienced in chemotherapy; myelosuppressive; can induce hemolytic uremic synd w/ irreversible renal failure  
**Uses:** *Stomach, pancreas*, breast, colon CA; squamous cell carcinoma of the anus; NSCLC, head & neck, cervical; bladder CA (intravesically), Mitosol for glaucoma surgery  
**Acts:** Alkylating agent; generates oxygen-free radicals w/ DNA strand breaks  
**Dose:** (Per protocol) 20 mg/m² q6–8wk IV or 10 mg/m² combo w/ other myelosuppressive drugs q6–8wk. **Bladder CA:** 20–40 mg in 40 mL NS via a urethral catheter once/wk; ↓ in renal/hepatic impair  
**W/P:** [D, –] w/ Cr > 1.7 mg/dL/↑ cardiac tox w/ vinca alkaloids/doxorubicin  
**CI:** ↓ Plt, coagulation disorders, ↑ bleeding tendency, PRG  
**Disp:** Inj 5, 20, 40 mg;
**Mometasone/Formoterol**

*Increased risk of worsening wheezing or asthma-related death in pediatric/adolescent pts w/ long-acting β₂-adrenergic agonists; use only if asthma not controlled on agent such as inhaled steroid*  
**Uses:** *Maint Rx for asthma*  
**Acts:** Corticosteroid (mometasone) w/ LA bronchodilator β₂ agonist (formoterol)  
**Dose:** Adults & Peds > 12 y. 2 Inh q12h  
**W/P:** [C, ?/M] w/ P450 3A4 inhib (eg, ritonavir), adrenergic/beta blockers, meds that ↑ QT interval; candida Infxn of mouth/throat, immunosuppression, adrenal suppression, ↓ bone density, w/ glaucoma/cataracts, may ↑ glucose, ↓ K; other LABA should not be used  
**CI:** Acute asthma attack; component hypersensitivity  
**Disp:** MDI 120 inhal/canister (mcg mometasone/mcg formoterol) 100/5, 200/5  
**SE:** Nasopharyngitis, sinusitis, HA, palpitations, CP, rapid heart rate, tremor or nervousness, oral candidiasis  
**Notes:** For pts not controlled on other meds (eg, low-medium dose Inh steroids) or whose Dz severity warrants 2 maint therapies

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**Mitoxantrone (Generic)**  
**BOX:** Administer only by physician experienced in chemotherapy; except for acute leukemia, do not use w/ ANC count of < 1500 cells/mm³; severe neutropenia can result in Infxn, follow CBC; cardiotoxic (CHF), secondary AML reported  
**Uses:** *AML (w/ cytarabine), ALL, CML, PCA, MS, lung CA*, breast CA, & NHL  
**Acts:** DNA-intercalating agent; ↓ DNA synth by interacting w/ topoisomerase II  
**Dose:** Per protocol; ↓ w/ hepatic impair, leukopenia, thrombocytopenia  
**W/P:** [D, −] Reports of secondary AML, w/ MS ↑ CV risk, do not treat MS pt w/ low LVEF  
**CI:** Component allergy  
**Disp:** Tabs 100, 200 mg  
**SE:** Serious rash including SJS, HA, N, D, paresthesias, rhinitis, agitation, psychological Sx  
**Notes:** CV assessment before using
Mometasone, Inhaled (Asmanex Twisthaler)  Uses: *Maint Rx for asthma*  Acts: Corticosteroid  Dose: Adults & Peds > 11 y. On bronchodilators alone or inhaled steroids: 220 mcg × 1 q p.m. or in + doses (max 440 mcg/d). On oral steroids: 440 mcg bid (max 880 mcg/d) w/ slow oral taper.  Peds 4–11 y. 110 mcg × 1 q p.m. (max 110 mcg/d)  W/P: [C, ?/M] Candida Infxn of mouth/throat; hypersens Rxns possible; may worsen certain Infxns (TB, fungal, etc); monitor for ↑ / ↓ cortisol Sxs; ↓ bone density; ↓ growth in peds; monitor for NAG or cataracts; may ↑ glucose  CI: Acute asthma attack; component hypersens/milk proteins  Disp: MDI inhal mometasone 110 mcg Twisthaler delivers 100 mcg/actuation; 220 mcg Twisthaler delivers 200 mcg/actuation  SE: HA, allergic rhinitis, pharyngitis, URI, sinusitis, oral candidiasis, dysmenorrhea, musculoskeletal/back pain, dyspepsia  Notes: Rinse mouth after use; treat paradoxical bronchospasm w/ inhaled bronchodilator

Mometasone, Nasal (Nasonex)  Uses: *Nasal Sx allergic/seasonal rhinitis; prophylaxis of seasonal allergic rhinitis; nasal polyps in adults*  Acts: Corticosteroid  Dose: 2 sprays/each nostril qd. Adults. Nasal polyps: 2 sprays/each nostril bid  W/P: [C, M] Monitor for adverse effects on nasal mucosa (bleeding, candidal Infxn, ulceration, perf); may worsen existing Infxns; monitor for NAG, cataracts; monitor for ↑ / ↓ cortisol Sxs; ↓ growth in peds  CI: Component hypersens  Disp: 50 mcg mometasone/spray  SE: Viral Infxn, pharyngitis, epistaxis, HA

Montelukast (Singulair, Generic)  Uses: *Prevent/chronic Rx asthma ≥ 12 mo; seasonal allergic rhinitis ≥ 2 y; perennial allergic rhinitis ≥ 6 mo; prevent exercise induced bronchoconstriction (EIB) ≥ 15 y; prophylaxis & Rx of chronic asthma, seasonal allergic rhinitis*  Acts: Leukotriene receptor antagonist  Dose: Asthma: Adults & Peds > 15 y. 10 mg/d PO in p.m. 6–23 mo: 4-mg pack granules qd. 2–5 y: 4 mg/d PO q p.m. 6–14 y: 5 mg/d PO q p.m.  W/P: [B, M] CI: Component allergy  Disp: Tabs 10 mg; chew tabs 4, 5 mg; granules 4 mg/pack  SE: HA, dizziness, fatigue, rash, GI upset, Churg-Strauss synd, flu, cough, neuropsych events (agitation, restlessness, suicidal ideation)  Notes: Not for acute asthma; use w/in 15 min of opening package

Morphine (Avinza XR, Astramorph/PF, Duramorph, Infumorph, MS Contin, Kadian SR, Oramorph SR, Roxanol) [C-II]  BOX: Do not crush/chew SR/CR forms; swallow whole or sprinkle on applesauce. 100 and 200 mg for opioid-tolerant pt only for mod–severe pain when pain control needed for an extended period and not PRN. Be aware of misuse, abuse, diversion. No alcoholic beverages while on therapy  Uses: *Rx severe pain*, AMI, acute pulmonary edema  Acts: Narcotic analgesic; SR/CR forms for chronic use  Dose: Adults. Short-term use PO: 5–30 mg q4h PRN; IV/IM: 2.5–15 mg q2–6h; Supp: 10–30 mg q4h. SR formulations 15–60 mg q8–12h (do not chew/crush). IT/ epidural (Duramorph, Infumorph, Astramorph/PF): Per protocol in Inf device.  ECC 2010. STEMI: 2–4 mg IV (over 1–5 min), then give 2–8 mg IV q5–15min as
Moxifloxacin

needed. NSTEMI: 1–5 mg slow IV if Sxs unrelieved by nitrates or recur; use w/ caution; can be reversed w/ 0.4–2 mg IV naloxyne. Peds > 6 mo. 0.1–0.2 mg/kg/dose IM/IV q2–4h PRN; 0.15–0.2 mg/kg PO q3–4h PRN W/P: [C, +/–] Severe resp depression possible; w/ head injury; chewing delayed release forms can cause severe rapid release of morphine. Administer Duramorph in staffed environment d/t cardiopulmonary effects. IT doses 1/10 of epidural dose CI: (many product specific) Severe asthma, resp depression, GI obst/ileus; Oral soln: CHF d/t lung Dz, head injury, arrhythmias, brain tumor, acute alcoholism, DTs, Sz disorders; MS Contin and Kadian CI include hypercarbia. Disp: IR tabs 15, 30 mg; soln 10, 20, 100 mg/5 mL; supp 5, 10, 20, 30 mg; Inj 2, 4, 5, 8, 10, 15, 25, 50 mg/mL; MS Contin CR tabs 15, 30, 60, 100, 200 mg; Oramorph SR tabs 15, 30, 60, 100 mg; Kadian SR caps 10, 20, 30, 40, 50, 60, 70, 80, 100, 130, 150, 200 mg; Avinza XR caps 30, 60, 90, 120 mg; Duramorph/Astramorph PF: Inj 0.5, 1 mg/mL; Infumorph 10, 25 mg/mL, SE: Narcotic SE (resp depression, sedation, constipation, N/V, pruritus, diaphoresis, urinary retention, biliary colic), granulomas w/ IT Notes: May require scheduled dosing to relieve severe chronic pain

Morphine and Naltrexone (Embeda) [C-II] BOX: For mod–severe chronic pain; do not use as PRN analgesic; swallow whole or sprinkle contents of cap on applesauce; do not crush/dissolve, chew caps—rapid release & absorption of morphine may be fatal & of naltrexone may lead to withdrawal in opioid-tolerant pts; do not consume EtOH or EtOH-containing products; 100/4 mg caps for opioid-tolerant pts only for use in opioid tolerant pts only, may cause fatal resp. depression; high potential for abuse

Uses: *Chronic mod–severe pain*

Acts: Mu-opioid receptor agonist & antagonist

Dose: Adult. Individualize PO q12–24h; if opioid naïve start 20/0.8 mg q24h; titrate q48h; ↓ start dose in elderly, w/ hepatic/renal insuff; taper to D/C W/P: [C, –] w/ EtOH, CNS depress, muscle relaxants, use w/ in 14 d of D/C of MAOI CI: Resp depression, acute/severe asthma/hypercarbia, ileus, hypersens

Disp: Caps ER (morphine mg/naltrexone mg) 20/0.8, 30/1.2, 50/2, 60/2.4, 80/3.2, 100/4 SE: N/V/D, constipation, somnolence, dizziness, HA, ↓ BP, pruritus, insomnia, anxiety, resp depression, Sz, MI, apnea, withdrawal w/ abrupt D/C, anaphylaxis, biliary spasm

Moxifloxacin (Avelox) BOX: ↑ Risk of tendon rupture and tendonitis; ↑ risk w/ age > 60, transplant pts; may ↑ Sx of MG

Uses: *Acute sinusitis & bronchitis, skin/soft-tissue/Abd Infxs, conjunctivitis, CAP* TB, anthrax, endocarditis

Acts: 4th-gen quinolone; ↓ DNA gyrase. Spectrum: Excellent gram(+) except MRSA & E. faecium; good gram(–) except P. aeruginosa, Stenotrophomonas maltophilia, & Acinetobacter sp; good anaerobic

Dose: 400 mg/d PO/IV daily; avoid cation products, antacids tid W/P: [C, –] Quinolone sensitivity; interactions w/ Mg²⁺, Ca²⁺, Al³⁺, Fe²⁺ -containing products, & class IA & III antiarrhythmic agents (Table 9, p 345) CI: Quinolone/component sensitivity

Disp: Tabs 400 mg, ABC Pak 5 tabs, Inj SE: Dizziness, N, QT prolongation, Szs, photosens, peripheral neuropathy risk
**Moxifloxacin, Ophthalmic** (Moxeza, Vigamox)

**Uses:** *Bacterial conjunctivitis*  
**Acts:** See Moxifloxacin  
**Dose:** Instill into affected eye/s:  
* Moxeza 1 gtt bid × 7 d;  
* Vigamox 1 gtt tid × 7 d  
**W/P:** [C, M] Not well studied in peds < 12 mo  
**CI:** Quinolone/component sensitivity  
**Disp:** Ophthal soln 0.5%  
**SE:** ↓ Visual acuity, ocular pain, itching, tearing, conjunctivitis; prolonged use may result in fungal overgrowth; do not wear contacts w/ conjunctivitis

**Multivitamins, Oral [OTC]** (See Table 12, p 349)

**Mupirocin** (Bactroban, Bactroban Nasal)  
**Uses:** *Impetigo (oint); skin lesion infect w/ *S. aureus* or *S. pyogenes*; eradicate MRSA in nasal carriers*  
**Acts:** ↓ Bacterial protein synth  
**Dose:** Topical: Apply small amount 3×/d × 5–14 d.  
Nasal: Apply 1/2 single-use tube bid in nostrils × 5 d  
**W/P:** [B, ?/M]  
**CI:** Do not use w/ other nasal products  
**Disp:** Oint 2%; cream 2%; nasal oint 2% 1-g single-use tubes  
**SE:** Local irritation, rash  
**Notes:** Pt to contact healthcare provider if no improvement in 3–5 d

**Mycophenolic Acid** (Myfortic, Generic)  
**BOX:** ↑ Risk of Infxns, lymphoma, other CAs, progressive multifocal leukoencephalopathy (PML), risk of PRG loss and malformation, female of childbearing potential must use contraception  
**Uses:** *Prevent rejection after renal transplant*  
**Acts:** Cytostatic to lymphocytes  
**Dose:**  
* Adults. 720 mg PO bid. Doses differ based on transplant  
* Ped. BSA 1.2–1.5 m²: 750 mg PO bid. BSA > 1.5 m²: 1 g PO bid; used w/ steroids & cyclosporine or tacrolimus. ↓ w/ renal Insuff/neutropenia; take on empty stomach  
**W/P:** [D, –]  
**CI:** Component allergy  
**Disp:** Delayed release tabs 180, 360 mg  
**SE:** N/V/D, GI bleed, pain, fever, HA, Infxn, HTN, anemia, leukopenia, pure red cell aplasia, edema  
**Notes:** Cellcept & Myfortic dosage forms should not be used interchangeably

**Mycophenolate Mofetil** (CellCept, Generic)  
**BOX:** ↑ Risk of Infxns, lymphoma, other CAs, progressive multifocal leukoencephalopathy (PML); risk of PRG loss and malformation; female of childbearing potential must use contraception  
**Uses:** *Prevent organ rejection after transplant*  
**Acts:** Cytostatic to lymphocytes  
**Dose:**  
* Adults. 1 g PO bid, doses differ based on transplant  
* Ped. BSA 1.2–1.5 m²: 750 mg PO bid. BSA > 1.5 m²: 1 g PO bid; used w/ steroids & cyclosporine or tacrolimus. ↓ in renal Insuff or neutropenia. IV: Infuse over > 2 h. PO: Take on empty stomach, do not open caps  
**W/P:** [D, –]  
**CI:** Component allergy; IV use in polysorbate 80 allergy  
**Disp:** Caps 250, 500 mg; susp 200 mg/mL, Inj 500 mg  
**SE:** N/V/D, pain, fever, HA, Infxn, HTN, anemia, leukopenia, edema  
**Notes:** Cellcept & Myfortic are not interchangeable

**Nabilone** (Cesamet) [C-II]  
**Uses:** *Refractory chemotherapy-induced emesis*  
**Acts:** Synthetic cannabinoid  
**Dose:**  
* Adults. 1–2 mg PO bid 1–3 h before chemotherapy, 6 mg/d max; may continue for 48 h beyond final chemotherapy dose  
* Ped. ↑ Per protocol; < 18 kg 0.5 mg bid; 18–30 kg 1 mg bid; > 30 kg 1 mg tid  
**W/P:** [C, –]  
**CI:** Elderly, HTN, heart failure, w/ psychological illness, substance abuse; high protein binding w/ 1st-pass metabolism may lead to drug interactions  
**Disp:** Caps 1 mg  
**SE:** Drowsiness, vertigo, xerostomia, euphoria, ataxia, HA, difficulty
Nalbuphine 213

concentrating, tachycardia, ↓ BP Notes: May require initial dose evening before chemotherapy; Rx only quantity for single Tx cycle

Nabumetone (Relafen, Generic) BOX: May ↑ risk of CV events & GI bleeding, perforation; Ci w/ postop CABG Uses: *OA and RA*, pain Acts: NSAID; ↓ prostaglandins Dose: 1000–2000 mg/d ÷ daily-bid w/ food W/P: [C, −] Severe hepatic Dz, peptic ulcer Dz, anaphylaxis w/ “ASA triad” CI: NSAID sensitivity, perioperative pain, after CABG surgery Disp: Tabs 500, 750 mg SE: Dizziness, rash, GI upset, edema, peptic ulcer, ↑ BP, photosens

Nadolol (Corgard) BOX: Do not abruptly withdraw Uses: *HTN & angina migraine prophylaxis*, prophylaxis of variceal hemorrhage Acts: Competitively blocks β-adrenergic receptors (β1, β2) Dose: 40–80 mg/d; ↑ to 240 mg/d (angina) or 320 mg/d (HTN) at 3- to 7-d intervals; ↓ in renal Insuff & elderly W/P: [C +/M] CI: Uncompensated CHF, shock, heart block, asthma Disp: Tabs 20, 40, 80 mg SE: Nightmares, paresthesias, ↓ BP, ↓ HR, fatigue, ↓ sex function

Nafarelin, Metered Spray (SYNAREL) Uses: *Endometriosis, CPP* Acts: GnRH agonist; ↓ gonadal steroids w/ use > 4 wk Dose: Adults: Endometriosis: 400 mcg/d (1 spray q A.M./P.M. alternate nostril; if no amenorrhea ↑ 2 sprays bid, start d 2–4 of menstrual cycle Peds: CPP: 1600 mcg/d (2 sprays each nostril q A.M./P.M.), can ↑ to 1800 mcg/d W/P: [X, −] CI: Component hypersens, undiagnosed uterine bleeding, PRG, breast-feeding Disp: 0.5-oz bottle 60 sprays (200 mcg/spray) SE: ♀: hot flashes, headaches, emotional lability, ↓ libido, vaginal dryness, acne, myalgia, ↓ breast size, ↓ BMD; Peds: drug sensitivity Rxn, acne, transient ↑ breast enlargement/public hair, Vag bleed, emotional lability, body odor, seborrhea Notes: ✓ PRG test before use; for endometriosis only if > 18 y, and no more than 6 mo; no sig effect w/ rhinitis, if needed, use decongestant 2 h before dose

Nafcillin (Nallpen, Generic) Uses: *Infxns d/t susceptible strains of Staphylococcus & Streptococcus* Acts: Bactericidal; antistaphylococcal PCN; ↓ cell wall synth Spectrum: Good gram(+) except MRSA & enterococcus, no gram(−), poor anaerobe Dose: Adults. 1–2 g IV q4–6h. Peds. 50–200 mg/kg/d ÷ q4–6h W/P: [B, ?] CI: PCN allergy, allergy to corn-related products Disp: Inj powder l, 2 g SE: Interstitial nephritis, N/D, fever, rash, allergic Rxn Notes: In setting of both hepatic & renal impairment, modification of dose may be necessary

Naftifine (Naftin) Uses: *Tinea pedis, cruris, & corporis* Acts: Allylamine antifungal, ↓ cell membrane ergosterol synth Dose: Apply daily (cream) or bid (gel) W/P: [B, ?] CI: Component sensitivity Disp: 1% cream; gel SE: Local irritation

Nalbuphine (Generic) Uses: *Mod–severe pain; preop & obstetric analgesia* Acts: Narcotic agonist–antagonist; ↓ ascending pain pathways Dose: Adults. Pain: 10 mg/70 kg IV/IM/SQ q3–6h; adjust PRN; 20 mg/dose or 160 mg/d max. Anesthesia: Induction: 0.3–3 mg/kg IV over 10–15 min; maint 0.25–0.5 mg/kg IV. Peds. 0.2 mg/kg IV or IM, 20 mg/dose or 160 mg/d max; ↓ w/ renal/in hepatic impair W/P: [B, M] w/ Opiate use CI: Component sensitivity Disp: Inj 10, 20 mg/mL SE: CNS depression, drowsiness; caution, ↓ BP
Naloxone (Generic, Evzio) Uses: *Opioid addiction (diagnosis) & OD* Acts: Competitive opioid antagonist Dose: Adults. 0.4–2 mg IV, IM, or SQ q2–3min; via endotracheal tube, dilute in 1–2 mL NS; may be given intranasal; total dose 10 mg max; Evzio: 0.4 mg IM or SQ Peds. 0.01–0.1 mg/kg/dose IV, IM, or SQ; repeat IV q3min × 3 doses PRN; ECC 2010. Reverse narcotic effects: 0.1 mg/kg q2min PRN; max dose 2 mg; smaller doses (1–5 mcg/kg may be used); cont Inf 2–160 mcg/kg/h W/P: [C, ?], Evzio [B, ?/] may precipitate withdrawal in addicts CI: Component hypersens Disp: Inj 0.4, 1 mg/mL; Evzio 0.4 mg/0.4mL prefilled auto-injector w/ electronic voice instructions SE: ↓ BP, ↑ BP, fever, tachycardia, VT, VF, irritability, agitation, coma, GI upset, pulm edema, tremor, piloerection, sweating Notes: If no response after 10 mg, suspect nonnarcotic cause; w/ Evzio use in the field, seek emergent care immediately; duration of action less than most opioids, may need repeat dosing; for bystander use, administer in anterolateral thigh

Naltrexone (ReVia, Vivitrol, Generic) BOX: Can cause hepatic injury, CI w/ active liver Dz Uses: *EtOH & narcotic addiction* Acts: Antagonizes opioid receptors Dose: EtOH/narcotic addiction: 50 mg/d PO; must be opioid-free for 7–10 d; EtOH dependence: 380 mg IM q4wk (Vivitrol) W/P: [C, M] Monitor for Inj site reactions (Vivitrol) CI: Acute hep, liver failure, opioid use Disp: Tabs 50 mg; Inj 380 mg (Vivitrol) SE: Hepatotox; insomnia, GI upset, joint pain, HA, fatigue

Naphazoline (Albalon, Naphcon, Generic), Naphazoline/Pheniramine (Naphcon A, Visine A) Uses: *Relieve ocular redness & itching caused by allergy* Acts: Sympathomimetic (α-adrenergic vasoconstrictor) & antihistamine (pheniramine) Dose: 1–2 gtt up to q6h, 3 d max W/P: [C, +] CI: NAG, in children < 6 y, w/ contact lenses, component allergy SE: CV stimulation, dizziness, local irritation Disp: Ophthal 0.012, 0.025, 0.1%/15 mL; naphazoline & pheniramine 0.025%/0.3% soln

Naproxen (Aleve [OTC], Anaprox, Anappro DS, EC-Naprosyn, Naprelan, Naprosyn, Generic) BOX: May ↑ risk of CV events & GI bleeding Uses: *Arthritis & pain* Acts: NSAID; ↓ prostaglandins Dose: Adults & Peds > 12 y. 200–500 mg bid-tid to 1500 mg/d max. > 2 y: JRA 5 mg/kg/dose bid; ↓ in hepatic impair W/P: [C, (D 3rd tri), –] CI: NSAID or ASA triad sensitivity, peptic ulcer, post-CABG pain, 3rd-tri PRG Disp: Tabs: 250, 375, 500 mg; DR: 375, 500, 750 mg; CR: 375, 550 mg; susp 25 mg/5 mL (Aleve) 200 mg multiple OTC forms SE: Dizziness, pruritus, GI upset, peptic ulcer, edema Notes: Take w/ food to ↓ GI upset; 220 mg naproxen sodium = 200 mg naproxen base

Naproxen/Esomeprazole (Vimovo) BOX: ↑ Risk MI, stroke, PE; CI, CABB surgery pain; ↑ risk GI bleed, gastric ulcer, gastric/duodenal perforation Uses: *Pain and/or swelling, RA, OA, ankylosing spondylitis, ↓ risk NSAID-assoc gastric ulcers* Acts: NSAID; ↓ prostaglandins & PPI, ↓ gastric acid Dose: 375/20 mg (naproxen/esomeprazole) to 500/20 mg PO bid W/P: [C 1st, 2nd tri; D 3rd; –] CI: PRG 3rd tri; asthma, urticaria from ASA or NSAID; mod–severe hepatic/renal
**Nelarabine**

Disp: Tabs (naproxen/esomeprazole) DR 375/20 mg; 500/20 mg SE: N/D, Abd pain, gastritis, ulcer, ↑ BP, CHF, edema, serious skin rash (eg, Stevens-Johnson synd, etc), ↓ renal Fxn, papillary necrosis Notes: Risk of GI adverse events elderly; atrophic gastritis w/ long-term PPI use; possible ↑ risk of fractures w/ all PPI; may ↑ Li levels; may cause MTX tox; may ↓ effect BP meds; may ↓ absorption drugs requiring acid environment

**Naratriptan (Amerge, Generic)**

Uses: *Acute migraine* Acts: Serotonin 5-HT1, receptor agonist Dose: 1–2.5 mg PO once; repeat PRN in 4 h; 5 mg/24 h max; ↓ in mild renal/hepatic Insuff, take w/ fluids W/P: [C, M] CI: Severe renal/hepatic impair, avoid w/ angina, ischemic heart Dz, uncontrolled HTN, cerebrovascular synds, & ergot use Disp: Tabs 1, 2.5 mg SE: Dizziness, sedation, GI upset, paresthesias, ECG changes, coronary vasospasm, arrhythmias

**Natalizumab (Tysabri)**

BOX: PML reported Uses: *Relapsing MS to delay disability and ↓ recurrences, Crohn Dz* Acts: Integrin receptor antagonist Dose: Adults. 300 mg IV q4wk; 2nd-line Tx only CI: PML; immune compromise or w/ immunosuppressant W/P: [C, ?/−] Baseline MRI to rule out PML Disp: Vial 300 mg SE: Infxn, immunosuppression; Inf Rxn precluding subsequent use; HA, fatigue, arthralgia Notes: Give slowly to ↓ Rxns; limited distribution (TOUCH Prescribing program); D/C immediately w/ signs of PML (weakness, paralysis, vision loss, impaired speech, cognitive ↓); evaluate at 3 and 6 mo, then q6mo thereafter

**Nateglinide (Starlix, Generic)**

Uses: *Type 2 DM* Acts: ↑ Pancreatic insulin release Dose: 120 mg PO tid 1–30 min ac; ↓ to 60 mg tid if near target HbA1c W/P: [C, −] w/ CYP2C9 metabolized drug (Table 10, p 346) CI: DKA, type 1 DM Disp: Tabs 60, 120 mg SE: Hypoglycemia, URI; salicylates, nonselective β-blockers may enhance hypoglycemia Notes: If a meal is skipped, the dose should be held

**Nebivolol (Bystolic)**

Uses: *HTN* Acts: β1-Selective blocker Dose: Adults. 5 mg PO daily, ↑ q2wk to 40 mg/d max, ↓ w/ CrCl < 30 mL/min W/P: [D, +/−] w/ Bronchospastic Dz, DM, heart failure, pheochromocytoma, w/ CYP2D6 inhib CI: ↓ HR, cardiogenic shock, decompensated CHF, severe hepatic impair Disp: Tabs 2.5, 5, 10, 20 mg SE: HA, fatigue, dizziness

**Nelfazodone (Generic)**

BOX: Fatal hep & liver failure possible, D/C if LFTs > 3× ULN, do not retreat; closely monitor for worsening depression or suicidality, particularly in ped pts Uses: *Depression* Acts: ↓ Neuronal uptake of serotonin & norepinephrine Dose: Initial 100 mg PO bid; usual 300–600 mg/d in 2 + doses W/P: [C, M] CI: w/ MAOIs, pimozide, carbamazepine, alprazolam; active liver Dz Disp: Tabs 50, 100, 150, 200, 250 mg SE: Postural ↓ BP & allergic Rxns; HA, drowsiness, xerostomia, constipation, GI upset, liver failure Notes: Monitor LFTs, HR, BP

**Nelarabine (Arranon)**

BOX: Fatal neurotox possible Uses: *T-cell ALL or T-cell lymphoblastic lymphoma unresponsive > 2 other regimens* Acts: Nucleoside (deoxyguanosine) analog Dose: Adults. 1500 mg/m² IV over 2 h days 1, 3, 5 of 21-d cycle. Peds. 650 mg/m² IV over 1 h days 1–5 of 21-d cycle W/P: [D, ?/−]
Nelfinavir (Viracept)  Uses: *HIV Infxn, other agents*  Acts: Protease inhib causes immature, noninfectious virion production  **Dose:**  
- **Adults.** 750 mg PO tid or 1250 mg PO bid.  
- **Peds.** 25–35 mg/kg PO tid or 45–55 mg/kg bid; take w/ food  

**W/P:**  
- [B, –] Many drug interactions; do not use w/salmeterol, colchicine (w/ renal/hepatic failure); adjust dose w/ bosentan, tadalafil for PAH; do not use tid dose w/ PRG  

**CI:**  
- Phenylketonuria, w/ triazolam/midazolam use or drug dependent on CYP3A4 (Table 10, p 346); w/ alpha 1-adrenoreceptor antagonist (alfuzosin), PDE5 inhibitor sildenafil  

**Disp:**  
- Tabs 250, 625 mg; powder 50 mg/g;  

**SE:**  
- Food ↑ absorption; interacts w/ St. John’s wort; dyslipidemia, lipodystrophy, D, rash  

**Notes:** PRG registry; tabs can be dissolved in water; monitor LFTs  

Neomycin (Neo-Fradin, Generic)  **BOX:** Systemic absorption of oral route may cause neuro-/oto-/nephrotox; resp paralysis possible w/ any route of administration  

**Uses:** *Hepatic coma, bowel prep*  

**Acts:** Aminoglycoside, poorly absorbed PO; ↓ GI bacterial flora  

**Dose:**  
- **Adults.** 3–12 g/24 h PO in 3–4 ÷ doses; 12 g/d max  
- **Peds.** 50–100 mg/kg/24 h PO in 3–4 ÷ doses  

**W/P:**  
- [C, ?/–] Renal failure, neuromuscular disorders, hearing impair  

**Disp:** Tabs 500 mg; PO soln 125 mg/5 mL  

**SE:** Hearing loss w/ long-term use; rash, N/V  

**Notes:** Do not use parenterally (↑ tox); part of the Condon bowel prep; also topical form  

Neomycin/Bacitracin/Polymyxin B (Neosporin Ointment) (See Bacitracin/Neomycin/Polymyxin B/Topical, p 64)  

Neomycin/Colistin/Hydrocortisone (Cortisporin-TC Otic Drops); Neomycin/Colistin/Hydrocortisone/Thonzonium (Cortisporin-TC Otic Susp)  

**Uses:** *Otitis externa*, Infxns of mastoid/fenestration cavities  

**Acts:** Antibiotic w/ anti-inflammatory  

**Dose:**  
- **Adults.** 5 gtt in ear(s) q6–8h.  
- **Peds.** 3–4 gtt in ear(s) q6–8h  

**CI:** Component allergy; HSV, vaccinia, varicella  

**Disp:** Otic gtt & susp  

**SE:** Local irritation, rash  

**Notes:** Shake well, limit use to 10 d to minimize ototox  

Neomycin/Polymyxin/Hydrocortisone Ophthalmic (Generic)  

**Uses:** *Ocular bacterial Infxns*  

**Acts:** Antibiotic w/ anti-inflammatory  

**Dose:** Apply a thin layer to the eye(s) or 1 gtt 1–4×/d  

**W/P:**  
- [C, ?]  

**Disp:** Ophthal soln; ophthal oint  

**SE:** Local irritation  

**Notes:** Do not wear contacts during Tx  

Neomycin/Polymyxin/Hydrocortisone Otic (Cortisporin Otic Solution/Generic Susp)  

**Uses:** *Otitis externa and infected mastoidectomy and fenestration cavities*  

**Acts:** Antibiotic & anti-inflammatory  

**Dose:**  
- **Adults.** 3–4 gtt in the ear(s) q6–8 h  
- **Peds.** > 2 y. 3 gtt in the ear(s) q6–8 h.  

**CI:** Viral Infxn, hypersens to components  

**Disp:** Otic susp (generic); otic soln (Cortisporin)  

**SE:** Local irritation  

**Notes:**
corticosteroid **Dose**: 1–2 gtt in eye(s) q3–4h; apply oint in eye(s) q6–8 h **CI**: Component allergy; viral, fungal, TB eye Dz **W/P**: [C, ?] **Disp**: Oint: neomycin sulfate 3.5 mg/polymyxin B sulfate 10,000 units/dexamethasone 0.1%/g; susp: identical/1 mL, 5mL bottle **SE**: Local irritation **Notes**: Use under supervision of ophthalmologist; contacts should not be worn during therapy

**Neomycin/Polymyxin B/Prednisolone (Poly-Pred Ophthalmic)** **Uses**: *Steroid-responsive ocular conditions w/ bacterial Infxn* **Acts**: Antibiotic & anti-inflammatory **Dose**: 1–2 gtt in eye(s) q4–6h; apply oint in eye(s) q6–8 h **W/P**: [C, ?] **Disp**: Susp neomycin/polymyxin B/prednisolone 0.5%/mL **SE**: Irritation **Notes**: Use under supervision of ophthalmologist; do not wear contacts during Tx

**Neomycin/Dexamethasone (AK-Neo-Dex Ophthalmic, NeoDecadron Ophthalmic)** **Uses**: *Steroid-responsive inflammatory conditions of the cornea, conjunctiva, lid, & anterior segment* **Acts**: Antibiotic w/ anti-inflammatory corticosteroid **Dose**: 1–2 gtt in eye(s) q3–4h or thin coat q6–8h until response, then ↓ to daily **W/P**: [C, ?] **Disp**: Cream: neomycin 0.5%/dexamethasone 0.1%; oint: neomycin 0.35%/dexamethasone 0.05%; soln: neomycin 0.35%/dexamethasone 0.1% **SE**: Local irritation **Notes**: Use under supervision of ophthalmologist’s supervision; no contacts w/ use

**Neomycin/Polymyxin B (Neosporin Cream) [OTC]** **Uses**: *Infxn in minor cuts, scrapes, & burns* **Acts**: Bactericidal **Dose**: Apply 2–4 × d **W/P**: [C, ?] **CI**: Component allergy **Disp**: Cream: neomycin 3.5 mg/polymyxin B 10,000 units/g **SE**: Local irritation **Notes**: Different from Neosporin oint

**Neomycin/Polymyxin Bladder Irrigant [Neosporin GU Irrigant]** **Uses**: *Cont irrigant prevent bacteriuria & gram(–) bacteremia associated w/ indwelling catheter* **Acts**: Bactericidal; not for *Serratia* sp or streptococci **Dose**: 1 mL irrigant in 1 L of 0.9% NaCl; cont bladder irrigation w/ 1 L of soln/24 h 10 d max **W/P**: [D] **CI**: Component allergy **Disp**: Soln neomycin sulfate 40 mg & polymyxin B 200,000 units/mL; amp 1, 20 mL **SE**: Rash, neomycin ototox or nephrotox (rare) **Notes**: Potential for bacterial/fungal super-Infxn; not for Inj; use only 3-way catheter for irrigation

**Nepafenac (Nevanac)** **Uses**: *Inflammation postcataract surgery* **Acts**: NSAID **Dose**: 1 gtt in eye(s) tid 1 d before, and continue 14 d after surgery **CI**: NSAID/ASA sensitivity **W/P**: [C, ?/]– May ↑ bleeding time, delay healing, causes keratitis **Disp**: Susp 0.1% 3 mL **SE**: Capsular opacity, visual changes, foreign-body sensation, ↑ IOP **Notes**: Prolonged use ↑ risk of corneal damage; shake well before use; separate from other drops by > 5 min

**Nesiritide (Natrecor)** **Uses**: *Acutely decompensated CHF* **Acts**: Human B-type natriuretic peptide **Dose**: 2 mcg/kg IV bolus, then 0.01 mcg/kg/min IV **W/P**: [C, ?/]– When vasodilators are not appropriate **CI**: SBP < 100 mm Hg, cardiogenic shock **Disp**: Vials 1.5 mg **SE**: ↓ BP, HA, GI upset, arrhythmias, ↑ Cr **Notes**: Requires cont BP monitoring; some studies indicate ↑ in mortality; 175 kg max dose Wt studied
**Nevirapine (Viramune, Viramune XR, Generic)**

**BOX:** Reports of fatal hepatotoxic even w/ short-term use; severe life-threatening skin Rxns (SJS, toxic epidermal necrolysis, & allergic Rxns); monitor closely during first 18 wk of Rx

**Uses:** *HIV Infxn*

**Acts:** Nonnucleoside RT inhib

**Dose:** Adults. Initial 200 mg/d PO × 14 d, then 200 mg bid, 400 mg daily (XR) **Peds > 15.** 150 mg/m² PO daily × 14 d, then 150 mg/m² PO bid (w/o regard to food) **W/P:** [B, −]

**Disp:** Tabs 200 mg; (Viramune XR) tabs ER 100, 400 mg; susp 50 mg/5 mL

**SE:** Life-threatening rash; HA, fever, D, neutropenia, hep

**Notes:** HIV resistance when used as monotherapy; use in combo w/ at least 2 additional antiretroviral agents. Restart once daily dosing × 14 d if stopped > 7 d. Not recommended if CD4 > 250 mcL in women or > 400 mcL in men unless benefit > risk of hepatotoxic; always perform lead-in trial w/ IR formulation

**Niacin (Nicotinic Acid) (Niaspan, Slo-Niacin, Niacor, Nicolar) [Some OTC Forms]**

**Uses:** *Sig hyperlipidemia/hypercholesteremia,* nutritional supl

**Acts:** Vit B₃; ↓ lipolysis; ↓ esterification of triglycerides; ↑ lipo-protein lipase

**Dose:** Hypercholesterolemia: Start 500 mg PO qhs, ↑ 500 mg q4wk, maint 1–2 g/d; 2 g/d max; qhs w/ low fat snack; do not crush/chew; niacin supl 1 ER tab PO qd or 100 mg PO qd; Pellagra: Up to 500 mg/d **W/P:** [C, +] CI: Liver Dz, peptic ulcer, arterial hemorrhage **Disp:** ER tabs (Niaspan) 500, 750, 1000 mg & (Slo-Niacin) 250, 500, 750 mg; tab 500 mg (Niacor); many OTC: tab 50, 100, 250, 500 mg, ER caps 125, 250, 400 mg, ER tab 250, 500 mg, elixir 50 mg/5 mL

**SE:** Upper body/facial flushing & warmth; hepatox, GI upset, flatulence, exacerbate peptic ulcer, HA, paresthesias, liver damage, gout, altered glucose control in DM **Notes:** ASA/NSAID 30–60 min prior to ↓ flushing; ✓ cholesterol, LFTs, if on statins (eg, Lipitor, etc) also ✓ CPK and K⁺; **RDA adults:** male 16 mg/d, female 14 mg/d

**Niacin/Lovastatin (Advicor)**

**Uses:** *Hypercholesterolemia*

**Acts:** Combo antilipemic agent, w/ HMG-CoA reductase inhib **Dose:** Adults. Niacin 500 mg/lovastatin 20 mg, titrate q4wk, max niacin 2000 mg/lovastatin 40 mg **W/P:** [X, −] See individual agents, D/C w/ LFTs > 3× ULN CI: PRG **Disp:** Niacin mg/lovastatin mg: 500/20, 750/20, 1000/20, 1000/40 tabs **SE:** Flushing, myopathy/rhabdomyolysis, N, Abd pain, ↑ LFTs **Notes:** ↓ Flushing by taking ASA or NSAID 30 min before

**Niacin/Simvastatin (Simcor)**

**Uses:** *Hypercholesterolemia*

**Acts:** Combo antilipemic agent w/ HMG-CoA reductase inhibit **Dose:** Adults. Niacin 500 mg/simvastatin 20 mg, titrate q4wk not to exceed niacin 2000 mg/simvastatin 40 mg; max 1000 mg/20 mg/d w/amldipine and ranolazine **W/P:** [X, −] See individual agents, discontinue Rx if LFTs > 3× ULN CI: PRG, active liver Dz, PUD, arterial bleeding, w/ strong CYP3A4 inhib, w/ gemfibrozil, cyclosporine, danazol, verapamil, or dilitazem, hypersens to components **Disp:** Niacin mg/simvastatin mg: 500/20, 500/40, 750/20, 1000/20, 1000/40 tabs **SE:** Flushing, myopathy/rhabdomyolysis, N, Abd pain, ↑ LFTs **Notes:** ↓ Flushing by taking ASA or NSAID 30 min before

**Nicardipine (Cardene, Cardene SR, Generic)**

**Uses:** *Chronic stable angina & HTN*; prophylaxis of migraine **Acts:** CCB **Dose:** Adults. **PO:** 20–40 mg
Nilotinib

PO tid. SR: 30–60 mg PO bid. IV: 5 mg/h IV cont Inf; ↑ by 2.5 mg/h q15min to max 15 mg/h. **Peds.** (Not established) **PO:** 20–30 mg PO q8h. **IV:** 5 mg/h IV cont Inf; ↑ by 2.5 mg/h q15min to max 15 mg/h. **Peds.** (Not established) **PO:** 20–30 mg PO q8h. **IV:** 0.5–5 mcg/kg/min; ↓ in renal/hepatic impair **W/P:** [C, ?–] Heart block, CAD **CI:** Cardiogenic shock, aortic stenosis **Disp:** Caps 20, 30 mg; SR caps 30, 45, 60 mg; Inj 2.5 mg/mL **SE:** Flushing, tachycardia, ↓ BP, edema, HA **Notes:** *PO-to-IV conversion:* 20 mg tid = 0.5 mg/h, 30 mg tid = 1.2 mg/h, 40 mg tid = 2.2 mg/h; take w/ food (not high fat)

**Nicotine, Gum (Nicorette, Others) [OTC]** **Uses:** *Aid to smoking cessation, relieve nicotine withdrawal* **Acts:** Systemic delivery of nicotine **Dose:** Wk 1–6 one piece q1–2h PRN; wk 7–9 one piece q2–4h PRN; wk 10–12 one piece q4–8h PRN; max 24 pieces/d **W/P:** [C, ?] CI: Life-threatening arrhythmias, unstable angina **Disp:** 2 mg, 4 mg-piece; mint, orange, original flavors **SE:** Tachycardia, HA, GI upset, hiccups **Notes:** Must stop smoking & perform behavior modification for max effect; use at least 9 pieces first 6 wk; > 25 cigarettes/d use 4 mg; < 25 cigarettes/d use 2 mg

**Nicotine, Nasal Spray (Nicotrol NS)** **Uses:** *Aid to smoking cessation, relieve nicotine withdrawal* **Acts:** Systemic delivery of nicotine **Dose:** 0.5 mg/actuation; 1–2 doses/h, 5 doses/h max; 40 doses/d max **W/P:** [D, M] CI: Life-threatening arrhythmias, unstable angina **Disp:** Nasal inhaler 10 mg/mL **SE:** Local irritation, tachycardia, HA, taste perversa **Notes:** Must stop smoking & perform behavior modification for max effect; 1 dose = 1 spray each nostril = 1 mg

**Nicotine, Transdermal (Habitrol, NicoDerm CQ [OTC], Others)** **Uses:** *Aid to smoking cessation; relief of nicotine withdrawal* **Acts:** Systemic delivery of nicotine **Dose:** Individualized; 1 patch (14–21 mg/d) & taper over 6 wk **W/P:** [D, M] CI: Life-threatening arrhythmias, unstable angina, adhesive allergy **Disp:** Habitrol & NicoDerm CQ: 7, 14, 21 mg of nicotine/24 h **SE:** Insomnia, pruritus, erythema, local site Rxn, tachycardia, vivid dreams **Notes:** Wear patch 16–24 h; must stop smoking & perform behavior modification for max effect; > 10 cigarettes/d start w/ 21-mg patch; < 10 cigarettes/d 14-mg patch: do not cut patch; rotate site

**Nifedipine (Adalat CC, Afeditab CR, Procardia, Procardia XL, Generic)** **Uses:** *Vasospastic or chronic stable angina & HTN*; tocolytic **Acts:** CCB **Dose:** Adults. SR tabs 30–90 mg/d. Tocolys: per local protocol. **Peds.** 0.25–0.5 mg/kg/24 h ÷ 3–4×/d **W/P:** [C, +] Heart block, aortic stenosis, cirrhosis **CI:** IR preparation for urgent or emergent HTN; acute MI **Disp:** Caps 10, 20 mg; SR tabs 30, 60, 90 mg **SE:** HA common on initial Rx; reflex tachycardia may occur w/ regular-release dosage forms; peripheral edema, ↓ BP, flushing, dizziness **Notes:** Adalat CC & Procardia XL not interchangeable; SL administration not OK

**Nilotinib (Tasigna)** **BOX:** May ↑ QT interval; sudden deaths reported, use w/ caution in hepatic failure; administer on empty stomach **Uses:** *Ph(+) CML, refractory or at 1st diagnosis* **Acts:** TKI **Dose:** Adults. 300 mg bid—newly diagnosed; 400 mg bid—resistant/intolerant on empty stomach 1 h prior or 2 h post meal. **W/P:** [D, ?–] Avoid w/ CYP3A4 inhib/inducers (Table 10, p 346), adjust w/ hepatic impair, heme tox, QT ↑, avoid QT-prolonging agents, w/ Hx pancreatitis, ↓
Nilutamide

Uses: *Combo w/ surgical castration for metastatic PCa*

Acts: Nonsteroidal antiandrogen

Dose: 300 mg/d PO × 30 d, then 150 mg/d

W/P: [Not used in females] CI: Severe hepatic impair, resp Insuff

Disp: Tabs 150 mg

SE: Edema, HA, flushing, ↓ BP

Notes: May cause Rxn when taken w/ EtOH, follow LFTs

Nimodipine (Nymalize, Generic)

Uses: *Improve outcome following subarachnoid hemorrhage*

Acts: CCB; prevent vasospasm

Dose: 20 mL (60 mg) q4h × 21 d; start w/in 96 h of subarachnoid hemorrhage; if given via NG flush w/ 20 mL NS after administration; ↓ in hepatic failure

W/P: [C, −] Not for peripheral use

CI: Component allergy

Disp: Caps 30 mg; Nymalize: 60 mg per 20 mL

SE: ↓ BP, HA, N, bradycardia, constipation, rash

Nisoldipine (Sular, Generic)

Uses: *HTN*

Acts: CCB

Dose: 8.5–34 mg/d PO; take on empty stomach; ↓ start doses w/ elderly or hepatic impair

W/P: [C, −]

Disp: ER tabs 8.5, 17, 25.5, 34 mg

SE: Edema, HA, flushing, ↓ BP

Notes: Nisoldipine Geomatrix (Sular) formulation not equivalent to original formulation (ER)

Nitazoxanide (Alinia)

Uses: *Cryptosporidium, Giardia lamblia, C. difficile associated D*

Acts: Antiprotozoal interferes w/ pyruvate ferredoxin oxidoreductase.

Spectrum: Cryptosporidium, Giardia

Dose: Adults. 500 mg PO q12h × 3 d; for C. difficile × 10 d. Peds 1–3 y. 100 mg PO q12h × 3 d. 4–11 y: 200 mg PO q12h × 3 d. >12 y: 500 mg q12h × 3 d; take w/ food

W/P: [B, ?] Not effective in HIV or immunocompromised

Disp: 100 mg/5 mL PO susp, 500 tab

SE: GI effects, dyspnea, various acute/chronic pulm Rxns, peripheral neuropathy, hemolytic anemia w/ G6PD deficiency, rare aplastic anemia

Notes: Macrocrystals (Macrobid) < N than other forms; not for comp UTI; may turn urine brown; ineffective for pyelonephritis or cystitis

Nitrofurantoin (Furadantin, Macrobid, Macrodantin, Generic)

Uses: *Prophylaxis & Rx UTI*

Acts: Interferes w/ metabolism & cell wall synthesis.

Spectrum: Some gram(+) & (−) bacteria; Pseudomonas, Serratia, & most Proteus resistant

Dose: Adults. Prophylaxis: 50–100 mg/d PO. Rx: 50–100 mg PO qid × 7 d; Macrobid 100 mg PO bid × 7 d. Peds. Prophylaxis: 1–2 mg/kg/d ÷ in 1–2 doses, max 100 mg/d. Rx: 5–7 mg/kg/24 h in 4 ÷ doses (w/ food/milk/antacid)

W/P: [B, +/not OK if child < 1 mo] Avoid w/ CrCl < 60 mL/min CI: Renal failure, infants < 1 mo, PRG at term

Disp: Caps 25, 50, 100 mg; (Furadantin) susp 25 mg/5 mL

SE: GI effects, dyspnea, various acute/chronic pulm Rxns, peripheral neuropathy, hemolytic anemia w/ G6PD deficiency, rare aplastic anemia

Notes: Macrocryystals (Macrobid) < N than other forms; not for comp UTI; may turn urine brown; ineffective for pyelonephritis or cystitis

Nitroglycerin (Nitrostat, Nitroflingual, Nitro-Bid Ointment, Nitro-Bid IV, Nitrodisc, Transderm-Nitro, NitroMist, Others)

Uses: *Angina pectoris, acute & prophylactic Rx, CHF, BP control*

Acts: Relaxes vascular
smooth muscle, dilates coronary arteries **Dose:** **Adults.** **SL:** 1 tab q5min SL PRN for 3 doses. **Translingual:** 1–2 metered-doses sprayed onto PO mucosa q3–5min, max 3 doses. **PO:** 2.5–9 mg tid. **IV:** 5–20 mcg/min, titrated to effect. **Topical:** Apply 1/2 in of oint to chest wall tid, wipe off at night. **Transdermal:** 0.2–0.4 mg/h/patch daily; **Aerosol:** 1 spray at 5-min intervals, max 3 doses **ECC 2010.** **IV bolus:** 12.5–25 mcg (if no spray or SL dose given); **Inf:** Start 10 mcg/min, ↑ by 10 mcg/min q3–5min until desired effect; ceiling dose typically 200 mcg/min. **SL:** 0.3–0.4 mg, repeat q5min. **Aerosol spray:** Spray 0.5–1 s at 5-min intervals. **PO:** 2.5–9 mg tid. **IV:** 5–20 mcg/min, titrated to effect.

**Translingual:** 1–2 metered-doses sprayed onto PO mucosa q3–5min, max 3 doses. **ECC 2010.** **Topical:** Apply 1/2 in of oint to chest wall tid, wipe off at night. **Transdermal:** 0.2–0.4 mg/h/patch daily; **Aerosol:** 1 spray at 5-min intervals, max 3 doses. **ECC 2010.** **IV bolus:** 12.5–25 mcg (if no spray or SL dose given); **Inf:** Start 10 mcg/min, ↑ by 10 mcg/min q3–5min until desired effect; ceiling dose typically 200 mcg/min. **SL:** 0.3–0.4 mg, repeat q5min. **Aerosol spray:** Spray 0.5–1 s at 5-min intervals. **PO:** 2.5–9 mg tid. **IV:** 5–20 mcg/min, titrated to effect.

**Notes:** Nitrates are contraindicated in patients with hypotensive effects, palpitations, HA Notes: Thiocyanate (metabolite w/ renal excretion) w/ tox at 5–10 mg/dL, more likely if used for > 2–3 d; w/ aortic dissection use w/ β-blocker; continuous BP monitoring essential

**Nitroprusside (Nitropress) BOX: **Warning: Cyanide tox & excessive hypotension **Uses:** *Hypertensive crisis, acute decompensated heart failure, controlled ↓ BP periop (↓ bleeding)*, aortic dissection, pulm edema **Acts:** ↓ Systemic vascular resistance **Dose:** **Adults & Peds.** 0.25–10 mcg/kg/min IV Inf, titrate; usual dose 3 mcg/kg/min. **ECC 2010.** 0.1 mcg/kg/min start, titrate (max dose 5–10 mcg/kg/min). **Peds. ECC 2010.** Cardiogenic shock, severe HTN: 0.3–1 mcg/kg/min, then titrate to 8 mcg/kg/min PRN **W/P:** [B, ?] Restrictive cardiomyopathy **CI:** w/ Sildenafil, tadalafil, vardenafil, head trauma, NAG, pericardial tamponade, constrictive pericarditis. **Disp:** SL tabs 0.3, 0.4, 0.6 mg; translingual spray 0.4 mg/dose; SR caps 2.5, 6.5, 9 mg; Inj 0.1, 0.2, 0.4 mg/mL (premixed); 5 mg/mL Inj soln; aerosol (NitroMist) 0.4 mg/spray; (Rectiv) intra-anal 0.4% **SE:** HA, ↓ BP, lightheadedness, GI upset **Notes:** Nitrate tolerance w/ chronic use after 1–2 wk; minimize by providing 10–12 h nitrate-free period daily, using shorter-acting nitrates tid, & removing LA patches & oint before sleep to ↓ tolerance

**Nizatidine (Axid, Axid AR [OTC], Generic)** **Uses:** *Duodenal ulcers, GERD, heartburn* **Acts:** H2-receptor antagonist **Dose:** **Adults.** Active ulcer: 150 mg PO bid or 300 mg PO hs; maint 150 mg PO hs. GERD: 150 mg PO bid. **Heartburn:** 75 mg PO bid. **Peds. GERD:** 10 mg/kg PO bid, 150 mg bid max; ↓ in renal impair **W/P:** [B, ?] CI: H2-receptor antagonist sensitivity **Disp:** Tab 75 mg [OTC]; caps 150, 300 mg; soln 15 mg/mL **SE:** Dizziness, HA, constipation, D **Notes:** Contains bisulfites

**Norepinephrine (Levophed)** **Uses:** *Acute ↓ BP, cardiac arrest (adjunct)* **Acts:** Peripheral vasoconstrictor of arterial/venous beds **Dose:** **Adults.** 8–30 mcg/min IV, titrate. **Peds.** 0.05–0.1 mcg/kg/min IV, titrate **W/P:** [C, ?] CI: ↓ BP d/t hypovolemia, vascular thrombosis, do not use w/ cyclopropane/halothane anesthetics **Disp:** Inj 1 mg/mL **SE:** ↓ HR, arrhythmia **Notes:** Correct vol depletion as much as possible
before vasopressors; interaction w/ TCAs leads to severe HTN; use large vein to avoid extrav; phentolamine 5–10 mg/10 mL NS injected locally for extrav

**Norethindrone Acetate/Ethinyl Estradiol Tablets (FemHRT) (See Estradiol/Norethindrone Acetate)**

**Norfloxacin (Noroxin, Chibroxin Ophthalmic) BOX:** Use associated w/ tendon rupture, tendonitis, & myasthenia gravis exacerbation

**Uses:** *Comp & uncomp UTI d/t gram(–) bacteria, prostatitis, gonorrhea*, infectious D, conjunctivitis

**Acts:** Quinolone, ↓ DNA gyrase, bactericidal

**Spectrum:** Broad gram(+), gram(–) E. faecalis, E. coli, K. pneumoniae, P. mirabilis, P. aeruginosa, S. epidermidis, S. saprophyticus

**Dose:** Uncomp UTI (E. coli, K. pneumoniae, P. mirabilis): 400 mg PO bid × 3 d; other uncomp UTI Rx × 7–10 d. Comp UTI: 400 mg PO q12h for 10–21 d. Gonorrhea: 800 mg × 1 dose. Prostatitis: 400 mg PO bid × 28 d. Gastroenteritis, traveler’s D: 400 mg PO bid × 1–3 d; take 1 h ac or 2 h pc. **Adults & Peds > 1 y.** Ophthalmal: 1 gtt each eye qid for 7 d; CrCl < 30 mL/min use 400 mg qd W/P: [C, −] Quinolone sensitivity, w/ some antiarrhythmics ↑ QT CI: Hx allergy or tendon problems

**Disp:** Tabs 400 mg; ophthal 3 mg/mL SE: Photosens, HA, dizziness, asthenia, GI upset, pseudomembranous colitis; ocular burning w/ ophthal, peripheral neuropathy risk w/PO only **Notes:** Interactions w/ antacids, theophylline, caffeine; good conc in the kidney & urine, poor blood levels; not for urosepsis; CDC suggests do not use for GC

**Nortriptyline (Aventyl, Pamelor) BOX:** ↑ Suicide risk in pts < 24 y w/ major depressive/other psychological disorders especially during 1st month of Tx; risk ↓ pts > 65 y; observe all pts for clinical Sxs; not for ped use

**Uses:** *Endogenous depression*

**Acts:** TCA; ↑ synaptic CNS levels of serotonin &/or norepinephrine

**Dose:** **Adults.** 25 mg PO tid-qid; > 150 mg/d not OK. **Elderly:** 10–25 mg hs. **Peds 6–7 y.** 10 mg/d. **8–11 y:** 10–20 mg/d. **> 11 y:** 25–35 mg/d, ↓ w/ hepatic Insuff

**W/P:** [D, −] NAG, CV Dz CI: TCA allergy, use w/ MAOI

**Disp:** Caps 10, 25, 50, 75 mg; (Aventyl) soln 10 mg/5 mL

**SE:** Anticholinergic (blurred vision, retention, xerostomia, sedation)

**Notes:** Max effect may take > 2–3 wk

**Nystatin (Mycostatin, Nilstat, Nystop)** **Uses:** *Mucocutaneous Candida Infxns (oral, skin, Vag)*

**Acts:** Alters membrane permeability. **Spectrum:** Susceptible Candida sp

**Dose:** **Adults & Peds. PO:** 400,000–600,000 units PO “swish & swallow” qid. Vag: 1 tab Vag hs × 2 wk. **Topical:** Apply bid-tid to area. **Peds Infants.** 200,000 units PO q6h. **W/P:** [B (C PO), +] **Disp:** PO susp 100,000 units/mL; PO tabs 500,000 units; troches 200,000 units; Vag tabs 100,000 units; topical cream/ointment 100,000 units/g, powder 100,000 units/g **SE:** GI upset, SJS

**Notes:** Not absorbed through mucus membranes/intact skin, poorly absorbed through GI; not for systemic Infxns; see also Triamcinolone/Nystatin

**Obinutuzumab (Gazyva)** **BOX:** May reactivate hep B and cause progressive multifocal leukoencephalopathy w/ death

**Uses:** *CLL*

**Acts:** Cytolytic anti-CD20 antibody

**Dose:** **Adults.** Six 28-day cycles; 100 mg day 1, 900 mg day 2, 1000 mg on days 8 & 15, then 1000 mg day 1 cycle 2-6 **W/P:** [C, −] Tumor lysis synd, give fluids, premedicate for ↑ uric acid, monitor renal Fxn; infusion
Ofloxacin, Otic

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reactions, premedicate w/ glucocorticoid, acetaminophen, and antihistamine; ↓ WBC, ↓ plt; do not give live vaccines before or during Tx CI: None Disp: 1000 mg/40 mL; single-use vial SE: Fever; cough; ↑ Cr; ↑ ALT/AST, alk phos; ↓ alb, ↓ Ca++, ↓ Na+ Notes: Do not use if CrCl < 30 mg/mL

Oxctreotide (Sandostatin, Sandostatin LAR, Generic) Uses: *↓ Severe D associated w/ carcinoid & neuroendocrine GI tumors (eg, vasoactive intestinal peptide-secreting tumor [VIPomA], ZE synd), acromegaly*; bleeding esophageal varices Acts: LA peptide; mimics natural somatostatin Dose: Adults. 100–600 mcg/d SQ/IV in 2–4 ÷ doses; start 50 mcg daily-bid. Sandostatin LAR (depot): 10–30 mg IM q4wk. Peds. 1–10 mcg/kg/24 h SQ in 2–4 ÷ doses W/P: [B, +] Hepatic/renal impair Disp: Inj 0.05, 0.1, 0.2, 0.5, 1 mg/mL; 10, 20, 30 mg/5 mL LAR depot SE: N/V, Abd discomfort, flushing, edema, fatigue, cholelithiasis, hyper-/hypoglycemia, hep, hypothyroidism Notes: Stabilize for at least 2 wk before changing to LAR form

Oxatumumab (Arzerra) BOX: Reactivation of hep B/hepatic failure/ death and progressive multifocal leuкоencephalopathy (PML) possible Uses: *Rx refrac- tory CLL* Acts: MoAb, binds CD20 molecule on nl & abnormal B-lymphocytes w/ cell lysis Dose: Adults. 300 mg (0.3 mg/mL) IV week 1, then 2000 mg (2 mg/mL) weekly × 7 doses, then 2000 mg q4wks × 4 doses. Titrate Inf; start 12 mL/h × 30 min, ↑ 25 mL/h for 30 min, ↑ to 50 mL/h × 30 min, ↑ to 100 mL/h × 30 min, then titrate to max Inf 200 mL/h. W/P: [C, ?] WBC, screen high risk for hep B, can reactivate, D/C immediately Disp: Inj 20 mg/mL (5 mL) SE: Infusion Rxns (bronchospasm, pulmonary edema, ↑ / ↓ BP, syncope, cardiac ischemia, angioedema), ↓ WBC, anemia, fever, fatigue, rash, N/D, pneumonia, Infxn, Npxns, PML Notes: Premed w/ acacetaminophen, antihistamine, and IV steroid

Ofloxacin (Generic) BOX: Use associated w/ tendon rupture and tendonitis Uses: *Lower resp tract, skin, & skin structure, & UTI, prostatitis, uncomp gonor- rhea, & Chlamydia Infxn* Acts: Bactericidal; ↓ DNA gyrase. Broad spectrum gram(+) & (−): S. pneumoniae, S. aureus, S. pyogenes, H. influenzae, P. mirabilis, N. gonorrhoeae, C. trachomatis, E. coli Dose: Adults. 200–400 mg PO bid or IV q12h. ↓ in renal impair, take on empty stomach W/P: [C, −] ↓ Absorption w/ antacids, sucralfate, Al3+, Ca2+, Mg2+, Fe2+; Zn++-containing drugs, Hx Szs CI: Quino- lone allergy Disp: Tabs 200, 300, 400 mg; Inj 20, 40 mg/mL; ophthal & otic 0.3% SE: N/V/D, photosens, insomnna, HA, local irritation, ↑ QTc interval, peripheral neuropathy risk Notes: Floxin brand D/C

Ofloxacin, Ophthalmic (Occuflox Ophthalmic) Uses: *Bacterial conjunctivitis, corneal ulcer* Acts: See Ofloxacin Dose: Adults & Peds > 1 y. 1–2 gtt in eye(s) q2–4h × 2 d, then qid × 5 more d W/P: [C, +/-] CI: Quinolone allergy Disp: Ophthal 0.3% soln SE: Burning, hyperemia, bitter taste, chemosis, photophobia

Ofloxacin, Otic (Floxin Otic, Floxin Otic Singles) Uses: *Otitis externa; chronic suppurative otitis media w/ perf drums; otitis media in peds w/ tubes* Acts: See Ofloxacin Dose: Adults & Peds > 13 y. Otitis externa: 10 gtt in ear(s) daily × 7 d.
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Olanzapine

**Peds 1–12 y. Otitis media 5 gtt in ear(s) bid × 10 d W/P: [C, –] CI: Quinolone allergy**

**Disp:** Otic 0.3% soln 5/10 mL bottles; singles 0.25 mL foil pack

**SE:** Local irritation

**Notes:** OK w/ tubes/perforated drums; 10 gtt = 0.5 mL

**Olanzapine (Zyprexa, Zydis)**  **BOX:** ↑ Mortality in elderly w/ dementia-related psychosis

**Uses:** *Bipolar mania, schizophrenia*, psychotic disorders, acute agitation in schizophrenia

**Acts:** Dopamine & serotonin antagonist; atypical antipsychotic

**Dose:** Bipolar/schizophrenia: 5–10 mg/d, weekly PRN, 20 mg/d max.

**Agitation:** atypical antipsychotic 5–10 mg IM q2–4h PRN, 30 mg/d max

**Disp:** Tabs 2.5, 5, 7.5, 10, 15, 20 mg; ODT (Zyprexa Zydis) 5, 10, 15, 20 mg; Inj 10 mg

**SE:** HA, somnolence, orthostatic ↓ BP, tachycardia, dystonia, xerostomia, constipation, hyperglycemia; ↑ Wt, ↑ prolactin levels; and sedation may be ↑ in peds

**Notes:** Takes wk to titrate dose; smoking ↓ levels; may be confused w/ Zyrtec or Zyprexa Relprevv

**Olanzapine, LA Parenteral (Zyprexa Relprevv)**  **BOX:** ↑ Risk for severe sedation/coma following parenteral Inj, observe closely for 3 h in appropriate facility; restricted distribution; ↑ mortality in elderly w/ dementia-related psychosis; not approved for dementia-related psychosis

**Uses:** *Schizophrenia*

**Acts:** See Olanzapine

**Dose:** IM: 150 mg/q2 wk, 300 mg/q4 wk, 210 mg/q2 wk, 405 mg/q4 wk, or 300 mg/q2 wk

**Disp:** Vials, 210, 300, 405 mg

**SE:** HA, sedation, ↑ Wt, cough, N/V/D, ↑ appetite, dry mouth, nasopharyngitis, somnolence

**Notes:** ✓ Glucose/lipids/CBC baseline and periodically: establish PO tolerance before Δ to IM

**Olmesartan/Olmesartan/Hydrochlorothiazide (Benicar, Benicar HCT)**  **BOX:** Use in PRG 2nd/3rd tri can harm fetus; D/C when PRG detected

**Uses:** *Hypertension, alone or in combo*

**Acts:** Benicar angiotensin II receptor blocker (ARB); Benicar HCT ARB w/ diuretic HCTZ

**Dose:** Adults. Benicar 20–40 mg qd; Benicar HCT 20–40 mg olmesartan w/ 12.5–25 mg HCTZ based on effect

**Ped 6–16 y. Benicar:** < 35 kg start 10 mg PO, range 10–20 mg qd; ≥ 35 kg start 20 mg PO qd, target 20–40 mg qd

**Disp:** (Benicar) Tabs 5, 20, 40 mg; (Benicar HCT) mg olmesartan/mg HCTZ: 20/12.5, 40/12.5, 40/25

**SE:** Dizziness, ↓ K+ w/ HCTZ product (may require replacement)

**Notes:** If Benicar does not control BP a diuretic can be added or Benicar HCT used; ? ↑ sprue-like entropathy

**Olmesartan/Amlodipine/Hydrochlorothiazide (Tribenzor)**  **Uses:** *Hypertension*

**Acts:** Combo angiotensin II receptor blocker, CCB, thiazide diuretic

**Dose:** Begin w/ 20/5/12.5 olmesartan/amldipine/HCTZ, ↑ to max 40/10/25 mg

**Disp:** (Benicar) Tabs 5, 20, 40 mg; (Benicar HCT) mg olmesartan/mg HCTZ: 20/12.5, 40/12.5, 40/25

**SE:** Dizziness, ↓ K+ w/ HCTZ product (may require replacement)

**Notes:** Anuria; sulfa allergy; PRG, neonate exposure, CrCl < 30 mg/min, age > 75 y,
severe liver Dz Disp: Tabs: (olmesartan mg/amlodipine mg/HCTZ mg) 20/5/12.5, 40/5/12.5, 40/5/25, 40/10/12.5, 40/10/25 SE: Edema, HA, fatigue, N/D, muscle spasms, jt swelling, URI, syncope Notes: Avoid w/ vol depletion; thiazide diuretics may exacerbate SLE, associated NA glaucoma; ↑ sprue-like entopathy

**Olopatadine, Nasal (Patanase)** Uses: *Seasonal allergic rhinitis* Acts: H₁-receptor antagonist Dose: 2 sprays each nostril bid W/P: [C, ?] Disp: 0.6% 240-Spray bottle SE: Epistaxis, bitter taste somnolence, HA, rhinitis

**Olopatadine, Ophthalmic (Patanol, Pataday)** Uses: *Allergic conjunctivitis* Acts: H₁-receptor antagonist Dose: Patanol: 1 gtt in eye(s) bid; Pataday: 1 gtt in eye(s) qd W/P: [C, ?] Disp: Patanol: soln 0.1% 5 mL Pataday: 0.2% 2.5 mL SE: Local irritation, HA, rhinitis Notes: Wait 10 min after to insert contacts


**Omacetaxine (Synribo)** Uses: *CML w/ resist &/or intol to ≥ 2 TKI* Acts: Inhibit protein synthesis Dose: Adults. Induct: 1.25 mg/m² SQ bid × 14 consecutive d 28-d cycle, repeat until hematologic response achieved; Maint: 1.25 mg/m² SQ twice daily × 7 consecutive d 28-d cycle, continue as long as beneficial; adjust based on toxicity (see label) W/P: [D, –] Severe myelosuppression (✓ CBC q 1–2 wk); severe bleeding (✓ plt); glucose intol (✓ glucose); embryo-fetal tox CI: None Disp: Inj powder 3.5 mg/vial SE: Anemia, neutropenia, ↓ plt; WBC, N/V/D, fatigue, asthenia, Inj site Rxn, pyrexia, Infxn, bleeding, ↑ glucose, constipation, Abd pain, edema, HA, arthralgia, insomnia, cough, epistaxis, alopecia, rash

**Omalizumab (Xolair)** BOX: Reports of anaphylaxis 2–24 h after administration, even in previously treated pts Uses: *Mod–severe asthma in ≥ 12 y w/ reactivity to an allergen & when Sxs inadequately controlled w/ inhaled steroids* Acts: Anti-IgE Ab Dose: 150–375 mg SQ q2–4wk (dose/frequency based on serum IgE level & body Wt; see PI) W/P: [B, ?/] CI: Component allergy, acute bronchospasm Disp: 150-mg single-use 5-mL vial SE: Site Rxn, sinusitis, HA, anaphylaxis reported in 3 pts Notes: Continue other asthma meds as indicated

**Omega-3 Fatty Acid [Fish Oil] (Lovaza)** Uses: *Rx hypertriglyceridemia* Acts: Omega-3 acid ethyl esters, ↓ thrombus inflammation & triglycerides Dose: Hypertriglyceridemia: 4 g/d + in 1–2 doses W/P: [C, –], Fish hypersens; PRG, risk factor w/ anticoagulant use, w/ bleeding risk CI: Hypersens to components Disp: 1000-mg gel caps SE: Dyspepsia, N, GI pain, rash, flu-like synd Notes: Only FDA-approved fish oil supl; not for exogenous hypertriglyceridemia (type 1 hyperchylomicronemia); many OTC products. D/C after 2 mo if triglyceride levels do not ↓; previously called “Omacor”

**Omeprazole (Prilosec, Prilosec [OTC])** Uses: *Duodenal/gastric ulcers (adults), GERD, and erosive gastritis (adults and children)*, prevent NSAID ulcers, ZE synd, H. pylori Infxns Acts: PPI Dose: Adults. 20–40 mg PO daily-bid ×
Omeprazole, Sodium Bicarbonate

Uses: *Duodenal/gastric ulcers, GERD and erosive gastritis (∆ GI bleed in critically ill pts)*, prevent NSAID ulcers, ZE synd. 

**Acts:** PPI w/ acid buffering; 

**Dose:** 
- Duodenal ulcer: 20 mg PO daily-bid × 4–8 wk; 
- Gastric ulcer: 40 mg PO daily-bid × 4–8 wk; 
- GERD no erosions: 20 mg PO daily × 4 wk, w/ erosions treat 4–6 wk; 
- UGI bleed prevention: 40 mg q6–8h then 40 mg/d × 14 d 

**W/P:** [C, −/+] w/ drugs that rely on gastric acid (eg, ampicillin); avoid w/ atazanavir and nelfinavir; caution w/ warfarin, diazepam, phenytoin; do not use w/ clopidogrel (controversial ∆ effect); response does not R/O malignancy 

**Disp:** OTC tabs 20 mg; Prilosec DR caps 10, 20, 40 mg; Prilosec DR susp 2.5, 10 mg 

**SE:** HA, Abd pain, N/V/D, flatulence 

**Notes:** Combo w/ anti-biotic Rx for *H. pylori*; ↑ risk of fractures, *C. difficile*, CAP w/ all PPI; risk of hypomagnesemia w/ long-term use 

Omeprazole, Sodium Bicarbonate (Zegerid, Zegerid OTC) 

**Uses:** *Duodenal/gastric ulcers, GERD and erosive gastritis (∆ GI bleed in critically ill pts)*, prevent NSAID ulcers, ZE synd. *H. pylori* Infxns 

**Acts:** PPI w/ sodium bicarb 

**Dose:** 
- Duodenal ulcer: 20 mg PO daily-bid × 4–8 wk; 
- Gastric ulcer: 40 mg PO daily-bid × 4–8 wk; 
- GERD no erosions: 20 mg PO daily × 4 wk, w/ erosions treat 4–6 wk; 
- UGI bleed prevention: 40 mg q6–8h then 40 mg/d × 14 d 

**W/P:** [C, −/+] w/ drugs that rely on gastric acid (eg, ampicillin); avoid w/ atazanavir and nelfinavir; w/ warfarin, diazepam, phenytoin; do not use w/ clopidogrel (controversial ∆ effect); response does not R/O malignancy 

**Disp:** Omeprazole mg/sodium bicarb mg: Zegerid OTC caps 20/1100; Zegerid 20/1100, mg 40/1100; Zegerid powder packet for oral susp 20/1680, 40/1680 

**SE:** HA, Abd pain, N/V/D, flatulence 

**Notes:** Not approved in peds; take 1 h ac; mix powder in small cup w/ 2 tbsp water (not food or other liq) refill and drink; do not open caps; possible ↑ risk of fractures, *C. difficile*, CAP w/ all PPI; risk of hypomagnesemia w/ long-term use, monitor 

Omeprazole/Sodium Bicarbonate/Magnesium Hydroxide (Zegerid w/ Magnesium Hydroxide) 

**Uses:** *Duodenal or gastric ulcer, GERD, maintenance esophagitis* 

**Acts:** PPI w/ acid buffering; 

**Dose:** 20–40 mg omeprazole daily, empty stomach 1 h pc; Duodenal ulcer, GERD: 20 mg 4–8 wk; Gastric ulcer: 40 mg 4–8 wk; Esophagitis main: 20 mg W/P: [C, ?/−] w/ Resp alkalosis, ↓ K⁺, ↓ Ca²⁺; ↑ drug levels metabolized by cytochrome P450; may ↑ INR w/ warfarin; may ↓ absorption drugs requiring acid environment CI: ↓ Renal Fxn; 

**Disp:** Chew tabs, 20, 40 mg omeprazole; w/ 600 mg NaHCO₃; 700 mg MgOH₂ SE: N, V, D, Abd pain, HA 

**Notes:** Atrophic gastritis w/ long-term PPI; ? ↑ risk of fractures, *C. difficile*, CAP w/ all PPI; long-term use + Ca²⁺ → milk-alkali syndrome 

Ondansetron (Zofran, Zofran ODT, Generic) 

**Uses:** *Prevent chemotherapy-associated & postop N/V* 

**Acts:** Serotonin receptor (5-HT₃) antagonist 

**Dose:** 
- Adults & Peds. Chemotherapy: 0.15 mg/kg/dose IV prior to chemotherapy, then 4 & 8 h after 1st dose or 4–8 mg PO tid; 1st dose 30 min prior to chemotherapy & give on schedule, not PRN. 
- Adults. Postoperation: 4 mg IV immediately preanesthesia or postoperation. 

**Peds. Postoperation:** < 40 kg: 0.1 mg/kg. > 40 kg: 4 mg IV; ↓ w/ hepatic impair W/P: [B, +−] Arrhythmia risk, may ↑ QT interval 

**Disp:** Tabs 4, 8, 24 mg, soln 4 mg/5 mL, Inj 2 mg/mL; Zofran ODT tabs 4, 8 mg;
Oral Contraceptives

SE: D, HA, constipation, dizziness  Notes: ODT contains phenylalanine. No single IV dose > 16 mg

**Ondansetron, Oral Soluble Film (Zuplenz)**  Uses: *Prevent chemotherapy/RT-associated & postop N/V*  Acts: Serotonin receptor (5-HT 3) antagonist  **Dose:** Adults. Highly emetogenic chemo: 24 mg (8 mg film × 3) 30 min pre-chemo; RT N & V: 8 mg film tid. Adults & Peds > 12 y. Mod emetogenic chemo: 8 mg film 30 min pre-chemo, then 8 mg in 8 h; 8 mg film bid × 1–2 d after chemo. Adults. Postop: 16 mg (8 mg film × 2) 1 h preop; ↓ w/ hepatic impair  **W/P:** [B, +/–]  **CI:** w/ Apomorphine (↓ BP, LOC).  **Disp:** Oral soluble film 4, 8 mg  SE: HA, malaise/fatigue, constipation, D  Notes: Use w/ dry hands, do not chew/swallow; place on tongue, dissolves in 4–20 s; peppermint flavored

**Oprelvekin (Neumega)**  BOX: Allergic Rxn w/ anaphylaxis reported; D/C w/ any allergic Rxn  Uses: *Prevent ↓ plt w/ chemotherapy*  Acts: ↑ Proliferation & maturation of megakaryocytes (IL-11)  **Dose:** Adults. 50 mcg/kg/d SQ for 10–21 d. Peds > 12 y. 75–100 mcg/kg/d SQ for 10–21 d. < 12 y: Use only in clinical trials; ↓ w/ CrCl < 30 mL/min 25 mcg/kg.  **W/P:** [C, ?/–]  **Disp:** 5 mg powder  SE: Tachycardia, palpitations, arrhythmias, edema, HA, dizziness, visual disturbances, papilledema, insomnia, fatigue, fever, N, anemia, dyspnea, allergic Rxns including anaphylaxis  Notes: D/C 48 h before chemo

**Oral Contraceptives (See Table 5, p 345)**  BOX: Cigarette smoking ↑ risk of serious CV SEs; ↑ risk w/ > 15 cigarettes/d, > 35 y; strongly advise women on OCP to not smoke. Pt should be counseled that these products do not protect against HIV and other STD  Uses: *Birth control; regulation of anovulatory bleeding; dysmenorrhea; endometriosis; polycystic ovaries; acne* (Note: FDA approvals vary widely, see PI)  Acts: Birth control: Suppresses LH surge, prevents ovulation; progestins thicken cervical mucus; ↓ fallopian tubule cilia, ↓ endometrial thickness to ↓ chances of fertilization. Anovulatory bleeding: Cyclic hormones mimic body’s natural cycle & regulate endometrial lining, results in regular bleeding q28d; may ↓ uterine bleeding & dysmenorrhea  **Dose:** Start day 1 menstrual cycle or 1st Sunday after onset of menses; 28-d cycle pills take daily; 21-d cycle pills take daily, no pills during last 7 d of cycle (during menses); some available as transdermal patch; Intrauterine ring  **W/P:** [X, +] Migraine, HTN, DM, sickle cell Dz, gallbladder Dz; monitor for breast Dz; w/ drospirenone containing OCP ✓ K + if taking drugs w/ ↑ K + risk; drospirenone implicated in ↑ VTE risk.  **CI:** AUB, PRG, estrogen-dependent malignancy. ↑ hypercoagulation/liver Dz, hemiplegic migraine, smokers > 35 y; drospirenone has mineralocorticoid effect; do not use w/ renal/liver/adrenal problems.  **Disp:** See Table 5, p 345. 28-d cycle pills (21 active pills + 7 placebo or Fe or folate supl); 21-d cycle pills (21 active pills)  SE: Intramenstrual bleeding, oligomenorrhea, amenorrhea, ↑ appetite/Wt gain, ↓ libido, fatigue, depression, mood swings, mastalgia, HA, melasma, ↑ Vag discharge, acne/greasy skin, corneal edema, N; drospirenone containing pills have ↑ blood clots compared to other progestins  Notes: Taken correctly, up to 99.9% effective for contraception; no STDs prevention
instruct in use of condoms to reduce STD use additional barrier contraceptive; long-term, can ↓ risk of ectopic PRG, benign breast Dz, ovarian & uterine CA. Suggestions for OCP prescribing and/or regimen changes are noted below. Listing of other forms of Rx birth control on p 27.

- **Rx menstrual cycle control:** Start w/ monophasic × 3 mo before switching to another brand; w/ continued bleeding change to pill w/ ↑ estrogen
- **Rx birth control:** Choose pill w/ lowest SE profile for particular pt; SEs numerous; d/t estrogenic excess or progesterone deficiency; each pill’s SE profile can be unique (see PI); newer extended-cycle combos have shorter/fewer hormone-free intervals; ? ↓ PRG risk; OCP troubleshooting SE w/ suggested OCP.
  - **Absent menstrual flow:** ↑ Estrogen, ↓ progestin: Brevicon, Necon 1/35, Norinyl 1/35, Modicon, Necon 1/50, Norinyl 1/50, Ortho-Cyclen, Ortho-Novum 1/35, Ovcon 35
  - **Acne:** Use ↑ estrogen, ↓ androgenic: Brevicon, Ortho-Cyclen, Estrostep, Ortho Tri-Cyclen, Mircette, Modicon, Necon, Ortho Evra, Yasmin, Yaz
  - **Break-through bleed:** ↑ Estrogen, ↑ progestin, ↓ androgenic: Desogen, Estrostep, Loestrin 1/20, Ortho-CEPT, Yasmin, Zovia 1/50
  - **Breast tenderness or ↑ Wt:** ↓ Estrogen, ↓ progestin: Use ↓ estrogen pill rather than current; Alesse, Levlite, Loestrin 1/20 Fe, Ortho Evra, Yasmin, Yaz
  - **Depression:** ↓ Progestin: Alesse, Brevicon, Modicon, Necon, Ortho Evra, Ovcon 35, Ortho-Cyclen, Ortho Tri-Cyclen Tri-Levlen, Triphasil, Trivora
  - **Endometriosis:** ↓ Estrogen, ↑ progestin: Loestrin 1.5/30, Loestrin 1/20 Fe, Lo Ovral, Levlen, Levora, Nordette, Zovia 1/35; cont w/o placebo pills or w/ 4 d of placebo pills
  - **HA:** ↓ Estrogen, ↓ progestin: Alesse, Ortho Evra
  - **Moodiness &/or irritability:** ↓ Progestin: Alesse, Brevicon, Levlite, Modicon, Necon 1/35, Ortho-Cyclen, Ortho Tri-Cyclen, Tri-Levlen, Triphasil, Trivora
  - **Severe menstrual cramping:** ↑ Progestin: Desogen, Loestrin 1.5/30, Mircette, Ortho-CEPT, Yasmin, Yaz, Zovia 1/50E, Zovia 1/35E

**Oritavancin (Orbactiv)** **Uses:** *Acute bacterial skin and skin structure infections (ABSSSI); use only in confirmed Infxn to ↓ resistance*  
**Acts:** Lipoglycopeptide; bactericidal spectrum: includes methicillin-susceptible/resistant strains and *Streptococcus pyogenes*, enterococcus  
**Dose:** 1200 mg IV 3 hrs × 1 dose  
**W/P:** [C, ?/–] w/warfarin, may ↑ PT/PTT; hypersens Rxn reported; avoid rapid inf; *Clostridium difficile*-assoc D (CDAD); use alternative w/osteomyelitis  
**CI:** Component hypersensitivity; IV heparin 48 hrs after oritavancin  
**Disp:** 400 mg powder to recons SE: N/V/D, SQ abscesses  
**Notes:** Not approved in peds

**Orphenadrine (Norflex, Generic)** **Uses:** *Discomfort associated w/ painful musculoskeletal conditions*  
**Acts:** Central atropine-like effect; indirect skeletal muscle relaxation, euphoria, analgesia  
**Dose:** 100 mg PO bid, 60 mg IM/IV q12h  
**W/P:** [C, +/-]  
**CI:** NAG, GI/ or bladder obst, cardiospasm, MyG  
**Disp:** SR tabs
100 mg; Inj 30 mg/mL SE: Drowsiness, dizziness, blurred vision, flushing, tachycardia, constipation

**Oseltamivir (Tamiflu)**

**Uses:** *Prevention & Rx influenza A & B*  
**Acts:** ↓ Viral neuraminidase  
**Dose:**  
- **Adults.** Tx: 75 mg PO bid for 5 d w/in 48 h of Sx onset; Prophylaxis: 75 mg PO daily × 10 d w/in 48 h of contact  
- **Peds.** Tx: Dose bid × 5 d: < 15 kg: 30 mg. 15–23 kg: 45 mg. 23–40 kg: 60 mg. > 40 kg: Adult dose.  
- **Prophylaxis:** Same dosing but once daily for 10 d ↓ w/ renal impair  
**W/P:** [C, ?/–] CI: Component allergy  
**Disp:** Caps 30, 45, 75 mg, powder 6 mg/mL for suspension (Note: 12 mg/mL dose is being phased out due to dosing concerns)  
**SE:** N/V, insomnia, reports of neuropsychological events in children (self-injury, confusion, delirium)  
**Notes:** Start w/in 48 h of Sx onset or exposure; 2009 H1N1 strains susceptible; ✓ CDC updates http://www.cdc.gov/h1n1flu/guidance/

**Ospemifene (Osphena):**  
**BOX:** ↑ Risk endometrial Ca; ↑ risk of CVA, DVT/PE  
**Uses:** *Moderate to severe dyspareunia*  
**Acts:** Estrogen agonist/antagonist  
**Dose:**  
- **Adults.** 1 tab 1 ×/d  
- **W/P:** [X, –] DVT/PE, hemorrhagic or thrombotic stroke, arterial thromboembolic Dz; do NOT use if known, suspected, or Hx of breast Ca; severe liver Dz  
**CI:** Undiagnosed abnormal genital bleeding; known or suspected estrogen sensitive cancer; PRG  
**Disp:** Tab 60 mg  
**SE:** Hot flashes, vaginal discharge, hyperhidrosis, muscle cramps  
**Notes:** Metabolized by CYP3A4, CYP2C9, and CYP2C9; highly protein bound, may be displaced by other highly protein-bound drugs

**Oxacillin (Generic)**

**Uses:** *Infxns d/t susceptible S. aureus, Streptococcus & other organisms*  
**Acts:** Bactericidal; ↓ cell wall synth.  
**Spectrum:** Excellent gram(+), poor gram(–)  
**Dose:**  
- **Adults.** 250–500 mg (2 g severe) IM/IV q4–6h.  
- **Peds.** 150–200 mg/kg/d IV ÷ q4–6h  
**W/P:** [B, M] CI: PCN sensitivity  
**Disp:** Powder for Inj 500 mg, 1, 2, 10 g  
**SE:** GI upset, interstitial nephritis, blood dyscrasias, may ↓ OCP effectiveness

**Oxaliplatin (Eloxatin)**  
**BOX:** Administer w/ supervision of physician experienced in chemotherapy. Appropriate management is possible only w/ adequate diagnostic & Rx facilities. Anaphylactic-like Rxns reported  
**Uses:** *Adjuvant Rx stage III colon CA (primary resected) & metastatic colon CA w/ 5-FU*  
**Acts:** Metabolized to platinum derivatives, crosslinks DNA  
**Dose:** Per protocol; see PI.  
**Premedicate:** Antiemetic w/ or w/o dexamethasone  
**W/P:** [D, –] See Box CI: Allergy to components or platinum  
**Disp:** Inj 50, 100 mg SE: Anaphylaxis, granulocytopenia, paresthesia, N/V/D, stomatitis, fatigue, neuropathy, hepatotox, pulmo tox  
**Notes:** 5-FU & leucovorin are given in combo; epi, corticosteroids, & antihistamines alleviate severe Rxns

**Oxandrolone (Oxandrin, Generic) [C-III]**  
**BOX:** Risk of peliosis hepatitis, liver cell tumors, may ↑ risk atherosclerosis  
**Uses:** *Wt ↑ after Wt ↓ from severe trauma, extensive surgery*  
**Acts:** Anabolic steroid; ↑ lean body mass  
**Dose:**  
- **Adults.** 2.5–20 mg/d PO ÷ bid-qid  
- **Peds.** ≤ 0.1 mg/kg/d ÷ bid-qid  
**W/P:** [X, ?/–] ↑ INR w/ warfarin  
**CI:** PRG, prostate CA, breast CA, breast CA w/ hypercalcemia,
nephrosis **Disp:** Tabs 2.5, 10 mg **SE:** Acne, hepatotoxic, dyslipidemia **Notes:** ✓ lipids & LFTs; Use intermittently, 2–4 wk typical

**Oxaprozin (Daypro, Generic)** **BOX:** May ↑ risk of cardiovascular CV events & GI bleeding **Uses:** *Arthritis & pain* **Acts:** NSAID; ↓ prostaglandin synth **Dose:** **Adults.** 600–1200 mg/daily (+ dose helps GI tolerance); ↓ w/ renal/hepatic impair **Peds.** JRA (Daypro): 22–31 kg: 600 mg/d. 32–54 kg: 900 mg/d **W/P:** [C (D 3rd tri), ?] Peptic ulcer, bleeding disorders **CI:** ASA/NSAID sensitivity, perioperative pain w/ CAGB **Disp:** Tabs 600 mg **SE:** CNS inhibition, sleep disturbance, rash, GI upset, peptic ulcer, edema, renal failure, anaphylactoid Rxn w/ “ASA triad” (asthmatic w/ rhinitis, nasal polyps and bronchospasm w/ NSAID use)

**Oxazepam (Generic) [C-IV]** **Uses:** *Anxiety, acute EtOH withdrawal*, anxiety w/ depressive Sxs **Acts:** Benzodiazepine; diazepam metabolite **Dose:** **Adults.** 10–15 mg PO tid-qid; severe anxiety & EtOH withdrawal may require up to 30 mg qid. **Peds > 6 y.** 1 mg/kg/d ÷ doses **W/P:** [D, ?] CI: Component allergy, NAG **Disp:** Caps 10, 15, 30 mg; tabs 15 mg **SE:** Sedation, ataxia, dizziness, rash, blood dyscrasias, dependence **Notes:** Avoid abrupt D/C

**Oxcarbazepine (Oxtellar XR, Trileptal, Generic)** **Uses:** *Partial Szs*, bipolar disorders **Acts:** Blocks voltage-sensitive Na⁺ channels, stabilization of hyperexcited neural membranes **Dose:** **Adults.** 300 mg PO bid; ↑ weekly to target maint 1200–2400 mg/d. **Peds.** 8–10 mg/kg bid, 600 mg/d max, ↑ weekly to target maint dose; ↓ w/ renal Insuff **W/P:** [C, −] Carbamazepine sensitivity **CI:** Component sensitivity **Disp:** Tabs 150, 300, 600 mg; (Oxtellar XR) ER tabs 150, 300, 600 mg; susp 300 mg/5 mL **SE:** ↓ Na⁺, HA, dizziness, fatigue, somnolence, GI upset, diplopia, concentration difficulties, fatal skin/multiorgan hypersens Rxns **Notes:** Do not abruptly D/C, ✓ Na⁺ if fatigued; advise about SJS and topic epidermal necrolysis

**Oxiconazole (Oxistat)** **Uses:** *Tinea cruris, tinea corporis, tinea pedis, tinea versicolor* **Acts:** ↓ Ergosterols in fungal cell membrane. **Spectrum:** Most *Epidermophytion floccosum, Trichophyton mentagrophytes, Trichophyton rubrum, Malassezia furfur* **Dose:** Apply thin layer daily-bid **W/P:** [B, M] CI: Component allergy **Disp:** Cream, lotion 1% **SE:** Local irritation

**Oxybutynin (Ditropan, Ditropan XL, Generic)** **Uses:** *Symptomatic relief of urgency, nocturia, incontinence w/ neurogenic or reflex neurogenic bladder* **Acts:** Anticholinergic, relaxes bladder smooth muscle, ↑ bladder capacity **Dose:** **Adults.** 5 mg bid-tid, 5 mg 4×/d max. **Peds > 5 y.** 5 mg PO bid-tid: 15 mg/d max. **Peds 1–5 y.** 0.2 mg/kg/dose 2–4×/d (syrup 5 mg/5 mL); 15 mg/d max; ↓ in elderly; periodic drug holidays OK **W/P:** [B, ?] CI: NAG, MyG, GI/GU obst, UC, megacolon **Disp:** Tabs 5 mg; XL tabs 5, 10, 15 mg; syrup 5 mg/5 mL **SE:** Anticholinergic (drowsiness, xerostomia, constipation, tachycardia), ↑ QT interval, memory impair; ER form empty shell expelled in stool

**Oxybutynin, Topical (Gelnique)** **Uses:** *OAB* **Acts:** Anticholinergic, relaxes bladder smooth muscle, ↑ bladder capacity **Dose:** 1 g sachet qd to dry skin (Abd/shoulders/thighs/upper arms) **W/P:** [B, ?] CI: Gastric or urinary retention;
Oxycodone/Acetaminophen ER

NAG Disp: Gel 10%, 1-g sachets (100 mg oxybutynin) SE: Anticholinergic (lethargy, xerostomia, constipation, blurred vision, ↑ HR); rash, pruritus, redness, pain at site; UTI Notes: Cover w/ clothing, skin-to-skin transfer can occur; gel is flammable; after applying wait 1 h before showering

Oxybutynin Transdermal System (Oxytrol) Uses: *Rx OAB* Acts: Anticholinergic, relaxes bladder smooth muscle, ↑ bladder capacity Dose: One 3.9 mg/d system apply 2x/wk (q3–4d) to Abd, hip, or buttock W/P: [B, ?/] CI: GI/GU obst, NAG Disp: 3.9 mg/d transdermal patch SE: Anticholinergic, itching/redness at site Notes: Do not apply to same site w/in 7 d

Oxycodone (OxyContin, Roxicodone, Generic) [C-II] BOX: High abuse potential; controlled release only for extended chronic pain, not for PRN use; 60-, 80-mg tab for opioid-tolerant pts; do not crush, break, or chew Uses: *Mod–severe pain, usually in combo w/ nonnarcotic analgesics* Acts: Narcotic analgesic Dose: Adults. 5 mg PO q6h PRN (IR). Mod–severe chronic pain: 10–160 mg PO q12h (ER); can give ER q8h if effect does not last 12 h. Peds 6–12 y. 1.25 mg PO q6h PRN. > 12 y: 2.5 mg q6h PRN; ↓ w/ severe liver/renal Dz, elderly; w/ food W/P: [B (D if prolonged use/near term), M] CI: Allergy, resp depression, acute asthma, ileus w/ microsomal morphine Disp: IR caps (OxyIR) 5 mg; CR Roxicodone tabs 15, 30 mg; ER (OxyContin) 10, 15, 20, 30, 40, 60, 80 mg; liq 5 mg/5 mL; soln conc 20 mg/mL SE: ↓ BP, sedation, resp depression, dizziness, GI upset, constipation, risk of abuse Notes: OxyContin for chronic CA pain; do not crush/chew/cut ER product; sought after as drug of abuse; reformulated OxyContin is intended to prevent the opioid medication from being cut, broken, chewed, crushed, or dissolved to release more medication

Oxycodone/Acetaminophen (Percocet, Primlev, Tylox) [C-II] BOX: Acetaminophen hepatotoxicity (acute liver failure, liver transplant, death) reported. Often d/t acetaminophen > 4000 mg/d or more than one acetaminophen product Uses: *Mod–severe pain* Acts: Narcotic analgesic Dose: Adults. 1–2 tabs/caps PO q4–6h PRN (acetaminophen max dose 4 g/d). Peds. Oxycodone 0.05–0.15 mg/kg/dose q4–6h PRN, 5 mg/dose max W/P: [C (D prolonged use or near term), M] CI: Allergy, paralytic ileus, resp depression Disp: Percocet tabs, mg oxycodone/mg APAP: 2.5/325, 5/325, 7.5/325, 10/325, 7.5/500, 10/650; Tylox caps 5 mg oxycodone, 500 mg APAP; Primlev: 5/300, 7.5/300, 10/300 mg, soln 5 mg oxycodone & 325 mg APAP/5 mL SE: ↓ BP, sedation, dizziness, GI upset, constipation

Oxycodone/Acetaminophen ER (Xartemis XR) [CII] BOX: Addiction risk, risk of resp depression. Accidental consumption, esp. ped's, can be fatal. Use during PRG can cause neonatal opioid withdrawal. Contains acetaminophen, associated with liver failure, transplant, and death Uses: *Acute pain that requires opioids where alternatives are inadequate* Acts: Opioid agonist and acetaminophen Dose: 2 tabs q12h w/o regard to food; do not crush/chew W/P: [C, –] Do not use before delivery; not equivalent to other combo products; caution w/ other CNS depressants, MAOI, neuromusc
Oxycodone/Aspirin

blockers, elderly, debilitated, w/ hepatic impair; may ↑ ICP (examine pupils); assoc w/ skin reactions; may ↓ BP; acetaminophen hepatotoxic > 4000 mg, avoid w/ other acetaminophen products; impairs mental/physical abilities; drugs that ↓ CYP3A4 may ↓ oxycodone clearance CI: Component hypersens; resp dep, severe asthma/hypercarbia, ileus Disp: Tabs oxycodone/acetaminophen: 7.5/325 mg SE: ↓ resp, ↓ BP, sedation, coma

**Oxycodone/Aspirin (Percodan) [C-II]** Uses: *Mod–severe pain* Acts: Narcotic analgesic w/ NSAID Dose: Adults: 1–2 tabs/caps PO q4–6h PRN. Peds. Oxycodone 0.05–0.15 mg/kg/dose q4–6h PRN, up to 5 mg/dose; ↓ in severe hepatic failure W/P: [D, –] w/ Peptic ulcer, CNS depression, elderly, Hx Sz CI: Component allergy, children (< 16 y) w/ viral Infxn (Reyes synd), resp depression, ileus, hemophilia Disp: Generics: 4.83 mg oxycodone hydrochloride, 0.38 mg oxycodone terephthalate, 325 mg ASA; Percodan 4.83 mg oxycodone hydrochloride, 325 mg ASA SE: Sedation, dizziness, GI upset/ulcer, constipation, allergy Notes: Monitor for possible drug abuse; max 4 g ASA/d

**Oxycodone/Ibuprofen (Combunox) [C-II]** BOX: May ↑ risk of serious CV events; CI in perioperative CABG pain; ↑ risk of GI events such as bleeding Uses: *Short-term (not > 7 d) management of acute mod–severe pain* Acts: Narcotic w/ NSAID Dose: 1 tab q6h PRN 4 tab max/24 h; 7 d max W/P: [C, –] w/ Impaired renal/hepatic Fxn; COPD, CNS depression, avoid in PRG CI: Paralytic ileus, 3rd-tri PRG, allergy to ASA or NSAIDs, where opioids are CI Disp: Tabs 5 mg oxycodone/400 mg ibuprofen SE: N/V, somnolence, dizziness, sweating, flatulence, ↑ LFTs Notes: ✓ Renal Fxn; abuse potential w/ oxycodone

**Oxymorphone (Opana, Opana ER) [C-II]** BOX: (Opana ER) Abuse potential, controlled release only for chronic pain; do not consume EtOH-containing beverages, may cause fatal OD Uses: *Mod–severe pain, sedative* Acts: Narcotic analgesic Dose: 10–20 mg PO q4–6h PRN if opioid-naïve or 1–1.5 mg SQ/IM q4–6h PRN or 0.5 mg IV q4–6h PRN; starting 20 mg/dose max PO; Chronic pain: ER 5 mg PO q12h; if opioid-naïve ↑ PRN 5–10 mg PO q12h q3–7d; take 1 h pc or 2 h ac; ↓ dose w/ elderly, renal/hepatic impair W/P: [B, ?] CI: ↑ ICP, severe resp depression, w/ EtOH or liposomal morphine, severe hepatic impair Disp: Tabs 5, 10 mg; ER 5, 10, 20, 30, 40 mg SE: ↓ BP, sedation, GI upset, constipation, histamine release Notes: Related to hydromorphone

**Oxytocin (Pitocin, Generic)** BOX: Not rec for elective induction of labor Uses: *Induce labor, control postpartum hemorrhage* Acts: Stimulate muscular contractions of the uterus Dose: 0.0005–0.001 units/min IV Inf; titrate 0.001–0.002 units/min q30–60min W/P: [Uncategorized, +/-] CI: Where Vag delivery not favorable, fetal distress Disp: Inj 10 units/mL SE: Uterine rupture, fetal death; arrhythmias, anaphylaxis, H₂O intoxication Notes: Monitor vital signs; nasal form for breast-feeding only; postpartum bleeding 10–40 units in 1000 mL @ sufficient rate to stop bleeding

**Paclitaxel (Abraxane, Taxol, Generic)** BOX: Administration only by physician experienced in chemotherapy; fatal anaphylaxis and hypersens possible;
Palonosetron 233

severe myelosuppression possible Uses: *Ovarian & breast CA, PCa*, Kaposi sarcoma, NSCLC. Acts: Mitotic spindle poison; promotes microtubule assembly & stabilization against depolymerization. Dose: Per protocols; use glass or polyolefin containers (eg, nitroglycerin tubing set); PVC sets leach plasticizer; ↓ in hepatic failure. W/P: [D, −] CI: Neutropenia ANC < 1500 cells/mm³, < 1000 cells/mm³ in w/ AIDS related kaposis syndrome; solid tumors, component allergy. Disp: Inj 6 mg/mL, vial 5, 16.7, 25, 50 mL; (Abraxane) 100 mg/vial. SE: ↓ BM, peripheral neuropathy, transient ileus, myalgia, ↓ HR, ↓ BP, mucositis, N/V/D, fever, rash, HA, phlebitis; hematologic tox schedule-dependent; leukopenia dose-limiting by 24-h Inf; neurotoxic limited w/ short (1–3 h) Inf; allergic Rxns (dyspnea, ↓ BP, urticaria, rash) Notes: Maintain hydration; allergic Rxn usually w/in 10 min of Inf; minimize w/ corticosteroid, antihistamine pretreatment.


Paliperidone (Invega, Invega Sustenna) BOX: Not for dementia-related psychosis. Uses: *Schizophrenia* Acts: Risperidone metabolite, antagonizes dopamine, and serotonin receptors. Dose: Invega: 6 mg PO q a.m., 12 mg/d max; CrCl 50–79 mL/min: 6 mg/d max; CrCl 10–49 mL/min: 3 mg/d max. Invega Sustenna: 234 mg day 1, 156 mg 1 week later IM (deltoid), then 117 mg monthly (deltoid or gluteal); range 39–234 mg/mo W/P: [C, ?/−] CI: Risperidone/paliperidone hypersens. Disp: Invega: ER tabs 1.5, 3, 6, 9 mg; Invega Sustenna: Prefilled syringes 39, 78, 117, 156, 234 mg. SE: Impaired temp regulation, ↑ QT & HR, HA, anxiety, dizziness, N, dry mouth, fatigue, EPS. Notes: Do not chew/cut/crush pill; determine tolerability to oral risperidone or paliperidone before using injectable.

Palivizumab (Synagis) Uses: *Prevent RSV Infxn* Acts: MoAb. Dose: Peds. 15 mg/kg IM monthly, typically Nov–Apr; AAP rec max 3 doses for those born 32–34 6/7 wk w/o significant congenital heart/lung Dz. W/P: [C, ?] Renal/hepatic dysfunction CI: Component allergy. Disp: Vials 50, 100 mg. SE: Hypersens Rxn, URI, rhinitis, cough, ↑ LFTs, local irritation.

Palonosetron (Aloxi) Uses: *Prevent acute & delayed N/V w/ emetogenic chemotherapy; prevent postoperative N/V up to 24 h* Acts: 5-HT3-receptor antagonist. Dose: Adults. Chemotherapy: 0.25 mg IV 30 min pre-chemo; 0.5 mg PO 1 h pre-chemo w/o regard to food. Postoperative N/V: 0.075 mg immediately before induction Peds 1 mo to 17 y. 20 mcg/kg (max 1.5 mg) × 1 IV over 15 min 30 min pre-chemo W/P: [B, ?] May ↑ QTc interval CI: Component allergy. Disp: 0.05
mg/mL (1.5 & 5 mL vials); 0.5-mg caps **SE:** HA, constipation, dizziness, Abd pain, anxiety

**Pamidronate (Generic)**

**Uses:** *Hypercalcemia of malignancy, Paget Dz, palliate symptomatic bone metastases*  
**Acts:** Bisphosphonate; ↓ nl & abnormal bone resorption  
**Dose:**  
- *Hypercalcemia:* 60–90 mg IV over 2–24 h or 90 mg IV over 24 h if severe; may repeat in 7 d.  
- *Paget Dz:* 30 mg/d IV slow Inf over 4 h × 3 d.  
- *Osteolytic bone mets in myeloma:* 90 mg IV over 4 h qmo.  
- *Osteolytic bone mets breast CA:* 90 mg IV over 2 h q3–4wk; 90 mg/max single dose.  
**W/P:** [D, ?/] Avoid invasive dental procedures w/ use  
**CI:** PRG, bisphosphonate sensitivity  
**Disp:** Inj 30, 60, 90 mg

**Notes:** Perform dental exam pretherapy; follow Cr, hold dose if Cr ↑ by 0.5 mg/dL w/ nl baseline or by 1 mg/dL w/ abnormal baseline; restart when Cr returns w/in 10% of baseline; may ↑ atypical subtrochanteric femur fractures

**Pancrelipase (Creon, Pancreaze, Panakare Plus, Pertzye, Ultresa, Voikace, Zenpep, Generic)**

**Uses:** *Exocrine pancreatic secretion deficiency (eg, CF, chronic pancreatitis, pancreatic Insuff), steatorrhea of malabsorption*  
**Acts:** Pancreatic enzyme supl; amylase, lipase, protease  
**Dose:** 1–3 caps (tabs) w/ meals & snacks; ↑ to 8 caps (tabs); do not crush or chew EC products; dose dependent on digestive requirements of pt; avoid antacids

**W/P:** [C, ?/]  
**CI:** Pork product allergy, acute pancreatitis

**Disp:** Caps, tabs  
**SE:** N/V, Abd cramps  
**Notes:** Individualize Rx; dosing based on lipase component

**Pancuronium (Generic)**

**BOX:** Should only be administered by adequately trained individuals  
**Uses:** *Paralysis w/ mechanical ventilation*  
**Acts:** Nondepolarizing neuromuscular blocker  
**Dose:**  
- *Adults & Peds > 1 mo.* Initial 0.06–0.1 mg/kg; maint 0.01 mg/kg 60–100 min after, then 0.01 mg/kg q25–60min PRN; ↓ w/ renal/hepatic impair; intubate pt & keep on controlled ventilation; use adequate sedation and analgesia  
**W/P:** [C, ?/]  
**CI:** Component or bromide sensitivity  
**Disp:** Inj 1, 2 mg/mL  
**SE:** Tachycardia, HTN, pruritus, other histamine/hypersens Rxns  
**Notes:** Cross-reactivity w/ other neuromuscular blocker possible

**Panitumumab (Vectibix)**

**BOX:** Derm tox common (89%) and severe in 12%; can be associated w/ Infxn (sepsis, abscesses requiring I&D; w/ severe derm tox, hold or D/C and monitor for Infxn; severe Inf Rxns (anaphylactic Rxn, bronchospasm, fever, chills, hypotension) in 1%; w/ severe Rxns, immediately D/C Inf and possibly permanent D/C  
**Uses:** *Rx EGFR-expressing metastatic colon CA*  
**Acts:** Anti-EGFR MoAb  
**Dose:** 6 mg/kg IV Inf over 60 min q14d; doses > 1000 mg over 90 min ↓ Inf rate by 50% w/ grade 1–2 Inf Rxn, D/C permanently w/ grade 3–4 Rxn. For derm tox, hold until < grade 2 tox. If improves < 1 mo, restart 50% original dose. If tox recurs or resolution > 1 mo permanently D/C. If ↓ dose tolerated, ↑ dose by 25%  
**W/P:** [C, –]  
**Disp:** 20 mg/mL vial (5, 10 mL)  
**SE:** Rash, acneiform dermatitis, pruritus, paronychia, ↓ Mg²⁺, Abd pain,
Pasireotide

N/V/D, constipation, fatigue, dehydration, photosens, conjunctivitis, ocular hyperemia, ↑ lacrimation, stomatitis, mucositis, pulm fibrosis, severe derm tox, Inf Rxns

Notes: May impair female fertility; ✓ lyes; wear sunscreen/hats, limit sun exposure

Pantoprazole (Protonix, Generic)

Uses: *GERD, erosive gastritis*, ZE synd, PUD

Acts: Proton pump inhib

Dose: Adult: 40 mg/d PO; do not crush/chew tabs; 40 mg IV/d (not > 3 mg/min) Peds: 0.5–1 mg/kg/d ages 6–13 y limited data

W/P: [B, ?/] Do not use w/ clopidogrel (↓ effect) Disp: Tabs, DR 20, 40 mg; 40 mg powder for oral susp (mix in applesauce or juice, give immediately); Inf 40 mg SE: CP, anxiety, GI upset, ↑ LFTs

Notes: ? ↑ Risk of fractures w/ all PPI; risk of hypomagnesemia w/ long-term use, monitor; ↑ C. difficile risk

Paregoric [Camphorated Tincture of Opium] [C-III] Uses: *D*, pain & neonatal opiate withdrawal synd

Acts: Narcotic

Dose: Adults. 5–10 mL PO 1–4×/d PRN. Peds. 0.25–0.5 mL/kg 1–4×/d.

W/P: [B (D w/ prolonged use/high dose near term, +) CI: Toxic D; convulsive disorder, morphine sensitivity Disp: Liq 2 mg morphine = 20 mg opium/5 mL

SE: ↓ BP, sedation, constipation

Notes: Contains anhydrous morphine from opium; do not confuse w/ opium tincture; short-term use only; contains benzoic acid (benzyl alcohol metabolite)

Paroxetine (Brisdelle) BOX: Potential for suicidal thinking/behavior; monitor closely Uses: *Mod–severe menopause vasomotor Sx (not for psych use)*

Acts: SSRI, nonhormonal Rx for condition

Dose: 7.5 mg PO qhs

W/P: [X, ?/M]

Serotonin synd, bleed w NSAID, ↓ Na+, ↓ tamoxifen effect, fractures, mania/hypomania activation, Szs, akathisia, NAG, cognitive/motor impair, w/ strong CYP2D6 inhib

CI: w/ or w/in 14 d of MAOI, w/ thioridazine/pimozide/PRG

Disp: Caps 7.5 mg

SE: HA, fatigue, N/V

Notes: See other paroxetine listings

Paroxetine (Paxil, Paxil CR, Pexeva, Generic) BOX: Closely monitor for worsening depression or emergence of suicidality, particularly in children, adolescents, and young adults; not for use in peds

Uses: *Depression, OCD, panic disorder, social anxiety disorder*, PMDD

Acts: SSRI, nonhormonal Rx for condition

Dose: 10–60 mg PO single daily dose in a.m.; CR 25 mg/d PO; ↑ 12.5 mg/wk (max range 26–62.5 mg/d)

W/P: [D, ?/]

↑ Bleeding risk

CI: w/ MAOI, thioridazine, pimozide, linezolid, methylthioninium chloride (methylene blue) Disp: Tabs 10, 20, 30, 40 mg; susp 10 mg/5 mL; CR 12.5, 25, 37.5 mg

SE: HA, somnolence, dizziness, GI upset, N/D, ↓ appetite, sweating, xerostomia, tachycardia, ↓ libido, ED, anorgasmia

Pasireotide (Signifor)

Uses: *Cushing Dz*

Acts: Somatostatin analogue

Dose: Adults. 0.6–0.9 mg SQ 2×/d; titrate on response/tolerability; hepatic impair (Child-Pugh B): 0.3–0.6 mg SQ twice daily, (Child-Pugh C): avoid

W/P: [C, –] w/ Risk for ↓ HR or ↑ QT; w/ drugs that ↓ HR, ↑ QT, cyclosporine, bromocriptine

CI: None Disp: Inf single-dose 0.3, 0.6, 0.9 mg/mL

SE: N/V/D, hyperglycemia, HA, Abd pain, cholelithiasis, fatigue, DM, hypokortisolism, ↓ HR, QT prolongation, ↑ glucose, ↑ LFTs, ↓ pituitary hormones, Inf site Rxn, edema, alopecia, asthenia, myalgia, arthralgia

Notes: Prior to and periodically (see label), ✓ FPG, HbA1c, LFTs, ECG, gallbladder US
Pazopanib (Votrient)  BOX: Administer only by physician experienced in chemotherapy. Severe and fatal hepatotox observed  

**Uses:** *Rx advanced RCC* metastatic soft-tissue sarcoma after chemotherapy  

**Acts:** TKI  

**Dose:** Adults. 800 mg PO once daily, ↓ to 200 mg daily if moderate hepatic impair, not rec in severe hepatic Dz (bili > 3× ULN)  

**W/P:** [D, –] Avoid w/ CYP3A4 inducers/inhib and QTc prolonging drugs, all SSRI.  

**CI:** Severe hepatic Dz  

**Disp:** 200-mg tablet  

**SE:** ↑ BP, N/V/D, GI perf, anorexia, hair depigmentation, ↓ WBC, ↓ plt, ↑ bleeding, ↑ AST/ALT/bili, ↓ Na, CP, ↑ QT  

**Notes:** Hold for surgical procedures. Take 1 h ac or 2 h pc  

Pegfilgrastim (Neulasta)  

**Uses:** *↓ Frequency of Infxn in pts w/ nonmyeloid malignancies receiving myelosuppressive anti-CA drugs that cause febrile neutropenia*  

**Acts:** Granulocyte and macrophage-stimulating factor  

**Dose:** Adults. 6 mg SQ × 1/chemotherapy cycle  

**W/P:** [C, M] w/ Sickle cell  

**CI:** Allergy to *E. coli*-derived proteins or filgrastim  

**Disp:** Syringes: 6 mg/0.6 mL  

**SE:** Splenic rupture, HA, fever, weakness, fatigue, dizziness, insomnia, edema, N/V/D, stomatitis, anorexia, constipation, taste perversion, dyspepsia, Abd pain, granulocytopenia, neutropenic fever, ↑ LFTs & uric acid, arthralgia, myalgia, bone pain, ARDS, alopecia, worsen sickle cell Dz  

**Notes:** Never give between 14 d before & 24 h after dose of cytotoxic chemotherapy  

Peginterferon Alpha-2a [Pegylated Interferon] (Pegasys)  

**BOX:** Can cause or aggravate fatal or life-threatening neuropsychological, autoimmune, ischemic, and infectious disorders. Monitor pts closely  

**Uses:** *Chronic hep C w/ compensated liver Dz*  

**Acts:** Immune modulator  

**Dose:** Typical dose (see package insert) 1 mcg/kg/wk SQ; 1.5 mcg/kg/wk combo w/ ribavirin  

**W/P:** [C, ?–] w/ Psychological disorder  

**Hx CI:** Autoimmune hep, decompensated liver Dz  

**Disp:** 180 mcg/mL Inj  

**SE:** Depression, insomnia, suicidal behavior, GI upset, ↓ WBC and plt, alopecia, pruritus; do not confuse w/ peginterferon alpha-2b  

Peginterferon Alpha-2b [Pegylated Interferon] (PegIntron)  

**BOX:** Can cause or aggravate fatal or life-threatening neuropsychological, autoimmune, ischemic, and infectious disorders; monitor pts closely  

**Uses:** *Rx hep C*  

**Acts:** Immune modulator  

**Dose:** Typical dose (see package insert) 1 mcg/kg/wk SQ; 1.5 mcg/kg/wk combo w/ ribavirin  

**W/P:** [C, ?–] w/ Psychological disorder  

**Hx CI:** Autoimmune hep, decompensated liver Dz, hemoglobinopathy  

**Disp:** Vials 50, 80, 120, 150 mcg/0.5 mL; Redipen 50, 80, 120, 150 mcg/5 mL; reconstitute w/ 0.7 mL w/ sterile water  

**SE:** Depression, insomnia, suicidal behavior, GI upset, neutropenia, thrombocytopenia, alopecia, pruritus  

**Notes:** Give hs or w/ APAP to ↓ flu-like Sxs; monitor CBC/plt; use immediately or store in refrigerator × 24 h; do not freeze  

Pegloticase (Krystexxa)  

**BOX:** Anaphylaxis/Inf Rxn reported; admin in settings prepared to manage these Rxns; premed w/ antihistamines and corticosteroids  

**Uses:** *Refractory gout*  

**Acts:** PEGylated recombinant urate-oxidase enzyme  

**Dose:** 8 mg IV q2wk (in 250 mL NS/½NS over 120 min) prem ed w/ antihistamines and corticosteroids  

**W/P:** [C, –]  

**CI:** G6PD deficiency
Penicillin V

8 mg/mL in 1 mL vial SE: Inf Rxn (anaphylaxis, urticaria, pruritis, erythema, CP, dyspnea); may cause gout flare, N Notes: ✓ uric acid level before each Inf, consider D/C if 2 consecutive levels > 6 mg/dL; do not IV push

**Pemetrexed (Alimta)**

*Uses:* *w/ Cisplatin in nonresectable mesothelioma*, NSCLC  
*Acts:* Antifolate antineoplastic  
*Dose:* 500 mg/m² IV over 10 min q3wk; hold if CrCl < 45 mL/min; give w/ vit B₁₂ (1000 mcg IM q9wk) & folic acid (350–1000 mcg PO daily); start 1 wk before; dexamethasone 4 mg PO bid × 3; start 1 d before each Rx  
*W/P:* [D, −] w/ Renal/hepatic/BM impair  
*CI:* Component sensitivity  
*Disp:* 500-mg vial  
*SE:* Neutropenia, thrombocytopenia, N/V/D, anorexia, stomatitis, renal failure, neuropathy, fever, fatigue, mood changes, dyspnea, anaphylactic Rxns  
*Notes:* Avoid NSAIDs, follow CBC/plt; ↓ dose w/ grade 3–4 mucositis

**Pemirolast (Alamast)**

*Uses:* *Allergic conjunctivitis*  
*Acts:* Mast cell stabilizer  
*Dose:* 1–2 gtt in each eye qid  
*W/P:* [C, ?/]  
*Disp:* 0.1% (1 mg/mL) in 10-mL bottles  
*SE:* HA, rhinitis, cold/flu Sxs, local irritation  
*Notes:* Wait 10 min before inserting contacts

**Penbutolol (Levatol)**

*Uses:* *HTN*  
*Acts:* β-Adrenergic receptor blocker, β₁, β₂  
*Dose:* 20–40 mg/d; ↓ in hepatic Insuff  
*W/P:* [C 1st tri; D if 2nd/3rd tri, M]  
*CI:* Asthma, cardiogenic shock, cardiac failure, heart block, ↓ HR, COPD, pulm edema  
*Disp:* Tabs 20 mg SE: Flushing, ↓ BP, fatigue, hyperglycemia, GI upset, sexual dysfunction, bronchospasm  
*Notes:* ISA

**Penicilovir (Denavir)**

*Uses:* *Herpes simplex (herpes labialis/cold sores)*  
*Acts:* Competitive inhib of DNA polymerase  
*Dose:* Apply at 1st sign of lesions, then q2h while awake × 4 d  
*W/P:* [B, ?/]  
*CI:* Allergy, previous Rxn to famciclovir  
*Disp:* Cream 1% SE: Erythema, HA  
*Notes:* Do not apply to mucous membranes

**Penicillin G, Aqueous (Potassium or Sodium) (Pfizerpen, Pentids)**

*Uses:* Bacteremia, endocarditis, pericarditis, resp tract Infxns, meningitis, neurosyphilis, skin/skin structure Infxns*  
*Acts:* Bactericidal; ↓ cell wall synth.  
*Spectrum:* Most gram(+) (not staphylococci), streptococci, N. meningitidis, syphilis, clostridia, & anaerobes (not Bacteroides)  
*Dose:* Adults. Based on indication range 0.6–24 mill units/d in ÷ doses q4h. *Peds Newborns < 1 wk.* 25,000–50,000 units/kg/dose IV q12h. *Infants 1 wk–< 1 mo.* 25,000–50,000 units/kg/dose IV q8h. *Children:* 100,000–400,000 units/kg/24h IV ÷ q4h; ↓ in renal impair  
*W/P:* [B, M]  
*CI:* Allergy  
*Disp:* Powder for Inj SE: Allergic Rxns; interstitial nephritis, D, Szs  
*Notes:* Contains 1.7 mEq of K⁺/mill units

**Penicillin V (Pen-Vee K, Veetids, Others)**

*Uses:* Susceptible streptococcal Infxns, otitis media, URIls, skin/soft-tissue Infxns (PCN-sensitive staphylococci)  
*Acts:* Bactericidal; ↓ cell wall synth.  
*Spectrum:* Most gram(+), including streptococci  
*Dose:* Adults. 250–500 mg PO q6h, q8h, q12h. *Peds.* 25–50 mg/kg/24 h PO in 3–4 ÷ dose above the age of 12 y, dose can be standardized vs Wt based; ↓ in renal impair; take on empty stomach  
*W/P:* [B, M]  
*CI:* Allergy  
*Disp:* Tabs 125, 250, 500 mg; susp 125, 250 mg/5 mL SE: GI upset, interstitial nephritis, anaphylaxis, convulsions  
*Notes:* Well-tolerated PO PCN; 250 mg = 400,000 units of PCN G
Penicillin G Benzathine (Bicillin)  Uses: *Single-dose regimen for streptococcal pharyngitis, rheumatic fever, glomerulonephritis prophylaxis, & syphilis*  
**Acts:** Bactericidal; ↓ cell wall synth.  
**Spectrum:** See Penicillin G  
**Dose:**  
- **Adults.** 1.2–2.4 mill units deep IM Inj q2–4wk.  
- **Peds.** 50,000 units/kg/dose, 2.4 mill units/dose max; deep IM Inj q2–4 wk  
**W/P:** [B, M]  
**CI:** Allergy  
**Disp:** Inj 300,000, 600,000 units/mL; Bicillin L-A benzathine salt only; Bicillin C-R combo of benzathine & procaine (300,000 units procaine w/ 300,000 units benzathine/mL or 900,000 units benzathine w/ 300,000 units procaine/2 mL)  
**SE:** Inj site pain, acute interstitial nephritis, anaphylaxis  
**Notes:** IM use only; sustained action, w/ levels up to 4 wk; drug of choice for noncongenital syphilis

Penicillin G Procaine (Wycillin, Others)  Uses: *Infxns of resp tract, skin/soft tissue, scarlet fever, syphilis*  
**Acts:** Bactericidal; ↓ cell wall synth.  
**Spectrum:** PCN G-sensitive organisms that respond to low, persistent serum levels  
**Dose:**  
- **Adults.** 0.6–4.8 mill units/d in ÷ doses q12–24h; give probenecid at least 30 min prior to PCN to prolong action.  
- **Peds.** 25,000–50,000 units/kg/d IM ÷ daily-bid  
**W/P:** [B, M]  
**CI:** Allergy  
**Disp:** Inj 300,000, 500,000, 600,000 units/mL  
**SE:** Pain at Inj site, interstitial nephritis, anaphylaxis  
**Notes:** LA parenteral PCN; levels up to 15 h

Pentamidine (Pentam 300, NebuPent)  Uses: *Rx & prevention of PCP*  
**Acts:** ↓ DNA, RNA, phospholipid, & protein synth  
**Dose:**  
- **Rx:** Adults & Peds. 4 mg/kg/24 h IV daily × 14–21 d. Prevention: Adults & Peds > 5 y. 300 mg once q4wk, give via Respirgard II nebulizer; ↓ IV w/ renal impair  
**W/P:** [C, ?]  
**CI:** Component allergy, use w/ didanosine  
**Disp:** Inj 300 mg/vial; aerosol 300 mg  
**SE:** Pancreatic cell necrosis w/ hyperglycemia; pancreatitis, CP, fatigue, dizziness, rash, GI upset, renal impair, blood dyscrasias (leukopenia, thrombocytopenia)  
**Notes:** Follow CBC, glucose, pancreatic Fxn monthly for first 3 mo; monitor for ↓ BP following IV dose; prolonged use may ↑ Infxn risk

Pentazocine (Talwin) [C-IV]  Uses: *Mod–severe pain; preanesthetic*  
**Acts:** Partial narcotic agonist–antagonist  
**Dose:** Adults. 30 mg IM or IV q3–4h PRN; max 360 mg/24 h *Labor:* 20–30 mg Peds > 1 y. Sedation 0/5 mg/kg IM; ↓ in renal/hepatic impair  
**W/P:** [C (1st tri, D w/ prolonged use/high dose near term), +/-]  
**CI:** Component allergy  
**Disp:** Inj 30 mg/mL SE: Dysphoria; drowsiness, GI upset, xerostomia, Szs  
**Notes:** 30 mg IM = 10 mg of morphine = 75-100 mg meperidine

Pentobarbital (Nembutal) [C-II]  Uses: *Insomnia (short-term), convulsions*, sedation, induce coma w/ severe head injury  
**Acts:** Barbiturate  
**Dose:** Adults.  
- **Sedative:** 150–200 mg IM, 100 mg IV, may repeat up to 500 mg max.  
- **Hypnotic:** 100–200 mg PO or PR hs PRN.  
**Induced coma:** Load 5–10 mg/kg IV, w/ maint 1–3 mg/kg/h IV.  
**Peds. Induced coma:** As adult W/P: [D, +/-]  
**CI:** Severe hepatic impair  
**Disp:** Caps 50, 100 mg; elixir 18.2 mg/5 mL (= 20 mg pentobarbital); supp 30, 60, 120, 200 mg; Inj 50 mg/mL SE: Resp depression, ↓ BP w/ aggressive IV use for cerebral edema; ↓ HR, ↓ BP, sedation, lethargy, resp ↓, hangover, rash, SJS, blood dyscrasias  
**Notes:** Tolerance to sedative–hypnotic effect w/in 1–2 wk
**Perphenazine (Generic)** Uses: *Psychotic disorders, severe N* Acts: Pheno-thiazine, blocks brain dopaminergic receptors Dose: Adults, Antipsychotic: 4–16 mg PO tid; max 64 mg/d. Notes: Starting doses for schizophrenia lower in nonhospitalized pts N/V: 8–16 mg/d in + doses. Peds 1–6 y: 4–6 mg/d PO in + doses. 6–12 y: 6 mg/d PO in + doses. >12 y: 4–16 mg PO 2–4×/d; ↓ in hepatic Insuff W/P: [C, ?/−] NAG, severe ↑/↓ BP CI: Pheno-thiazine sensitivity, BM depression, severe liver or kidney impairment.
cardiac Dz Disp: Tabs 2, 4, 8, 16 mg SE: ↓ BP, ↑/↓ HR, EPS, drowsiness, Szs, photosens, skin discoloration, blood dyscrasias, constipation

**Pertuzumab (Perjeta)** BOX: Embryo-fetal death & birth defects. Animal studies: oligohydramnios, delayed renal development, & death. Advise pt of risk & need for effective contraception Uses: *HER2-pos metastatic breast CA w/ trastuzumab & docetaxel in pts who have not received prior anti-HER2 therapy or chemo* Acts: HER2 dimerization inhib Dose: Adults. 840 mg 60 min IV Inf × 1; then 420 mg 30–60 min IV Inf q3wk; see label tox dose adjust W/P: [D, –] LV dysfxn (monitor LVEF); Inf Rxn CI: None Disp: Inj vial 420 mg/14 mL SE: N/V/D, alopecia, ↓ RBC/WBC, fatigue, rash, peripheral neuropathy, hypersens, anaphylaxis, pyrexia, asthenia, stomatitis, pruritus, dry skin, paronychia, HA, dysgeusia, dizziness, myalgia, arthralgia, URI, insomnia

**Phenazopyridine (Pyridium, Azo-Standard, Urogesic, Many Others) [OTC]** Uses: *Lower urinary tract irritation* Acts: Anesthetic on urinary tract mucosa Dose: Adults. 100–200 mg PO tid; 2 d max w/ antibiotics for UTI; ↓ w/ renal Insuff W/P: [B, ?] Hepatic Dz CI: Renal failure, CrCl < 50 mL/min Disp: Tabs (Pyridium) 100, 200 mg [OTC] 45, 97.2, 97.5 mg SE: GI disturbances, red-orange urine color (can stain clothing, contacts), HA, dizziness, acute renal failure, methemoglobinemia, tinting of sclera/skin Notes: Take w/ food

**Phenelzine (Nardil)** BOX: Antidepressants ↑ risk of suicidal thinking and behavior in children and adolescents w/ major depressive disorder and other psychological disorders; not for peds use Uses: *Depression*, bulimia Acts: MAOI Dose: Adults. 15 mg PO tid, ↑ to 60–90 mg/d ÷ doses. Elderly: 17.5–60 mg/d ÷ doses W/P: [C, –] Interacts w/ SSRI, ergots, triptans CI: CHF, Hx liver Dz, pheochromocytoma Disp: Tabs 15 mg SE: Postural ↓ BP; edema, dizziness, sedation, rash, sexual dysfunction, xerostomia, constipation, urinary retention Notes: 2–4 wk for effect; avoid tyramine-containing foods (eg, cheeses)

**Phenobarbital (Generic) [C-IV]** Uses: *Sz disorders*, insomnia, anxiety Acts: Barbirurate Dose: Adults. Sedative–hypnotic: 30–120 mg/d PO or IM PRN. Anticonvulsant: Load 10–20 mg/kg × 1 IV then 1–3 mg/kg/24 h PO or IV. Peds. Sedative–hypnotic: 2–3 mg/kg/24 h PO or IM hs PRN. Anticonvulsant: Load 15–20 mg/kg × 1 IV then 3–5 mg/kg/24 h PO ÷ in 2–3 doses; ↓ w/ CrCl < 10 mL/min W/P: [D, M] CI: Porphyria, hepatic impair, dyspnea, airway obst Disp: Tabs 15, 30, 60, 100 mg; elixir 20 mg/5 mL; Inj 60, 65, 130 mg/mL SE: ↓ HR, ↓ BP, hangover, SJS, blood dyscrasias, resp depression Notes: Tolerance develops to sedation; paradoxical hyperactivity seen in ped pts; long half-life allows single daily dosing. Levels: Trough: Just before next dose. Therapeutic: Trough: 15–40 mcg/mL; Toxic: Trough: > 40 mcg/mL half-life: 40–120 h

**Phentermine (Adipex-P, Suprenza, Generic)** Uses: *Wt loss in exogenous obesity* Acts: Anorectic/sympathomimetic amine Dose: Adults. 1 daily in a.m., lowest dose possible; place on tongue, allow to dissolve, then swallow W/P: [X, –] CI: CV Dz, hyperthyroidism, glaucoma, PRG, nursing, w/in 14 d of MOAI
Phenylephrine, Oral

Disp: Tabs 15, 30, 37.5 mg; (Suprenza) ODT 15, 30, 37.5 mg SE: Pulm hypertension; aortic/mitral/tricuspid regurg valve Dz; dependence, ↑ HR, ↑ BP, palpitations, insomnia, HA, psychosis, restlessness, mood change, impotence, dry mouth, taste disturbance Notes: Avoid use at night

Phentermine/Topiramate (Qsymia) [C-IV] Uses: *Wt management w/ BMI ≥ 30 kg/m² or ≥ 27 kg/m² w/ Wt-related comorbidity* Acts: Anorectic (sympathomimetic amine w/ anticonvulsant) Dose: Adults. 3.75/23 mg PO daily × 14 d, then 7.5/46 mg PO daily; max dose 15/92 mg daily or 7.5/46 mg w/ mod/severe renal impair or mod hepatic impair; D/C if not > 3% Wt loss on 7.5/46 mg dose or 5% Wt loss on 15/92 mg dose by week 12; D/C max dose gradually to prevent Szs W/P: [X, –] CI: PRG, glaucoma, hyperthyroidism, use w/ or w/in 14 d of MAOI
Disp: Caps (phentermine/topiramate ER) 3.75/23, 7.5/46, 11.25/69, 15/92 mg SE: Paresthesia, dizziness, dysgeusia, insomnia, constipation, dry mouth, ↑ HR, ↑ BP, palpitations, HA, restlessness, mood change, memory impair, metabolic acidosis, kidney stones, ↑ Cr, acute myopia, glaucoma, depression, suicidal behavior/ideation Notes: √ PRG baseline & qmo; effective contraception necessary, √ HR/BP/electrolytes REMS restricted distribution

Phenylephrine, Nasal (Neo-Synephrine Nasal [OTC]) BOX: Not for use in peds < 2 y Uses: *Nasal congestion* Acts: α-Adrenergic agonist Dose: Adults. 0.25–1% 2–3 sprays/drops in each nostril 94 h PRN. Peds 2–6 y. 0.125% 1 drop/nostril q2–4h. 6–12 y: 1–2 sprays/nostril q4h 0.25% 2–3 drops W/P: [C, +/−] HTN, acute pancreatitis, hep, coronary Dz, NAG, hyperthyroidism CI: ↓ HR, arrhythmias Disp: Nasal spray 0.25, 0.5, 1%; drops: 0.125, 0.25 mg/mL SE: Arrhythmias, HTN, nasal irritation, dryness, sneezing, rebound congestion w/ prolonged use, HA Notes: Do not use > 3 d

Phenylephrine, Ophthalmic (Neo-Synephrine Ophthalmic, AK-Dilate, Zincfrin [OTC]) Uses: *Mydriasis, ocular redness [OTC], perioperative mydriasis, posterior synechiae, uveitis w/ posterior synechiae* Acts: α-Adrenergic agonist Dose: Adults. Redness: 1 gtt 0.12% q3–4h PRN up to qid. Exam mydriasis: 1 gtt 2.5% (15 min–1 h for effect). Preop: 1 gtt 2.5–10% 30–60 min preop. Peds. As adult, only use 2.5% for exam, preop, and ocular conditions W/P: [C, May cause late-term fetal anoxia/↓ HR, +/−] HTN, w/ elderly w/ CAD CI: NAG Disp: Ophthal soln 0.12% (Zincfrin OTC), 2.5, 10% SE: Tearing, HA, irritation, eye pain, photophobia, arrhythmia, tremor

Phenylephrine, Oral (Sudafed, Others [OTC]) BOX: Not for use in peds < 2 y Uses: *Nasal congestion* Acts: α-Adrenergic agonist Dose: Adults. 10–20 mg PO q4h PRN, max 60 mg/d. Peds. 4–5 y: 2.5 mg q4h max 6 doses/d; > 6–12: 5 mg q4h, max 30 mg/d ≥ 12: adult dosing W/P: [C, +/−] HTN, acute pancreatitis, hep, coronary Dz, NAG, hyperthyroidism CI: MAOI w/in 14 d, NAG, severe ↑ BP or CAD, urinary retention Disp: Liq 7.5 mg/5 mL; drops: 1.25/0.8 mL, 2.5 mg/5 mL; tabs 5, 10 mg; chew tabs 10 mg; tabs once daily 10 mg; strips: 1.25, 2.5, 10 mg; many combo OTC products SE: Arrhythmias, HTN, HA,
Phenylephrine, Systemic (Generic)

**Uses:** *Vascular failure in shock, allergy,* or drug-induced ↓ BP*

**Acts:** α-Adrenergic agonist

**Dose:** Adults. Mild–mod ↓ BP: 2–5 mg IM or SQ ↑ BP for 2 h; 0.1–0.5 mg IV elevates BP for 15 min. Severe ↓ BP/shock: Cont Inf at 100–180 mcg/min; after BP stable Peds. ↓ BP: 5–20 mcg/kg/dose IV q10–15min or 0.1–0.5 mcg/kg/min IV Inf, titrate to effect

**W/P:** [C, +/−] HTN, acute pancreatitis, hep, coronary Dz, NAG, hyperthyroidism

**CI:** ↓ HR, arrhythmias

**Disp:** Inf 10 mg/mL

**SE:** Arrhythmias, HTN, peripheral vasoconstriction w/ oxytocin, MAOIs, & TCAs; HA, weakness, necrosis, ↓ renal perfusion

**Notes:** Restore blood vol if loss has occurred; use large veins to avoid extrav; phentolamine 10 mg in 10–15 mL of NS for local Inj to Rx extrav

Phenytoin (Dilantin, Generic)

**Uses:** *Sz disorders*

**Acts:** ↓ Sz spread in the motor cortex

**Dose:** Adults & Peds. Load: 15–20 mg/kg IV, 50 mg/min max or PO in 400-mg doses at 4-h intervals; Adults. Maint: Initial 200 mg PO or IV bid or 300 mg hs then follow levels; alternatively 5–7 mg/kg/d based on IBW + daily-tid, Peds. Maint: 4–7 mg/kg/24h PO or IV + daily-bid; avoid PO susp (erratic absorption)

**W/P:** [D, +] CI: Heart block, sinus bradycardia

**Disp:** Dilantin Infatab: chew 50 mg. Dilantin/Phenytek: caps 100 mg; caps, ER 30, 100, 200, 300 mg; susp 125 mg/5 mL; Inf 50 mg/mL

**SE:** Nystagmus/ataxia early signs of tox; gum hyperplasia w/ long-term use. IV: ↓ BP, ↓ HR, arrhythmias, phlebitis; peripheral neuropathy, rash, blood dyscrasias, SJS

**Notes:** Levels: Trough: Just before next dose. Therapeutic: 10–20 mcg/mL Toxic: > 20 mcg/mL Phenytoin albumin bound, levels = bound & free phenytoin; w/ ↓ albumin & azotemia, low levels may be therapeutic (nl free levels); do not change dosage at intervals < 7–10 d; hold tube feeds 1 h before and after dose if using oral susp; avoid large dose ↑

Physostigmine (Generic)

**Uses:** *Reverse toxic CNS effects of atropine & scopolamine OD*

**Acts:** Reversible cholinesterase inhibit

**Dose:** Adults. 0.5–2 mg IV or IM q20 min

**Peds.** 0.01–0.03 mg/kg/dose IV q5–10 min up to 2 mg total PRN

**W/P:** [C, ?] CI: GI/GU obst, CV Dz, asthma

**Disp:** Inf 1 mg/mL

**SE:** Rapid IV administration associated w/ Szs; cholinergic SEs; sweating, salivation, lacrimation, GI upset, asystole, changes in HR

**Notes:** Excessive readministration can result in cholinergic crisis; crisis reversed w/ atropine; contains bisulfite (allergy possible)

Phytonadione [Vitamin K₁] (Mephyton, Generic)

**Uses:** *Coagulation disorders d/t faulty formation of factors II, VII, IX, X;* hyperalimentation

**Acts:** Cofactor for production of factors II, VII, IX, & X

**Dose:** Adults & Peds. Anticoagulant-induced prothrombin deficiency: 1–10 mg PO or IV slowly. Hyperalimentation: 10 mg IM or IV qwk.

**Infants:** 0.5–1 mg/dose; IM w/in 1 h of brith, or PO

**W/P:** [C, +] CI: Allergy

**Disp:** Tabs 5 mg; Inf 2, 10 mg/mL

**SE:** Anaphylaxis from IV dosage; give IV slowly;
GI upset (PO), Inj site Rxns Notes: w/ Parenteral Rx, 1st change in PT/INR usually seen in 12–24 h; use makes rewarfarinization more difficult; see label for dosing algorithm based on INR of S/Sx of bleeding

**Pioglitazone/Metformin** (ACTOplus Met, ACTOplus MET XR, Generic) BOX: Metformin can cause lactic acidosis, fatal in 50% of cases; pioglitazone may cause or worsen CHF Uses: *Type 2 DM as adjunct to diet and exercise* Acts: Combined ↑ insulin sensitivity w/ ↓ hepatic glucose release Dose: Initial 1 tab PO daily or bid, titrate; max daily pioglitazone 45 mg & metformin 2550 mg; XR: 1 tab PO daily w/ evening meal; max daily pioglitazone 45 mg & metformin IR 2550 mg, metformin ER 2000 mg; give w/ meals W/P: [C, –] Stop w/ radiologic IV contrast agents; w/ Hx bladder CA; do not use w/ active bladder CA CI: CHF, renal impair, acidosis Disp: Tabs (pioglitazone mg/metformin mg): 15/500, 15/850; Tabs XR (pioglitazone mg/metformin ER mg) 15/1000, 30/1000 mg SE: Lactic acidosis, CHF, ↓ glucose, edema, Wt gain, myalgia, URI, HA, GI upset, liver damage Notes: Follow LFTs; ↑ fracture risk in women receiving pioglitazone; pioglitazone may ↑ bladder CA risk
Piperacillin/Tazobactam (Zosyn, Generic)

*Uses:* Infxs of skin, bone, resp & urinary tract, Abd, sepsis

*Acts:* 4th-gen PCN plus β-lactamase inhib; bactericidal; ↓ cell wall synth. 

*Spectrum:* Good gram(+), excellent gram(−); anaerobes & β-lactamase producers

*Dose:* Adults. 3.375–4.5 g IV q6h; ↓ in renal Insuff

W/P: [B, M] CI: PCN or β-lactam sensitivity

Disp: Frozen and powder for Inj: 2.25, 3.375, 4.5 g

SE: D, HA, insomnia, GI upset, serum sickness-like Rxn, pseudomembranous colitis

Notes: Often used in combo w/ aminoglycoside

Pirbuterol (Maxair, Autohaler)

*Uses:* Prevention & Rx reversible bronchospasm

*Acts:* β2-Adrenergic agonist

*Dose:* 2 Inh q4–6h; max 12 Inh/d

W/P: [C, ?] CI: ASA/NSAID sensitivity

Disp: Aerosol 0.2 mg/actuation (contains ozone-depleting CFCs; will be gradually removed from US market)

SE: Nervousness, restlessness, trembling, HA, taste changes, tachycardia

Notes: Teach pt proper inhaler technique

Piroxicam (Feldene, Generic)

*BOX:* May ↑ risk of cardiovascular CV events & GI bleeding

*Uses:* Arthritis & pain

*Acts:* NSAID; ↓ prostaglandins

*Dose:* 10–20 mg/d

W/P: [C/D if 3rd tri, −] GI bleeding CI: ASA/NSAID sensitivity

Disp: Caps 10, 20 mg

SE: Dizziness, rash, GI upset, edema, acute renal failure, peptic ulcer

Notes: Teach pt proper inhaler technique

Pitavastatin (Livalo)

*Uses:* Reduce elevated total cholesterol

*Acts:* Statin, inhibits HMG-CoA reductase

*Dose:* 1–4 mg once/d w/o regard to meals; CrCl < 60 mL/min start 1 mg w/ 2 mg max W/P: [X, −] May cause myopathy and rhabdomyolysis

CI: Active liver Dz, w/ lopinavir/ritonavir/cyclosporine, severe renal impair not on dialysis

Disp: Tabs 1, 2, 4 mg

SE: Muscle pain, back pain, jtn pain, and constipation, ↑ LFTs

Notes: ✓ LFTs; OK w/ grapefruit

Plasma Protein Fraction (Plasmanate)

*Uses:* Shock & ↓ BP

*Acts:* Plasma vol expander

*Dose:* Adults. Initial: 250–500 mL IV (not > 10 mL/min); subsequent Inf based on response. Peds. 10–15 mL/kg/dose IV; subsequent Inf based on response; safety & efficacy in children not established

W/P: [C, +] CI: Renal Insuff, CHF, cardiopulmonary bypass

Disp: Inj 5%

SE: ↓ BP w/ rapid Inf; hypocoagulability, metabolic acidosis, PE

Notes: 0.25 mEq K/L & 145 mEq Na/L; not substitute for RBC

Plerixafor (Mozobil)

*Uses:* Mobilize stem cells for ABMT in lymphoma and myeloma in combo w/ G-CSF

*Acts:* Hematopoietic stem cell mobilizer

*Dose:* 0.24 mg/kg SQ daily; max 40 mg/d; CrCl < 50 mL/min: 0.16 mg/kg, max 27 mg/d

W/P: [D, ?] CI: Disp: IV: 20 mg/mL (1.2 mL) SE: HA, N/V, D

Notes: Give w/ filgrastim 10 mcg/kg

Pneumococcal 13-Valent Conjugate Vaccine (Prevnar 13)

*Uses:* Immunization against pneumococcal Infxs in infants & children

*Acts:* Active immunization

*Dose:* 0.5 mL IM/dose; series of 4 doses; 1st dose age 2 mo; then 4 mo, 6 mo, and 12–15 mo; if previous Prevnar switch to Prevnar 13; if completed Prevnar series, supplemental dose Prevnar 13 at least 8 wk after last Prevnar dose

W/P: [C, +] w/ ↓ plt CI: Sensitivity to components/diphtheria toxoid, febrile illness

Disp: Inj SE: Local Rxns, anorexia, fever, irritability, ↑/↓ sleep, V, D

Notes: Keep epi (1:1000)
available for Rxns; replaces Prevnar (has additional spectrum); does not replace Pneumovax-23 in age > 24 mo w/ immunosuppression; inactivated capsular antigens

**Pneumococcal Vaccine, Polyvalent (Pneumovax 23)** Uses: *Immunization against pneumococcal Infxns in pts at high risk (all pts > 65 y, also asplenia, sickle cell Dz, HIV, and other immunocompromised and w/ chronic illnesses)*

**Acts:** Active immunization

**Dose:** 0.5 mL IM or SQ

**W/P:** [C, ?] CI: Do not vaccinate during immunosuppressive Rx

**Disp:** Inj 0.5 mL

**SE:** Fever, Inj site Rxn also hemolytic anemia w/ other heme conditions, ↓ plt w/ stable ITP, anaphylaxis, Guillain-Barré synd

**Notes:** Keep epi (1:1000) available for Rxns. Revaccinate q3–5 y if very high risk (eg, asplenia, nephrotic synd), consider revaccination if > 6 y since initial or if previously vaccinated w/ 14-valent vaccine; inactivated capsular antigens

**Podophyllin (Podocon-25, Condylox Gel 0.5%, Condylox)** Uses: *Topical Rx of benign growths (genital & perianal warts [condylomata acuminate*], papillomas, fibromas)*

**Acts:** Direct antimitotic effect; exact mechanism unknown

**Dose:** Condylox gel & Condylox: Apply bid for 3 consecutive d/wk then hold for 4 d may repeat 4 × 0.5 mL/d max; Podocon-25: Use sparingly on the lesion, leave on for only 30–40 min for 1st application, then 1–4 h on subsequent applications, thoroughly wash off; limit < 5 mL or < 10 cm²/Rx

**W/P:** [X, ?] Immunosuppression

**CI:** DM, bleeding lesions

**Disp:** Powder for recons to 4 L

**SE:** Cramping or N, bloating, bloatting

**Notes:** Podocon-25 applied by the clinician; do not dispense directly to pt

**Polyethylene Glycol [PEG]-Electrolyte Soln (GoLYTELY, Colyte)** Uses: *Bowel prep prior to examination or surgery*

**Acts:** Osmotic cathartic

**Dose:**

**Adults.** Following 3- to 4-h fast, drink 240 mL of soln q10min until 4 L consumed or until BMs are clear.

**Peds.** 25–40 mL/kg/h for 4–10 h until BM clear; max dose 4L? W/P: [C, ?] CI: GI obt, bowel perforation, megacolon, UC

**Disp:** Powder for recons to 4 L

**SE:** Cramping or N, bloating

**Notes:** 1st BM should occur in approximately 1 h; chilled soln more palatable; flavor packets available

**Polyethylene Glycol [PEG] 3350 (MiraLAX [OTC])** Uses: *Occasional constipation*

**Acts:** Osmotic laxative

**Dose:** 17-g powder (1 heaping tsp) in 8 oz (1 cup) of H₂O & drink; max 14 d

**W/P:** [C, ?] CI: GI obt, allergy to PEG

**Disp:** Powder for reconstitution; bottle cap holds 17 g

**SE:** Upset stomach, bloating, cramping, gas, severe D, hives

**Notes:** Can add to H₂O, juice, soda, coffee, or tea

**Pomalidomide (Pomalyst)** BOX: Contraindicated in PRG; a thalidomide analog, a known human teratogen. Exclude PRG before/during Tx; use 2 forms of contraception; available only through a restricted program; DVT/PE w/ multiple myeloma treated w/ pomalidomide

**Uses:** *Multiple myeloma previously treated w/ at least 2 regimens including lenalidomide and bortezomib w/ progression w/in 60 days of last therapy*

**Acts:** Immunomodulatory drug w/ antineoplastic action
**Ponatinib (Iclusig)**

**Uses:** T315I + CML; + Philadelphia chromosome ALL (Ph+ ALL); CML or Ph+ ALL w/ no other TKI indicated.

**Acts:** TKI

**Dose:** 45 mg 1 × d, DC and then reduce dose for toxicity

**W/P:** ↑ BP, fever, rash, HA, fatigue, arthralgias, N, Abd pain, constipation, pneumonia; sepsis; ↑ QT interval; anemia, ↓ plt, ↓ WBC, ↓ neutrophils, ↓ lymphs; ↑ AST, ↑ ALT, ↑ alk phos, ↑ bili, ↑ lipase, ↑ glu, ↑/↓ K⁺, ↓ Na⁺, ↓ HCO₃⁻; ↑ creat, ↑ Ca²⁺, ↓ phos, ↓ albumin

**Notes:** CBC q 2 wk × 3 mos; follow baseline and periodically: Eye exam, LFTs, BP; lipase q 2 wk × 2 mo; monitor BP; w/ CYP3A4 inhibitors; cannot donate blood/sperm; male condoms w/ intercourse

**Posaconazole (Noxafil)**

**Uses:** *Prevent Aspergillus and Candida Infxns in severely immunocompromised; Rx oropharyngeal candida*

**Acts:** ↓ Cell membrane ergosterol synth

**Dose:** Adults. Invasive fungal prophylaxis: 200 mg PO tid.

**Oropharyngeal candidiasis:** 100 mg bid on day 1, then 100 mg daily × 13 d

**Peds > 13 y.** See adult dose

**W/P:** [C, ?] Multiple drug interactions; ↑ QT, cardiac Dzs, severe renal/liver impair

**CI:** Component hypersens; w/ many drugs including alfacosin, astemizole, alprazolam, phenothiazines, triazolam, others

**Disp:** Sohn 40 mg/mL; DR tab 100 mg SE: ↑ QT, ↑ LFTs, hepatic failure, fever, N/V/D, HA, Abd pain, anemia, ↓ plt, ↓ K⁺ rash, dyspnea, cough, anorexia, fatigue

**Notes:** Monitor LFTs, CBC, lytes; administer w/ meal or nutritional supplement

**Potassium Citrate (Urocit-K, Generic)**

**Uses:** *Alkalinize urine, prevention of urinary stones (uric acid, calcium stones if hypocitraturic)*

**Acts:** Urinary alkalinizer

**Dose:** 30–60 mEq/d based on severity of hypocitraturia. Max 100 mEq/d

**W/P:** [A, +] CI: Severe renal impair, dehydration, ↑ K⁺, peptic ulcer; w/ K⁺-sparing diuretics, salt substitutes

**Disp:** Tabs 5, 10, 15 mEq/d

**SE:** GI upset, ↓ Ca²⁺, ↑ K⁺, metabolic alkalosis

**Potassium Iodide [Lugol Soln] (Iosat, SSKI, Thyro-Block, ThyroSafe, ThyroShield) [OTC]**

**Uses:** *Thyroid storm, ↓ vascularity before thyroid surgery, block thyroid uptake of radioactive iodine (nuclear scans or nuclear emergency), thin bronchial secretions*

**Acts:** Iodine supl

**Dose:** Adults & Peds > 2 y. Preop thyroidectomy: 50–100 mg PO tid (1–2 gts or 0.05–0.1 mL SSKI); give 10 d preop. Protection: 130 mg/d. Peds. Protection: < 1 y: 16.25 mg qd. 1 mo–3y: 32.5 mg qd. 3–18 y:
Prasugrel (Effient)

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65 mg once daily W/P: [D, +] ↑ K⁺, TB, PE, bronchitis, renal impair CI: Iodine sensitivity Dose: Tabs 65, 130 mg; soln (saturated soln of potassium iodide [SSKI]) 1 g/mL; Lugol soln, strong iodine 100 mg/mL; syrup 325 mg/5 mL SE: Fever, HA, urticaria, angioedema, goiter, GI upset, eosinophilia Notes: w/ Nuclear radiation emergency, give until radiation exposure no longer exists

Potassium Supplements (Kaon, Kaochlor, K-Lor, Slow-K, Micro-K, Klorvess, Generic) Uses: *Prevention or Rx of ↓ K⁺ (eg, diuretic use) Dose: Adults. 20–100 mEq/d PO 1–4×/d; IV 10–20 mEq/h, max 40 mEq/h & 150 mEq/d (monitor K⁺ levels frequently and in presence of continuous ECG monitoring w/ high-dose IV). Peds. Calculate K⁺ deficit; 1–3 mEq/kg/d PO 1–4×/d; IV max dose 0.5–1 mEq/kg 1–2 h W/P: [A, +] Renal Insuff, use w/ NSAIDs & ACE inhib CI: ↑↑ K⁺ Disp: PO forms (Table 6, p 341) Inj SE: GI irritation; ↓ HR, ↑ K⁺, heart block Notes: Mix powder & liq w/ beverage (unsalted tomato juice, etc); swallow SR tabs must be swallowed whole; follow monitor K⁺; Cl⁻ salt OK w/ alkalosis; w/ acidosis use acetate, citrate, or gluconate salt; do not administer IV K⁺ undiluted

Pralatrexate (Folotyn) Uses: *Tx refractory T-cell lymphoma* Dose: Adults. IV push over 3–5 min: 30 mg/m² once weekly for 6 wk W/P: [D, −] Disp: Inj 20 mg/mL (1 mL, 2 mL) SE: ↓ Plt, anemia, ↓ WBC, mucositis, N/V/D, edema, fever, fatigue, rash Notes: Give folic acid supplements prior to and after; ANC should be ≥ 1000/mm³

Pramipexole (Mirapex, Mirapex ER, Generic) Uses: *Parkinson Dz (Mirapex, Mirapex ER), restless leg synd (Mirapex)* Dose: Dopamine agonist Mirapex: 1.5–4.5 mg/d PO, initial 0.375 mg/d in 3 4×/d; titrate slowly; RLS: 0.125–0.5 mg PO 2–3 h before bedtime. Mirapex ER: Start 0.375 PO daily, ↑ dose every 5–7 d to 0.75, then by 0.75 mg to max 4.5 mg/d W/P: [C, ?] Disp: Mirapex: Tabs 0.125, 0.25, 0.5, 0.75, 1, 1.5 mg; Mirapex ER: 0.375, 0.75, 1.5, 2.25, 3, 3.75, 4.5 mg SE: Somnolence, N, constipation, dizziness, fatigue, hallucinations, dry mouth, muscle spasms, edema

Pramoxine (Anusol Ointment, ProctoFoam-NS, Others) Uses: *Relief of pain & itching from hemorrhoids, anorectal surgery; topical for burns & dermatosis* Dose: Topical anesthetic W/P: [C, ?] Disp: Apply freely to anal area 3–5×/d SE: Contact dermatitis, mucosal thinning w/ chronic use

Pramoxine/Hydrocortisone (ProctoFoam-HC) Uses: *Relief of pain & itching from hemorrhoids* Dose: Topical anesthetic, anti-inflammatory W/P: [C, ?] Disp: Cream: pramoxine 1% acetate 1/2.5/2.35%, foam: pramoxine 1% hydrocortisone 1%; lotion: pramoxine 1% hydrocortisone 1/2.5% ointment pramoxine 1% & hydrocortisone 1/2.5% SE: Contact dermatitis, mucosal thinning w/ chronic use

Prasugrel (Effient) BOX: Can cause significant, sometimes fatal, bleeding; do not use w/ planned CABG, w/ active bleeding, Hx TIA or stroke or pts > 75 y
Pravastatin

**Uses:** *↓* Thrombotic CV events (eg, stent thrombosis) post-PCI*, administer ASAP in ECC setting w/ high-risk ST depression or T-wave inversion w/ planned PCI **Acts:** ↓ Plt aggregation **Dose:** 10 mg/d; Wt < 60 kg, consider 5 mg/d; 60 mg PO loading dose in ECC; use at least 12 mo w/ cardiac stent (bare or drug eluting); consider > 15 mo w/ drug eluting stent **W/P:** [B, ?] Active bleeding; ↑ bleed risk; w/ CYP3A4 substrates **CI:** Active bleed, Hx TIA/stroke risk factors: ≥ 75 y, propensity to bleed, Wt < 60 kg, CABG, meds that ↑ bleeding **Disp:** Tabs 5, 10 mg **SE:** ↑ Bleeding time, ↑ BP, GI intolerance, HA, dizziness, rash, ↓ WBC **Notes:** Plt aggregation to baseline ~ 7 d after D/C, plt transfusion reverses acutely

**Pravastatin (Pravachol, Generic)**

**Uses:** *↓* Cholesterol* **Acts:** HMG-CoA reductase inhib **Dose:** 10–80 mg PO hs; ↓ in sig renal/hepatic impair **W/P:** [X, −] w/ Gemfibrozil **CI:** Liver Dz or persistent LFTs **Disp:** Tabs 10, 20, 40, 80 mg **SE:** Use caution w/ concurrent gemfibrozil; HA, GI upset, hep, myopathy, renal failure **Notes:** OK w/ grapefruit juice

**Prazosin (Minipress, Generic)**

**Uses:** *HTN* **Acts:** Peripherally acting α-adrenergic blocker **Dose:** **Adults.** 1 mg PO tid; can ↑ to 20 mg/d max PRN. **Peds.** 0.05–0.1 mg/kg/d in 3 ÷ doses; max 0.5 mg/kg/d **W/P:** [C, −] Use w/ phosphodiesterase-5 (PDE5) inhib (eg, sildenafil) can cause ↓ BP **CI:** Component allergy, concurrent use of PDE5 inhib **Disp:** Caps 1, 2, 5 mg; tabs ER 2.5, 5 mg **SE:** Dizziness, edema, palpitations, fatigue, GI upset **Notes:** Can cause orthostatic ↓ BP, take the 1st dose hs; tolerance develops to this effect; tachyphylaxis may result

**Prednisolone (Flo-Pred, omnipred, Orapred, Pediapred, Generic)**

**(See Steroids, p 272 & Table 2, p 319)**

**Prednisone (Generic)** *(See Steroids, p 272 & Table 2, p 319)*

**Pregabalin (Lyrica, Generic)**

**Uses:** *DM peripheral neuropathy pain; postherpetic neuralgia; fibromyalgia; adjunct w/ adult partial onset Sz*s** **Acts:** Nerve transmission modulator, antinociceptive, antiseizure effect; mechanism ?; related to gabapentin **Dose:** Neuropathic pain: 50 mg PO tid, ↑ to 300 mg/d w/in 1 wk based on response, 300 mg/d max Postherpetic neuralgia: 75–150 mg bid or 50–100 mg tid; start 75 mg bid or 50 mg tid; ↑ to 300 mg/d w/in 1 wk PRN; if pain persists after 2–4 wk, ↑ to 600 mg/d. Partial onset Sz: Start 150 mg/d (75 mg bid or 50 mg tid) may ↑ to max 600 mg/d; ↓ w/ CrCl < 60; w/ or w/o food **W/P:** [C, −] w/ Sig renal impair (see PI), w/ elderly & severe CHF avoid abrupt D/C **CI:** Hypersensitivity **Disp:** Caps 25, 50, 75, 100, 150, 200, 225, 300 mg; soln 20 mg/mL **SE:** Dizziness, drowsiness, xerostomia, blurred vision, Wt gain, difficulty concentrating; suicidal ideation **Notes:** w/ D/C, taper over at least 1 wk

**Probenecid (Probalan, Generic)**

**Uses:** *Prevent gout & hyperuricemia; extends levels of PCNs & cephalosporins* **Acts:** Uricosuric, renal tubular blocker of weak organic anions **Dose:** **Adults. Gout:** 250 mg bid × 1 wk, then 500 mg PO bid; can ↑ by 500 mg/mo up to 2–3 g/d. **Antibiotic effect:** 1–2 g PO 30 min before dose. **Peds > 2 y.** 25 mg/kg, then 40 mg/kg/d PO qid **W/P:** [B, ?] **CI:** Uric acid
Promethazine

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kidney stones, initiations during acute gout attack, coadministration of salicylates, age < 2 y, MDD, renal impair Disp: Tabs 500 mg SE: HA, GI upset, rash, pruritus, dizziness, blood dyscrasias

**Procainamide (Generic)**

**BOX:** Positive ANA titer or SLE w/ prolonged use; only use in life-threatening arrhythmias; hematologic tox can be severe, follow CBC

**Uses:** *Supraventricular/ventricular arrhythmias*  
**Acts:** Class 1a antiarrhythmic (Table 9, p 345)

**Dose:** Adults. Recurrent VF/VT: 20–50 mg/min IV (total 17 mg/kg max). Maint: 1–4 mg/min. Stable wide-complex tachycardia of unknown origin, AF w/ rapid rate in WPW: 20 mg/min IV until arrhythmia suppression, ↓ BP, or QRS widens > 50%, then 1–4 mg/min. Recurrent VF/VT: 20–50 mg/min IV; max total 17 mg/kg. **ECC 2010.** Stable monomorphic VT, refractory reentry SVT, stable wide-complex tachycardia, AFib w/ WPW: 20 mg/min IV until one of these: arrhythmia stopped, hypotension, QRS widens > 50%, total 17 mg/kg; then maint Inf of 1–4 mg/min **Peds. ECC 2010.** SVT, aflutter, VT (w/ pulses): 15 mg/kg IV/IO over 30–60 min **W/P:** [C, +] ↓ In renal/hepatic imp CI: Complete heart block, 2nd-/3rd-degree heart block w/o pacemaker, torsades de pointes, SLE **Disp:** Inj 100, 500 mg/mL SE: ↓ BP, lupus-like synd, GI upset, taste perversion, arrhythmias, tachycardia, heart block, angioneurotic edema, blood dyscrasias

**Notes:** Levels: **Trough:** Just before next dose. **Therapeutic:** 4–10 mcg/mL; **N-acetyl procainamide (NAPA)** + procaine 10–30 mcg/mL

**Toxic** (procainamide only): > 10 mcg/mL; NAPA + procaine > 30 mcg/mL

**half-life:** procaine 3–5 h, NAPA 6–10 h

**Procarbazine (Matulane)**

**BOX:** Highly toxic; handle w/ care; should be administered under the supervision of an experienced CA chemotherapy physician

**Uses:** *Hodgkin Dz*, NHL, brain & lung tumors

**Acts:** Alkylating agent; ↓ DNA & RNA synth

**Dose:** Per protocol **W/P:** [D, ?] w/ EtOH ingestion

**CI:** Inadequate BM reserve

**Disp:** Caps 50 mg SE: ↓ BM, hemolytic Rxns (w/ G6PD deficiency), N/V/D; disulfiram-like Rxn; cutaneous & constitutional Sxs, myalgia, arthralgia, CNS effects, azoospermia, cessation of menses

**Prochlorperazine (Compro, Procomp, Generic)**

**BOX:** ↑ Mortality in elderly pts w/ dementia related psychosis

**Uses:** *N/V, agitation, & psychotic disorders*

**Acts:** Phenothiazine; blocks postsynaptic dopaminergic CNS receptors

**Dose:** Adults. **Antiemetic:** 5–10 mg PO 3–4x/d or 25 mg PR bid or 5–10 mg deep IM q4–6h. **Antipsychotic:** 10–20 mg IM acutely or 5–10 mg PO 3–4x/d for maint; ↑ doses may be required for antipsychotic effect. **Peds.** 0.1–0.15 mg/kg/dose IM q4–6h or 0.4 mg/kg/24 h PO/PR + 3–4x/d **W/P:** [C, +/−] NAG, severe liver/cardiac Dz

**CI:** Phenothiazine sensitivity, BM suppression; age < 2 y or Wt < 9 kg Disp: Tabs 5, 10 mg; syrup 5 mg/5 mL; supp 25 mg; Inj 5 mg/mL SE: EPS common; Rx w/ diphenhydramine or benztropine

**Promethazine (Promethegan, Generic)**

**BOX:** Do not use in pts < 2 y; resp depression risk; tissue damage, including gangrene w/ extravasation

**Uses:** *N/V, motion sickness, adjunct to postop analgesics, sedation, rhinitis*

**Acts:**
Phenothiazine; blocks CNS postsynaptic mesolimbic dopaminergic receptors **Dose:**

**Adults.** 12.5–50 mg PO, PR, or IM 2–4×/d PRN. **Peds** > 2 y 0.1–0.5 mg/kg/dose PO/ or IM 4–6h PRN **W/P:** [C, +/-] Use w/ agents w/ resp depressant effects

**CI:** Component allergy, NAG, age < 2 y **Disp:** Tabs 12.5, 25, 50 mg; syrup 6.25 mg/5 mL; supp 6.25 mg/5 mL; inj 25, 50 mg/mL **SE:** Drowsiness, tardive dyskinesia, EPS, lowered Sz threshold, ↓ BP, GI upset, blood dyscrasias, photosens, resp depression in children **Notes:** IM/PO preferred route; not SQ or intra-arterial

**Propafenone (Rythmol, Rhythmol SR, Generic) BOX:** Excess mortality or nonfatal cardiac arrest rate possible; avoid use w/ asymptomatic and symptomatic non–life-threatening ventricular arrhythmias **Uses:** *Life-threatening ventricular arrhythmias, AF* **Acts:** Class Ic antiarrhythmic (Table 9, p 345) **Dose:** **Adults.** 150–300 mg PO q8h. **Peds.** 8–10 mg/kg/d ÷ in 3–4 doses; may ↑ 2 mg/kg/d, 20 mg/kg/d max **W/P:** [C, ?] w/ Ritonavir, MI w/in 2 y, w/ liver/renal impair, safety in peds not established **CI:** Uncontrolled CHF, bronchospasm, cardiogenic shock, AV block w/o pacer **Disp:** Tabs 150, 225, 300 mg; SR caps 225, 325, 425 mg **SE:** Dizziness, unusual taste, 1st-degree heart block, arrhythmias, prolongs QRS & QT intervals; fatigue, GI upset, blood dyscrasias

**Propantheline (Pro-Banthine, Generic) Uses:** *PUD*, symptomatic Rx of small intestine hypermotility, spastic colon, ureteral spasm, bladder spasm, pylorospasm **Acts:** Antimuscarinic **Dose:** **Adults.** 15 mg PO ac & 30 mg PO hs; ↓ in elderly. **Peds.** 2–3 mg/kg/24 h PO ÷ 3–4×/d **W/P:** [C, ?] CI: NAG, UC, toxic megacolon, GI atony in elderly, MG, GI/GU obst **Disp:** 15 mg **SE:** Anticholinergic (eg, xerostomia, blurred vision)

**Propofol (Diprivan, Generic) Uses:** *Induction & maint of anesthesia; sedation in intubated pts* **Acts:** Sedative–hypnotic; mechanism unknown; acts in 40 s **Dose:** **Adults.** Anesthesia: 2–2.5 mg/kg (also ECC 2005), then 100–200 mcg/kg/min Inf. ICU sedation: 5 mcg/kg/min IV, ↑ PRN 5–10 mcg/kg/min q5–10 min, 5–50 mcg/kg/min cont Inf. **Peds.** Anesthesia: 2.5–3.5 mg/kg induction; then 125–300 mcg/kg/min; ↓ in elderly, debilitated, ASA II/IV pts **W/P:** [B, –] CI: If general anesthesia CI, sensitivity to egg, egg products, soybeans, soybean products **Disp:** Inj 10 mg/mL **SE:** May ↑ triglycerides w/ extended dosing; ↓ BP, pain at site, apnea, anaphylaxis **Notes:** 1 mL has 0.1-g fat; monitor during Inf for “propofol Inf synd” (eg, heart failure, rhabdomyolysis, renal failure) mostly peds

**Propranolol (Inderal LA, Innopran XL, Generic) Uses:** *HTN, angina, MI, hyperthyroidism, essential tremor, hypertrophic subaortic stenosis, pheochromocytoma; prevents migraines & atrial arrhythmias*, thyrotoxicosis **Acts:** β-Adrenergic receptor blocker, β₁, β₂; only β-blocker to block conversion of T₄ to T₃ **Dose:** **Adults.** Angina: 80–320 mg/d PO ÷ 2–4×/d or 80–320 mg/d SR. Arrhythmia: 10–30 mg/dose PO q6–8h or 1 mg IV slowly, repeat q5min, 5 mg max. **HTN:** 40 mg PO bid or 60–80 mg/d SR, weekly to max 640 mg/d. **Hypertrophic subaortic stenosis:** 20–40 mg PO 3–4×/d. **MI:** 180–240 mg PO ÷ 3–4×/d. Migraine prophylaxis: 80 mg/d ÷ 3–4×/d, ↑ weekly 160–240 mg/d ÷ 3–4 ×/d max; wean if no response in 6 wk.
Prothrombin Complex Concentrate, Human

Pheochromocytoma: 30–60 mg/d ÷ 3–4×/d. Thyrotoxicosis: 1–3 mg IV × 1; 10–40 mg PO q6h. Tremor: 40 mg PO bid, ↑ PRN up to 0.1 mg/kg. **Peds.** Arrhythmia: 0.5–1.0 mg/kg/d ÷ 3–4×/d, ↑ PRN q3–7d to 8 mg/kg max; 0.01–0.1 mg/kg IV over 10 min, 1 mg max infants, 3 mg max children. HTN: 0.5–1.0 mg/kg ÷ 3–4×/day, PRN q3–7d to 8 mg/kg/d max; ↓ in renal impair **W/P:** [C (1st tri, D if 2nd or 3rd tri), +] **CI:** Uncompensated CHF, cardiogenic shock, HR, heart block, PE, severe resp Dz **Disp:** Tabs 10, 20, 40, 80 mg; SR caps 60, 80, 120, 160 mg; oral soln 4, 8, mg/mL; Inj 1 mg/mL **SE:** ↓ HR, ↓ BP, fatigue, GI upset, ED

**Propylthiouracil (Generic) BOX:** Severe liver failure reported; use only if pt cannot tolerate methimazole; d/t fetal anomalies w/ methimazole, PTU may be DOC in 1st tri Uses: *Hyperthyroidism* Acts: ↓ Production of T₃ & T₄ & conversion of T₄ to T₃ **Dose:** Adults: Initial: 100 mg PO q8h (may need up to 1200 mg/d); after pt euthyroid (6–8 wk), taper dose by 1/2 q4–6wk to maint, 50–150 mg/24 h; can usually D/C in 2–3 y; ↓ in elderly. **Peds.** Initial: 5–7 mg/kg/24 h PO ÷ q8h. Maint: 1/3–2/3 of initial dose **W/P:** [D, –] See Box **CI:** Allergy **Disp:** Tabs 50 mg **SE:** Fever, rash, leukopenia, dizziness, GI upset, taste perversion, SLE-like synd, ↑ LFT, liver failure **Notes:** Monitor pt clinically; report any S/Sx of hepatic dysfunction, ✓ TFT and LFT

**Protamine (Generic) BOX:** Severe ↓ BP, CV collapse, noncardiogenic pulm edema, pulm vasoconstriction, and pulm HTN can occur; risk factors: high dose/ overdose, repeat doses, prior protamine use, current or use of prior protamine-containing product (eg, NPH or protamine zinc insulin, some beta-blockers), fish allergy, prior vasectomy, severe LV dysfunction, abnormal pulm testing; weigh risk/benefit in pts w/ 1 or more risk factors; resuscitation equipment must be available Uses: *Reverse heparin effect* Acts: Neutralize heparin by forming a stable complex **Dose:** Based on degree of heparin reversal; give IV slowly; 1 mg reverses ~ 100 units of heparin given in the preceding 30 min; 50 mg max **W/P:** [C, ?] **CI:** Allergy **Disp:** Inj 10 mg/mL **SE:** Follow coagulation markers; anticoagulant effect if given w/o heparin; ↓ BP, ↓ HR, dyspnea, hemorrhage **Notes:** ✓ aPTT ~ 15 min after use to assess response

**Prothrombin Complex Concentrate, Human (Kcentra) BOX:** Risk vitamin K antagonist (VKA) reversal w/ a TE event, must be weighed against the risk of NOT reversing VKA; this risk is higher in those who have had a prior TE. Fatal and nonfatal arterial and venous TEs have occurred. Monitor. May not be effective in pts w/ TEIs in the prior 3 mo Uses: *Urgent reversal of acquired coagulation factor deficiencies caused by vit K antagonists (VKAs); only for acute major bleeding* Acts: Reverse VKA coagulopathy; replaces factor II, VII, IX, X & protein C & S **Dose:** Based on INR and Wt: *INR 2–4: 25 units/kg, (max 2500 units); INR 4–6: 35 units/kg, (max 3500 units); INR > 6: 50 unit/kg, (max 5000 units); 100 mg/kg max; give w/ vit K **W/P:** [C, ?] Hypersens Rxn; arterial/venous thrombosis; risk of viral Infxn including variant CJD **CI:** Anaphylaxis/reactions to: heparin, albumin or coag factors (protein C & S, antithrombin III); known HIT DIC
Pseudoephedrine

Disp: Single vial; to reconstitute, see package; separate IV for inf
SE: TE (stroke, DVT/PE); DIC; ↓ BP, HA, N/V, HA, arthralgia
Notes: INR should be < 1.3 w/in 30 min; risk of transmitting variant CJD, viral Dz (human blood product), and other Infxn (Hep A, B & C, HIV, etc.)

Pseudoephedrine (Many OTC Mono and Combination Brands)
Uses: *Decongestant* Acts: Stimulates α-adrenergic receptors w/ vasoconstriction
Dose: Adults. IR: 60 mg PO q4–6h PRN; ER: 120 mg PO q12h, 240 mg/d max. Peds 2–5 y. 15 mg q4–6h, 60 mg/24 h max. 6–12 y: 30 mg q4–6h, 120 mg/24 h max; ↓ w/ renal Insuff
W/P: Not rec for use in peds < 2 y
CI: Poorly controlled HTN or CAD, w/ MAOIs w/in 14 d, urinary retention
Disp: IR tabs 30, 60 mg; ER caplets 60, 120 mg; ER tabs 120, 240 mg; liq 15, 30 mg/5 mL; syrup 15, 30 mg/5mL; multiple combo OTC products
SE: HTN, insomnia, tachycardia, arrhythmias, nervousness, tremor
Notes: Found in many OTC cough/cold preparations; OTC restricted distribution by state (illicit ingredient in methamphetamine production).

Psyllium (Konsyl, Metamucil, Generic)
Uses: *Constipation & colonic diverticular Dz*
Acts: Bulk laxative
Dose: 1.25–30 g/d varies w/ specific product
W/P: Effer-Syllium (effervescent psyllium) usually contains K+, caution w/ renal failure; phenylketonuria (in products w/ aspartame)
CI: Suspected bowel obst
Disp: Large variety available: granules; powder, caps, wafers
SE: D, Abd cramps, bowel obst, constipation, bronchospasm
Notes: Maintain adequate hydration

Pyrazinamide (Generic)
Uses: *Active TB in combo w/ other agents*
Acts: Bacteriostatic; unknown mechanism
Dose: Adults. Dose varies based on Tx option chosen daily 1 × 2 wk–3 × wk; dosing based on lean body Wt; ↓ dose in renal/hepatic impair. Peds. 20–40 mg/kg/d PO ÷ daily-bid; ↓ W/ renal/hepatic impair
W/P: Not rec for use in peds
CI: Severe hepatic damage, acute gout
Disp: Tabs 500 mg SE: Hepatotox, malaise, GI upset, arthralgia, myalgia, gout, photosens
Notes: Use in combo w/ other anti-TB drugs; consult http://www.cdc.gov/tb/ for latest TB recommendations; dosage regimen differs for “directly observed” Rx

Pyridoxine [Vitamin B₆] (Generic)
Uses: *Rx & prevention of vit B₆ deficiency*
Acts: Vit B₆ supl
Dose: Adults. Deficiency: 10–20 mg/d PO. Drug-induced neuritis: 100–200 mg/d; 25–100 mg/d prophylaxis. Peds. 5–25 mg/d × 3 wk
W/P: Component allergy tabs 25, 50, 100, 250, 500 mg, tab SR 500 mg; liquid 200 mg, 15 mg; Inj: 100 mg/mL; caps: 50, 250

Quetiapine (Seroquel, Seroquel XR, Generic)
BOX: Closely monitor pts for worsening depression or emergence of suicidality, particularly in ped pts; not for use in peds; ↑ mortality in elderly w/ dementia-related psychosis
Uses: *Acute exacerbations of schizophrenia, bipolar Dz*
Acts: Serotonin & dopamine antagonism
Dose: 150–750 mg/d; initiate at 25–100 mg bid-tid; slowly ↑ dose; XR: 400–800 mg PO q P.M.; start ↑ 300 mg/d, 800 mg/d max ↓ dose w/ hepatic & geriatric pts
W/P: Component allergy
Disp: Tabs 25, 50, 100, 200, 300, 400 mg; tabs XR: 50, 150, 200, 300, 400 mg SE: Confusion w/ nefazodone; HA,
somnolence, ↑ Wt, ↓ BP, dizziness, cataracts, neuroleptic malignant synd, tardive dyskinesia, ↑ QT interval

**Quinapril (Accupril, Generic) BOX:** ACE inhib used during PRG can cause fetal injury & death Uses: *HTN, CHF, DN, post-MI* Acts: ACE inhib Dose: 10–80 mg PO daily; ↓ in renal impair W/P: [D, +] w/ RAS, vol depletion CI: ACE inhib sensitivity, angioedema, PRG Disp: Tabs 5, 10, 20, 40 mg SE: Dizziness, HA, ↓ BP, impaired renal Fxn, angioedema, taste perversion, cough

**Quinidine (Generic) BOX:** Mortality rates increased when used to treat non-life-threatening arrhythmias Uses: *Prevention of tachydysrhythmias, malaria* Acts: Class IA antiarrhythmic Dose: Adults. Antiarrhythmic IR: 200–400 mg/dose q6h; ER: 300 mg q8–12h (sulfate) 324 mg q8–12h (gluconate) Peds. 15–60 mg/kg/24 h PO in 4–5 doses; ↓ in renal impair W/P: [C, +] CI: TTP, thrombocytopenia, medications that prolong QT interval, digitalis tox & AV block; conduction disorders Disp: Sulfate: Tabs 200, 300 mg; SR tabs 300 mg. Gluconate: SR tabs 324 mg; Inj 80 mg/mL SE: Extreme ↓ BP w/ IV use; syncope, QT prolongation, GI upset, arrhythmias, fatigue, cinchonism (tinnitus, hearing loss, delirium, visual changes), fever, hemolytic anemia, thrombocytopenia, rash Notes: Levels: Trough: just before next dose. Therapeutic: 2–5 mcg/mL, some pts require higher levels Toxic: > 10 mcg/mL half-life: 6–8h; sulfate salt 83% quinidine; gluconate salt 62% quinidine; use w/ drug that slows AV conduction (eg, digoxin, diltiazem, β-blocker) 267 mg of quinidine gluconate = 200 mg of quinidine sulfate

**Quinupristin/Dalfopristin (Synercid)** Uses: *Vancomycin-resistant Infxns d/t E. faecium & other gram(+)* Acts: Ribosomal protein synth. Spectrum: Vancomycin-resistant E. faecium, methicillin-susceptible S. aureus, S. pyogenes; not against E. faecalis Dose: Adults & Peds. 7.5 mg/kg IV q12h (central line preferred); incompatible w/ NS or heparin; flush IV w/ dextrose; ↓ w/ hepatic failure W/P: [B, M] Multiple drug interactions w/ drugs metabolized by CYP3A4 (eg, cyclosporine) CI: Component allergy Disp: Inj 500 mg (150 mg quinupristin/350 mg dalfopristin) SE: Hyperbilirubinemia, Inf site Rxns & pain, artralgia, myalgia

**Rabeprazole (AcipHex)** Uses: *PUD, GERD, ZE* H. pylori Acts: Proton pump inhib Dose: 20 mg/d; may ↑ to 60 mg/d; H. pylori 20 mg PO bid × 7 d (w/ amoxicillin and clarithromycin); do not crush/chew tabs; do not use clopidogrel W/P: [B, ?/−] Do not use w/ clopidogrel, possible ↓ effect (controversial) Disp: Tabs 20 mg ER SE: HA, fatigue, GI upset Notes: ↑ Risk of fractures, C. difficile, CAP w/ all PPI; risk of hypomagnesemia w/ long-term use, monitor

**Radium-223 Dichloride (Xofigo)** Uses: *Castration-resistant prostate Ca w/ symptomatic bone mets w/o visceral Dz* Acts: Alpha-emitter, complexes in bone w/ ↑ turnover Dose: 50 kBq/kg, IV q 4 wk × 6 doses; slow IV over 1 min W/P: [X, −] NOT for women: ↓ WBC, CBC before/during each Tx dose, D/C if no CBC recovery 6–8 wk post-Tx CI: PRG Disp: Single vial 1000 kBq/mL or 6000 kBq/vial SE: CBC; N/V/D, edema Notes: Follow radiation safety/pharma
quality control requirements; use condoms during & 6 mos post-Tx and female partners should use 1 additional BC method

**Raloxifene (Evista)** BOX: Increased risk of venous thromboembolism and death from stroke Uses: *Prevent osteoporosis, breast CA prevention* Acts: Partial antagonist of estrogen, behaves like estrogen Dose: 60 mg/d W/P: [X, –] CI: Thromboembolism, PRG Disp: Tabs 60 mg SE: CP, insomnia, rash, hot flashes, GI upset, hepatic dysfunction, leg cramps

**Raltegravir (Isentress)** Uses: *HIV in combo w/ other antiretroviral agents* Acts: HIV-integrase strand transfer inhib Dose: 400 mg PO bid, 800 mg PO bid if w/ rifampin; w/ or w/o food W/P: [C, –] CI: None Disp: Tabs 400 mg; chew tab 25, 100 mg; 100 mg single-use oral susp SE: Development of immune reconstitution synd: ↑ CK, myopathy, and rhabdomyolysis, insomnia, N/D, HA, fever, ↑ cholesterol, paranoia, and anxiety Notes: Monitor lipid profile; initial therapy may cause immune reconstitution synd (inflammatory response to residual opportunistic Infxns (eg, *M. avium, Pneumocystis jiroveci*)

**Ramelteon (Rozerem)** Uses: *Insomnia* Acts: Melatonin receptor agonist Dose: 8 mg PO 30 min before bedtime W/P: [C, ?/–] CI: w/ Fluvoxamine; hypersens Disp: Tabs 8 mg SE: Somnolence, dizziness Notes: Avoid w/ high-fat meal, do not break


**Ranibizumab (Lucentis)** Uses: *Neovascular “wet” macular degeneration* Acts: VEGF inhib Dose: 0.5 mg intravitreal Inj qmo W/P: [C, ?] Hx thromboembolism CI: Periocular Infxn Disp: Inj 10 mg/mL SE: Endophthalmitis, retinal detachment/hemorrhage, cataract, intraocular inflammation, conjunctival hemorrhage, eye pain, floaters

**Ranitidine (Zantac, Zantac EFFERDose [OTC], Generic)** Uses: *Duodenal ulcer, active benign ulcers, hypersecretory conditions, & GERD* Acts: H$_2$-receptor antagonist Dose: Adults. Ulcer: 150 mg PO bid, 300 mg PO hs, or 50 mg IV q6–8h; or 400 mg IV/d cont Inf, then maint of 150 mg PO hs. Hypersecretion: 150 mg PO bid, up to 600 mg/d. GERD: 300 mg PO bid; maint 300 mg PO hs. Dyspepsia: 75 mg PO daily-bid. Peds. 1.5–2 mg/kg/dose IV q6–8h or 2 mg/kg/dose PO q12h; ↓ in renal Insuff/failure W/P: [B, +] sedation risk w/ midazolam CI: Component allergy Disp: Tabs 75, 150 mg [OTC], 150, 300 mg; caps 150, 300 mg; effervescent tabs 25 mg (contains phenylalanine); syrup 15 mg/mL; Inj 25 mg/mL SE: Dizziness, sedation, rash, GI upset Notes: PO & parenteral doses differ

**Ranolazine (Ranexa)** Uses: *Chronic angina* Acts: ↓ Ischemia-related Na$^+$ entry into myocardium Dose: Adults. 500 mg bid–1000 mg PO bid CI: w/ Cirrhosis, CYP3A inhib/inducers (Table 10, p 346) W/P: [C, ?/–] HTN may
develop w/ renal impair, agents that ↑ QTc, ↓ K⁺  
Disp: SR tabs 500, 1000 mg SE: 
Dizziness, HA, constipation, arrhythmias Notes: Not 1st line; use w/ amlodipine, nitrates, or β-blockers

Rasagiline Mesylate (Azilect)  
Uses: *Early Parkinson Dz monotherapy; levodopa adjunct w/ advanced Dz including levodopa and dopamine agonists*  
Acts: MAO B inhib  
Dose: Adults. Early Dz: 1 mg PO daily, start 0.5 mg PO daily w/ levodopa; ↓ w/ CYP1A2 inhib or hepatic impair  
CI: MAOIs, sympathomimetic amines, meperidine, methadone, tramadol, propoxyphene, dextromethorphan, mitrazapine, cyclobenzaprine, St. John’s wort, sympathomimetic vasoconstrictors, SSRIs  
W/P: [C, ?] Avoid tyramine-containing foods; mod–severe hepatic impair  
Disp: Tabs 0.5, 1 mg SE: Arthralgia, indigestion, dyskinesia, hallucinations, ↓ Wt, postural ↓ BP, N/V, constipation, xerostomia, rash, sedation, CV conduction disturbances Notes: Rare melanoma reported; periodic skin exams (skin CA risk); D/C 14 d prior to elective surgery; initial ↓ levodopa dose OK

Rasburicase (Elitek)  
BOX: Anaphylaxis possible; do not use in G6PD deficiency and hemolysis; can cause methemoglobinemia; can interfere w/ uric acid assays; collect blood samples and store on ice  
Uses: *Reduce ↑ uric acid d/t tumor lysis*  
Acts: Catalyzes uric acid  
Dose: Adult & Peds. 0.20 mg/kg IV over 30 min, daily × 5; do not bolus, redosing based uric acid levels  
W/P: [C, ?/–] Falsely ↓ uric acid values  
CI: Anaphylaxis, screen for G6PD deficiency to avoid hemolysis, methemoglobinemia  
Disp: 1.5, 7.5 mg powder Inj SE: Fever, neutropenia, GI upset, HA, rash Notes: Place blood test tube for uric acid level on ice to stop enzymatic Rxn; removed by dialysis; doses as low as 0.05 mg/kg have been used effectively in clinical trials

Regorafenib (Stivarga)  
BOX: May cause severe/fatal hepatotoxic. Monitor LFTs & dose adjust or D/C for ↑ LFTs or hepatocellular necrosis  
Uses: *Metastatic colorectal CA & GIST (see labeling/institution protocol)*  
Acts: Kinase inhibitor  
Dose: Adults. 160 mg PO q a.m. on d 1–21 of 28-d cycle; w/ low-fat food, swallow whole; see label for toxicity dose adjust  
W/P: [D, –] Fetal tox; avoid w/ strong CYP3A4 inhib/induc  
CI: None  
Disp: Tabs 40 mg SE: Fatigue, asthenia, N/V/D, Abd pain, ↓ appetite, ↓ Wt, HTN, HFSR, mucositis, dysphonia, Infxn, pain, rash, fever, hemorrhage, wound healing complications, RPLS, cardiac ischemia/infarction, derm tox, GI perforation/fistula

Repaglinide (Prandin)  
Uses: *Type 2 DM*  
Acts: ↑ Pancreatic insulin release  
Dose: 0.5–4 mg ac, PO start 1–2 mg, ↑ to 16 mg/d max; take pc  
W/P: [C, ?/–] CI: DKA, type 1 DM  
Disp: Tabs 0.5, 1, 2 mg SE: HA, hyper-/hypoglycemia, GI upset

Repaglinide/Metformin (PrandiMet)  
BOX: Associated w/ lactic acidosis, risk ↑ w/ sepsis, dehydration, renal/hepatic impair, ↑ alcohol, acute CHF; Sxs include myalgias, malaise, resp distress, Abd pain, somnolence; Labs: ↓ pH, ↑ anion gap, ↑ blood lactate; D/C immediately & hospitalize if suspected  
Uses: *Type 2 DM*  
Acts: Meglitinide & biguanide (see metformin)  
Dose: Adults. 1/500 mg bid w/in 15 min pc (skip dose w/ skipped meal); max 10/2500 mg/d or 4/1000 mg/
meal W/P: [C, –] suspend use w/ iodinated contrast, do not use w/ NPH insulin, use w/ cationic drugs & CYP2C8 & CYP3A4 inhibit CI: SCr > 1.4 mg/dL (females) or > 1.5 mg/dL (males); metabolic acidosis; w/ gemfibrozil Disp: Tabs (repa-glinide mg/metformin mg) 1/500, 2/500 SE: Hypoglycemia, HA, N/V/D, anorexia, weakness, myalgia, rash, ↓ vit B12

Retapamulin (Altabax) Uses: *Topical Rx impetigo in pts > 9 mo* Acts: Pleuromutilin antibiotic, bacteriostatic, ↓ bacteria protein synth; Spectrum: S. aureus (not MRSA), S. pyogenes Dose: Apply bid × 5 d W/P: [B, ?] Disp: 1% ointment SE: Local irritation Notes: Rx should not exceed 2% BSA in ped or 100 cm² BSA in adults

Reteplase (Retavase) Uses: *Post-AMI* Acts: Thrombolytic Dose: 10 units IV over 2 min, 2nd dose in 30 min, 10 units IV over 2 min; ECC 2010. 10 units IV bolus over 2 min; 30 min later, 10 units IV bolus over 2 min w/ NS flush before and after each dose. W/P: [C, ?/−] CI: Internal bleeding, spinal surgery/trauma, Hx CNS AVM/CVA, bleeding diathesis, severe uncontrolled ↑ BP, sensitivity to thrombolytics Disp: IC it: 10.4 units SE: Bleeding including CNS, allergic Rxns

Ribavirin (Copegus, Rebetol, Virazole, Generic) BOX: Monotherapy for chronic hep C ineffective; hemolytic anemia possible, teratogenic and embryocidal; use 2 forms of birth control for up to 6 mo after D/C drug; decrease in resp Fxn when used in infants as Inh Uses: *RSV Infxn in infants [Virazole]; hep C (in combo w/ peg-interferon α-2b)* Acts: Unknown Dose: RSV: 6 g in 300 mL sterile H₂O, Inh over 12–18 h. Hep C: See individual product labeling for dosing based on Wt & genotype W/P: [X, ?] May accumulate on soft contacts lenses CI: PRG, autoimmune hep, CrCl < 50 mL/min Disp: Powder for aerosol 6 g; tabs 200, 400, 600 mg, caps 200 mg, soln 40 mg/mL SE: Fatigue, HA, GI upset, anemia, myalgia, alopecia, bronchospasm, ↓ HCT; pancytopenia reported Notes: Virazole aerosolized by a SPAG, monitor resp Fxn closely; ✓ Hgb/Hct; PRG test monthly; 2 forms birth control, hep C viral genotyping may modify dose

Rifabutin (Mycobutin) Uses: *Prevent MAC Infxn in AIDS pts w/ CD4 count < 100 mcL* Acts: ↓ DNA-dependent RNA polymerase activity Dose: Adults. 150–300 mg/d PO. Peds ≤ 1 y. 15–25 mg/kg/d PO Others: 5 mg/kg/d, max 800 mg/d W/P: [B, ?/−] WBC < 1000 cells/mm³ or plts < 50,000 cells/mm³; riftonavir CI: Allergy Disp: Caps 150 mg SE: Discolored urine, rash, neutropenia, leukopenia, myalgia, ↑ LFTs Notes: SE/interactions similar to rifampin

Rifampin (Rifadin, Rimactane, Generic) Uses: *TB & Rx & prophylaxis of N. meningitidis, H. influenzae, or S. aureus carriers*; adjunct w/ severe S. aureus Acts: ↓ DNA-dependent RNA polymerase Dose: Adults. N. meningitidis & H. influenzae carrier: 600 mg/d PO for 4 d. TB: 600 mg PO or IV daily or 2×/wk w/ combo regimen. Peds. 10–20 mg/kg/dose PO or IV daily-bid; ↓ in hepatic failure W/P: [C, +] w/ Fosamprenavir, multiple drug interactions CI: Allergy, active N. meningitidis Infxn, w/ saquinavir/ritonavir Disp: Caps 150, 300 mg; Inj 600 mg SE:
Riociguat

Red-orange–colored bodily fluids, ↑ LFTs, flushing, HA Notes: Never use as single agent w/ active TB


Rifaximin (Xifaxan) Uses: *Traveler’s D (noninvasive strains of E. coli) in pts > 12 y (Xifaxan); hepatic encephalopathy (Xifaxan 550) > 18 y* Acts: Not absorbed, derivative of rifamycin. Spectrum: E. coli Dose: Diarrhea (Xifaxan): 1 tab PO, tid daily × 3 d; encephalopathy (Xifaxan 550) > 550 mg PO bid W/P: [C, ?/+] Hx allergy; pseudomembranous colitis, w/ severe (Child-Pugh C) hepatic impair CI: Allergy to rifamycins Disp: Tabs: Xifaxan: 200 mg; Xifaxan 550: 550 mg SE: Xifaxan: Flatulence, HA, Abd pain, rectal tenesmus and urgency, N; Xifaxan 550: Edema, N, dizziness, fatigue, ascites, flatulence, HA Notes: D/C if D Sx worsen or persist > 24–48 h, or w/ fever or blood in stool

Rilpivirine (Edurant) Uses: *HIV in combo w/ other antiretroviral agents* Acts: NRTI Dose: Adults. 25 mg daily W/P: [B, –] CI: None Disp: Tab 25 mg SE: HA, depression, insomnia, rash, ↑ AST/ALT, ↑ cholesterol, ↑ SCR Notes: Take w/ food; metabolized via CYP3A; CYP3A inducers may ↓ virologic response, CYP3A inhibit may ↑ levels; ↑ gastric pH ↓ absorption

Rimantadine (Flumadine, Generic) Uses: *Prophylaxis & Rx of influ-enza A viral Infxns* Acts: Antiviral Dose: Adults & Peds > 9 y. 100 mg PO bid. Peds 1–9 y. 5 mg/kg/d PO, 150 mg/d max; daily w/ severe renal/hepatic impair & elderly; initiate w/in 48 h of Sx onset W/P: [C, –] w/ Cimetidine; avoid w/ PRG, breast-feeding CI: Component & amantadine allergy Disp: Tabs 100 mg SE: Orthostatic ↓ BP, edema, dizziness, GI upset, ↓ Sz threshold Notes: See CDC (MMWR) for current influenza A guidelines

Rimexolone (Vexol Ophthalmic) Uses: *Postop inflammation & uveitis* Acts: Steroid Dose: Adults & Peds > 2 y. Uveitis: 1–2 gtt/h daytime & q2h at night, taper to 1 gtt q6h. Postop: 1–2 gtt qid × 2 wk W/P: [C, ?/+] Ocular Infxns Disp: Susp 1% SE: Blurred vision, local irritation Notes: Taper dose

Riociguat (Adempas) BOX: Do not administer if PRG; R/O PRG before, monthly during and 1 mo after Tx; prevent PRG with appropriate birth control during and 1 mo post-Tx for females only; available through a restricted program Uses: *Persistent pulm HTN due to chronic thromboembolic Dz; adults w/ pulm HTN* Acts: Guanylate cyclase stimulator; guanylate cyclase NO receptor, leads to ↑ cGMP Dose: 1 mg PO tid; start 0.5 mg tid if ↓ BP a concern; ↑ 0.5 mg/dose q 2 wk PRN; 2.5 mg tid max W/P: [X, –] ↓ BP, pulm edema w/ pulm veno-occlusive Dz,
D/C if confirmed; bleeding CI: PRG; use of nitrates or nitric oxide; use of PDE
Disp: Tabs 0.5, 1, 1.5, 2, 2.5 mg SE: N/V/D, GERD, constipation, gastritis; HA, dizziness; anemia Notes: Start 0.5 mg w/ CYP and P-gp/BCRP inhib; do not take w/ antacids, separate by 1 h; not rec w/ severe liver or kidney Dz; may need ↑ dose in smokers; may need to ↓ dose if quit smoking

Risedronate (Actonel, Actonel W/ Calcium, Generic) Uses: *Paget Dz; Rx/prevention glucocorticoid-induced/postmenopausal osteoporosis, ↑ bone mass in osteoporotic men; w/ calcium only FDA approved for female osteoporosis* Acts: Bisphosphonate; ↓ osteoclast-mediated bone resorption Dose: Paget Dz: 30 mg/d PO for 2 mo. Osteoporosis Rx/prevention: 5 mg daily or 35 mg qwk or 150 mg qmo; 30 min before 1st food/drink of the d; stay upright for at least 30 min after dose W/P: [C, ?/−] Ca²⁺ supls & antacids ↓ absorption; jaw osteonecrosis, avoid dental work CI: Component allergy, ↓ Ca²⁺, esophageal abnormalities, unable to stand/sit for 30 min, CrCl < 30 mL/min Disp: Tabs 5, 30, 35, 150 mg; Risedronate 35 mg (4 tabs)/calcium carbonate 1250 mg (24 tabs) SE: Back pain, HA, Abd pain, dyspepsia, arthralgia; flu-like Sxs, hypersensitivity (rash, etc), esophagitis, bone pain, eye inflammation Notes: Monitor LFTs, Ca²⁺, PO ³⁺, K⁺; may ↑ atypical subtrochanteric femur fractures

Risedronate, Delayed-Release (Atelvia) Uses: *Postmenopausal osteoporosis* Acts: See Risedronate Dose: One 35 mg tab 1 × wk; in a.m. following breakfast w/ 4-oz water; do not lie down for 30 min W/P: [C, ?/−] Ca²⁺ & Fe²⁺ supls/antacids ↓ absorption; do not use w/ Actonel or CrCl < 30 mL/min; jaw osteonecrosis reported, avoid dental work; may ↑ subtrochanteric femur fractures; severe bone/ jt pain CI: Component allergy, ↓ Ca²⁺, esophageal abnormalities, unable to stand/sit for 30 min Disp: DR Tabs 35 mg SE: D, influenza, arthralgia, back/Abd pain; rare hypersens, eye inflam Notes: Correct ↓ Ca²⁺ before use; ✓ Ca²⁺

Risperidone, Oral (Risperdal, Risperdal M-Tab, Generic) BOX: ↑ Mortality in elderly w/ dementia-related psychosis Uses: *Psychotic disorders (schizophrenia)*, dementia of the elderly, bipolar disorder, mania, Tourette disorder, autism Acts: Benzisoxazole antipsychotic Dose: Adults & Peds. See PI for Dz specific dosing, ↓ dose w/ elderly, renal/hepatic impair W/P: [C, −], ↑ BP w/ antihypertensives, clozapine CI: Component allergy Disp: Tabs 0.25, 0.5, 1, 2, 3, 4 mg; soln 1 mg/mL, M-Tab (ODT) tabs 0.5, 1, 2, 3, 4 mg SE: Orthostatic ↓ BP, EPS w/ high dose, tachycardia, arrhythmias, sedation, dystonias, neuroleptic malignant synd, sexual dysfunction, constipation, xerostomia, ↓ WBC, neutropenia and agranulocytosis, cholestatic jaundice Notes: Several weeks for effect

Risperidone, Parenteral (Risperdal Consta) BOX: Not approved for dementia-related psychosis; ↑ mortality risk in elderly dementia pts on atypical antipsychotics; most deaths d/t CV or infectious events Uses: Schizophrenia Acts: Benzisoxazole antipsychotic Dose: 25 mg q2wk IM may ↑ to max 50 mg q2wk; w/ renal/hepatic impair start PO Risperdal 0.5 mg PO bid × 1 wk titrate weekly W/P: [C, −], ↑ BP w/ antihypertensives, clozapine CI: Component allergy Disp: Inj 25,
Rivastigmine
37.5, 50 mg/vial SE: See Risperidone, oral Notes: Long-acting Inj; give PO dose w/ initial Inj & continue × 3 wk

**Ritonavir (Norvir)** BOX: Life-threatening adverse events when used w/ certain nonselecting antihistamines, sedative hypnotics, antiarrhythmics, or ergot alkaloids d/t inhibited drug metabolism Uses: *HIV* combo w/ other antiretrovirals 
Acts: Protease inhibit; ↓ maturation of immature noninfectious virions to mature infectious virus Dose: Adults. Initial 300 mg PO bid, titrate over 1 wk to 600 mg PO bid (titration will ↓ GI SE). Peds > 1 mo. Initiate @ 250 mg/m² titrate by 50 mg/m² q 2–3d, goal 350–400 mg/m², max 600 mg bid; adjust w/ fosamprenavir, indinavir, nelfinavir, & saquinavir; take w/ food W/P: [B, +] w/ Ergotamine, amiodarone, bepridil, bosentan, colchicine, PDE inhib, flecainide, propafenone, quinidine, pimozide, triazolam CI: Component allergy Disp: Caps & tabs 100 mg; soln 80 mg/mL SE: ↑ Triglycerides, ↑ LFTs, N/V/D/C, Abd pain, taste perversion, anemia, weakness, HA, fever, malaise, rash, paresthesias Notes: Refrigerate

**Rituximab (Rituxan)** BOX: Fatal infusion and mucocutaneous reactions possible. Reactivation of hep B/hepatic failure/death and progressive multifocal leukoencephalopathy (PML) possible Uses: *NHL, CLL, RA w/ MTX and poor response to TNF antagonists; Wegner’s granulomatosis* 
Acts: CD20-directed cytolytic Ab Dose: IV infusion (not push): NHL: 375 mg/m²; CLL 375 mg/m² first cycle, 500 mg/m² in cycles 2–6, w/ FC, q28d; w/ Ibritumomab regimen: 250 mg/m²; RA w/ MTX two-1000 mg inf sep by 2 wk (one course) q24wk but not less than q16 wk. Methylprednisolone 100 mg IV 30 min before W/P: [limited data, ?] Tumor lysis synd; Infxn risk; arrhythmias; bowel obstr/perf; do not give live virus vaccine; cytopenias; renal tox w/ cisplatin CI: None Disp: Vial 100 mg/10 mL, 500 mg/50 mL SE: Malignancy: Inf Rxn, fever, ↓ WBC, chills, infection; RA: URI, nasopharyngitis, UTI, bronchitis, Inf Rxn, Infxn, CV events

**Rivaroxaban (Xarelto)** BOX: May ↑ risk of spinal/epidural hematoma w/ paralysis & increase risk of stroke w/ premature D/C, monitor closely Uses: *Prevention DVT in knee/hip replacement surgery & prevention of stroke and systemic embolism in pts w/ nonvalvular Afib * Acts: Factor Xa inhib Dose: 10 mg PO qd × 35 d (hip) or 12 d (knee), stroke 20 mg daily; w or w/o food W/P: [C, –] w/ CYP3A4 inhib/inducers, other anticoagulants or plt inhib; avoid w/CrCl < 30 mL/min or mod/severe hepatic impair CI: Active bleeding; component hypersens Disp: Tabs 10 mg SE: Bleeding Notes: See PI for information about timing of stopping or starting dosage in relation to other anticoagulants

**Rivastigmine (Exelon, Generic)** Uses: *Mild–mod dementia in Alzheimer Dz* 
Acts: Enhances cholinergic activity Dose: 1.5 mg bid; ↑ to 6 mg bid, w/ ↑ at 2-wk intervals (take w/ food) W/P: [B, ?] w/ β-Blockers, CCBs, smoking, neurovascular blockade, digoxin CI: Rivastigmine or carbamate allergy Disp: Caps 1.5, 3, 4.5, 6 mg; soln 2 mg/mL SE: Dose-related GI effects, N/V/D, dizziness, insomnia, fatigue, tremor, diaphoresis, HA, Wt loss (in 18–26%) Notes: Swallow caps whole, do not break/chew/crush; avoid EtOH
Rivastigmine, Transdermal (Exelon Patch, Generic) Uses: *Mild–mod Alzheimer and Parkinson Dz dementia* Acts: Acetylcholinesterase inhib Dose: Initial: 4.6-mg patch/d applied to back, chest, upper arm, ↑ 9.5 mg after 4 wk if tolerated W/P: [? (?)] Sick sinus synd, conduction defects, asthma, COPD, urinary obst, Szs; death from multiple patches at same time reported CI: Hypersens to rivastigmine, other carbamates Disp: Transdermal patch 5 cm² (4.6 mg/24 h), 10 cm² (9.5 mg/24 h) SE: N/V/D

Rizatriptan (Maxalt, Maxalt MLT, Generic) Uses: *Rx acute migraine* Acts: Vascular serotonin receptor agonist Dose: 5–10 mg PO, repeat in 2 h, PRN, 30 mg/d max W/P: [C, M] CI: Angina, ischemic heart Dz, ischemic bowel Dz, hemiplegic/basilar migraine, uncontrolled HTN, ergot or serotonin 5-HT₁ agonist use w/in 24 h, MAOI use w/in 14 d Disp: Tab 5, 10 mg; Maxalt MLT: OD tabs 5, 10 mg. SE: CP, palpitations, N, V, asthenia, dizziness, somnolence, fatigue

Rocuronium (Zemuron, Generic) Uses: *Skeletal muscle relaxation during rapid-sequence intubation, surgery, or mechanical ventilation* Acts: Nondepolarizing neuromuscular blocker Dose: Rapid sequence intubation: 0.6–1.2 mg/kg IV. Continuous Inf: 8–12 mcg/kg/min IV; adjust/titrate based on train of four monitoring; ↓ in hepatic impair W/P: [C, ?] Anaphylactoid reactions can occur. Concomitant use of corticosteroids has been associated w/ myopathy CI: Component or omer neuromuscular blocker allergy Disp: Inj preservative-free 10 mg/mL SE: BP changes, tachycardia Notes: Cross-reactivity w/ other neuromuscular blocker possible

Roflumilast (Daliresp) Uses: *↓ Exacerbations severe COPD* Acts: Selective phosphodiesterase -4 inhib (PDE4), ↑ cAMP w/ ↓ inflammation Dose: Adults. 500 mcg daily W/P: [C, –] Metabolized by CYP3A4 and 1A2; CYP3A4 and 1A2 inhib (cimetidine, erythromycin) increase levels, inducers (rifampin, carbamazepine) can decrease blood levels CI: Mod–severe liver impair Disp: Tabs 500 mcg SE: Worsening depression/suicidal behavior/ideation; N/D, ↓ Wt, HA, insomnia, anxiety Notes: Not a bronchodilator, not for acute exacerbations

Romidepsin (Istodax) Uses: *Rx cutaneous T-cell lymphoma in pts who have received at least one prior systemic therapy* Acts: Histone deacetylase (HDAC) inhib Dose: 14 mg/m² IV over 4 h days 1, 8, and 15 of a 28-d cycle; repeat cycles every 28 d if tolerated; Tx D/C or interruption w/ w/o dose reduction to 10 mg/m² to manage adverse drug reactions W/P: [D, ?] Risk of ↑QT, hemolytic tox; strong CYP3A4 inhibs may ↑ conc Disp: Inj 10 mg SE: N, V, fatigue, Infxn, anorexia, ↓ plt Notes: Hazardous agent, precautions for handling and disposal

Romiplostim (Nplate) BOX: ↑ Risk for heme malignancies and thromboembolism. D/C may worsen ↓ plt Uses: *Rx ↓ plt d/t ITP w/ poor response to other therapies* Acts: Thrombopoietic, thrombopoietin receptor agonist Dose: Adults. 1 mcg/kg SQ weekly, adjust 1 mcg/kg/wk to plt count > 50,000/mm³; max 10 mcg/kg/wk W/P: [C, /?] CI: None Disp: 500 mcg/mL (250-mcg vial) SE: HA, fatigue, dizziness, N/V/D, myalgia, epistaxis Notes: ✓ CBC/diff/plt weekly; plt ↑ 4–9 d, peak 12–16 d; D/C if no ↑ plt after 4 wk max dose; ↓ dose w/ plt count > 200,000/mm³ for 2 wk
**Rotigotine (Neupro)**

**Uses:** *Parkinson Dz, RLS*

**Acts:** Dopamine agonist

**Dose:** *Parkinson Dz:* IR initial 0.25 mg PO tid, weekly ↑ 0.25 mg/dose, to 1 mg PO tid (may continue to titrate weekly to max dose of 24 mg/d); ER: 2 mg PO daily, titrate qwk by 2 mg/d to max 24 mg/d

**RLS:** initial 0.25 mg PO 1–3 h before bedtime

**W/P:** [C, ?/−] Severe CV/renal/hepatic impair

**CI:** Component allergy

**Disp:** Tabs IR 0.25, 0.5, 1, 2, 3, 4, 5 mg; tabs ER 2, 4, 6, 8, 12 mg

**SE:** Syncope, postural ↓ BP, N/V, HA, somnolence, dose-related hallucinations, dyskinesias, dizziness

**Notes:** D/C w/ 7-d taper

**Rosiglitazone (Avandia)**

**BOX:** May cause or worsen CHF; may increase myocardial ischemia

**Uses:** *Type 2 DM*

**Acts:** Thiazolidinedione; ↑ insulin sensitivity

**Dose:** 4–8 mg/d PO or in 2 + doses (w/o regard to meals)

**W/P:** [C, −] w/ ESRD, CHF, edema

**CI:** Severe CHF (NYHA class III IV)

**Disp:** Tabs 2, 4, 8 mg

**SE:** May ↑ CV, CHF & ? CA risk; Wt gain, hyperlipidemia, HA, edema, fluid retention, worsen CHF, hyper/hypoglycemia, hepatic damage w/ ↑ LFTs

**Notes:** Increased MI risk now requires REMS restricted distribution program

**Rosuvastatin (Crestor)**

**Uses:** *Rx primary hypercholesterolemia & mixed dyslipidemia*

**Acts:** HMG-CoA reductase inhib

**Dose:** 5–40 mg PO daily; max 5 mg/d w/ cyclosporine, 10 mg/d w/ gemfibrozil or CrCl < 30 mL/min (avoid Al-/Mg-based antacids for 2 h after)

**W/P:** [X, ?/−] CI: Active liver Dz, unexplained ↑ LFTs

**Disp:** Tabs 5, 10, 20, 40 mg

**SE:** Myalgia, constipation, asthenia, Abd pain, N, myopathy, rarely rhabdomyolysis

**Notes:** May ↑ warfarin effect; monitor LFTs at baseline, 12 wk, then q6mo; OK w/ grapefruit

**Rotavirus Vaccine, Live, Oral, Monovalent (Rotarix)**

**Uses:** *Prevent rotavirus gastroenteritis in peds*

**Acts:** Active immunization w/ live attenuated rotavirus

**Dose:** Peds 6–24 wk. 1st dose PO at 6 wk of age, wait at least 4 wk then a 2nd dose by 24 wk of age.

**W/P:** [C, ?] CI: Component sensitivity, uncorrected congenital GI malformation, severe combined immunodeficiency (SCID), intussusception

**Disp:** Single-dose vial

**SE:** Irritability, cough, runny nose, fever, anaphylactic Rxn, D, ↓ appetite, otitis media, V

**Notes:** Conclude by age 24 wk; can be given to infant in house w/ immunosuppressed fam member or mother who is breast-feeding. Safety and effectiveness not studied in immunocompromised infants

**Rotavirus Vaccine, Live, Oral, Pentavalent (RotaTeq)**

**Uses:** *Prevent rotavirus gastroenteritis*

**Acts:** Active immunization w/ live attenuated rotavirus

**Dose:** Peds 6–24 wk. Single dose PO at 2, 4, & 6 mo

**W/P:** [?, ?] CI: Component sensitivity, uncorrected congenital GI malformation, severe combined immunodeficiency (SCID), intussusception

**Disp:** Oral susp 2-mL single-use tubes

**SE:** Irritability, cough, runny nose, fever, anaphylactic Rxn, D, ↓ appetite, otitis media, V

**Notes:** Begin series by age 12 wk and conclude by age 32 wk; can be given to infant in house w/ immunosuppressed fam member or mother who is breast-feeding. Safety and effectiveness not studied in immunocompromised infants

**Rotigotine (Neupro)**

**Uses:** *Parkinson Dz, RLS*

**Acts:** Dopamine agonist

**Dose:** *Parkinson Dz:* 2 mg/24 h (early Dz) or 4 mg/24 h (advanced Dz);
Rufinamide

→ by 2 mg/24 h qwk PRN to max of 6 mg/24 h (early Dz) or 8 mg/24 h (advanced Dz); RLS: 1 mg/24 h; → by 1 mg/24 h qwk PRN to max of 3 mg/24 h; apply patch 1×/d to dry, intact skin; ↓ gradually w/ D/C W/P: [C, ?/] Allergic Rxs w/ sulfite sens CI: Hypersens Disp: Transdermal sys 1, 2, 3, 4, 6, 8 mg/24 h SE: N/V, site Rxn, somnolence, anorexia, hyperhidrosis, insomnia, peripheral edema, dyskinesia, HA, postural hypotension, syncope, ↑ HR, ↑ BP, hallucinations, psychotic-like/compulsive behavior Notes: Do not use same site more than once q14 d

Rufinamide (Banzel)

Uses: *Adjunct Lennox-Gastaut Szs*

Acts: Anticonvulsant

Dose: Adults. Initial: 400–800 mg/d ÷ bid (max 3200 mg/d ÷ bid) Peds ≥ 4 y. Initial: 10 mg/kg/d ÷ bid, target 45 mg/kg/d ÷ bid; 3200 mg/d max W/P: [C, −] CI: Familial short QT synd Disp: Tab: 200, 400 mg; susp 40 mg/mL (460 mL) SE: ↓ QT, HA, somnolence, N/V, ataxia, rash Notes: Monitor for rash; use w/ OCP may lead to contraceptive failure; initial dose not > 400 mg

Ruxolitinib (Jakafi)

Uses: *Myelofibrosis*

Acts: Inhib Janus-assoc kinases, mediators of hematologic and immunologic cytokines and growth factors

Dose: 20 mg bid if plt > 200,000 × 10^9/L; 15 mg bid if plt 100,000–200,000 × 10^9/L; ↑ based on response, 25 mg bid max; stop Tx if plt < 50,000 × 10^9/L; restart when > 50,000 × 10^9/L; 20 mg bid if plt > 125,000 × 10^9/L; 15 mg bid if plt 100–125,000 × 10^9/L; 10 mg bid if plt 75–100,000 × 10^9/L × 2 wk, if stable ↑ to 15 mg bid; if plt 50–75,000 × 10^9/L, 5 mg bid × 2 wk, if stable ↑ to 10 mg bid if no ↓ in spleen size or symptoms D/C after 6 mo W/P: [C, −] Do not use if ESRD and not on dialysis; ↓ dose w/ strong CYP3A4 inhib CI: None Disp: Tabs 5, 10, 15, 20, 25 mg SE: ↓ Plt, ↓ WBC, anemia, bruising, HA, dizziness, serious Infxns including zoster Notes: w/ D/C for reason other than ↓ plt, taper 5 mg bid each wk

Salmeterol (Serevent Diskus)

BOX: Long-acting β₂-agonists, such as salmeterol, may ↑ risk of asthma-related death. Do not use alone, only as additional Rx for pts not controlled on other asthma meds; LABAs may ↑ risk of asthma-related hospitalization in pediatric and adolescent pts Uses: *Asthma, exercise-induced asthma, COPD*

Acts: Sympathomimetic bronchodilator, long acting β₂-agonist

Dose: Adults & Peds > 12 y. 1 Diskus-dose inhaled bid W/P: [B, ?/] CI: Acute asthma; monotherapy concomitant use of inhaled steroid, status astheticus Disp: 50 mcg/dose, dry powder discus, SE: HA, pharyngitis, tachycardia, arrhythmias, nervousness, GI upset, tremors Notes: Not for acute attacks; must use w/ steroid or short-acting β₂-agonist

Saquinavir (Invirase)

BOX: Invirase and Fortovase not bioequivalent/interchangeable; must use Invirase in combo w/ ritonavir, which provides saquinavir plasma levels = those w/ Fortovase Uses: *HIV Infxn*

Acts: HIV protease inhibit

Dose: 1000 mg PO bid w/in 2 h of a full meal (dose w/ ritonavir 100 mg PO bid) w/in 2 h pc (dose adjust w/ delavirdine, lopinavir, & nelfinavir) W/P: [B, ?/] CI: Complete AV block w/o implanted pacemaker; concomitant use antiarrhythmics, ergot derivatives, sedatives/hypnotics, trazodone, sildenafil, statins, rifamins, congenital ↑ QT synd; severe hepatic impair; refractory ↓ K+/↓ Mg^{2+}; anaphylaxis to
Secobarbital

**Disp:** Caps 200 mg, tabs 500 mg  
**SE:** Dyslipidemia, lipodystrophy, rash, hyperglycemia, GI upset, weakness  
**Notes:** Take w/in 2 h of a meal, avoid direct sunlight

*Sargramostim [GM-CSF] (Leukine)  
**Uses:** *Myeloid recovery following BMT or chemotherapy*  
**Acts:** Recombinant GF, activates mature granulocytes & macrophages  
**Dose:** Adults & Peds. 250 mcg/m²/d IV cont until ANC > 1500 cells/m² for 3 consecutive days  
**W/P:** [C, ?/−] Li, corticosteroids  
**CI:** >10% blasts, allergy to yeast, concurrent chemotherapy/RT  
**Disp:** Inj 250, 500 mcg  
**SE:** Bone pain, fever, ↑ BP, tachycardia, flushing, GI upset, myalgia  
**Notes:** Rotate Inj sites; use APAP PRN for pain

*Saxagliptin (Onglyza)  
**Uses:** *Monotherapy/combo type 2 DM*  
**Acts:** DPP-4 inhib, ↑ insulin synth/release  
**Dose:** 2.5 or 5 mg 1×/d w/o regard to meals; 2.5 mg once/d w/ CrCl < 50 mL/min or w/ strong CYP3A4/5 inhib (eg, atazanavir, clarithromycin, indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, ritonavir, saquinavir, telithromycin)  
**W/P:** [B, ?] May ↓ glucose when used w/ insulin secretagogues (eg, sulfonylureas); w/ pancreatitis; ? heart failure link  
**Disp:** Tabs 2.5, 5 mg  
**SE:** Peripheral edema, hypoglycemia, UTI, HA, Abd pain

*Saxagliptin/Metformin (Kombiglyze XR)  
**BOX:** Lactic acidosis can occur w/ metformin accumulation; ↑ risk w/ sepsis, vol depletion, CHF, renal/hepatic impair, excess alcohol; if lactic acidosis suspected D/C med and hospitalize  
**Uses:** *Type 2 DM*  
**Acts:** Dipeptidyl peptidase-4 (DDP-4) inhib, ↑ insulin synth/release & biguanide; ↓ hepatic glucose production & intestinal absorption of glucose; ↑ insulin sens  
**Dose:** 5/500 mg–5/2000 mg saxagliptin/metformin HCl XR PO daily w/ evening meal  
**W/P:** [B, ?/−] w/ contrast studies  
**CI:** SCr > 1.4 mg/dL (females) or > 1.5 mg/dL (males); met acidosis; ? heart failure link  
**Disp:** Tabs mg saxagliptin/mg metformin XR 5/500, 5/1000, 2.5/1000  
**SE:** Lactic acidosis; ↓ vit B12 levels; ↓ glucose w/ insulin secretagogue; N/V/D, anorexia, HA, URI, UTI, urticaria, myalgia  
**Notes:** Do not exceed 5 mg/2000 mg saxagliptin/metformin HCl XR; do not crush or chew; w/ strong CYP3A4/5 inhib do not exceed 2.5 mg saxagliptin/d

*Scopolamine, Transdermal (Transderm-Scop)  
**Uses:** *Prevent N/V associated w/ motion sickness, anesthesia, opiates*  
**Acts:** Anticholinergic, antiemetic  
**Dose:** 1 mg/72 h, 1 patch behind ear q3d; apply > 4 h before exposure  
**W/P:** [C, +] w/ APAP, levodopa, ketoconazole, digitalis, KCl  
**CI:** NAG, GI or GU obst, thyrotoxicosis, paralytic ileus  
**Disp:** Patch 1.5 mg, (releases 1 mg over 72 h)  
**SE:** Xerostomia, drowsiness, blurred vision, constipation  
**Notes:** Do not blink excessively after dose, wait 5 min before dosing other eye; antiemetic activity w/ patch requires several hours

*Secobarbital (Seconal) [C-II]  
**Uses:** *Insomnia, short-term use*, preanesthetic agent  
**Acts:** Rapid-acting barbiturate  
**Dose:** Adults. 100–200 mg hs, 100–300 mg preop.  
**Peds.** 2–6 mg/kg/dose, 100 mg/max, ↓ in elderly  
**W/P:** [D, +]
Selegiline, Oral (Eldepryl, Zelapar, Generic)  **BOX:** Closely monitor for worsening depression or emergence of suicidality, particularly in ped pts  **Uses:** *Parkinson Dz*  **Acts:** MAOI  **Dose:** 5 mg PO bid; 1.25–2.5 once daily ODT tabs PO q a.m. (before breakfast w/o liq) 2.5 mg/d max; ↓ in elderly  **W/P:** [C, ?] w/ Drugs that induce CYP3A4 (Table 10, p 346) (eg, phenytoin, carbamazepine, nafcillin, phenobarbital, & rifampin); avoid w/ antidepressants  **CI:** w/ Meperidine, MAOI, dextromethorphan, tramadol, methadone, general anesthesia w/in 10 d, pheochromocytoma  **Disp:** Tabs/caps 5 mg; once-daily tabs 1.25 mg  **SE:** N, dizziness, orthostatic ↓ BP, arrhythmias, tachycardia, edema, confusion, xerostomia  **Notes:** ↓ Carbidopa/levodopa if used in combo; see transdermal form

**Selegiline, Transdermal (Emsam)  **BOX:** May ↑ risk of suicidal thinking and behavior in children and adolescents w/ MDD  **Uses:** *Depression*  **Acts:** MAOI  **Dose:** **Adults.** Apply patch daily to upper torso, upper thigh, or outer upper arm  **W/P:** [C, –] ↑ Carbamazepine and oxcarbazepine levels  **Disp:** ER Patches 9, 12 mg  **SE:** Local Rxns requiring topical steroids; HA, insomnia, orthostatic, ↓ BP, serotonin synd, suicide risk  **Notes:** Rotate site; see oral form

**Selenium Sulfide (Selsun, Generic, Head & Shoulders Clinical Strength Dandruff Shampoo Selsun Blue Shampoo, others [OTC])**  **Uses:** *Scalp seborrheic dermatitis*, scalp itching & flaking d/t *dandruff*; tinea versicolor  **Acts:** Antiseborrheic  **Dose:** Dandruff, seborrhea: Massage 5–10 mL into wet scalp, leave on 2–3 min, rinse, repeat; use 2× wk, then once q1–4wk PRN. *Tinea versicolor:* Apply 2.5% daily on area & lather w/ small amounts of water; leave on 10 min, then rinse  **W/P:** [C, ?] Avoid contact w/ open wounds or mucus membranes  **Disp:** Component allergy  **SE:** Dry or oily scalp, lethargy, hair discoloration, local irritation  **Notes:** Do not use more than 2×/wk

**Sertaconazole (Ertaczo)**  **Uses:** *Topical Rx interdigital tinea pedis*  **Acts:** Imidazole antifungal. *Spectrum:* Trichophyton rubrum, Trichophyton mentagrophytes, Epidermophyton floccosum  **Dose:** **Adults & Peds > 12.** Apply between toes & immediate surrounding healthy skin bid × 4 wk  **W/P:** [C, ?] Avoid occlusive dressing  **Disp:** 2% Cream  **SE:** Contact dermatitis, dry/burning skin, tenderness  **Notes:** Use in immunocompetent pts; not for oral, intravag, ophthal use

**Sertraline (Zoloft, Generic)  **BOX:** Closely monitor pts for worsening depression or emergence of suicidality, particularly in ped pts  **Uses:** *Depression, panic disorders, PMDD, OCD, PTSD*, social anxiety disorder, eating disorders, premenstrual disorders  **Acts:** ↓ Neuronal uptake of serotonin  **Dose:** **Adults. Depression:** 50–200 mg/d PO. **PTSD:** 25 mg PO daily × 1 wk, then 50 mg PO daily, 200 mg/d max. **Peds 6–12 y.**
Sildenafil (Viagra, Revatio)

*Uses:* Viagra: *ED*; Revatio: *Pulm artery HTN (adult only)*

*Acts:* ↓ Phosphodiesterase type 5 (PDE5) (responsible for cGMP breakdown); ↑ cGMP activity to relax smooth muscles & ↑ flow to corpus cavernosum and pulm vasculature; ? antiproliferative on pulm artery smooth muscle

*Dose:* ED: 25–100 mg PO 1 h before sexual activity, max 1/d; ↓ if > 65 y Revatio: Pulm HTN: 20 mg PO tid or 10 mg IV tid *W/P:* [B, ?] w/ CYP3A4 inhib (Table 10,
Silodosin

Uses: *BPH*  
Acts: α-blockers of prostatic α₁a  
Dose: 8 mg/d; 4 mg/d w/ CrCl 30–50 mL/min; take w/ food  
W/P: [B, ?]  
CI: Severe hepatic/renal impair (CrCl < 30 mL/min), w/ CYP3A4 inhib (eg, ketoconazole, clarithromycin, itraconazole, ritonavir)  
Disp: Caps 4, 8 mg  
SE: Retrograde ejaculation, dizziness, D, syncope, somnolence, orthostatic ↓ BP, nasopharyngitis, nasal congestion, intraoperative floppy iris syndrome during contract surgery  
Notes: Not for use as antihypertensive; no effect on QT interval

Silver Nitrate (Generic)  
Uses: *Removal of granulation tissue & warts; prophylaxis in burns*  
Acts: Caustic antiseptic & astringent  
Dose: Adults & Peds.  
W/P: [C, ?]  
CI: Do not use on broken skin  
Disp: Topical impregnated applicator sticks, soln 0.5, 10, 25, 50%; topical ointment 10%  
SE: May stain tissue black, usually resolves; local irritation, met-hemoglobinemia  
Notes: D/C if redness or irritation develops; no longer used in US for newborn prevention of gonococcus conjunctivitis

Silver Sulfadiazine (Silvadene, Generic)  
Uses: *Prevention & Rx of Infxn in 2nd- & 3rd-degree burns*  
Acts: Bactericidal  
Dose: Adults & Peds.  
W/P: [B unless near term, ?/−]  
CI: Infants < 2 mo, PRG near term  
Disp: Cream 1%  
SE: Itching, rash, skin discoloration, blood dyscrasias, hep, allergy  
Notes: Systemic absorption w/ extensive application

Simeprevir (Olysio)  
Uses: *Hep C w/ genotype 1 & compensated liver Dz in combo w/ ribavirin & peginterferon alpha*  
Acts: NS3/4A protease inhibit  
Dose: 150 mg qd w/ food  
W/P: [C, −]  
NOTE: Ribavirin & peginterferon alpha are [X, −], BOTH are embryo-fetal toxic; avoid PRG (patient or in partner) before & 6 mo post; use at least 2 BC methods and monthly PRG test  
CI: PRG or males w/ PRG partner  
Disp: Caps 150 mg  
SE: Photosensitivity, rash, pruritus, N, dyspnea  
Notes: DO NOT use as monotherapy; use w/ ribavirin & peginterferon alpha; monitor W/P & SE from other meds; screen for NS3 Q80K polymorphism; do not use w/ CYP3A inducers/inhib; monitor HCV RNA levels

Simethicone (Generic [OTC])  
Uses: Flatulence  
Acts: Defoaming, alters gas bubble surface tension action  
Dose: Adults & Peds > 12 y. 40–360 mg PO after meals and at bedtime PRN; 500 mg/d max.  
Peds < 2 y. 20 mg PO qid PRN.  
2–12 y: 40 mg PO qid PRN  
W/P: [C, ?]  
CI: GI perforation or obst  
Disp: [OTC]  
Tabs 80, 125 mg; caps 125 mg; susp 40 mg/0.6 mL; chew tabs 80, 125 mg; caps: 125, 180 mg; ODT strip: 40, 62.5 mg  
SE: N/D  
Notes: Available in combo products OTC
Simvastatin (Zocor)  Uses: ↓ Cholesterol  Acts: HMG-CoA reductase inhib  Dose:  Adults.  5–40 mg PO q p.m.; w/ meals; ↓ in renal Insuff; w/o grapefruit.  Peds  10–17 y.  10 mg, 40 mg/d max  W/P: [X, –] Max 10 mg daily w/ verapamil, diltiazem; max 20 mg daily w/ amloidine, ranolazine, amiodarone; 80 mg dose restricted to those taking > 12 mo w/o muscle tox; w/ Chinese pt on lipid modifying meds  CI: PRG, liver Dz, strong CYP3A4 inhib  Disp: Tabs 5, 10, 20, 40, 80 mg  SE: HA, GI upset, myalgia, myopathy (pain, tenderness, weakness w/ creatine kinase 10 × ULN) and rhabdomyolysis, hep  Notes: Combo w/ ezetimibe/simvastatin; follow LFTs; ↑ blood glucose w/ DM

Sipuleucel-T (Provenge)  Uses: *Asymptomatic/minimally symptomatic metastatic castrate resistant PCA*  Acts: Autologous (pt specific) cellular immunotherapy  Dose:  3 doses over 1 mo @ 2-wk intervals; premed w/ APAP & diphenhydramine  W/P: [N/A, N/A] Confirm identity/expir date before Inf; acute transfusion Rxn possible; not tested for transmissible Dz  CI: None  Disp: 50 mill units autologous CD54+ cells activated w/ PAP GM-CSF in 250 mL LR  SE: Chills, fatigue, fever, back pain, N, jt ache, HA  Notes: Pt must undergo leukaphoresis, w/ shipping and autologous cell processing at manufacturing facility before each Inf

Sirolimus [Rapamycin] (Rapamune) BOX: Use only by physicians experienced in immunosuppression; immunosuppression associated w/ lymphoma, ↑ Infxn risk; do not use in lung transplant (fatal bronchial anastomotic dehiscence); do not use in liver transplant: ↑ risk hepatic arteri thrombosis, graft failure, and mortality (w/ evidence of Infxn)  Uses: *Prevent organ rejection in new renal Tx pts*  Acts: ↓ T-lymphocyte activation and proliferation  Dose:  Adults > 40 kg: 6 mg PO on day 1, then 2 mg/d PO.  Peds < 40 kg & ≥13 y.  3 mg/m² load, then 1 mg/m²/d (in H₂O/orange juice; no grapefruit juice w/ sirolimus); take 4 h after cyclosporine; ↓ in hepatic impair  W/P: [C, ?/] Impaired wound healing & angioedema; grapefruit juice, ketoconazole  CI: Component allergy  Disp: Soln 1 mg/mL, tab 0.5, 1, 2 mg  SE: HTN, edema, CP, fever, HA, insomnia, acne, rash, ↑ cholesterol, GI upset, ↑/↓ K⁺, Infxns, blood dyscrasias, arthralgia, tachycardia, renal impair, graft loss & death in liver transplant (hepatic artery thrombosis), ascites  Notes: Levels: Trough: 4–20 ng/mL; varies w/ assay method and indication

Sitagliptin (Januvia)  Uses: *Monotherapy or combo for type 2 DM*  Acts: Dipeptidyl peptidase-4 (DDP-4) inhib, ↑ insulin synth/release  Dose:  100 mg PO daily; CrCl 30–50: 50 mg PO daily; CrCl < 30 mL/min: 25 mg PO daily [B/?] May cause ↓ blood sugar when used w/ insulin secretagogues such as sulfonylureas; not for type 1 DM or DKA; not studied w/ pancreatitis  CI: Component hypersens  Disp: Tabs 25, 50, 100 mg  SE: URI; peripheral edema, asopharyngitis  Notes: No evidence for ↑ CV risk

Sitagliptin/Metformin (Janumet, Janumet XR) BOX: See metformin, p 198  Uses: *Adjunct to diet and exercise in type 2 DM*  Acts: See individual agents  Dose:  1 tab PO bid, titrate; 100 mg sitagliptin & 2000 mg metformin/d max; take w/ meals  W/P: [B, ?/] Not for type 1 DM or DKA; not studied w/ pancreatitis  CI:
Sitagliptin/Simvastatin

Uses: *DM2 and hyperlipidemia*

Acts: ↑ Insulin synth/release and ↓ chol, ↓ VLDL, ↓ triglycerides, ↑ HDL; dipeptidyl peptidase-4 (DPP-4) inhib w/ HMG-CoA reductase inhib

Dose: Start 100/40 mg or maintain simvastatin dose

W/P: [X, –] ↑ AST/ALT; myopathy (↑ risk of myopathy w/ age > 65 y, female, renal impair, meds (eg, niacin, amiodarone, CCBs, fibrates, colchicine); renal failure, hypoglycemia w/ sulfonyleureas, or insulin; pancreatitis, anaphylaxis

CI: Hx hypersens Rxn; w/ CYP3A4 inhib, gemfibrozil, cyclosporine, danazol, ketoconazole, itraconazole, clarithromycin, HIV protease inhib; liver Dx; PRG or women who may get PRG; nursing

Disp: Tabs mg sitagliptin/mg simvastatin: 100/10, 100/20, 100/40, 50/10, 50/20, 50/40

SE:
Simvastatin: HA, GI upset, myalgia, myopathy (pain, tenderness, weakness w/ creatine kinase 10× ULN) and rhabdomyolysis, hep; sitagliptin: URI, nasopharyngitis, UTI, HA

Notes: ↑ Myopathy w/ coadministration of CYP3A4 inhib; risk of myopathy dose related

Smallpox Vaccine (ACAM2000)

BOX: Acute myocarditis and other infectious complications possible; CI in immunocompromised, eczema or exfoliative skin conditions, infants < 1 y

Uses: Immunization against smallpox (variola virus)

Acts: Active immunization (live attenuated cowpox virus)

Dose: Adults.

Primary and revaccination: 15 punctures w/ bifurcated needle dipped in vaccine into deltoid, ✓ site for Rxn in 6–8 d; if major Rxn, site scabs, & heals, leaving scar

CI: Nonemergency use: febrile illness, immunosuppression, Hx eczema & in household contacts. Emergency: No absolute CI

Disp: Vial for reconstitution: 100 mill pock-forming units/mL

SE: Malaise, fever, regional lymphadenopathy, encephalopathy, rashes, spread of inoculation to other sites; SJS, eczema vaccinatum w/ severe disability

Notes: Avoid infants for 14 d; intradermal use only; restricted distribution; Dryvax discontinued

Sodium Bicarbonate [NaHCO₃] (Generic)

Uses: *Alkalinization of urine, RTA, metabolic acidosis, ↑ K⁺, TCA OD*

Acts: Alkalinizing agent

Dose: Adults. ECC 2010.

Cardiac arrest w/ good ventilation, hyperkalemia, OD of TCAs, ASA, cocaine, diphenhydramine: 1 mEq/kg IV bolus; repeat 1/2 dose q10min PRN.

Metabolic acidosis: 2–5 mEq/kg IV over 8 h & PRN based on acid–base status. ↑ K⁺: 50 mEq IV over 5 min. Alkalinize urine: 4 g (48 mEq) PO, then 12–24 mEq q4h; adjust based on urine pH; 2 amp (100 mEq)/1 L D₅W at 100–250 mL/h IV, monitor urine pH & serum bicarbonate. Chronic renal failure: 1–3 mEq/kg/d. Distal RTA: 0.5–2 mEq/kg/d in 4–5 + doses. Peds. Sodium bicarbonate ECC 2010.

Severe metabolic acidosis, hyperkalemia: 1 mEq/kg IV slow bolus; 4.2% conc in infants < 1 mo. Chronic renal failure: See Adults dosage. Distal RTA: 2–3 mEq/kg/d PO. Proximal RTA: 5–10 mEq/kg/d; titrate based on serum bicarbonate. Urine alkalinization: 84–840 mg/kg/d (1–10 mEq/kg/d) in + doses; adjust based on urine pH
**Sofosbuvir** (Sovaldi)  
**Uses:** *Chronic hepatitis C, genotypes 1, 2, 3, & 4 and co-infection w/ HIV*  
**Acts:** Nucleotide analog NS5B RNA polymerase inhibit  
**Dose:** 400 mg 1 ×/d w/ ribavirin (genotype 2 & 3; for 12 and 24 wk) or ribavirin + pegylated interferon (genotype 1 or 4 for 12 wk)  
**W/P:** [X, –] Embryo-fetal toxic;

**CI:** Alkalosis, ↑ Na⁺, severe pulm edema, ↓ Ca²⁺  
**Disp:** Powder, tabs; 325 mg = 3.8 mEq; 650 mg = 7.6 mEq; Inj 1 mEq/1 mL, 4.2% (5 mEq/10 mL), 7.5% (8.92 mEq/mL), 8.4% (10 mEq/10 mL) vial or amp  
**SE:** Belching, edema, flatulence, ↑ Na⁺, metabolic alkalosis  
**Notes:** 1 g neutralizes 12 mEq of acid; 50 mEq bicarbonate = 50 mEq Na; can make 3 amps in 1 L D₅W = D₅NS w/ 150 mEq bicarbonate

**Sodium Citrate/Citric Acid (Bicitra, Oracit)**  
**Uses:** *Chronic metabolic acidosis, alkalinize urine; dissolve uric acid & cysteine stones*  
**Acts:** Urinary alkalinizer  
**Dose:** Adults. 10–30 mL in 1- to 3- oz H₂O pc & hs. Peds. 5–15 mL in 1- to 3- oz H₂O pc & hs; best after meals  
**W/P:**  
**CI:** Severe renal impair or Na-restricted diets  
**Disp:** 15- or 30-mL unit dose: 16 (473 mL) or 4 fl oz  
**SE:** Tetany, metabolic alkalosis, ↑ K⁺, GI upset; avoid use of multiple 50-mL amps; can cause ↑ Na⁺/hyperosmolality  
**Notes:** 1 mL = 1 mEq Na & 1 mEq bicarbonate

**Sodium Oxybate/Gamma Hydroxybutyrate/GHB (Xyrem) [C-III] BOX:** Known drug of abuse even at recommended doses; confusion, depression, resp depression may occur  
**Uses:** *Narcolepsy-associated cataplexy*  
**Acts:** Inhibitory neurotransmitter  
**Dose:** Adults & Peds > 16 y. 2.25 g PO qhs, 2nd dose 2.5–4 h later; may ↑ 9 g/d max  
**W/P:** [C, ?]  
**CI:** Succinic semialdehyde dehydrogenase deficiency; potentiates EtOH & other CNS depressants  
**Disp:** 500 mg/mL (180-mL) PO soln  
**SE:** Confusion, depression, ↓ diminished level of consciousness, incontinence, sig V, resp depression, psychological Sxs  
**Notes:** May lead to dependence; GHB abused as a “date rape drug”; controlled distribution (prescriber & pt registration); must be administered when pt in bed

**Sodium Phosphate (Osmoprep, Visicol) BOX:** Acute phosphate nephropathy reported w/ permanent renal impair risk; w/ ↑ age, hypovolemia, bowel obstr or colitis, baseline kidney Dz, w/ meds that affect renal perf/Fxn (diuretics, ACE inhibit, ARB, NSAIDs)  
**Uses:** *Bowel prep prior to colonoscopy*, short-term constipation  
**Acts:** Hyperosmotic laxative  
**Dose:** 3 tabs PO w/ at least 8-oz clear liq q15min for 6 doses; then 2 additional tabs in 15 min, 3–5 h prior to colonoscopy; 3 tabs q15 min for 6 doses, then 2 additional tabs in 15 min  
**W/P:** [C, ?]  
**CI:** Renal impair, electrolyte disturbances  
**Disp:** Tabs 0.398, 1.102 g (32/bottle)  
**SE:** ↑ QT, ↑ PO₄³⁻, ↓ calcium, D, flatulence, cramps, Abd bloating/pain

**Sodium Polystyrene Sulfonate (Kayexalate, Kionex, Generic)**  
**Uses:** *Rx of ↑ K⁺*  
**Acts:** Na⁺/K⁺ ion-exchange resin  
**Dose:** Adults. 15–60 g PO or 30–50 g PR q6h based on serum K⁺. Peds. 1 g/kg/dose PO or PR q6h based on serum K⁺  
**W/P:** [C, ?]  
**CI:** Obstructive bowel Dz; ↑ Na⁺; neonates w/ ↓ gut motility  
**Disp:** Powder; susp 15 g/60 mL sorbitol  
**SE:** ↑ Na⁺, ↓ K⁺, GI upset, fecal impaction  
**Notes:** Enema acts more quickly than PO; PO most effective, onset action > 2 h

**Sofosbuvir (Sovaldi)**  
**Uses:** *Chronic hepatitis C, genotypes 1, 2, 3, & 4 and co-infection w/ HIV*  
**Acts:** Nucleotide analog NS5B RNA polymerase inhibit  
**Dose:** 400 mg 1 ×/d w/ ribavirin (genotype 2 & 3; for 12 and 24 wk) or ribavirin + pegylated interferon (genotype 1 or 4 for 12 wk)  
**W/P:** [X, –] Embryo-fetal toxic;
avoid PRG (patient or in partner) before & 6 mo post; use at least 2 BC methods and monthly PRG test CI: PRG or may become PRG; men w/PRG partner Disp: Tabs 400 mg SE: (SE from combo) HA, fatigue, insomnia, N, anemia, pancytopenia, depression. Notes: Avoid w/ P-gp inducers; use in post-liver transplant or w/ CrCl < 30 mL/min not studied

**Solifenacin (Vesicare)**

**Uses:** *OAB* **Acts:** Antimuscarinic, ↓ detrusor contractions **Dose:** 5 mg PO daily, 10 mg/d max; ↓ w/ renal/hepatic impair **W/P:** [C, ?/−] BOO or GI obst, UC, MyG, renal/hepatic impair, QT prolongation risk CI: NAG, urinary/gastric retention **Disp:** Tabs 5, 10 mg **SE:** Constipation, xerostomia, dyspepsia, blurred vision, drowsiness Notes: CYP3A4 substrate; azole antifungals ↑ levels; recent concern over cognitive effects

**Somatropin (Genotropin, Nutropin AQ, Omnitrope, Saizen, Serostim, Zorbtive)**

**Uses:** *HIV-assoc wasting/cachexia* **Acts:** Anabolic peptide hormone **Dose:** 0.1 mg/kg SQ hs; max 6 mg/d **W/P:** [B, ?] Lipodystrophy (rotate sites) CI: Active neoplasm; acute critical illness postop; benzyl alcohol sens; hypersens **Disp:** 4, 5, 6 mg powder for Inj **SE:** Arthralgia, edema, ↑ blood glucose

**Sorafenib (Nexavar)**

**Uses:** *Advanced RCC*, metastatic liver CA **Acts:** Tyrosine kinase inhib **Dose:** Adults. 400 mg PO bid on empty stomach **W/P:** [D, −] w/ Irinotecan, doxorubicin, warfarin; avoid conception (male/female); avoid inducers **Disp:** Tabs 200 mg SE: Hand–foot synd; Tx-emergent hypertension; bleeding, ↑ INR, cardiac infarction/ischemia; ↑ pancreatic enzymes, hypophosphatemia, lym- phopenia, anemia, fatigue, alopecia, pruritus, D, GI upset, HA, neuropathy Notes: Monitor BP first 6 wk; may require ↓ dose (daily or q other day); impaired metabolism w/ Asian descent; may effect wound healing, D/C before major surgery

**Sorbitol (Generic)**

**Uses:** *Constipation* **Acts:** Osmotic laxative **Dose:** 30–150 mL PO of a 20–70% soln PRN **W/P:** [C, ?] CI: Anuria **Disp:** Liq 70% **SE:** Edema, lyte loss, lactic acidosis, GI upset, xerostomia Notes: Vehicle for many liq formulations (eg, zinc, Kayexalate)

**Sotalol (Betapace, Sorine, Generic)**

**BOX:** To minimize risk of induced arrhythmia, pts initiated/reinitiated on Betapace AF should be placed for a minimum of 3 d (on their maint) in a facility that can provide cardiac resuscitation, cont ECG monitoring, & calculations of CrCl. Betapace should not be substituted for Betapace AF because of labeling; adjust dose base on Crcl. Can cause life-threatening ventricular tachycardia w/ prolonged QT. Do not initiate if QT > 450 ms. If QTc > 500 ms during Tx, ↓ dose **Uses:** *Ventricular arrhythmias, AF* **Acts:** β-Adrenergic-blocking agent **Dose:** Adults. CrCl > 60 mL/min: 80 mg PO bid, may ↑ to 240–320 mg/d. CrCl 30–60 mL/min: 80 mg q24h. CrCl 10–30 mL/min: Dose 80 mg q36–48h. **ECC 2010. SVT and ventricular arrhythmias:** 1–1.5 mg/kg IV over 5 min. **Pedts < 2 y.** Dosing dependent on age, renal Fxn, heart rate, QT interval; ≥ 2 y: 30 mg/m² tid; to max dose of 60 mg/m² tid; ↓ w/ renal impair **W/P:** [B, + (monitor child)] CI: Asthma, ↓ HR, ↑ prolonged QT interval, 2nd-/3rd-degree heart block w/o pacemaker, cardiogenic
Stavudine 271

shock, uncontrolled CHF Disp: Tabs 80, 120, 160, 240 mg SE: ↓ HR, CP, palpitations, fatigue, dizziness, weakness, dyspnea

Sotalol (Betapace AF) BOX: See sotalol (Betapace) Uses: *Maintain sinus rhythm for symptomatic AF/A flutter* Acts: β-Adrenergic-blocking agent Dose: Adults. CrCl > 60 mL/min: 80 mg PO q12h, max 320 mg/d. CrCl 40–60 mL/min: 80 mg PO q24h; ↑ to 120 mg bid during hospitalization; monitor QT interval 2–4 h after each dose, dose reduction or D/C if QT interval ≥ 500 ms. Peds. < 2 y: Dose adjusted based on logarithmic scale (refer to pkg insert); > 2 y: 9 mg/m²/d + tid, may ↑ to 180 mg/m²/d W/P: [B, +] When converting from other antiarrhythmic CI: Asthma, ↓ HR, ↑ QT interval, 2nd/3rd-degree heart block w/o pacemaker, cardiogenic shock, K⁺ < 4, sick sinus synd, baseline QT > 450 ms uncontrolled CHF, CrCl < 40 mL/min Disp: Tabs 80, 120, 160 mg SE: ↓ HR, CP, palpitations, fatigue, dizziness, weakness, dyspnea Notes: Follow renal Fxn & QT interval; Betapace should not be substituted for Betapace AF because of differences in labeling

Spinosad (Natroba) Uses: *Head lice* Acts: Neuronal excitation of lice, w/ paralysis & death Dose: Cover dry scalp w/ suspension, then apply to dry hair; rinse off in 10 min, may repeat after 7 d; unlabeled to use < 4 y W/P: [B, ?/-] Disp: 0.9% topical susp SE: Scalp/ocular erythema Notes: Shake well before use; use w/ overall lice management program; in benzyl alcohol, serious Rxns in neo-nates, in breast milk, pump and discard milk for 8 h after use

Spironolactone (Aldactone, Generic) BOX: Tumorogenic in anmial studies; avoid unnecessary use Uses: *Hyperaldosteronism, HTN, class III/IV CHF, ascites from cirrhosis* Acts: Aldosterone antagonist; K⁺-sparing diuretic Dose: Adults. CHF (NYHA class III–IV) 12.5–25 mg/d (w/ ACE and loop diuretic); HTN 25–50 mg/d; Ascites: 100–400 mg q a.m w/ 40–160 mg of furosemide, start w/ 100 mg/40 mg, wait at least 3 d before ↑ dose Peds. 1–3.3 mg/kg/24 h PO + bid q12–24h, take w/ food W/P: [C, + (D/C w/ breast-feeding)] CI: ↑ K⁺, acute renal failure, anuria Disp: Tabs 25, 50, 100 mg SE: ↑ K⁺ & gynecomastia, arrhythmia, sexual dysfunction, confusion, dizziness, D/N/V, abnormal menstruation

Starch, Topical, Rectal (Tucks Suppositories [OTC]) Uses: *Temporary relief of anorectal disorders (itching, etc)* Acts: Topical protectant Dose: Adults & Peds ≥ 12 y. Cleanse, rinse, and dry, insert 1 supl rectally 6x/d × 7 d max. W/P: [?, ?] CI: None Disp: Supp SE: D/C w/ or if rectal bleeding occurs or if condition worsens or does not improve w/in 7 d

Stavudine (Zerit, Generic) BOX: Lactic acidosis & severe hepatomegaly w/ steatosis & pancreatitis reported w/ didanosine Uses: *HIV in combo w/ other antiretrovirals* Acts: NRTI Dose: Adults > 60 kg. 40 mg bid. < 60 kg. 30 mg bid. Peds Birth–13 d. 0.5 mg/kg q12h. > 14 d & < 30 kg. 1 mg/kg q12h. ≥ 30 kg. Adult dose; ↓ w/ renal Insuff W/P: [C, –] CI: Allergy Disp: Caps 15, 20, 30, 40 mg; soln 1 mg/mL SE: Peripheral neuropathy, HA, chills, rash, GI upset, anemias, lactic acidosis, ↑ LFTs, pancreatitis Notes: Take w/ plenty of H₂O
Steroids, Systemic

(See Table 2, p 319) The following relates only to the commonly used systemic glucocorticoids

**Uses:** 
- Endocrine disorders (adrenal Insuff), rheumatoid disorders, collagen–vascular Dzs, derm Dzs, allergic states, cerebral edema*, nephritis, nephrotic synd, immunosuppression for transplantation, ↑ Ca²⁺, malignancies (breast, lymphomas), preop (pt who has been on steroids in past year, known hypoadrenalism, preop for adrenalectomy); Inj into jts/tissue

**Acts:** Glucocorticoid

**Dose:** Varies w/ use & institutional protocols.

- **Adrenal Insuff, acute:** Adults. Hydrocortisone: 100 mg IV; then 300 mg/d ÷ q8h for 48 h then convert to 50 mg PO q8h × 6 doses, taper to 30–50 mg/d ÷ bid. Peds. Hydrocortisone: 1–2 mg/kg IV, then 150–250 mg/d ÷ q6h–q8h.

- **Adrenal Insuff, chronic (physiologic replacement):** May need mineralocorticoid supl such as Florinef. Adults. Hydrocortisone: 20 mg PO q A.M., 10 mg PO q P.M.; cortisone: 25–35 mg PO daily. Dexamethasone: 0.03–0.15 mg/kg/d or 0.6–0.75 mg/m²/d ÷ q6–12h PO, IM, IV. Peds. Hydrocortisone: 8–10 mg/m²/d ÷ q8h; some may require up to 12 mg/m²/d. Hydrocortisone succinate: 0.25–0.35 mg/kg/d IM.

- **Asthma, acute:** Adults. Methylprednisolone 40–80 mg/d in 1–2 ÷ doses PO/IV or dexamethasone 12 mg IV q6h. Peds. Prednisolone 1–2 mg/kg/d or prednisone 1–2 mg/kg ÷ daily-bid for up to 5 d; methylprednisolone 12 mg/kg/d ÷ bid; dexamethasone 0.1–0.3 mg/kg/d ÷ q6h.

- **Congenital adrenal hyperplasia:** Peds. Initial hydrocortisone 10–20 mg/m²/d in 3 ÷ doses

- **Extubation/airway edema:** Adults. Dexamethasone: 0.5–2 mg/kg/d IM/IV ÷ q6h (start 24 h prior to extubation; continue × 4 more doses). Peds. Dexamethasone: 0.5–2 mg/kg/d ÷ q6h (start 24 h before & cont for 4–6 doses after extubation)

- **Immunosuppressive/anti-inflammatory:** Adults & Older Peds. Hydrocortisone: 15–240 mg PO, IM, IV q12h. Methylprednisolone: 2–60 mg/d PO in 1–4 ÷ doses, taper to lowest effective dose. Methylprednisolone Na succinate: 10–80 mg/d IM or 10–40 mg/d IV. Adults. Prednisone or prednisolone: 5–60 mg/d PO ÷ daily-qid. Infants & Younger Children. Hydrocortisone: 2.5–10 mg/kg/d PO ÷ q6–8h; 1–5 mg/kg/d IM/IV ÷ bid-daily.

- **Nephrotic synd:** Peds. Prednisolone or prednisone: 2 mg/kg/d PO tid-qid until urine is protein-free for 5 d, use up to 28 d; for persistent proteinuria, 4 mg/kg/dose PO q other day max, 120 mg/d for an additional 28 d; maint 2 mg/kg/dose q other day for 28 d; taper over 4–6 wk (max 80 mg/d).

- **Status asthmaticus:** Adults & Peds. Hydrocortisone: 1–2 mg/kg/dose IV q6h for 24h; then ↓ by 0.5–1 mg/kg q6h.

• Perioperative steroid coverage: Hydrocortisone: 100 mg IV night before surgery, 1 h preop, intraoperative, & 4, 8, & 12 h postop; postop day No. 1 100 mg IV q6h; postop day No. 2 100 mg IV q8h; postop day No. 3 100 mg IV q12h; postop day No. 4 50 mg IV q12h; postop day No. 5 25 mg IV q12h; resume prior PO dosing if chronic use or D/C if only perioperative coverage required.

• Cerebral edema: Dexamethasone: 10 mg IV; then 4 mg IV q4–6h

W/P: [C/D, ?] CI: Active varicella Infxn, serious Infxn except TB, fungal Infxns
Disp: Table 2, p 320 SE: ↑ Appetite, hyperglycemia, ↓ K⁺, osteoporosis, nervousness, insomnia, “steroid psychosis,” adrenal suppression Notes: Hydrocortisone succinate for systemic, acetate for intraarticular; never abruptly D/C steroids, taper dose; also used for bacterial and TB meningitis

Steroids, Topical (See Table 3, p 322) Uses: *Steroid-responsive dermatoses (seborrheic/atopic dermatitis, neurodermatitis, anogenital pruritus, psoriasis)*

Acts: Glucocorticoid; ↓ capillary permeability, stabilizes lysosomes to control inflammation; controls protein synthesis; ↓ migration of leukocytes, fibroblasts

Dose: Use lowest potency produce for shortest period for effect (see Table 3, p 322) W/P: [C, +] Do not use occlusive dressings; high potency topical products not for rosacea, perioral dermatitis; not for use on face, groin, axillae; none for use in a diapered area.

CI: Component hypersens
Disp: See Table 3, p 322
SE: Skin atrophy w/ chronic use; chronic administration or application over large area may cause adrenal suppression or hyperglycemia

Streptokinase (Generic) Uses: *Coronary artery thrombosis, acute massive PE, DVT, & some occluded vascular grafts*

Acts: Activates plasminogen to plasmin that degrades fibrin

Dose: Adults. PE: Load 250,000 units peripheral IV over 30 min, then 100,000 units/h IV for 24–72 h. Coronary artery thrombosis: 1.5 mill units IV over 60 min. DVT or arterial embolism: Load as w/ PE, then 100,000 units/h for 24 h; ECC 2010. AMI: 1.5 mill units over 1 h. Peds. 1000–2000 units/kg over 30 min, then 1000 units/kg/h for up to 24 h. Occluded catheter (controversial): 10,000–25,000 units in NS to final vol of catheter (leave in for 1 h, aspirate & flush w/ NS) W/P: [C, +] CI: Streptococcal Infxn or streptokinase in last 6 mo, active bleeding, CV A, TIA, spinal surgery/trauma in last mo, vascular anomalies, severe hepatic/renal Dz, severe uncontrolled HTN

Disp: Powder for Inj 250,000, 750,000, 1,500,000 units SE: Bleeding, ↓ BP, fever, bruising, rash, GI upset, hemorrhage, anaphylaxis Notes: If Inf inadequate to keep clotting time 2–5 × control, see PI for adjustments; antibodies remain 3–6 mo following dose

Streptomycin (Generic) BOX: Neuro/oto/renal tox possible; neuromuscular blockage w/ resp paralysis possible

Uses: *TB combo Rx therapy* streptococcal or enterococcal endocarditis

Acts: Aminoglycoside; ↓ protein synth

Dose: Adults. IM route. Endocarditis: 1 g q12h 1–2 wk, then 500 mg q12h 1–4 wk in combination w/ PCN; TB: 15 mg/kg/d (up to 1 g), directly observed therapy (DOT) 2 × wk 20–30 mg/kg/dose (max 1.5 g), DOT 3 × wk 25–30 mg/kg/dose (max 1.5 g).
Streptozocin (Zanosar)

**Uses:** Pancreatic islet cell tumors & carcinoid tumors

**Acts:** DNA–DNA (intrastrand) cross-linking; DNA, RNA, & protein synth inhib

**Dose:** Per protocol; ↓ in renal failure

**W/P:** w/ Renal failure

**CI:** w/ PRG

**Disp:** Inj 1 g

**SE:** N/V/D, duodenal ulcers, depression, ↓ BM rare (20%) & mild; nephrotox (proteinuria & azotemia dose related), ↑ LFT hypophosphatemia dose limiting; hypoglycemia; Inj site Rxns

**Notes:** Monitor lead levels, maintain hydration, may open caps

Succinate (Chemet)

**Uses:** *Lead poisoning (levels > 50 mcg/dL w/ significant symptoms)*

**Acts:** Heavy metal-chelating agent

**Dose:** Adults & Peds. 10 mg/kg/dose q8h × 5 d, then 10 mg/kg/dose q12h for 14 d

**W/P:** See Box

**CI:** w/ Hepatic/renal Insuff

**Disp:** Caps 100 mg

**SE:** Rash, fever, GI upset, hemorrhoids, metallic taste, drowsiness, ↑ LFTs

**Notes:** Monitor lead levels, maintain hydration, may open caps

Succinylcholine (Anectine, Generic)

**Uses:** *Adjunct to general anesthesia, facilitates ET intubation; induce skeletal muscle relaxation during surgery or mechanical ventilation*

**Acts:** Depolarizing neuromuscular blocker; rapid onset, short duration (3–5 min)

**Dose:** Adults. Rapid sequence intubation 1–1.5 mg/kg IV over 10–30 s or 3–4 mg/kg IM (up to 150 mg) (ECC 2010). Peds. 1–2 mg/kg/dose IV, then by 0.3–0.6 mg/kg/dose q5min; ↓ w/ severe renal/hepatic impairment

**W/P:** See Box

**CI:** w/ Malignant hyperthermia risk, myopathy, recent major burn, multiple trauma, extensive skeletal muscle denervation

**Disp:** Inj 20, 100 mg/mL

**SE:** Fasciculations, ↑ IOP, ↑ ICP, intragastric pressure, salivation, myoglobinuria, malignant hyperthermia, resp depression, prolonged apnea; multiple drugs potentiate CV effects (arrhythmias, ↓ BP, brady/tachycardia)

**Notes:** May be given IV push/Inf/IM deltoid

Sucralfate (Carafate, Generic)

**Uses:** *Duodenal ulcers*, gastric ulcers, stomatitis, GERD, preventing stress ulcers, esophagitis

**Acts:** Forms ulcer-adherent complex that protects against acid, pepsin, & bile acid

**Dose:** Adults. 1 g PO qid, 1 h prior to meals & hs. Peds. 40–80 mg/kg/d × q6h; continue 4–8 wk unless healing demonstrated by x-ray or endoscopy; separate from other drugs by 2 h; take on empty stomach ac

**W/P:** [B, ?] CI: Component allergy

**Disp:** Tabs 1 g; susp 1 g/10 mL

**SE:** Constipation; D, dizziness, xerostomia

**Notes:** AI may accumulate in renal failure
**Sucroferric Oxyhydroxide (Velphoro)** Uses: *↓ Phos in ESRD/CKD*
Acts: Binds phosphate Dose: Chew 500 mg tid w/ meals; may ↑ dose weekly to target phos < 5.5 mg/dL; max dose studied 3000 mg/d W/P: [B, +] ✓ Fe²⁺ w/ peritoneal dialysis, hepatic or GI disorders, post-GI surgery or Dz resulting in Fe²⁺ accumulation CI: None Disp: Tab 500 mg SE: D, discolored feces Notes: DO NOT prescribe with levothyroxine or vit D; take alendronate or doxycycline 1 h before

**Sulfacetamide (Bleph-10, Cetamide, Klaron, Generic)** Uses: *Conjunctival Infxns*, topical acne, seborrheic dermatitis Acts: Sulfonamide antibiotic Dose: Ophthal soln: 1–2 gtt q2–3 h while awake for 7–10 d; 10% oint apply qid & hs; soln for keratitis apply q2–3h based on severity W/P: [C, M] CI: Sulfonamide sensitivity; age < 2 mo Disp: Oint: Sulfacetamide 10%/prednisolone 0.2%.

**Sulfasalazine (Azulfidine, Azulfidine EN, Generic)** Uses: *UC, RA, juvenile RA* Acts: Sulfonamide; actions unclear Dose: Adults. *Ulcerative colitis*: Initial, 1 g PO tid-qid; ↑ to a max of 4–6 g/d in 4 + doses; maint 500 mg PO qid. RA: (EC tab) 0.5–1 g/d, ↑ weekly to maint 2 g + bid. Peds. *Ulcerative colitis*: Initial: 40–60 mg/kg/24 h PO + q4–6h; maint: 30 mg/kg/24 h PO + q6h. RA > 6 y: 30–50 mg/kg/d in 2 doses, start w/ 1/4–1/3 maint dose, ↑ weekly until dose reached at 1 mo, 2 g/d max W/P: [B, M] Not rec w/ renal or hepatic impair CI: Sulfonamide or salicylate sensitivity, porphyria, GI or GU obst Disp: Tabs 500 mg; EC DR tabs 500 mg SE: GI upset; discolors urine; dizziness, HA, photosens, oligospermia, anemias, SJS Notes: May cause yellow-orange skin/contact lens discoloration; avoid sunlight exposure

**Sulindac (Clinoril)** BOX: May ↑ risk of CV events & GI bleeding; do not use for post-CABG pain control Uses: *Arthritis & pain* Acts: NSAID; ↓ prostaglandins Dose: 150–200 mg bid, 400 mg/d max; w/ food W/P: [B (D if 3rd tri or near term), ?] not rec w/ severe renal impair CI: Allergy to component, ASA or any NSAID, postop pain in CABG Disp: Tabs 150, 200 mg SE: Dizziness, rash, GI upset, pruritus, edema, ↓ renal blood flow, renal failure (? fewer renal effects than other NSAIDs), peptic ulcer, GI bleeding

**Sumatriptan (Alsuma, Imitrex, Imitrex Statdose, Imitrex Nasal Spray, Sumavel Dosepro, Generic)** Uses: *Rx acute migraine and cluster HA* Acts: Vascular serotonin receptor agonist Dose: Adults. SQ: 6 mg SQ as a single-dose PRN; repeat PRN in 1 h to a max of 12 mg/24 h. PO: 25–100 mg, repeat in 2 h, PRN, 200 mg/d max. *Nasal spray*: 1 spray into 1 nostril, repeat in 2 h
to 40 mg/24 h max. **Peds. Nasal spray:** 6–9 y: 5–20 mg/d. 10–17 y: 5–20 mg, up to 40 mg/d **W/P:** [C, ?] **CI:** IV use, angina, ischemic heart Dz, CV syndromes, PUD, cenebro vascular Dz, uncontrolled HTN, severe hepatic impair, ergot use, MAOI use w/in 14 d, hemiplegic or basilar migraine **Disp:** *Imitrex Oral:* OD tabs 25, 50, 100 mg; *Imitrex Injection:* 4, 6 mg/0.5 mL; ODTs 25, 50, 100 mg; *Imitrex Nasal Spray:* 5, 20 mg/spray; *Alsuma Auto-Injector:* 6 mg/0.5 mL **SE:** Pain & bruising at Inj site; dizziness, hot flashes, paresthesias, CP, weakness, numbness, coronary vasospasm, HTN

**Sumatriptan/Naproxen Sodium (Treximet)** **BOX:** ↑ Risk of serious CV (MI, stroke) serious GI events (bleeding, ulceration, perforation) of the stomach or intestines **Uses:** *Prevent migraines* **Acts:** Anti-inflammatory NSAID w/5-HT1 receptor agonist, constricts CNS vessels **Dose:** *Adults.* 1 tab PO; repeat PRN after 2 h; max 2 tabs/24 h, w/ or w/o food **W/P:** [C, −] **CI:** CV Dz, severe hepatic impair, severe ↑ BP **Disp:** Tab naproxen/sumatriptan 500 mg/85 mg **SE:** Dizziness, somnolence, paresthesia, N, dyspepsia, dry mouth, chest/neck/throat/jaw pain, tightness, pressure **Notes:** Do not split/crush/chew

**Sumatriptan Needleless System (Sumavel DosePro)** **Uses:** *Rx acute migraine and cluster HA* **Acts:** Vascular serotonin receptor agonist **Dose:** *Adults.* SQ: 6 mg SQ as a single-dose PRN; repeat PRN in 1 h to a max of 12 mg/24 h; administer in abdomen/thigh. **W/P:** [C, M] **CI:** See Sumatriptan **Disp:** Needle-free SQ injector 6 mg/0.5 mL **SE:** Injection site Rxn, tingling, warm/hot/burning sensation, feeling of heaviness/pressure/tightness/numbness, feeling strange, lightheadedness, flushing, tightness in chest, discomfort in nasal cavity/sinuses/jaw, dizziness/vertigo, drowsiness/sedation, HA

**Sunitinib (Sutent)** **BOX:** Hepatotox that may be severe and/or result in fatal liver failure **Uses:** *Advanced GI stromal tumor (GIST) refractory/intolerant of imatinib; advanced RCC; well-differentiated pancreatic neuroendocrine tumors unresectable, locally advanced, metastatic* **Acts:** TKI; VEGF inhib; **Dose:** *Adults.* 50 mg PO daily × 4 wk, followed by 2 wk holiday = 1 cycle; ↓ to 37.5 mg w/ CYP3A4 inhib (Table 10, p 346), to ↑ 87.5 mg or 62.5 mg/d w/ CYP3A4 inducers **CI:** None

**Disp:** Caps 12.5, 25, 50 mg **SE:** ↓ WBC & plt, bleeding, ↑ BP, ↓ ejection fraction, ↑ QT interval, pancreatitis, DVT, Szs, adrenal insufficiency, N/V/D, skin discoloration, oral ulcers, taste perversion, hypothroidism **Notes:** Monitor left ventricular ejection fraction, ECG, CBC/plts, chemistries (K+/Mg2+/phosphate), TFT & LFTs periodically; ↓ dose in 12.5-mg increments if not tolerated

**Suvorexant (Belsomra)** **Uses:** *Insomnia* **Acts:** Orexin (regulates sleep/wake cycle) receptor antagonist **Dose:** Use lowest dose; 10 mg, no more than 1X night 30 mins before bedtime; at least 7 hrs before planned awakening; ↑ PRN, 20 mg/max; effect delayed w/food; do not use w/severe hepatic impair; 5 mg dose w/ CYP3A inhib **W/P:** [C, +/−] **Daytime somnolence, nighttime “sleep-driving,” ↑ risk w/CNS depressants/EtOH, worsening depression, compromised rep funct, sleep
paralysis, hypnagogic/hypnopompic hallucinations, cataplexy-like Sxs; follow dig
levels; CI: Narcolepsy Disp: Tabs: 5,10,15, 20 mg SE: Somnolence Notes: New
class of sleep aid; caution w/ 20 mg dose against next-day driving/activities requiring
complete alertness

**Tacrolimus, Extended Release (Astagraf XL)** BOX: Only physicians
experienced in immunosuppression should prescribe. ↑ risk of malignancy; use in
liver transplant not rec due to ↑ mortality in female patients Uses: *Px kidney
transplant rejection w/ mycophenolate mofetil (MMF) and steroids, w/ or w/o basi-
limab induction* Acts: Calcineurin inhib/immunosuppressant Dose: w/ basilix-
imab induct: 0.15 mg/kg/d (target level day 1–60: 5–17 ng/mL; mo 3–12: 4–12 ng/
ml; w/o induct: Preop: 0.1 mg/kg/d; Postop: 0.2 mg/kg/d (target level: day 1–60:
6–20 ng/mL; mo 3–12: 6–14 ng/mL; take daily q a.m.; empty stomach; do not take
w/ alcohol or grapefruit juice; take whole W/P: [C, −] Not interchangeable w/
immediate release; follow glucose, Cr, K+, can ↑ BP, can ↑ QT interval; do not use w/
sirolimus, CYP3A inhib/inducers; avoid live vaccines, monitor for red cell aplasia w/
Cyclosporine; avoid topical if < 2 y; neuro & nephrotox, ↑ risk opportunistic Infxns;
avoid grapefruit juice CI: Component allergy, castor oil allergy w/ IV form Disp: ER
Caps 0.5, 1, 5 mg SE: N, D, constipation, edema, tremor, anemia Notes: Monitor lev-
els; African Americans may need ↑ dose; see Tacrolimus Immediate Release

**Tacrolimus, Immediate Release (Prograf, Generic)** BOX: ↑ Risk of
Infxn and lymphoma. Only physicians experienced in immunosuppression should
prescribe Uses: *Prevent organ rejection (kidney/liver/heart)* Acts: Calcineurin
inhib/immunosuppressant Dose: Adults. IV: 0.03–0.05 mg/kg/d in kidney and
liver, 0.01 mg/kg/d in heart IV Inf Peds. IV: 0.03–0.05 mg/kg/d as cont Inf. PO:
0.15–0.2 mg/kg/d PO ÷ q12h. Adults & Peds. Eczema: Take on empty stomach; ↓
w/ hepatic/renal impair W/P: [C, −] w/ Cyclosporine; avoid topical if < 2 y; Neuro
& nephrotox, ↑ risk opportunistic Infxns; avoid grapefruit juice CI: Component allergy, castor oil allergy w/ IV form Disp: Caps 0.5, 1, 5 mg; Inj 5 mg/mL SE: HTN, edema, HA, insomnia, fever, pruritus, ↑/↓ K+, hyperglycemia, GI upset, ane-
ia, leukocytosis, tremors, paresthesias, pleural effusion, Szs, lymphoma, poste-
rior reversible encephalopathy syndrome (PRES), BK nephropathy, PML Notes:
Monitor levels; Trough: 5–12 ng/mL based on indication and time since transplant;
see Tacrolimus Extended Release

**Tacrolimus, Ointment (Protopic)** BOX: Long-term safety of topical calci-
neurin inhibs not established. Avoid long-term use. ↑ risk of Infxn and lymphoma.
Not for peds < 2yr Uses: *2nd line mod–severe atopic dermatitis* Acts: Topical
calcineurin inhib/immunosuppressant Dose: Adult & Peds > 15 y. Apply thin layer
(0.03–0.1%) bid; D/C when S/Sx clear. Peds 2–15 y. Apply thin layer (0.03%) bid, D/C when S/Sx clear W/P: [C, −] Reevaluate if no response in 6 wk; not for
< 2 y; avoid cont long-term use, ↑ risk opportunistic Infxns CI: Component allergy
Disp: Oint 0.03, 0.1% SE: Local irritation Notes: Avoid occlusive dressing; only
use 0.03% in peds
Tadalafil (Adcirca)  Uses: *Pulmonary artery hypertension*  Acts: PDE5 inhib, ↑ cyclic guanosine monophosphate & NO levels; relaxes pulm artery smooth muscles  **Dose:** 40 mg 1 × d w/o regard to meals; ↓ w/ renal/hepatic Insuff  **W/P:** [B, –] w/ CV Dz, impaired autonomic control of BP, aortic stenosis α-blockers (except tamsulosin); use w/ CYP3A4 inhib/inducers (eg, ritonavir, ketoconazole); monitor for sudden ↓/loss of hearing or vision (NAION), tinnitus, priapism  **Disp:** Tabs 20 mg  **SE:** HA  **Notes:** See Tadalafil (Cialis) for ED

Tadalafil (Cialis)  Uses: *ED, BPH*  Acts: PDE5 inhib, ↑ cyclic guanosine monophosphate & NO levels; relaxes smooth muscles, dilates cavernosal arteries  **Dose:** Adults. PRN: 10 mg PO before sexual activity (5–20 mg max based on response) 1 dose/24 h. **Dosing:** 2.5 mg qd, may ↑ to 5 mg qd, BPH; 5 mg PO qd; w/o regard to meals; ↓ w/ renal/hepatic Insuff  **W/P:** [B, −] w/ α-Blockers (except tamsulosin); use w/ CYP3A4 inhib (Table 10, p 346) (eg, ritonavir, ketoconazole, itraconazole) 2.5 mg/daily dose or 5 mg PRN dose; CrCl < 30 mL/min, hemodialysis/severe hepatic impair, do not use daily dosing  **Disp:** Tabs 2.5, 5, 10, 20 mg  **SE:** HA, flushing, dyspepsia, back/limb pain, myalgia, nasal congestion, urticaria, SJS, dermatitis, visual field defect, NIAON, sudden ↓/loss of hearing, tinnitus  **Notes:** Longest acting of class (36 h); daily dosing may ↑ drug interactions; excessive EtOH may ↑ orthostasis; transient global amnesia reports

Tafluprost (Zioptan)  Uses: *Open-angle glaucoma*  Acts: ↓ IOP by ↑ uveoscleral outflow; prostaglandin analog  **Dose:** 1 gtt evening  **W/P:** [C, ?/–]  **CI:** None  **Disp:** Soln 0.0015%  **SE:** Periorbital/iris pigmentation, eyelash darkening thickening; ↑ number eye redness  **Notes:** Pigmentation maybe permanent

Talc [Sterile Talc Powder] (Sclerosol, Generic)  Uses: *↓ Recurrence of malignant pleural effusions (pleurodesis)*  Acts: Sclerosing agent  **Dose:** Mix slurry: 50 mL NS w/ 5-g vial, mix, distribute 25 mL into two 60-mL syringes, vol to 50 mL/syringe w/ NS. Infuse each into chest tube, flush w/ 25 mL NS. Keep tube clamped; have pt change positions q15min for 2 h, unclamp tube; aerosol 4–8 g intrapleurally  **W/P:** [B, ?]  **CI:** Planned further surgery on site  **Disp:** 5-g powder; (Sclerosol) 400 mg/spray  **SE:** Pain, Infxn  **Notes:** May add 10–20 mL 1% lidocaine/syringe; must have chest tube placed, monitor closely while tube clamped (tension pneumothorax), not antineoplastic

Taliglucerase Alfa (Elelyso)  Uses: *Long-term enzyme replacement for type 1 Gaucher Dz*  Acts: Catalyzes hydrolysis of glucocerebroside to glucose & ceramide  **Dose:** Adults. 60 units/kg IV every other wk; Inf over 1–2 h  **W/P:** [B, ?/–]  **CI:** None  **Disp:** Inj 200 units/vial  **SE:** Inf Rxns (allergic, HA, CP, asthenia, urticaria, erythema, ↑ BP, back pain, arthralgia, flushing), anaphylaxis, URI, pharyngitis, influenza, UTI, extremity pain  **Notes:** For Rxns: ↓ Inf rate, give antihistamines/antipyretics or D/C

Tamoxifen (Generic)  BOX: CA of the uterus or endometrium; stroke, and blood clots can occur  Uses: *Breast CA [postmenopausal, estrogen receptor(+)], ↓ risk of breast CA in high-risk, met male breast CA*, ovulation induction  Acts:
Tedizolid

Nonsteroidal antiestrogen; mixed agonist–antagonist effect **Dose:** 20–40 mg/d; doses > 20 mg + bid. *Prevention:* 20 mg PO/d × 5 y W/P: [D, –] w/ ↓ WBC, ↓ plts, hyperlipidemia **CI:** PRG, w/ warfarin, Hx thromboembolism **Disp:** Tabs 10, 20 mg **SE:** Uterine malignancy & thrombosis events seen in breast CA prevention trials; menopausal Sxs (hot flashes, N/V) in premenopausal pts; Vag bleeding & menstrual irregularities; skin rash, pruritus vulvae, dizziness, HA, peripheral edema; acute flare of bone metastasis pain & ↑ Ca^{2+}; retinopathy reported (high dose)

**Tamsulosin (Flomax, Generic)**

**Uses:** *BPH* **Acts:** Antagonist of prostatic α-receptors **Dose:** 0.4 mg/d, may ↑ to 0.8 mg PO daily W/P: [B, ?] Floppy iris syndrome w/ cataract surgery **Disp:** Caps 0.4 mg **SE:** HA, dizziness, syncope, somnolence, ↓ libido, GI upset, retrograde ejaculation, rhinitis, rash, angioedema, IFIS **Notes:** Not for use as antihypertensive; do not open/crush/chew; approved for use w/ dutasteride for BPH

**Tapentadol (Nucynta) [C-II]**

**Box:** Provider should be alert to problems of abuse, misuse, & diversion. Avoid use w/ alcohol **Uses:** *Mod–severe acute pain* **Acts:** Mu-opioid agonist and norepinephrine reuptake inhib **Dose:** 50–100 mg PO q4–6h PRN (max 600 mg/d); w/ mod hepatic impair: 50 mg q8h PRN (max 3 doses/24 h) ER dosing: initial 50 mg PO bid (max daily dose 500 mg) W/P: [C, –] Hx of Szs, CNS depression; ↑ ICP, severe renal impair, biliary tract Dz, elderly, serotonin synd w/ concomitant serotonergic agents **CI:** ↓ Pulm Fxn, use w/ or w/in 14 d of MAOI, ileus **Disp:** Tabs 50, 75, 100 mg, ER: 50, 100, 150, 200, 250 mg **SE:** N/V, dizziness, somnolence, HA, constipation **Notes:** Taper dose w/ D/C

**Tasimelteon (Hetlioz)**

**Uses:** *Insomnia* **Acts:** Melatonin agonist at MT_1 & MT_2 receptors **Dose:** 20 mg W/P: [C, ?] May cause somnolence and impair performance **CI:** None **Disp:** Caps 20 mg **SE:** Somnolence, ↓ attention to task, HA, unusual dreams or nightmares, URI, UTI, ↑ alt **Notes:** Avoid use w/ strong CYP3A4 inhib or inducers; no dose adjustment w/ ESRD or mild to mod hepatic impairment (class sleep aid, insomnia, melatonin-like)

**Tazarotene (Avage, Fabior, Tazorac)**

**Uses:** *Facial acne vulgaris; stable plaque psoriasis up to 20% BSA* **Acts:** Keratolytic **Dose:** Adults & Peds > 12 y. Acne: Cleanse face, dry, apply thin film qhs lesions. Psoriasis: Apply qhs W/P: [X, ?/–] **CI:** Retinoid sensitivity, PRG, use in women of childbearing age unable to comply w/ birth control requirements **Disp:** Gel 0.05, 0.1%; cream 0.05, 0.1%; foam 0.1% **SE:** Burning, erythema, irritation, rash, photosens, desquamation, bleeding, skin discoloration **Notes:** D/C w/ excessive pruritus, burning, skin redness, or peeling until Sxs resolve; external use only, not for broken or sunburned skin

**Tedizolid (Sivextro)**

**Uses:** *Acute bacterial skin and skin structure infections (ABSSSI); use only in confirmed Infxn to ↓ resistance* **Acts:** Oxazolidinone; bacteriostatic; **Spectrum:** Staphylococcus aureus (MRSA/MSSA), Streptococcus pyogenes & others, Enterococcus faecalis **Dose:** 200 mg QD PO or IV over 1 hour × 6 d W/P: [C, +/-] w/ neutropenia (neutrophils < 1000 cells/mm^3); *C. difficile*-assoc D
Teduglutide (CDAD) reported **CI:** None **Disp:** Tabs 200 mg; powder for inj

**SE:** N/V/D, HA, dizziness

**Notes:** Not approved in peds

Teduglutide [rDNA Origin] (Gattex) **Uses:** *Short bowel synd dependent on parenteral support*  
**Acts:** GLP-2 analog ↑ intest & portal blood flow & ↓ gastric acid secretion  
**Dose:** **Adults.** 0.05 mg/kg SQ daily; ↓ 50% w/ mod–severe renal impair; alt Inj site between Abd, thighs, arms **W/P:** [B, ?–] Acceleration neoplastic growth (colonoscopy baseline, 1 y, & q5y); D/C w/ intestinal obstr; biliary/pancreatic Dz (baseline & q6mo bili, alk phos, lipase, amylase); may ↑ absorption oral meds **CI:** None **Disp:** Inj vial 5 mg **SE:** N/V, Abd pain, Abd distention, Inj site

Telaprevir (Incivek) **Uses:** *Hep C virus, genotype 1, w/ compensated liver Dz including naïve to Tx, nonresponders, partial responders, relapsers; w/ peginterferon and ribavirin*  
**Acts:** Hep C antiviral; NS3/4A protease inhib  
**Dose:** **Adults.** 750 mg tid, w/ food, must be used w/ peginterferon and ribavirin × 12 wk, then peginterferon and ribavirin × 12 wk (if hep C undetectable at 4 and 12 wk) or 36 wk (if hep C detectable at 4 and/or 12 wk) **W/P:** [X, –] **CI:** All CIs to peginterferon and ribavirin; men if PRG female partner; w/ CYP3A metabolized drugs (eg, alfuzosin, sildenafil, tadalafil, lovastatin, simvastatin, ergotamines, cisapride, midazolam, rifampin, St. John’s wort) **Disp:** Tabs 375 mg **SE:** Rash > 50% of pts, include SJS, drug rash w/ eosinophilia (DRESS); pruritus, anemia, N, V, fatigue, anorectal pain, dysgeusia, hemorrhoids **Notes:** Must not be used as monotherapy

Telavancin (Vibativ) **BOX:** Fetal risk; must have PRG test prior to use in childbearing age **Uses:** *Complicated skin/skin structure Infxns d/t susceptible Gram-positive bacteria*  
**Acts:** Lipoglycopeptide antibacterial; **Spectrum:** Good gram(+) aerobic and anaerobic include MRSA, MSSA, some VRE; poor gram(−)  
**Dose:** 10 mg/kg IV q24h; 7.5 mg/kg q24h w/ CrCl 30–50 mL/min; 10 mg/kg q48h w/CrCl 10–30 mL/min; **W/P:** [C, ?] Nephrotox, *C. difficile*-associated diarrhea, insomnia, HA Dz, ↑ QTc, interferes w/ some coag tests: **CI:** None **Disp:** Inj 250, 750 mg **SE:** Insomnia, psychiatric disorder, taste disturbance, HA, N, V, foamy urine **Notes:** Contains cyclodextrin, which can accumulate in renal dysfunction

Telbivudine (Tyzeka) **BOX:** May cause lactic acidosis and severe hepatomegaly w/ steatosis when used alone or w/ antiretrovirals; D/C of the drug may lead to exacerbations of hep B; monitor LFTs **Uses:** *Rx chronic hep B*  
**Acts:** Nucleoside RT inhib  
**Dose:** **CrCl** > 50 mL/min: 600 mg PO daily; **CrCl** 30–49 mL/min: 600 mg q 48h; **CrCl** < 30 mL/min: 600 mg q72h; **ESRD:** 600 mg q96h; dose after hemodialysis **W/P:** [B, ?–] May cause myopathy; follow closely w/ other myopathy causing drugs **Disp:** Tabs 600 mg **SE:** Fatigue, Abd pain, N/V/D, HA, URI, nasopharyngitis, ↑ LFTs, CPK, myalgia/myopathy, flu-like Sxs, dizziness, insomnia, dyspepsia **Notes:** Use w/ PEG-interferon may ↑ peripheral neuropathy risk

Telithromycin (Ketek) **BOX:** CI in MyG; life-threatening RF occured in PF w/ MyG **Uses:** *Mild–mod CAP*  
**Acts:** Unique macrolide, blocks ↓ protein synth;
bactericidal. Spectrum: *S. aureus, S. pneumoniae, H. influenzae, M. catarrhalis, C. pneumoniae, M. pneumoniae* Dose: CAP: 800 mg (2 tabs) PO daily × 7–10 d W/P: [C, ?] Pseudomembranous colitis, ↑ QTc interval, visual disturbances, hepatic dysfunction; dosing in renal impair unknown CI: Macrolide allergy, w/ pimozide or cisapride, Hx of hep or jaundice, w/ macrolide abx, w/ MyG Disp: Tabs 300, 400 mg SE: N/V/D, dizziness, blurred vision Notes: A CYP450 inhib; multiple drug interactions; hold statins d/t ↑ risk of myopathy

**Telmisartan (Micardis)** BOX: Use of renin-angiotensin agents in PRG can cause fetal injury and death, D/C immediately when PRG detected Uses: *HTN, CHF* Acts: Angiotensin II receptor antagonist Dose: 40–80 mg/d W/P: [C (1st tri; D 2nd & 3rd tri), ?/−] ↑ K+ CI: Angiotensin II receptor antagonist sensitivity Disp: Tabs 20, 40, 80 mg SE: Edema, GI upset, HA, angioedema, renal impair, orthostatic ↓ BP Notes: Titrate w/ hepatic/renal impair; avoid w/ ACE/other ARBs; correct hypovolemia before; w/ CHF monitor

**Temazepam (Restoril, Generic) [C-IV]** Uses: *Insomnia*, anxiety, depression, panic attacks Acts: Benzodiazepine Dose: 15–30 mg PO hs PRN; ↓ in elderly W/P: [X, ?/−] Potentiates CNS depressive effects of opioids, barbs, EtOH, antihistamines, MAOIs, TCAs CI: NAG, PRG Disp: Caps 7.5, 15, 22.5, 30 mg SE: Confusion, dizziness, drowsiness, hangover Notes: Abrupt D/C after > 10 d use may cause withdrawal

**Temozolomide (Temodar)** Uses: *Glioblastoma multiforme (GBM), refractory anaplastic astrocytoma* Acts: Alkylating agent Dose: GBM, new: 75 mg/m² PO/IV/d × 42 d w/ RT, maint 150 mg/m²/d days 1–5 of 28-d cycle × 6 cycles; may ↑ to 200 mg/m²/d × 5 d every 28 d in cycle 2; Refractory astrocytoma: 150 mg/m² PO/ IV/d × 5 per 28-d cycle; Adjust dose based on ANC and plt count (per PI and local protocols). W/P: [D, ?/−] w/ Severe renal/hepatic impair, myelosuppression (monitor ANC & plt), myelodysplastic synd, secondary malignancies, PCP pneumonia (PCP prophylaxis required) CI: Hypersens to components or dacarbazine Disp: Caps 5, 20, 100, 140, 180, & 250 mg; powder for Inj 100 mg SE: N/V/D, fatigue, HA, asthenia, Sz, hemiparesis, fever, dizziness, coordination abnormality, alopecia, rash, constipation, anorexia, amnesia, insomnia, viral Infxn, ↓ WBC, plt Notes: Infuse over 90 min; swallow caps whole; if caps open avoid inhalation and contact w/ skin/mucous membranes

**Temsirolimus (Torisel)** Uses: *Advanced RCC* Acts: Multikinase inhib, ↓ mTOR (mammalian target of rapamycin), ↓ hypoxic-induced factors, ↓ VEGF Dose:
25 mg IV 30–60 min 1×/wk. Hold w/ ANC < 1000 cells/μL, plt < 75,000 cells/μL, or NCI grade 3 tox. Resume when tox grade 2 or less, restart w/ dose ↓ 5 mg/wk not < 15 mg/wk. w/ CYP3A4 inhib: ↓ 12.5 mg/wk. w/ CYP3A4 inducers ↑ 50 mg/wk

W/P: [D, −] Avoid live vaccines, ↓ wound healing, avoid periop CI: Bili > 1.5 × ULN

Disp: Inj 25 mg/mL w/ 250 mL diluent SE: Rash, asthenia, mucositis, N, bowel perforation, angioedema, impaired wound healing; interstitial lung Dz aneurysia, edema, ↑ lipids, ↑ glucose, ↑ triglycerides, ↑ LFTs, ↑ Cr, ↓ WBC, ↓ HCT, ↓ plt, ↓ PO4

Notes: Premedicate w/ antihistamine; ✓ lipids, CBC, plt, Cr, glucose; w/ sunitinib dose-limiting tox likely; females use w/ contraception

**Tenecteplase (TNKase) Uses:** *Restore perfusion & ↓ mortality w/ AMI*

Acts: Thrombolytic; TPA

Dose: 30–50 mg; see table below W/P: [C, ?], ↑ Bleeding w/ NSAIDs, ticlopidine, clopidogrel, GPIIb/IIIa antagonists CI: Bleeding, AVM aneurysma, CVA, CNS neoplasm, uncontrolled ↑ BP, major surgery (intracranial, intraspinal) or trauma w/in 2 mo

Disp: Inj 50 mg, reconstitute w/ 10 mL sterile H2O only

SE: Bleeding, allergy

Notes: Do not shake w/ reconstitution; start ASA ASAP, IV heparin ASAP w/ aPTT 1.5–2 × UL of control

<table>
<thead>
<tr>
<th>Weight (kg)</th>
<th>TNKase (mg)</th>
<th>TNKase Volume (mL)</th>
</tr>
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<tbody>
<tr>
<td>&lt; 60</td>
<td>30</td>
<td>6</td>
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<td>60–69</td>
<td>35</td>
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<td>70–79</td>
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<td>80–89</td>
<td>45</td>
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<td>≥ 90</td>
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**Tenofovir (Viread) BOX:** Lactic acidosis/hepatomegaly w/ steatosis (some fatal) reported w/ the use of NRTI. Exacerbations of hepatitis reported w/ HBV patients who D/C hep B Rx, including VIREAD. ✓ LFT in these patients and may need to resume hep B Rx

Uses: *HIV and chronic hep B Infxn*

Acts: NRTI Dose: 300 mg PO daily w/ or w/o meal; CrCl 30–49 mL/min q48h, CrCl 10–29 mL/min 2×/wk

W/P: [B, −] Didanosine, lopinavir, ritonavir w/ known risk factors for liver Dz

CI: Hypersens

Disp: Tabs 300 mg SE: GI upset, metabolic synd, hepatotox; insomnia, rash, ↑ CK, Fanconi synd

Notes: Combo product w/ emtricitabine is Truvada

**Tenofovir/Emtricitabine (Truvada) BOX:** Lactic acidosis/hepatomegaly w/ steatosis (some fatal) reported w/ the use of NRTI. Not approved for chronic hep B. Exacerbations of hepatitis reported w/ HBV pts who D/C Truvada. May need to resume hep B Rx. If used for PrEP, confirm (−) HIV before and q3mo. Drug-resistant HIV-1 variants have been identified

Uses: *HIV Infxn pre-exposure prophylaxis (PrEP) for HIV-1*

Acts: Dual nucleotide RT inhib

Dose: 1 tab PO daily w/ or w/o a
Terconazole

Uses: *Vag fungal Infxns*
Acts: Topical triazole antifungal
Dose: 1 applicator-full or 1 supp intravag hs × 3–7 d
W/P: [C, ?] CI: Component allergy
Disp: Vag cream (Terszol 7) 0.4, (Terszol 3), 0.8%, (Terszol 3) Vag supp 80 mg
SE: Vulvar/Vag burning
Notes: Insert high into vagina

Terazosin (Hytrin, Generic)

Uses: *BPH & HTN*
Acts: α₁-Blocker (blood vessel & bladder neck/prostate)
Dose: Initial, 1 mg PO hs; ↑ 20 mg/d max; may ↓ w/ diuretic or other BP medicine
W/P: [C, ?] w/ β-Blocker, CCB, ACE inhibit; use w/ phosphodiesterase-5 (PDE5) inhibit (eg, sildenafil) can cause ↓ BP, intra op floppy iris synd w/ cataract surgery
CI: α-Antagonist sensitivity
Disp: Tabs 1, 2, 5, 10 mg; caps 1, 2, 5, 10 mg angina
SE: Angina, ↓ BP, & syncope following 1st dose or w/ PDE5 inhibit; dizziness, weakness, nasal congestion, peripheral edema, palpitations, GI upset
Notes: Caution w/ 1st dose syncope; if for HTN, combine w/ thiazide diuretic

Terbinafine (Lamisil, Lamisil AT, Generic [OTC])

Uses: *Onychomycosis, athlete’s foot, jock itch, ringworm*, cutaneous candidiasis, pityriasis versicolor
Acts: ↓ Squalene epoxidase resulting in fungal death
Dose: PO: 250 mg/d PO for 6–12 wk.
Topical: Apply to area tinea pedis bid, tinea cruris & corporus daily-bid, tinea versicolor soln bid; ↓ PO in renal/hepatic impair
W/P: [B, ←] PO ↑ effects of drug metabolism by CYP2D6, w/ liver/renal impair
CI: CrCl < 50 mL/min, WBC < 1000/mm³, severe liver Dz
Disp: Tabs 250 mg; oral granules 125 mg/pkt, 187.5 mg/pkt Lamisil AT [OTC] cream, gel, soln 1%
SE: HA, DIV/N dizziness, rash, pruritus, alopecia, GI upset, taste perversion, neutropenia, retinal damage, SJS, ↑ LFTs
Notes: Effect may take months d/t need for new nail growth; topical not for nails; do not use occlusive dressings; PO follow CBC/LFTs

Terbutaline (Generic)

BOX: Not approved and should not be used > 48–72h for tocolysis. Serious adverse Rxns possible, including death
Uses: *Reversible bronchospasm (asthma, COPD); inhibit labor*
Acts: Sympathomimetic; tocolytic
Dose: Adults. Bronchodilator: 2.5–5 mg PO qid or 0.25 mg SQ; repeat in 15 min PRN; max 0.5 mg SQ in 4 h. Max 15 mg/24 h PO. Metered-dose inhaler: 1 puff PRN, repeat after 5 min PRN; 6 inhal/24 h max. Premature labor: 0.25 mg SQ every 1–4 h × 24 h, 5 mg max/24 h; 2.5–5 mcg/min IV, ↑ 5 mcg/min q10min as tolerated, 25 mcg/min max. When controlled ↓ to lowest effective dose; SQ pump: basal 0.05–0.10 mg/h, bolus over 25 mg PRN Peds. PO: 0.05–0.15 mg/kg/dose PO tid; max 5 mg/24 h; ↓ in renal failure
W/P: [C, +] ↑ Tox w/ MAOIs, TCAs; DM, HTN, hyperthyroidism, CV Dz, convulsive disorders, K+ CI: Component allergy, prolonged tocolysis
Disp: Tabs 2.5, 5 mg; Inj 1 mg/mL; metered-dose inhaler
SE: HTN, hyperthyroidism, β₁-adrenergic effects w/ high dose, nervousness, trembling, tachycardia, arrhythmia, HTN, dizziness, ↑ glucose
Notes: Tocolysis requires close monitoring of mother and fetus

Terconazole (Terazol 3, Terazol 7, Generic)

Uses: *Vag fungal Infxns*
Acts: Topical triazole antifungal
Dose: 1 applicator-full or 1 supp intravag hs × 3–7 d
W/P: [C, ?] CI: Component allergy
Disp: Vag cream (Terszol 7) 0.4, (Terszol 3), 0.8%, (Terszol 3) Vag supp 80 mg
SE: Vulvar/Vag burning
Notes: Insert high into vagina
Teriflunomide (Aubagio)  **BOX:** Hepatotox; ✓ LFT baseline & ALT qmo × 6 mo. D/C w/ liver injury & begin accelerated elimination procedure; CI in PRG & women of childbearing potential w/o reliable contraception 

**Uses:** *Relapsing MS*

**Acts:** Pyrimidine synth inhib  

**Dose:** Adults. 7 or 14 mg PO daily  

**W/P:** [X, –] w/ CYP2C8, CYP1A2 metab drugs, warfarin, ethinylestradiol, levonorgestrel; ↑ elimin w/ cholestyramine or activated charcoal × 11 d; CI: PRG; severe hepatic impair; w/ leflunomide  

**Disp:** Tabs 7, 14 mg  

**SE:** ↑ ALT, alopecia, N/D, influenza, paresthesia, ↓ WBC, neuropathy, ↑ BP, SJS, TEN, ARF, ↑ K  

**Notes:** ✓ CBC & TB screen prior to Rx; ✓ BP, S/Sxs of Infxn; do not give w/ live vaccines

Teriparatide (Forteo)  

**Box:** ↑ Osteosarcoma risk in animals, use only where potential benefits outweigh risks 

**Uses:** *Severe/refractory osteoporosis*

**Acts:** PTH (recombinant)  

**Dose:** 20 mcg SQ daily in thigh or Abd  

**W/P:** [C, –]; Caution in urolithiasis  

**Disp:** 250 mcg/mL in 2.4-mL prefilled syringe  

**SE:** Orthostatic ↓ BP on administration, N/D, ↑ Ca2+; leg cramps, ↑ uric acid  

**Notes:** 2 y max use

Tesamorelin (Egrifta)  

**Uses:** *↓ Excess Abd fat in HIV-infected patients w/ lipodystrophy* 

**Acts:** Binds/stimulates growth hormone-releasing factor receptors  

**Dose:** 2 mg SQ/d;  

**W/P:** [X; HIV-infected mothers should not breast-feed] CI: Hypothalamic-pituitary axis disorders; hypersensitivity to tesamorelin, mannitol, or any component, head radiation/trauma; malignancy; PRG; child w/ open epiphyses  

**Disp:** Vial 1 mg  

**SE:** Arthralgias, Inj site Rxn, edema, myalgia, ↑ glucose , N, V  

**Notes:** ✓ Gluc, ↑ mortality w/ acute critical illness; ↑ IGF

Testosterone, Implant (Testopel) [C-III]  

**Uses:** *Male hypogonadism (congenital/acquired)* 

**Acts:** Testosterone replacement  

**Dose:** 150–450 mg (2–6 pellets) SQ implant q3–6mo for each 25 mg testosterone required weekly; eg: for 75 mg/wk, implant 450 mg or 6 pellets  

**W/P:** [X, –] May cause polycythemia, worsening of BPH Sx, prostate cancer, edema may worsen CHF; may ↓ blood glucose and insulin requirements; venous thrombosis risk CI: PCa, male breast CA, PRG women  

**Disp:** 75-mg/implant (3.2 mm × 9 mm)  

**SE:** Pain/inflammation at site, gynecomastia, excessive erections, oligospermia, hirsutism, male pattern baldness, acne, retention of sodium and electrolytes, suppression of clotting factors, polycythemia, N, jaundice, ↑ LFT/cholesterol, polycythemia, rare hepatocellular neoplasms and peliosis hepatitis, ↑/↓ libido, sleep apnea, ↑ PSA  

**Notes:** ✓ levels and adjust PRN (300–1000 ng/dL testosterone range); follow periodic LFT and CBC; typical site upper outer posterior gluteal region using sterile technique, local anesthesia, 4-mm stab wound and provided 16-gauge insertion trocar

Testosterone, Nasal Gel (Natesto) [C-III]  

**Box:** Virilization reported in children exposed to topical testosterone products. Children to avoid contact w/ unwashed or unclothed application sites  

**Uses:** *Adult male hypogonadism (congenital/ acquired)* 

**Acts:** Testosterone replacement  

**Dose:** 2 pumps each nostril (11 mg testosterone) tid (total 33 mg/d); blow nose before use; avoid blowing for 1 h after  

**W/P:** [X, –] Avoid with nasal pathology; monitor BPH Sx and for DVT;
Testosterone Undecanoate, Injectable

may cause azoospermia, edema, sleep apnea; not rec if < 18 y; venous thrombosis risk

**CI:** Prostate cancer, male breast cancer, women

**Disp:** Metered-dose pump; one pump = 5.5 mg of testosterone

**SE:** ↑ PSA, headache, rhinorrhea, epistaxis, nasal discomfort, nasopharyngitis, bronchitis, URI, sinusitis, nasal scab

**Notes:** Previously known as CompleoTRT; may minimize exposure of testosterone to women or children; ✓ testosterone, PSA, Hgb, LFTs, and lipids periodically

**Testosterone, Topical** *(AndroGel 1%, AndroGel 1.62% Androderm, Axiron, Fortesta, Striant, Testim, Vogelxo)* [C-III]

**Box:** Virilization reported in children exposed to topical testosterone products. Children to avoid contact w/ unwashed or unclothed application sites

**Uses:** *Male hypogonadism (congenital/acquired)*

**Acts:** Testosterone replacement; ↑ lean body mass, libido

**Dose:** All daily applications: *AndroGel 1%:* 50 mg (4 pumps); *AndroGel 1.62%:* 40.5 mg (2 pumps), apply to clean skin on upper body only; *Androderm:* two 2.5-mg or one 5-mg patch daily; *Axiron:* 60 mg (1 pump = 30 mg each axilla) q.a.m.; *Fortesta:* 40 mg (4 pumps) on clean, dry thighs; adjust from 1–7 pumps based on blood test 2 h after (days 14 and 35); *Striant:* 30-mg buccal tabs bid; *Testim:* one 5-g gel tube; *Vogelxo:* 50 mg (one tube or packet or 4 pump actuations) daily at same time

**W/P:** [X, –] May cause polycythemia, worsening of BPH Sx

**CI:** PCa, male breast CA, women, venous thrombosis risk

**Disp:** *AndroGel 1%:* 12.5-mg/pump; *AndroGel 1.62%:* 20.25-mg/pump; *Androderm:* 2.5-, 5-mg patches; *Axiron:* Metered-dose pump 30-mg/pump; *Fortesta:* Metered-dose gel pump 10-mg/pump; *Striant:* 30-mg buccal tab; *Vogelxo:* 50-mg tube or packet, 12.5-mg/pump

**SE:** Site Rxns, acne, edema, Wt gain, gynecomastia, HTN, ↑ sleep apnea, prostate enlargement, ↑ PSA

**Notes:** PO agents (*methyltestosterone & oxandrolone*) associated w/ hepatic tumors; transdermal/mucosal/implant forms preferred; wash hands immediately after topical applications. *AndroGel* formulations not equivalent; ✓ T levels and adjust PRN (300–1000 ng/dL testosterone range)

**Testosterone Undecanoate, Injectable** *(Aveed)*

**Box:** POME (pulmonary oil microembolism) reactions (urge to cough, dyspnea, throat tightening, chest pain, dizziness, syncope) and episodes of anaphylaxis, including life-threatening reactions, have been reported after the administration; observe patients for 30 min after dosing

**Uses:** *Male hypogonadism (congenital/ acquired)*

**Acts:** Testosterone replacement; ↑ lean body mass, libido

**Dose:** 3 mL (750 mg) IM (gluteal) initially, at 4 wk, every 10 weeks thereafter; observe for 30 min for POME or anaphylaxis

**W/P:** [X, –] May worsen BPH Sx, azoospermia possible, edema with pre-existing cardiac/renal/hepatic Dz, sleep apnea with other risk factors, monitor PSA, Hgb/Hct, lipids periodically; may reduce insulin requirements, monitor INR if on warfarin; w/ steroids may ↑ fluid retention; venous thrombosis risk

**CI:** PCa, male breast cancer, women, component sensitivity

**Disp:** 3-mL (750 mg) in castor oil and benzyl benzate

**SE:** Acne, injection site pain, ↑ PSA and estradiol, hypogonadism, fatigue, irritability, ↑ hemoglobin, insomnia, mood swings

**Notes:** Available
only through a restricted program (Aveed REMS); other IM forms not commonly used: testosterone enanthate (Delatestryl; Testro-L.A.) & cypionate (Depo-Testosterone) dosed q14–28d w/ variable serum levels

**Tetanus Immune Globulin**

**Uses:** Prophylaxis *passive tetanus immunization* (suspected contaminated wound w/ unknown immunization status, see Table 7, p 342), or Tx of tetanus  

**Acts:** Passive immunization  

**Dose:** **Adults & Peds. Prophylaxis:** 250 mg units IM × 1; **Tx:** 500–6000 (30–300 units/kg) units IM  

**W/P:** [C, ?]  

**Anaphylaxis Rxn**  

**CI:** Thimerosal sensitivity  

**Disp:** Inj 250-unit vial/syringe  

**SE:** Pain, tenderness, erythema at site; fever, angioedema  

**Notes:** May begin active immunization series at different Inj site if required

**Tetanus Toxoid (TT) (Generic)**

**Uses:** *Tetanus prophylaxis*  

**Acts:** Active immunization  

**Dose:** Based on previous immunization, Table 7, p 342  

**W/P:** [C, ?/−]  

**CI:** Thimersal hypersensitivity neurologic Sxs w/ previous use, active Infxn w/ routine primary immunization  

**Disp:** Inj tetanus toxoid fluid, 5 Lf units/0.5 mL; tetanus toxoid adsorbed, 5 units/0.5 mL  

**SE:** Inj site erythema, induration, sterile abscess; arthralgias, fever, malaise, neurologic disturbances  

**Notes:** DTaP rather than TT or Td all adults 19–64 y who have not previously received 1 dose of DTaP (protection adult pertussis); also use DT or Td instead of TT to maintain diphtheria immunity; if IM, use only preservative-free Inj; do not confuse Td (for adults) w/ DT (for children)

**Tetrabenazine (Xenazine)**  

**BOX:** ↑ Risk of depression, suicide w/ Huntington Dz  

**Uses:** *Rx chorea in Huntington Dz*  

**Acts:** Monoamine depleter  

**Dose:** Divide 25–100 mg/d + doses; 12.5 mg PO/d × 1 wk, ↑ to 12.5 mg bid, may ↑ to 12.5 mg TID if > 35.7 mg/d tid after 1 wk; if > 50 mg needed, ✔ for CYP2D6 gene; if poor metabolizer, 25 mg/dose, 50 mg/d max; extensive/indeterminate metabolizer 37.5 mg dose max, 100 mg/d max  

**W/P:** [C, ?/−]  

**CI:** Thimerosal sensitivity neurologic Sxs w/ previous use, active Infxn w/ routine primary immunization  

**Disp:** Tabs 12.5, 25 mg  

**SE:** Sedation, insomnia, depression, anxiety, irritability, akathisia, Parkinsonism, balance difficulties, neuroleptic malignant syndrome, fatigue, N, V, dysphagia, ↑ QT, EPS Szs, falls

**Tetracycline (Generic)**

**Uses:** *Broad-spectrum antibiotic*  

**Acts:** Bacteriostatic; ↓ protein synth.  

**Spectrum:** Gram(+) Staphylococcus, Streptococcus. Gram(−): H. pylori. Atypical: Chlamydia, Rickettsia, & Mycoplasma  

**Dose:** **Adults.** 250–500 mg PO bid-qid. **Peds > 8 y.** 25–50 mg/kg/24 h PO q6–12h; ↓ w/ renal/hepatic impair, w/o food preferred  

**W/P:** [D, −]  

**CI:** PRG, children < 8 y  

**Disp:** Caps 100, 250, 500 mg; tabs 250, 500 mg; PO susp 250 mg/5 mL  

**SE:** Photosens, GI upset, renal failure, pseudotumor cerebri, hepatic impair  

**Notes:** Can stain tooth enamel & depress bone formation in children; do not administer w/ antacids or milk products

**Thalidomide (Thalomid)**

**BOX:** Restricted use; use associated w/ severe birth defects and ↑ risk of venous thromboembolism  

**Uses:** *Erythema nodosum leprosum*
(ENL)*, GVHD, aphthous ulceration in HIV(+) Acts: ↓ Neutrophil chemotaxis, ↓ monocyte phagocytosis **Dose:** *GVHD:* 50–100 tid, max 600–1200 mg/d. *Stomatitis:* 200 mg bid for 5 d, then 200 mg daily up to 8 wk. *Erythema nodosum leprosum:* 100–300 mg PO qhs **W/P:** [X, –] May ↑ HIV viral load; Hx Szs **CI:** PRG or females not using 2 forms of contraception **Disp:** 50, 100, 150, 200 mg caps **SE:** Dizziness, drowsiness, rash, fever, orthostasis, SJS, thrombosis, fatigue, peripheral neuropathy, Szs **Notes:** MD must register w/ STEPS risk-management program; informed consent necessary; immediately D/C if rash develops

**Theophylline (Theo24, Theochron, Theolair, Generic)**

*Asthma, bronchospasm* **Acts:** Relaxes smooth muscle of the bronchi & pulm blood vessels **Dose:** *Adults.* 900 mg PO + q6h; SR products may be + q8–12h (maint). *Peds.* 16–22 mg/kg/24 h PO + q6h; SR products may be + q8–12h (maint); ↓ in hepatic failure **W/P:** [C, +] Multiple interactions (eg, caffeine, smoking, carbamazepine, barbiturates, β-blockers, ciprofloxacin, E-mycin, INH, loop diuretics), arrhythmia, hyperthyroidism, uncontrolled Szs **CI:** Corn allergy **Disp:** Elixir 80 mg/15 mL; soln 80 mg/15 mL; ER 12 h caps: 300 mg; ER 12 h tabs: 200, 100, 300, 480 mg; ER 24 h caps: 100, 200, 300, 400 mg; ER 24 h tabs: 400, 600 mg **SE:** N/V, tachycardia, Szs, nervousness, arrhythmias **Notes:** IV levels: Sample 12–24 h after Inf started; *Therapeutic:* 5–15 mcg/mL; *Toxic:* > 20 mcg/mL. PO levels: *Trough:* just before next dose; *Therapeutic:* 5–15 mcg/mL

**Thiamine [Vitamin B₁] (Generic)**

*Thiamine deficiency (beriberi), alcoholic neuritis, Wernicke encephalopathy* **Acts:** Dietary supl **Dose:** *Adults.* Deficiency: 5–30 mg IM or IV TID then 5–30 mg/d for 1 mo. *Wernicke encephalopathy:* 100 mg IV single dose, then 100 mg/d IM for 2 wk. *Peds.* 10–25 mg/d IM for 2 wk, then 5–10 mg/24 h PO for 1 mo **W/P:** [A, +] CI: Component allergy **Disp:** Tabs 50, 100, 250, 500 mg; Inj 100 mg/mL **SE:** Angioedema, paresthesias, rash, anaphylaxis w/ rapid IV **Notes:** IV use associated w/ anaphylactic Rxn; give IV slowly

**Thioguanine (Tabloid)**

*AML, ALL, CML* **Acts:** Purine-based antimetabolite (substitutes for natural purines interfering w/ nucleotide synth) **Dose:** *Adult:* 2–3 mg/kg/d **Peds:** 60 mg/m²/d for 14 d no renal adjustment in peds; D/C if pt develops jaundice, VOD, portal hypertension; ↓ in severe renal/hepatic impair **W/P:** [D, –] CI: Resistance to mercaptopurine **Disp:** Tabs 40 mg **SE:** ↓ BM (leukopenia/thrombocytopenia), N/V/D, anorexia, stomatitis, rash, hyperuricemia, rare hepatotox

**Thioridazine (Generic)**

*Schizophrenia*, psychosis **Acts:** Phenothiazine antipsychotic **Dose:** *Adults.* Initial, 50–100 mg PO tid; maint 200–800 mg/24 h PO in 2–4 + doses. *Peds > 2 y.* 0.5–3 mg/kg/24 h PO in 2–3 + doses **W/P:** [C, ?] **CI:** Phenothiazine sensitivity, severe CNS depression, severe ↑/↓ BP, heart DZ, coma, combo w/ drugs that prolong QTc or CYPZD6 inhib; pt w/ congenital prolonged QTc or Hx cardiac arrhythmia **Disp:** Tabs 10, 15, 25, 50, 100 mg
SE: Low incidence of EPS; ventricular arrhythmias; ↓ BP, dizziness, drowsiness, neuroleptic malignant synd, Szs, skin discoloration, photosens, constipation, sexual dysfunction, blood dyscrasias, pigmented retinopathy, hepatic impair Notes: Avoid EtOH

**Thiothixene (Generic)** BOX: Not for dementia-related psychosis; increased mortality risk in elderly on antipsychotics Uses: *Psychosis* Acts: ? May antagonize dopamine receptors Dose: Adults & Peds > 12 y. Mild–mod psychosis: 2 mg PO tid, up to 20–30 mg/d. Rapid tranquilization for agitated pts: 5–10 mg q30–60 min; Avg: 15–30 mg total Severe psychosis: 5 mg PO bid; ↑ to max of 60 mg/24 h PRN. IM use: 16–20 mg/24 h ± bid-qid; max 30 mg/d. Peds < 12 y. 0.25 mg/kg/24 h PO + q6–12h W/P: [C, ?] Avoid w/ ↑ QT interval or meds that can ↑ QT CI: Severe CNS depression; circulatory collapse; blood dyscrasias, phenothiazine sensitivity Disp: Caps 1, 2, 5, 10 mg SE: Drowsiness, EPS most common; ↓ BP, dizziness, drowsiness, neuroleptic malignant synd, Szs, skin discoloration, photosens, constipation, sexual dysfunction, leukopenia, neutropenia and agranulocytosis, pigmented retinopathy, hepatic impairment

**Tiagabine (Gabitril)** Uses: *Adjunct in partial Szs*, bipolar disorder Acts: Antiepileptic, enhances activity of GABA Dose: Adults & Peds ≥ 12 y. (Dose if already on enzyme-inducing AED; use lower dose if not on AED) Initial 4 mg/d PO, ↑ by 4 mg during 2nd wk; ↑ PRN by 4–8 mg/d based on response, 56 mg/d max; take w/ food W/P: [C, –] May ↑ suicidal risk CI: Component allergy Disp: Tabs 2, 4, 12, 16 mg SE: Dizziness, HA, somnolence, memory impair, tremors, N Notes: Use gradual withdrawal; used in combo w/ other anticonvulsants

**Ticagrelor (Brilinta)** BOX: ↑ Bleeding risk; can be fatal; daily aspirin > 100 mg may ↓ effectiveness; do not start w/ active bleeding, Hx intracranial bleed, planned CABG; if hypotensive and recent procedure, suspect bleeding; manage any bleed w/o D/C of ticagrelor Uses: *↓ CV death and heart attack in ACS* Acts: Oral antiplatelet; reversibly binding ADP receptor antagonist inhib Dose: Initial 180 mg PO w/ ASA 325 mg, then 90 mg bid w/ ASA 75–100 mg/d W/P: [C, –] w/ Mod hepatic impair; w/ strong CYP3A inhib or CYP3A inducers CI: Hx intracranial bleed, active pathologic bleeding, severe hepatic impair Disp: Tabs 90 mg SE: Bleeding, SOB Notes: REMS program in place; D/C 5 days preop

**Ticarcillin/Potassium Clavulanate (Timentin)** Uses: *Infxns of the skin, bone, resp & urinary tract, Abd, sepsis* Acts: Carboxy-PCN; bactericidal; ↓ cell wall synth; clavulanic acid blocks β-lactamase. Spectrum: Good gram(+), not MRSA; good gram(–) & anaerobes Dose: Adults. 3.1 g IV q4–6h max 24 g ticarcillin component/d Peds. ≤ 60 kg (if ≥ 60 kg, adult dose). 200–300 mg/kg/d IV + q4–6h; ↓ in renal failure W/P: [B, +/−] PCN sensitivity Disp: Inj ticarcillin/clavulanate acid 3.1/0.1-g vial SE: Hemolytic anemia, false(+) proteinuria Notes: Often used in combo w/ aminoglycosides; penetrates CNS w/ meningeal irritation

**Ticlopidine (Ticlid)** BOX: Neutropenia/agranulocytosis, TTP, aplastic anemia reported Uses: *↓ Risk of thrombotic stroke*, protect grafts status post-CABG,
Timothy Grass Pollen Allergen Extract

Timothy Grass Pollen Allergen Extract (Grastek) **BOX:** Can cause life-threatening allergic Rxn (anaphylaxis, laryngopharyngeal edema); DO NOT use w/ severe unstable/uncontrolled asthma; observe for 30 mins after 1st dose; Rx and train to use auto-injectable epi; may not be suitable for pts unresponsive to epi or inhaled bronchodilators (pts on β-blockers) or w/ certain conditions that could ↓ ability to respond to severe allergic reaction **Uses:** *Immunotherapy of grass pollen-induced allergic rhinitis w/ or w/o conjunctivitis confirmed by + skin test or pollen-specific IgE Ab* **Acts:** Allergen immunotherapy **Dose:** Adults & Peds. 5-17 y: 1 tab SL/day; do not swallow for 1 min; for sustained effect for one pollen season after D/C may take qd × 3 consecutive y **W/P:** [B, ?/–] Discuss severe allergic Rxn; if oral lesions, stop Tx, restart after healed **Cl:** Severe uncontrolled/unstable asthma; Hx severe systemic/local allergic reaction to SL allergen immunotherapy; component hypersens **Disp:** Tabs 30 day blister pack **SE:** Ear/oral/tongue pruritus, mouth edema, throat irritation **Notes:** 1st dose in healthcare setting; start 12 wk before expected onset of Sx; give auto-injectable epi; peds give only w/ adult supervision; D/C with ↑ local symptoms and seek care

Tigecycline (Tygacil) **BOX:** Mortality ↑ in pts treated w/ Tygacil; reserve use when alternatives not suitable **Uses:** *Rx complicated skin & soft-tissue Infxns, & complicated intra-Abd Infxns* **Acts:** A glycycyline; binds 30 S ribosomal subunits, ↓ protein synthesis; **Spectrum:** Broad gram(+), gram(–), anaerobic, some mycobacterial; *E. coli, E. faecalis* (vancomycin-susceptible isolates), *S. aureus* (mecillin-susceptible/resistant), *Streptococcus* (agalactiae, anginosus grp, pyogenes), *Citrobacter freundii, Enterobacter cloacae, B. fragilis* group, *C. perfringens, Peptostreptococcus* **Dose:** 100 mg, then 50 mg q12h IV over 30–60 min **W/P:** [D, ?] Hepatic impair, monotherapy w/ intestinal perforation, not OK in peds, w/ tetracycline allergy **Cl:** Component sensitivity **Disp:** Inj 50-mg vial **SE:** N/V, Inj site Rxn, anaphylaxis **Notes:** Not indicated for HAP, V AP (↑ mortality for V AP), bacteremia

Timolol (Generic) **BOX:** Exacerbation of ischemic heart Dz w/ abrupt D/C **Uses:** *HTN & MI* **Acts:** β-Adrenergic receptor blocker, β₁, β₂ **Dose:** HTN: 10–20 mg bid, up to 60 mg/d. *Mi:* 10 mg bid **W/P:** [C (1st tri; D if 2nd or 3rd tri), +] **Cl:** CHF, cardiogenic shock, ↓ HR, heart block, COPD, asthma **Disp:** Tabs 5, 10, 20 mg **SE:** Sexual dysfunction, arrhythmia, dizziness, fatigue, CHF

Timolol, Ophthalmic (Betimol, Timoptic, Timoptic XE, Generic) **Uses:** *Glaucoma* **Acts:** β-Blocker **Dose:** 0.25% 1 gt bid; ↓ to daily when controlled; use 0.5% if needed; 1-gtt/d gel **W/P:** [C, ?/+] **Disp:** Soln 0.25/0.5%; *Timoptic XE* (0.25) gel-forming soln **SE:** Local irritation

Timothy Grass Pollen Allergen Extract (Grastek) **uses:** can cause life-threatening allergic reaction (anaphylaxis, laryngopharyngeal edema); do not use with severe unstable/uncontrolled asthma; observe for 30 mins after 1st dose; Rx and train to use auto-injectable epi; may not be suitable for patients unresponsive to epi or inhaled bronchodilators (patients on β-blockers) or with certain conditions that could decrease ability to respond to severe allergic reaction **uses:** immunotherapy of grass pollen-induced allergic rhinitis with or without conjunctivitis confirmed by a skin test or pollen-specific IgE Ab **acts:** Allergen immunotherapy **dose:** Adults & Peds. 5-17 y: 1 tab SL/day; do not swallow for 1 min; for sustained effect for one pollen season after D/C may take qd × 3 consecutive years **w/p:** [B, ?/–] Discuss severe allergic reaction; if oral lesions, stop Tx, restart after healed **cl:** Severe uncontrolled/unstable asthma; history of severe systemic/local allergic reaction to SL allergen immunotherapy; component hypersensitivity **disp:** Tabs 30 day blister pack **se:** Ear/oral/tongue pruritus, mouth edema, throat irritation **notes:** 1st dose in healthcare setting; start 12 wk before expected onset of Sx; give auto-injectable epi; peds give only with adult supervision; D/C with increased local symptoms and seek care
Tinidazole (Tindamax) BOX: Carcinogenicity has been seen in mice and rats treated chronically with metronidazole, another nitroimidazole agent Uses: *Trichomoniasis, giardiasis, and amebiasis: in pts age 3 and older; bacterial vaginosis: in non-pregnant, adult women* Acts: Nitroimidazole antimicrobial Dose: Adults. Trichomoniasis, giardiasis: 2 g PO w/ food × 1. For trichomoniasis treat sexual partners; bacterial vaginosis: Non-PRG, adult women: 2 g daily for 2 days w/ food, or 1 g once daily for 5 days w/food Peds > 3 y: Giardiasis: 50 mg/kg (up to 2 g) × 1 w/ food; amebiasis: 50 mg/kg/day (up to 2 g per day) × 3 days w/ food; amebic liver abscess: same up to 5 days W/P: [C, ?] Seizures/nephropathy reported; vaginal candidiasis CI: Component allergy; 1st tri pregnancy, breastfeeding Disp: Tabs 250, 500 mg SE: Metallic/ bitter taste, nausea, anorexia dyspepsia, weakness/fatigue, headache, dizziness

Tioconazole (Generic [OTC]) Uses: *Vag fungal Infxns* Acts: Topical antifungal Dose: 1 applicator-full intravag hs (single dose) W/P: [C, ?] CI: Component allergy Disp: Vag oint 6.5% SE: Local burning, itching, soreness, polyuria

Tiotropium (Spiriva) Uses: Bronchospasm w/ COPD, bronchitis, emphysema Acts: Synthetic anticholinergic-like atropine Dose: 1 caps/d inhaled using HandiHaler, do not use w/ spacer W/P: [C, ?/] BPH, NAG, MyG, renal impair CI: Acute bronchospasm Disp: Inh caps 18 mcg SE: URI, xerostomia

Tirofiban (Aggrastat) Uses: *Acute coronary synd* Acts: Glycoprotein IIB/IIIa inhibit Dose: Initial 0.4 mcg/kg/min for 30 min, followed by 0.1 mcg/kg/min 12–24 h; use in combo w/ heparin; ECC 2010. ACS or PCI: 0.4 mcg/kg/min IV for 30 min, then 0.1 mcg/kg/min for 18–24 h post PCI; ↓ in renal Insuff W/P: [B, ?/] CI: Bleeding, intracranial neoplasm, vascular malformation, stroke/surgery/trauma w/in last 30 d, severe HTN, acute pericarditis Disp: Inj 50 mcg/mL SE: Bleeding, ↓ HR, coronary dissection, pelvic pain, rash

Tizanidine (Zanaflex, Generic) Uses: *Rx spasticity* Acts: α2-Adrenergic agonist Dose: Adults. 4 mg q6–8h, ↑ 2–4 mg PRN max 12 mg/dose or 36 mg/d; ↓ w/ CrCl < 25 mL/min. Peds. Not rec W/P: [C, ?/] Do not use w/ potent CYP1A2 inhibit or other α2-adrenergic agonists CI: w/ Fluvoxamine, ciprofloxacin; hypersens Disp: Caps 2, 4, 6 mg; tabs 2, 4 mg SE: ↓ BP, ↓ HR, somnolence, hepatotoxic Notes: ✓ LFT & BP; do not abruptly D/C, taper dose; take consistently w/ or w/o food

Tobramycin (Nebcin) Uses: *Serious gram(–) Infxns* Acts: Aminoglycoside; ↓ protein synth. Spectrum: Gram(–) bacteria (including Pseudomonas) Dose: Adults. Conventional dosing: 1–2.5 mg/kg/dose IV q8–12h. Once-daily dosing: 5–7 mg/kg/dose q24h. Peds. 2.5 mg/kg/dose IV q8h; ↓ w/ renal Insuff W/P: [D, −] CI: PRGl; aminoglycoside sensitivity Disp: Inj 10, 40 mg/mL SE: Nephro/ototox Notes: Follow CrCl & levels. Levels: Peak: 30 min after Inf; Trough: < 0.5 h before next dose; Therapeutic Conventional: Peak: 5–10 mcg/mL, Trough: < 2 mcg/mL
**Tobramycin, Inhalation (TOBI, TOBI Podhaler)**

**Uses:** *CF pts w/ *P. aeruginosa*  
**Acts:** Aminoglycoside; ↓ protein synth.  
**Spectrum:** Gram (–) bacteria  

**Dose:** Adults/Peds > 6 y. 300 mg inhal q12h by nebulizer, cycle 28 d on 28 d off  
**W/P:** [D, –] Renal/auditory/vestibular/neuromusc dysfxn; avoid w/ other neuro/nephro/ototoxic drugs  
**Cl:** Aminoglycoside sens  

**Disp:** 300 mg vials for nebulizer; TOBI Podhaler: 4-wk supply (56 blister caps w/ inhaler device plus reserve)  

**SE:** Cough, productive cough, lung disorders, dyspnea, pyrexia, oropharyngeal pain, dysphonia, hemoptysis, ↓ hearing  
**Notes:** Do not mix w/ dornase alfa in nebulizer; safety not established in peds < 6 y, or w/ FEV1 < 25% or > 80%, or if colonized w/ *Burkholderia cepacia*  

**Tobramycin Ophthalmic (AKTob, Tobrex, Generic)**

**Uses:** *Ocular bacterial Infxns*  
**Acts:** Aminoglycoside  

**Dose:** 1–2 gtt q2-4h; oint bid-tid; if severe, use oint q3–4h, or 2 gtt q60 min, then less frequently  
**W/P:** [B, –]  
**Cl:** Aminoglycoside sensitivity  

**Disp:** Oint & soln tobramycin 0.3%  

**SE:** Ocular irritation  

**Tobramycin/Dexamethasone Ophthalmic (TobraDex)**

**Uses:** *Ocular bacterial Infxns associated w/ sig inflammation*  
**Acts:** Antibiotic w/ anti-inflammatory  

**Dose:** 0.3% oint apply q6–8h or soln 0.3% apply 1–2 gtt q4h for first 24–48 h  
**W/P:** [C, M]  
**Cl:** Aminoglycoside sensitivity viral, fungal, or mycobacterium Infxn of eye  

**Disp:** Oint & susp 2.5, 5, & 10 mL tobramycin 0.3% & dexamethasone 0.1%  

**SE:** Local irritation/edema  
**Notes:** Use under ophthalmologist’s direction  

**Tocilizumab (Actemra)**

**BOX:** May cause serious Infxn (TB, bacterial, invasive fungal, viral, opportunistic); w/ serious Infxn stop tocilizumab until Infxn controlled  

**Uses:** *Moderate-severe RA, SJIA*  
**Acts:** IL-6 receptor inhib  

**Dose:** RA 4–8 mg/kg q4wk; SJIA if < 30 kg 12 mg/kg q2wk; if > 30 kg 8 mg/kg q2wk  
**W/P:** [C, ?/–] ANC < 2000/mm³, plt ct < 100,000, AST/ALT > 1.5 ULN; serious Infxn infection; high-risk bowel perforation  
**Cl:** Hypersensitivity  

**Disp:** Inj 20 mg/mL  
**SE:** URI, nasopharyngitis, HA, HTN, ↑ ALT, ↑ AST, rash, D, ↑ LDL, ↓ ANC  
**Notes:** Do not give live vaccines; ✓ CBC/plt counts, LFTs, lipids; PPD, if + treat before starting, w/ prior Hx retreat unless adequate Tx confirmed, monitor for TB, even if –PPD; ↓ mRNA expression of several CYP450 isoenzymes (CYP3A4)  

**Tofacitinib (Xeljanz)**

**BOX:** Serious Infxns (bacterial, viral, fungal, TB, opportunistic) possible. D/C w/ severe Infxn until controlled; test for TB w/ Tx; lymphoma/other CA possible; possible EBV-associated renal transplant lymphoproliferative disorder  

**Uses:** *Moderate severe RA w/ inadequate response/intolerance to MTX*  
**Acts:** Janus kinase inhib  

**Dose:** Adults. 5 mg PO bid; ↓ 5 mg once daily w/ mod–severe renal & mod hepatic impair, w/ potent inhib CYP3A4, w/ meds w/ both mod inhib CYP3A4 & potent inhib CYP2C19  
**W/P:** [C, –]  
**Cl:** None  

**Disp:** Tabs 5 mg  
**SE:** D, HA, URI, nasopharyngitis, ↑ LFTs, HTN, anemia  
**Notes:** OK w/ MTX or other nonbiologic DMARDs; ✓ CBC, LFTs, lipids  

**Notes:** Do not use w/ active Infxn, w/ severe hepatic impair, w/ biologic DMARDS, immunosuppressants, live vaccines, w/ risk of GI perforation  

**CI:** None  

**Disp:** Tabs 5 mg  
**SE:** D, HA, URI, nasopharyngitis, ↑ LFTs, HTN, anemia  
**Notes:** OK w/ MTX or other nonbiologic DMARDs; ✓ CBC, LFTs, lipids  

**Notes:** Do not use w/ active Infxn, w/ severe hepatic impair, w/ biologic DMARDS, immunosuppressants, live vaccines, w/ risk of GI perforation  

**Cl:** None  

**Disp:** Tabs 5 mg  
**SE:** D, HA, URI, nasopharyngitis, ↑ LFTs, HTN, anemia  
**Notes:** OK w/ MTX or other nonbiologic DMARDs; ✓ CBC, LFTs, lipids
**Tolazamide (Generic)**  
**Uses:** *Type 2 DM*  
**Acts:** Sulfonylurea; ↑ pancreatic insulin release; ↑ peripheral insulin sensitivity; ↓ hepatic glucose output  
**Dose:** 100–500 mg/d (no benefit > 1 g/d)  
**W/P:** [C, ?/−] Elderly, hepatic or renal impair; G6PD deficiency = ↑ risk for hemolytic anemia  
**CI:** Component hypersens, DM type 1, DKA  
**Disp:** Tabs 250, 500 mg  
**SE:** HA, dizziness, GI upset, rash, hyperglycemia, photosens, blood dyscrasias

**Tolbutamide (Generic)**  
**Uses:** *Type 2 DM*  
**Acts:** Sulfonylurea; ↑ pancreatic insulin release; ↑ peripheral insulin sensitivity; ↓ hepatic glucose output  
**Dose:** 500–1000 mg bid; 3 g/d max; ↓ in hepatic failure  
**W/P:** [C, −] G6PD deficiency = ↑ risk hemolytic anemia  
**CI:** Sulfonylurea sensitivity  
**Disp:** Tabs 500 mg  
**SE:** HA, dizziness, GI upset, rash, photosens, blood dyscrasias, hypoglycemia, heartburn

**Tolcapone (Tasmar)**  
**BOX:** Cases of fulminant liver failure resulting in death have occurred  
**Uses:** *Adjunct to carbidopa/levodopa in Parkinson Dz*  
**Acts:** Catechol-O-methyltransferase inhib slows levodopa metabolism  
**Dose:** 100 mg PO tid w/ 1st daily levodopa/carbidopa dose, then dose 6 & 12 h later; ↓ w/ renal Insuff  
**W/P:** [C, ?] CI: Hepatic impair; w/ nonselective MAOI; nontraumatic rhabdomyolysis or hyperpynexia  
**Disp:** Tabs 100 mg  
**SE:** Constipation, xerostomia, vivid dreams, hallucinations, anorexia, N/D, orthostasis, liver failure, rhabdomyolysis  
**Notes:** Do not abruptly D/C or ↓ dose; monitor LFTs

**Tolmetin (Generic)**  
**BOX:** May ↑ risk of CV events & GI bleeding  
**Uses:** *Arthritis & pain*  
**Acts:** NSAID; ↓ prostaglandins  
**Dose:** 400 mg PO tid titrate up max 1.8 g/d max  
**W/P:** [C, −] CI: NSAID or ASA sensitivity; use for pain  
**Disp:** Tabs 200, 600 mg; caps 400 mg  
**SE:** Dizziness, rash, GI upset, edema, GI bleeding, renal failure

**Tolnaftate (Tinactin [OTC])**  
**Uses:** *Tinea pedis, cruris, corporis, manus, versicolor*  
**Acts:** Topical antifungal  
**Dose:** Apply to area bid for 2–4 wk  
**W/P:** [C,?] CI: Nail & scalp Infxns  
**Disp:** OTC 1% liq; gel; powder; topical cream; ointment, powder, spray soln  
**SE:** Local irritation  
**Notes:** Avoid ocular contact, Infxn should improve in 7–10 d

**Tolterodine (Dettol, Detrol LA, Generic)**  
**Uses:** *OAB (frequency, urgency, incontinence)*  
**Acts:** Anticholinergic  
**Dose:** Dettol: 1–2 mg PO bid; Detrol LA: 2–4 mg/d  
**W/P:** [C, −] w/ CYP2D6 & 3A3/4 inhib (Table 10, p 346); w/ QT prolongation  
**CI:** Urinary retention, gastric retention, or uncontrolled NAG  
**Disp:** Tabs 1, 2 mg; Detrol LA tabs 2, 4 mg  
**SE:** Xerostomia, blurred vision, HA, constipation  
**Notes:** LA form; patient may see “intact” pill in stool

**Tolvaptan (Samsca)**  
**BOX:** Hospital use only w/ close monitoring of Na⁺; too rapid Na⁺ correction can cause severe neurologic symptoms. Correct slowly w/ ↑ risk (malnutrition, alcoholism, liver Dz)  
**Uses:** *Hypervolemic or euvolemic↓ Na⁺*  
**Acts:** Vasopressin V₂-receptor antagonist  
**Dose:** Adults. 15 mg PO daily; after ≥ 24 h, may ↑ to 30 mg × 1 daily; max 60 mg × d; titrate at 24-h intervals to Na⁺ goal  
**W/P:** [C, −] Monitor Na⁺, volume, neurologic status; GI bleed risk w/ cirrhosis, avoid w/ CYP3A inducers and moderate inhib, ↓ dose w/ P-gp inhib,
Tramadol

↑ K⁺; limit Rx to 30 d; avoid w/ liver Dz; can ↑ ALT and injure liver CI: Hypovolemic hyponatremia; urgent need to raise Na⁺; in pts incapable of sensing/reacting to thirst; anuria; w/ strong CYP3A inhib Disp: Tabs 15, 30 mg SE: N, xerostomia, polyuria, thirst, weakness, constipation, hyperglycemia Notes: Monitor K⁺

Topiramate (Topamax, Trokendi XR, Generic)

Uses: *Initial monotherapy or adjunctive for complex partial Szs & tonic–clonic Szs; adjunct for Lennox-Gastaut synd, bipolar disorder, neuropathic pain, migraine prophylaxis*

Acts: Anticonvulsant Dose: Adults. Seizures: Total dose 400 mg/d; see PI for 8-wk schedule. Migraine Px: titrate 100 mg/d total. Peds 2–9. See label; ↓ w/ renal impair W/P: [D, ?] CI: Component allergy; for ER recent EtOH use or w/ metabolic acidosis Disp: Tabs 25, 50, 100, 200 mg; caps sprinkles 15, 25 mg; ER Caps 25, 50, 100, 200 mg SE: Somnolence, fatigue, paresthesias, Wt loss, GI upset, tremor, ↓ serum HCO₃⁻, Notes: If metabolic acidosis, ↓ dose or D/C or give alkali Tx; ✓ bicarbonate; when D/C must taper; ↓ efficacy of OCPs; use w/ phenytoin or carbamazepine ↓ topiramate levels; monitor HCO₃⁻ if on carbonic anhydrase inhibit; Li levels ↑, ask if taking both; avoid other CNS depressants

Topotecan (Hycamtin, Generic) BOX: Chemotherapy precautions, for use by physicians familiar w/ chemotherapeutic agents, BM suppression possible Uses: *Ovarian CA (cisplatin-refractory), cervical CA, NSCLC*, sarcoma, ped NSCLC Acts: Topoisomerase I inhibit; ↓ DNA synth Dose: 1.5 mg/m²/d as a 1-h IV Inf × 5 d, repeat q3wk; ↓ w/ renal impair W/P: [D, –] CI: PRG, breast-feeding; severe bone marrow suppression Disp: Inj 4-mg vials; caps 0.25, 1.0 mg SE: ↑ BM, N/V/D, drug fever, skin rash, interstitial lung Dz

Torsemide (Demadex)

Uses: *Edema, HTN, CHF, & hepatic cirrhosis*

Acts: Loop diuretic; ↓ reabsorption of Na⁺ & Cl⁻ in ascending loop of Henle & distal tubule Dose: 5–20 mg/d PO or IV; 200 mg/d max W/P: [B, ?] CI: Sulfonylurea sensitivity, anuria Disp: Tabs 5, 10, 20, 100 mg; Inj 10 mg/mL SE: Orthostatic ↓ BP, HA, dizziness, photosens, electrolyte imbalance, blurred vision, renal impair Notes: 10–20 mg torsemide = 40 mg furosemide = 1 mg bumetanide

Tramadol (Rybix ODT, Ryzolt ER, Ultram, Ultram ER, Generic) [C-IV]

Uses: *Mod–severe pain* Acts: Centrally acting synthetic opioid analgesic Dose: Adults. 50–100 mg PO q4–6h PRN, start 25 mg PO q a.m., ↑ q3d to 25 mg PO qid; ↑ 50 mg q3d, 400 mg/d max (300 mg if > 75 y); ER: 100–300 mg PO daily; Rybix ODT: individualize ↑ 50 mg/d q3d to 200 mg/d or 50 mg qid; after titration 50–100 mg q4–6 PRN, 400 mg/d max. Peds. (ER form not rec) 1–2 mg/kg q4–6h (max dose 100 mg); ↓ w/ renal Insuff W/P: [C, –] Suicide risk in addiction prone, w/ tranquilizers or antidepressants; ↑ Szs risk w/ MAOI; serotonin syndrome CI: Opioid dependency; w/ MAOIs; sensitivity to opioids, acute alcohol intoxication, hypnotics,
Tramadol/Acetaminophen

**Disp:** Tabs 50 mg; ER 100, 200, 300 mg; Rybix ODT 50 mg

**SE:** Dizziness, HA, somnolence, GI upset, resp depression, anaphylaxis

**Notes:** ↓ Sz threshold; tolerance/dependence may develop; abuse potential d/t µ-opioid agonist activity; avoid EtOH; do not cut, chew ODT tabs

**Tramadol/Acetaminophen (Ultrace**) BOX: Acetaminophen hepatotoxicity (acute liver failure, liver transplant, death) reported. Often d/t acetaminophen > 4000 mg/d or more than one acetaminophen product

**Uses:** *Short-term Rx acute pain (< 5 d)*

**Acts:** Centrally acting opioid analgesic w/ APAP

**Dose:** 2 tabs PO q4–6h PRN; 8 tabs/d max.

**Elderly/renal impair:** Lowest possible dose; 2 tabs q12h max if CrCl < 30 mL/min

**W/P:** [C, −] Szs, hepatic/renal impair, suicide risk in addiction prone, w/ tranquilizers or antidepressants

**CI:** Acute intoxication, w/ EtOH, hypnotics, central acting analgesics or psychotropic drugs, hepatic dysfunction

**Disp:** Tab 37.5 mg tramadol/325 mg APAP

**SE:** SSRIs, TCAs, opioids, MAOIs ↑ risk of Szs; dizziness, somnolence, tremor, HA, N/V/D, constipation, xerostomia, liver tox, rash, pruritus, ↑ sweating, physical dependence

**Notes:** Avoid EtOH; abuse potential µ-opioid agonist activity (tramadol); see acetaminophen note, p 38

**Trametinib (Mekinist)** Uses: *Metastatic melanoma w/ BRAF V600E or V600K mutations; single drug or combo w/ dabrafenib*

**Acts:** TKI

**Dose:** 2 mg 1×d; may need to reduce dose or hold or D/C for SEs or toxicity

**W/P:** [D, −] w/ dabrafenib new cutaneous and non-cutaneous Ca can occur, bleeding, DVT/PE, cardiomyopathy; ocular toxicity, retinal vein thrombosis; ILD, serious skin reactions; ↑ glu; embryofetal toxicity

**CI:** None

**Disp:** Tabs 0.5, 1, 2 mg

**SE:** Fever, chills, night sweats, N/V/D, constipation, Abd pain, anorexia, fatigue, HA, arthralgias/myalgias, cough; rash; lymphedema; hemolytic anemia w/ G6PD def; ↑ glu; ↑ AST, ↑ ALT, ↑ alk phos, ↓ albumin, ↓ WBC, plt

**Notes:** Not a single agent if prior BRAF-inhib Tx; ✓ LV function before, 1 mo after start and q 2–3 mo; hold w/ pulm Sx; ✓ glu and monitor w/ DM or ↑ glu; D/C w/ retinal vein thrombosis, ILD, pneumonitis, or rash (grade, 2, 3, or 4) not improved after off 3 wk; w/ dabrafenib avoid inhibit or inducers of CYP3A4/CYP2C8; use contraception during and 4 mo post-Tx; w/dabrafenib, must use non-hormonal contraception (class kinase inhibitor)

**Trandolapril (Mavik, Generic)** BOX: Use in PRG in 2nd/3rd tri can result in fetal death

**Uses:** *HTN*, heart failure, LVD, post-AMI

**Acts:** ACE inhibit

**Dose:** HTN: 1–4 mg/d. Heart failure/LVD: Start 1 mg/d, titrate to 4 mg/d; ↓ w/ severe renal/hepatic impair

**W/P:** [C first, D in 2nd + 3rd, −] ACE inhibit sensitivity, angioedema w/ ACE inhibit

**Disp:** Tabs 1, 2, 4 mg

**SE:** ↓ BP, ↓ HR, dizziness, ↑ K+, GI upset, renal impair, cough, angioedema

**Notes:** African Americans minimum dose is 2 mg vs 1 mg in caucasians

**Tranexamic Acid (Lysteda, Generic)** Uses: *↓ Cyclic heavy menstrual bleeding*

**Acts:** ↓ Dissolution of hemostatic fibrin by plasmin

**Dose:** 2 tabs tid (3900 mg/d) 5 d max during monthly menstruation; ↓ w/ renal impair (see label)
**Treprostinil Sodium**

W/P: [B, +/−] ↑ thrombosis risk CI: Component sensitivity; active or ↑ thrombosis risk

Disp: Tabs 650 mg; Inj 100 mg/mL

SE: HA, sinus and nasal symptoms, Abd pain, back/musculoskeletal/jt pain, cramps, migraine, anemia, fatigue, retinal/ocular occlusion; allergic Rxns

Notes: Inj used off label trauma associated hemorrhage

**Tranylcypromine (Parnate)**

BOX: Antidepressants ↑ risk of suicidal thinking and behavior in children and adolescents w/ MDD and other psychiatric disorders

Uses: *Depression*

Acts: MAOI

Dose: 30 mg/d PO + doses, may ↑ 10 mg/d over 1–3 wk to max 60 mg/d

W/P: [C, +/−] Minimize foods w/ tyramine

CI: CV Dz, cerebrovascular defects, Pheo, w/ MAOIs, TCAs, SSRIs, SNRIs, sympathomimetics, bupropion, meperidine, dextromethorphan, buspirone

Disp: Tabs 10 mg

SE: Orthostatic hypotension, ↑ HR, sex dysfunction, xerostomia

Notes: False(+) amphetamine drug test

**Trastuzumab (Herceptin)**

BOX: Can cause cardiomyopathy and ventricular dysfunction; Inf Rxns and pulm tox reported; use during PRG can lead to pulm hypoplasia, skeletal malformations, & neonatal death

Uses: *Met breast CA that over express the HER2/neu protein*, breast CA adjuvant, w/ doxorubicin, cyclophosphamide, and paclitaxel if pt HER2/neu(+)

Acts: MoAb; binds human epidermal growth factor receptor 2 protein (HER2); mediates cellular cytotoxicity

Dose: Per protocol, typical 2 mg/kg/IV/wk

W/P: [D, −] CV dysfunction, allergy/Inf Rxns

CI: None

Disp: Inj 440 mg

SE: Anemia, cardiomyopathy, nephrotic synd, pneumonitis, N/V/D, rash, pain, fever, HA, insomnia

Notes: Inf-related Rxns minimized w/ acetaminophen, diphenhydramine, & meperidine

**Trazodone (Oleptro, Generic)**

BOX: Closely monitor for worsening depression or emergence of suicidality, particularly in pts < 24 y. Oleptro not approved in peds

Uses: *Depression*, hypnotic, augment other antidepressants

Acts: Antidepressant; ↓ reuptake of serotonin & norepinephrine

Dose: Adults & Adolescents. Desyrel: 50–150 mg PO daily–tid; max 600 mg/d. Sleep: 25–50 mg PO, qhs, PRN. Adults. Oleptro: Start 150 mg PO daily, may ↑ by 75 mg q3d, max 375 mg/d; take qhs on empty stomach W/P: [C, ?/−] Serotonin/neuroleptic malignant syndromes reported; ↑ QTc; may activate manic states; syncope reported; may ↑ bleeding risk; avoid w/in 14 d of MAOI CI: Component allergy

Disp: Desyrel: Tabs 50, 100, 150, 300 mg; Oleptro: Scored tabs 150, 300 mg

SE: Dizziness, HA, sedation, N, xerostomia, syncope, confusion, libido, ejaculation dysfunction, tremor, hep, EPS

Notes: Takes 1–2 wk for Sx improvement; may interact w/ CYP3A4 inhib to ↑ trazodone concentrations, carbamazepine ↓ trazodone concentrations

**Treprostinil Sodium (Remodulin, Tyvaso)**

Uses: *NYHA class II–IV pulm arterial HTN*

Acts: Vasodilation, ↓ plt aggregation

Dose: Remodulin: 0.625–1.25 ng/kg/min cont Inf/SQ (preferred), titrate to effect; Tyvaso: Initial: 18 mcg (3 Inh) q4h 4×/d; if not tolerated, ↓ to 1–2 inhals, then ↑ to 3 inhal; Maint: ↑ additional 3 inhal 1–2 wk intervals; 54 mcg (or 9 inhal) 4×/d max

W/P: [B, ?/−]
**Treprostinil, Extended Release**

**Uses:** Pulm arterial HTN to improve exercise capacity.

**Acts:** Vasodilator

**Dose:** Adults. Start 0.25 mg bid; ↑ by 0.25 or 0.5 mg bid or 0.125 mg tid q 3–4 d; max dose based on tolerance

**W/P:** [C, ?] ↑ Risk of bleeding; do not take with EtOH; do not abruptly D/C; tabs may lodge in colonic diverticulum

**CI:** Severe hepatic Dz

**Disp:** ER Tabs 0.125, 0.25, 1, 2.5 mg

**SE:** HA, N, D, Abd pain, flushing, pain in jaw or ext, ↓ K+

**Notes:** Risk of ↓ BP with antihypertensive drugs; if co-admin w/ strong CYP2C8 inhibit starting dose 0.125 mg BID; inhib plt aggregation; see also treprostinil sodium

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**Tretinoin, Topical [Retinoic Acid] (Avita, Retin-A, Renova, Retin-A Micro)**

**Uses:** Acne vulgaris, sun-damaged skin, wrinkles (photo aging), some skin CAs

**Acts:** Exfoliant retinoic acid derivative

**Dose:** Adults & Peds > 12 y. Apply daily hs (w/ irritation, ↓ frequency).

**Photoaging:** Start w/ 0.025%, ↑ to 0.1% over several mo (apply only q3d if on neck area; dark skin may require bid use)

**W/P:** [C, ?] CI: Retinoid sensitivity

**Disp:** Cream 0.02, 0.025, 0.05, 0.0375, 0.1%; gel 0.01, 0.025, 0.05% micro formulation gel 0.1, 0.04% SE: Avoid sunlight; edema; skin dryness, erythema, scaling, changes in pigmentation, stinging, photosens

**Triamcinolone/Nystatin (Generic)**

**Uses:** Cutaneous candidiasis

**Acts:** Antifungal & anti-inflammatory

**Dose:** Apply lightly to area bid; max 25 mg/d

**W/P:** [C, ?] CI: Varicella; systemic fungal Infxns

**Disp:** Cream & oint: triamcinolone 1 mg/g and 100,000 units nystatin/g SE: Local irritation, hypertrichosis, pigmentation changes

**Notes:** For short-term use (< 7 d)

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**Triamterene (Dyrenium)**

**Box:** Hyperkalemia can occur

**Uses:** Edema associated w/ CHF, cirrhosis

**Acts:** K+-sparing diuretic

**Dose:** Adults. 100–300 mg/24 h PO + daily-bid. Peds. HTN: 2–4 mg/kg/d in 1–2 + doses; ↓ w/ renal/hepatic impair

**W/P:** [C (Expert opinion), ?] CI: ↑ K+, renal impair; caution w/ other K+-sparing diuretics

**Disp:** Caps 50, 100 mg SE: ↓ K+, ↓ BP, bradycadia, cough, HA

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**Triazolam (Halcion, Generic) [C-IV]**

**Uses:** Short-term management of insomnia

**Acts:** Benzodiazepine

**Dose:** 0.125–0.25 mg PO hs PRN; ↓ in elderly

**W/P:** [X, ?–/−] CI: Concurrent fosamprenavir, ritonavir, nefazodone or other moderate/strong CYP3A4 inhibit; PRG Disp: Tabs 0.125, 0.25 mg SE: Tachycardia, CP, drowsiness, fatigue, memory impair, GI upset

**Notes:** Additive CNS depression w/ EtOH & other CNS depressants, avoid abrupt D/C

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**Triethylenethiophosphoramide (Thiotepa, Thioplex, Tespa, TSPA)**

**Uses:** Breast, ovarian CAs, lymphomas (infrequently used) preparative regimens for allogeneic & ABMT w/ high doses, intravesical for bladder CA, intracavitary effusion control

**Acts:** Polyfunctional alkylating agent

**Dose:** Per protocol typical
Trimethoprim

0.3–0.4 mg/kg IV q1–4 wk. **Effusions:** Intracavitary 0.6-0.8 mg/kg; 900–125 mg/m² in ABMT regimens (highest dose w/o ABMT is 180 mg/m²); ↓ in renal failure **W/P:** [D, –] w/ BM suppression, renal and hepatic impair **CI:** Component allergy **Disp:** Inj 15 mg/vial **SE:** ↓ BM, N/V, dizziness, HA, allergy, paresthesias, alopecia **Notes:** Intravesical use in bladder CA infrequent today

**Trifluoperazine (Generic)**  **BOX:** ↑ Mortality in elderly patients w/ dementia-related psychosis **Uses:** *Psychotic disorders*  **Acts:** Phenothiazine; blocks postsynaptic CNS dopaminergic receptors  **Dose:** Adults. **Schizophrenia/psychosis:** initial 1–2 mg PO bid (out pt) or 2–5 mg PO bid (in pat). Typical 15–20 mg/d, max 40 mg/d. **Nonpsychotic anxiety:** 1–2 mg PO/d, 6 mg/d max. **Peds 6–12 y.** 1 mg PO daily-bid initial, gradually to 15 mg/d; ↓ in elderly/debilitated pts  **W/P:** [C, ?/ –]  **CI:** Hx blood dyscrasias; phenothiazine sens, severe hepatic Dz  **Disp:** Tabs 1, 2, 5, 10 mg  **SE:** Orthostatic ↓ BP, EPS, dizziness, neuroleptic malignant synd, skin discoloration, lowered Sz threshold, photosens, blood dyscrasias **Notes:** Several weeks for onset of effects

**Trifluridine Ophthalmic (Viroptic)**  **Uses:** *Herpes simplex keratitis & conjunctivitis*  **Acts:** Antiviral  **Dose:** Adults. **Parkinson Dz, drug-induced EPS**  **W/P:** [C, ?]  **CI:** Benzocaine sensitivity; children < 40 kg  **Disp:** Caps 300 mg; Inj 100 mg/mL  **SE:** Drowsiness, ↓ BP, dizziness; hepatic impair, blood dyscrasias, Szs, parkinsonian-like synd  **Notes:** In the presence of viral Infxns, may mask emesis or mimic CNS effects of Reye synd

**Trimethobenzamide (Tigan, Generic)**  **Uses:** *N/V*  **Acts:** ↓ Medullary chemoreceptor trigger zone  **Dose:** Adults. 300 mg PO or 200 mg IM tid-qid PRN.  **W/P:** [C, ?]  **CI:** Benzocaine sensitivity; children < 40 kg  **Disp:** Caps 300 mg; Inj 100 mg/mL  **SE:** Rash, pruritus, megaloblastic anemia, hepatic impair, blood dyscrasias  **Notes:** Take w/ plenty of H₂O
Trimethoprim (TMP)/Sulfamethoxazole (SMX) [Co-T trimoxazole, TMP-SMX] (Bactrim, Bactrim DS, Septra DS, Generic) Uses: *UTI Rx & prophylaxis, otitis media, sinusitis, bronchitis, prevent PCP pneumonia (HIV w/ CD4 count < 200 cells/mm^3)* Acts: SMX ↓ synth of dihydrofolic acid, TMP ↓ dihydrofolate reductase to impair protein synth. Spectrum: Includes Shigella, PCP, & Nocardia Infxns, Mycoplasma, Enterobacter sp, Staphylococcus, Streptococcus, & more Dose: All doses based on TMP Adults. 1 DS tab PO bid or 8–20 mg/kg/24 h IV in 1–2 ÷ doses. PCP: 15–20 mg/kg/d IV or PO (TMP) in 4 ÷ doses. Nocardia: 10–15 mg/kg/d IV or PO (TMP) in 4 ÷ doses. PCP prophylaxis: 1 reg tab daily or DS tab 3 ÷ wk. UTI prophylaxis: 1 PO bid. Peds. 8–10 mg/kg/24 h PO ÷ in 2 doses or 3–4 doses IV; do not use in < 2 mo; ↓ in renal failure; maintain hydration W/P: [C (D if near term), –] CI: Sulfonamide sensitivity, porphyria, megaloblastic anemia w/ folate deficiency, PRF, breast-feeding Inf < 2 mo, sig hepatic impairment Disp: Regular tabs 80 mg TMP/400 mg SMX; DS tabs 160 mg TMP/800 mg SMX; PO susp 40 mg TMP/200 mg SMX/5 mL; Inj 80 mg TMP/400 mg SMX/5 mL SE: Allergic skin Rxns, photosens, GI upset, SJS, blood dyscrasias, hep Notes: Synergistic combo, interacts w/ warfarin

Triptorelin (Trelstar 3.75, Trelstar 11.25, Trelstar 22.5) Uses: *Palliation of advanced PCa* Acts: LHRH analog; ↓ GNRH w/ cont dosing; transient ↑ in LH, FSH, testosterone, & estradiol 7–10 d after 1st dose; w/ chronic use (usually 2–4 wk), sustained ↓ LH & FSH w/ ↓ testicular & ovarian steroidogenesis similar to surgical castration Dose: 3.75 mg IM q4wk; or 11.25 mg IM q12wk or 22.5 mg q24wk W/P: [X, N/A] CI: Not indicated in females Disp: Inj Depot 3.75 mg; 11.25 mg; 22.5 mg SE: Dizziness, emotional lability, fatigue, HA, insomnia, HTN, D, V, ED, retention, UTI, pruritus, anemia, Inj site pain, musculoskeletal pain, osteoporosis, allergic Rxns Notes: Only 6-mo formulation, ✓ periodic testosterone levels & PSA

Trospium (Sanctura, Sanctura XR, Generic) Uses: *OAB w/ Sx of urge incontinence, urgency, frequency* Acts: Muscarinic antagonist, ↓ bladder smooth muscle tone Dose: 20 mg tab PO bid; 60 mg ER caps PO daily a.m., 1 h ac or on empty stomach. ↓ w/ CrCl < 30 mL/min and elderly W/P: [C, +/−] w/ EtOH use, in hot environments, UC, MyG, renal/hepatic impair CI: Urinary/gastric retention, NAG Disp: Tab 20 mg; caps ER 60 mg SE: Dry mouth, constipation, HA, rash

Ulipristal Acetate (Ella) Uses: *Emergency contraceptive for PRG prevention (unprotected sex/contraceptive failure)* Acts: Progesterone agonist/antagonist, delays ovulation Dose: 1 tab (30 mg) PO ASAP w/in 5 d of unprotected sex or contraceptive failure W/P: [X, −] CYP3A4 inducers ↓ effect CI: PRG Disp: Tab 30 mg SE: HA, N, Abd, dysmenorrhea Notes: NOT for routine contraception; fertility after use unchanged, maintain routine contraception; use any day of menstrual cycle

Umeclidinium/Vilanterol (Anoro Ellipta) BOX: LABA, such as vilanterol, ↑ risk of asthma-related death; the safety and efficacy in asthma has not been established Uses: *Maintenance COPD* Acts: Combo antimuscarinic (anticholinergic) and LABA (B_2) Dose: 1 inhal/d W/P: [C, ?/−] May cause
Valproic Acid

asthma-related deaths; NOT for acute exacerbations or deteriorations; do NOT use w/ other LABA; paradoxical bronchospasm; caution w/ CV Dz, seizure Hx, thyrotoxicosis, DM, ketoacidosis, NAG, and Hx of urinary retention or BPH CI: Hyperkalemia, ↑ glu Notes: DO NOT use to Tx asthma; caution w/ MAOIs, TCA, β-blockers (may block bronchodilator effect); diuretics (may potentiate ↓ K⁺); other anticholinergic meds; strong P450 3A4 inhib

Ustekinumab (Stelara) Uses: *Mod–severe plaque psoriasis* Acts: Human IL-12 and -23 antagonist Dose: Wt < 100 kg, 45 mg SQ initial and 4 wk later, then 45 mg q12wks. Wt > 100 kg, 90 mg SQ initially and 4 wk later, then 90 mg q 12 wk. W/P: [B/?] Disp: Prefilled syringe and single-dose vial 45 mg/0.5 mL, 90 mg/1 mL SE: Nasopharyngitis, URI, HA, fatigue Notes: Do not use w/ live vaccines

Valacyclovir (Valtrex, Generic) Uses: *Herpes zoster; genital herpes; herpes labialis* Acts: Prodrug of acyclovir; ↓ viral DNA replication. Spectrum: Herpes simplex I & II Dose: Zoster: 1 g PO tid × 7 d. Genital herpes(initial episode): 1 g bid × 7–10 d, (recurrent) 500 mg PO bid × 3 d. Herpes prophylaxis: 500–1000 mg/d. Herpes labialis: 2 g PO q12h × 1 d ↓ w/ renal failure W/P: [B, +] ↑ CNS effects in elderly Disp: Caplets 500, 1000 mg; tab 500, 1000 mg SE: HA, GI upset, ↑ LFTs, dizziness, pruritus, photophobia

Valganciclovir (Valcyte) BOX: Granulocytopenia, anemia, and thrombocytopenia reported. Carcinogenic, teratogenic, and may cause aspermatogenesis Uses: *CMV retinitis and CMV prophylaxis in solid-organ transplantation* Acts: Ganciclovir prodrug; ↓ viral DNA synth Dose: CMV Retinitis induction: 900 mg PO bid w/ food × 21 d, then 900 mg PO daily; CMV prevention: 900 mg PO daily × 100 d posttransplant, ↓ w/ renal dysfunction W/P: [C, −] Use w/ imipenem/cilastatin, nephrotoxic drugs; ANC < 500 cells/mcL; plt < 25,000 cells/mcL; Hgb < 8 g/dL. CI: Allergy to acyclovir, ganciclovir, valganciclovir Disp: Tabs 450 mg; oral solution: 50 mg/mL SE: BM suppression, HA, GI upset Notes: Monitor CBC & Cr

Valproic Acid (Depakene, Depakote, Stavzor, Generic) BOX: Fatal hepatic failure (usually during first 6 mo of Tx, peds < 2 y high risk, monitor LFTs at baseline and frequent intervals), teratogenic effects, and life-threatening pancreatitis reported Uses: *Rx epilepsy, mania; prophylaxis of migraines*, Alzheimer behavior disorder Acts: Anticonvulsant; ↑ availability of GABA Dose: Adults & Peds. Szs: 10–15 mg/kg/24 h PO ÷ tid (after initiation by 5–10 mg/kg/d weekly basis until therapeutic levels). Mania: 750 mg in 3 × doses, ↑ 60 mg/kg/d max. Migraines: 250 mg bid, ↑ 1000 mg/d max; ↓ w/ hepatic impair W/P: [X, −] Multiple drug interactions CI: Severe hepatic impair, urea cycle disorder Disp: Caps 250 mg; caps w/ coated particles 125 mg; tabs DR 125, 250, 500 mg; tabs ER 250, 500 mg; caps DR (Stavzor) 125, 250, 500 mg; syrup 250 mg/5 mL; Inj 100 mg/mL SE: Somnolence, dizziness, GI upset, diplopia, ataxia, rash, thrombocytopenia,
↓ plt, hep, pancreatitis, ↑ bleeding times, alopecia, ↑ Wt, ↑ hyperammonemic encephalopathy in pts w/ urea cycle disorders; if taken during PRG may cause lower IQ tests in children **Notes:** Monitor LFTs & levels: **Therapeutic: Trough:** 50–100 mcg/mL; **Toxic trough:** > 100 mcg/mL. **Half-life:** 9–16 h; phenobarbital & phenytoin may alter levels

**Valsartan (Diovan)**  **BOX:** Use during 2nd/3rd tri of PRG can cause fetal harm

**Uses:** HTN, CHF, DN  **Acts:** Angiotensin II receptor antagonist **Dose:** 80–160 mg/d, max 320 mg/d  **W/P:** [D, −] w/ K⁺-sparring diuretics or K⁺ supls  **W/P:** Severe hepatic impair, biliary cirrhosis/obst, primary hyperaldosteronism, bilateral RAS  **CI:** None  **Disp:** Tabs 40, 80, 160, 320 mg

**Vancomycin (Vancocin, Generic)**  **Uses:** *Serious MRSA Infxns; enterococcal Infxns; PO Rx of S. aureus and C. difficile pseudomembranous colitis*  **Acts:** ↓ Cell wall synth. **Spectrum:** Gram(+) bacteria & some anaerobes (includes MRSA, Staphylococcus, Enterococcus, Streptococcus sp, C. difficile)  **Dose:**  **Adults.** 15–20 mg/kg IV q8–48h based on CrCl, 15–20 mg/kg/dose;  **C. difficile:** 125–500 mg PO q6h × 7 d.  **Peds.** 40–60 mg/kg/d IV in + doses q6–12 h;  **C. difficile:** 40 mg/kg/d PO in + 3–4 doses × 7–10 d.  **W/P:** [B oral + C Inj, −]  **CI:** Component allergy; avoid in Hx hearing loss  **Disp:** Caps 125, 250 mg; powder for Inj

**Vandetanib (Caprelsa)**  **BOX:** Can ↑ QT interval, Torsades de pointes, sudden death; do not use in pts w/ ↓ K⁺, ↓ Ca²⁺, ↓ Mg²⁺, prolonged QT, avoid drugs that prolong QT, monitor QT baseline, 2–4 wk, 8–12 wk, then q3mo  **Uses:** *Advanced medullary thyroid CA*  **Acts:** Multi TKI inhib  **Dose:**  **Adults.** 300 mg/d; ↓ dose w/ ↓ renal Fxn  **W/P:** [D, −] Can ↑ QT; avoid w/ CYP3A inducers or drugs that ↑ QT (eg, amiodarone, sotalol, clarithromycin); avoid w/ mod–severe liver impair  **CI:** Prolonged QT synd  **Disp:** Tabs 100, 300 mg  **SE:** Anorexia, Abd pain, N/V, HA, ↑ BP, reversible posterior leukoencephalopathy synd (PRES), fatigue, rash (eg, acne), ↑ QT interval, ILD  **Notes:** Half-life 19 d; restricted distribution, providers and pharmacies must be certified; may need ↑ thyroid replacement

**Vardenafil (Levitra, Staxyn, Generic)**  **Uses:** *ED*  **Acts:** PDE5 inhib, increases cyclic guanosine monophosphate (cGMP) and NO levels; relaxes smooth muscles, dilates cavernosal arteries  **Dose:** Levitra 10 mg PO 60 min before sexual activity; titrate; max × 1 = 20 mg; 2.5 mg w/ CYP3A4 inhib (Table 10, p 346); Staxyn 1 (10 mg ODT) 60 min before sex, max 1×/d  **W/P:** [B, −] w/ CV, hepatic, or renal Dz or if sex activity not advisable; potentiate the hypotensive effects of nitrates, alpha-blockers, and antihypertensives  **CI:** w/ Nitrates,  **Disp:** Levitra Tabs 2.5, 5, 10, 20 mg tabs; Staxyn 10 mg ODT (contains phenylalanine)  **SE:** ↑ QT
interval ↓ BP, HA, dyspepsia, priapism, flushing, rhinitis, sinusitis, flu synd, sudden ↓/loss of hearing, tinnitus, NIAON. Notes: Concomitant alpha-blockers may cause ↓ BP; transient global amnesia reports; place Staxyn on tongue to disintegrate w/o liquids; ODT not inter changeable to oral pill; gets higher levels

Vasopressin [Antidiuretic Hormone, ADH] (Pitressin, Generic) Uses: *DI; Rx postop Abd distention*; adjunct Rx of GI bleeding & esophageal varices; asystole, PEA, pulseless VT & VF, adjunct systemic vasopressor (IV drip) Acts: Posterior pituitary hormone, potent GI, and peripheral vasoconstrictor Dose: Adults & Peds. DI: 5–10 units SQ or IM bid-tid. GI hemorrhage: 0.2–0.4 units/min; ↓ in cirrhosis; caution in vascular Dz. VT/VF: 40 units IV push × 1. Vasopressor: 0.01–0.03 units/min Peds. (ECC 2010). Cardiac arrest: 0.4–1 unit/kg IV/IO bolus; max dose 40 units; Hypotension: 0.2–2 mill units/kg/
min cont Inf W/P: [C, +] w/ Vascular Dz CI: Allergy Disp: Inj 20 units/mL SE: HTN, arrhythmias, fever, vertigo, GI upset, tremor Notes: Addition of vasopressor to concurrent norepinephrine or epi Infs

**Vecuronium (Generic)** BOX: To be administered only by appropriately trained individuals Uses: *Skeletal muscle relaxation* Acts: Nondepolarizing neuromuscular blocker; onset 2–3 min Dose: Adults & Peds. 0.1–0.2 mg/kg IV bolus (also rapid intubation (ECC 2010)); maint 0.010–0.015 mg/kg after 25–40 min; additional doses q12–15min PRN; ↓ w/in severe renal/hepatic impair W/P: [C, ?] Drug interactions cause ↑ effect (eg, aminoglycosides, tetracycline, succinylcholine) CI: Component hypenses Disp: Powder for Inj 10, 20 mg SE: ↓ HR, ↓ BP, itching, rash, tachycardia, CV collapse, muscle weakness Notes: Fewer cardiac effects than succinylcholine

**Vemurafenib (Zelboraf)** Uses: *Unresectable metastatic melanoma w/ BRAF mutation* Acts: BRAF serine-threonine kinase inhib Dose: Adults. 960 mg bid W/P: [D, –] If on warfarin, monitor closely CI: None Disp: Tab 240 mg SE: Rash including SJS, anaphylaxis, pruritus, alopecia, photosens, arthralgias, skin SCC (> 20%), ↑ QT Notes: ✓ derm exams q2mo for SCC; monitor ECG 15 d and qmo × 3; if QTc > 500 ms, D/C temporarily; mod CYP1A2 inhib, weak CYP2D6 inhib and CYP3A4 inducer

**Venlafaxine (Effexor, Effexor XR, Generic)** BOX: Monitor for worsening depression or emergence of suicidality, particularly in ped pts Uses: *Depression, generalized anxiety, social anxiety disorder; panic disorder*, OCD, chronic fatigue synd, ADHD, autism Acts: Potentiation of CNS neurotransmitter activity Dose: 75–225 mg/d ÷ in 2–3 equal doses (IR) or daily (ER); 375 mg IR or 225 mg ER max/d ↓ w/ renal/hepatic impair W/P: [C, ?/−] CI: MAOIs Disp: Tabs IR 25, 37.5, 50, 75, 100 mg; ER caps 37.5, 75, 150 mg; ER tabs 37.5, 75, 150, 225 mg SE: HTN, ↑ HR, HA, somnolence, xerostomia, insomnia, GI upset, sexual dysfunction; actuates mania or Szs Notes: Avoid EtOH; taper on D/C to avoid withdrawal Sxs

**Verapamil (Calan, Covera HS, Isoptin, Verelan, Generic)** Uses: *Angina, HTN, PSVT, AF, atrial flutter*, migraine prophylaxis, hypertrophic cardiomyopathy, bipolar Dz Acts: CCB Dose: Adults. Arrhythmias: 2nd line for PSVT w/ narrow QRS complex & adequate BP 2.5–10 mg IV over 1–2 min; repeat 5–10 mg in 15–30 min PRN (30 mg max). Angina: 80–120 mg PO tid, ↑ 480 mg/24 h max. HTN: 80–180 mg PO tid or SR tabs 120–240 mg PO daily to 240 mg bid; ECC 2010. Reentry SVT w/ narrow QRS: 2.5–5 mg IV over 2 min (slower in older pts); repeat 5–10 mg, in 15–30 min, PRN max of 20 mg; or 5-mg bolus q15min (max 30 mg). Peds < 1 y. 0.1–0.2 mg/kg IV over 2 min (may repeat in 30 min). 1–16 y: 0.1–0.3 mg/kg IV over 2 min (may repeat in 30 min); 5mg max. PO: 3–4 mg/kg/d PO ÷ in 3 doses, max 8 mg/kg/d up to 480 mg/d > 5 y: 80 mg q6–8h; ↓ in renal/hepatic impair W/P: [C, +] Amiodarone/β-blockers/flecainide can cause ↓ HR; statins, midazolam, tacrolimus, theophylline levels may be ↑; use w/ clonidine may cause severe ↓ HR w/ elderly pts CI: EF < 30%, severe
LV dysfunction, BP < 90 mm Hg, SSS, 2nd-, 3rd-AV block AF/atrial flutter w/ bypass tract Disp: Calan SR: Caps 120, 180, 240 mg; Verelan SR: Caps 120, 180, 240, 360 mg Verelan PM: Caps (ER) 100, 200, 300 mg; Calan: Tabs 80, 120 mg; Isoptin SR 24-h 120, 180, 240 mg; Inj 2.5 mg/mL SE: Gingival hyperplasia, constipation, ↓ BP, bronchospasm, HR or conduction disturbances; edema; ↓ BP and bradyarrhythmias taken w/ telithromycin

**Vernal, Orchard, Perennial Rye, Timothy and Kentucky Blue Grass Mixed Pollens Allergenic Extract (Oralair)** BOX: Can cause life-threatening allergic Rxn (anaphylaxis, laryngopharyngeal edema); DO NOT use w/ severe unstable/uncontrolled asthma; observe for 30 min after 1st dose; Rx and train to use auto-injectable epi; may not be suitable for pts unresponsive to epi or inhaled bronchodilators (pts on β-blockers) or w/ certain conditions that could ↓ ability to respond to severe allergic reaction Uses: *Immunotherapy of grass pollen-induced allergic rhinitis w/ or w/o conjunctivitis confirmed by + skin test or pollen-specific IgE Ab* Acts: Allergen immunotherapy Dose: Adults. 300 IR SL × 1/d Peds. 100 IR SL day 1, 2 × 100 IR SL day 2, and then 300 IR SL qd starting day 3 (NOT approved age < 10 y) W/P: [B, ?−] Discuss severe allergic Rxn; if oral lesions, stop Tx, restart after healed CI: Severe uncontrolled/ unstable asthma; Hx of severe systemic allergic reaction or severe local reaction to SL allergen immunotherapy; hypersens Disp: Tabs 100, 300 IR SE: Pruritus of mouth, tongue, or ear; mouth/lip edema, throat irritation, oropharyngeal pain, cough Notes: 1st dose in healthcare setting; do not eat w/in 5 mins of admin; start Tx 4 mos before expected onset of Sx symptoms; have auto-injectable epi available

**Vigabatrin (Sabril)** BOX: Vision loss reported; D/C w/in 2–4 wk if no effects seen Uses: *Refractory complex partial Sz disorder, infantile spasms* Acts: ↓ Gamma-aminobutyric acid transaminase (GABA-T) to ↑ levels of brain GABA Dose: *Adults.* Initially 500 mg 2×/d, then ↑ daily dose by 500 mg at weekly intervals based on response and tolerability; 1500 mg/d max Peds. Seizures: 10–15 kg: 0.5–1 g/d ÷ 2×/d; 16–30 kg: 1–1.5 g/d ÷ 2×/d; 31–50 kg: 1.5–3 g/d ÷ 2×/d; > 50 kg: 2–3 g/d ÷ 2×/d; *Infantile spasms:* Initially 50 mg/kg/d ÷ bid, ↑ 25–50 mg/kg/d q3d to 150 mg/kg/d max W/P: [C, +/−] ↓ dose by 25% w/ CrCl 50–80 mL/min, ↓ dose 50% w/ CrCl 30–50 mL/min, ↓ dose 75% w/ CrCl 10–30 mL/min; MRI signal changes reported in some infants Disp: Tabs 500 mg, powder/oral soln 500 mg/packet SE: Vision loss/blurring, anemia, peripheral neuropathy, fatigue, somnolence, nystagmus, tremor, memory impairment, ↑ Wt, arthralgia, abnormal coordination, confusion Notes: ↓ Phenytoin levels reported; taper slowly to avoid withdrawal Szs; restricted distribution; see PI for powder dosing in peds

**Vilazodone (Viibryd)** BOX: ↑ Suicide risk in children/adolescents/young adults on antidepressants for major depressive disorder (MDD) and other psych disorders Uses: *MDD* Acts: SSRI and 5HT1A receptor partial agonist Dose: 40 mg/d; start 10 mg PO/d × 7 d, then 20 mg/d × 7 d, then 40 mg/d; ↓ to 20 mg w/ CYP3A4 inhib W/P: [C, ?−] CI: MOAI, < 14 d between D/C MAOI and start
Vinblastine

Disp: Tabs 10, 20, 40 mg SE: Serotonin syndrome, neuroleptic malignant syndrome, N/V/D, dry mouth, dizziness, insomnia, restlessness, abnormal dreams, sexual dysfunction Notes: NOT approved for peds; w/ D/C, ↓ dose gradually

Vinblastine (Generic) BOX: Chemotherapeutic agent; handle w/ caution; only individuals experienced use of vinblastine should administer. Uses: *Hodgkin Dz & NHLs, mycosis fungoides, CAs (testis, renal cell, breast, NSCLC), AIDS-related Kaposi sarcoma*, choriocarcinoma, histiocytosis Acts: ↓ Microtubule assembly Dose: 0.1–0.5 mg/kg/wk (4–20 mg/m²) (based on specific protocol); ↓ in hepatic failure W/P: [D, ?] CI: Granulocytopenia, bacterial Infxn Disp: Inj 1 mg/mL in 10-mg vial SE: ↓ BM (especially leukopenia), N/V, constipation, neurotox, alopecia, rash, myalgia, tumor pain Notes: It’s use can be fatal

Vincristine (Marqibo, Vincasar, Generic) BOX: Chemotherapeutic agent; handle w/ caution; fatal if administered IT; IV only; administration by individuals experienced in use of vincristine only; severe tissue damage w/ extrav Uses: *ALL, breast & small-cell lung CA, sarcoma (eg, Ewing tumor, rhabdomyosarcoma), Wilms tumor, Hodgkin Dz & NHLs, neuroblastoma, multiple myeloma* Acts: Promotes disassembly of mitotic spindle, causing metaphase arrest, vinca alkaloid Dose: 0.4–1.4 mg/m² (single doses 2 mg/max); ↓ in hepatic failure W/P: [D, –] CI: Charcot-Marie-Tooth synd Disp: Inj 1 mg/mL SE: Neurotox commonly dose limiting, jaw–pain (trigeminal neuralgia), fever, fatigue, anorexia, constipation & paralytic ileus, bladder atony; no sig ↓ BM w/ standard doses; tissue necrosis w/ extrav; myelosuppression

Vinorelbine (Navelbine, Generic) BOX: Chemotherapeutic agent; administration by physician experienced in CA chemotherapy only; severe granulocytopenia possible; extravags may cause tissue irritation and necrosis Uses: *Breast CA & NSCLC* (alone or w/ cisplatin) Acts: ↓ Polymerization of microtubules, impairing mitotic spindle formation; semisynthetic vinca alkaloid Dose: 30 mg/m²/wk; ↓ in hepatic failure W/P: [D, –] CI: Intrathecal IT use, granulocytopenia (< 1000/mm³) Disp: Inj 10 mg SE: ↓ BM (leukopenia), mild GI, neurotox (6–29%); constipation/paresthesias (rare); tissue damage from extrav, alopecia

Vismodegib (Erivedge) BOX: Embryo-fetal death and severe birth defects; verify PRG status before start; advise female and male pts of these risks; advise females on need for contraception and males of potential risk of exposure through semen Uses: *Metastatic basal cell carcinoma, postsurgery local recurrence, not surgical candidate* Acts: Binds/inhibs transmembrane protein—involved in hedgehog signal transduction Dose: 150 mg PO daily W/P: [D, –] CI: None Disp: Caps 150 mg SE: N/V/D/C, ↓ Wt, anorexia, dysgeusia, ageusia, arthralgias, muscle spasms, fatigue, alopecia, ↓ Na⁺, ↓ K⁺, azotemia; ↑ SE if coadministered w/ P-gp inhib Notes: w/ Missed dose DO NOT make up missed dose, resume w/ next scheduled dose; DO NOT donate blood while on Tx of until 7 mo after last Tx; immediately report exposure if PRG
Vortioxetine

**Vitamin B₁** See Thiamine (p 287)
**Vitamin B₆** See Pyridoxine (p 252)
**Vitamin B₁₂** See Cyanocobalamin (p 97)
**Vitamin K** See Phytonadione (p 242)

**Vitamin, Multi** See Multivitamins (Table 12, p 349)

**Vorapaxar (Zontivity)**

**BOX:** ↑ Risk of suicidal behavior/thinking in children, adolescents, and young adults; monitor for ↑ suicidal behaviors or thought; has not been evaluated in peds

**Uses:** *Major depressive disorder*

**Acts:** Inhibit serotonin reuptake

**Dose:** *Adults.* 10 mg 1 ×/d, ↑ to 20 mg as tolerated; consider 5 mg/d if intol to higher doses

**W/P:** [C, −] Serotonin syndrome risk ↑ w/ other serotonergic drugs (TCA, tramadol, lithium, triptans, buspirone, St. John’s Wort); ↑ bleed risk; may induce mania or hypomania; SIADH w/ ↓ Na⁺ CI: w/ MAOIs, linezolid, or methylene blue (IV); stop MAOIs for 14 d before; stop 21 d before starting MAOIs

**Disp:** Tabs 5, 10, 15, 20 mg

**SE:** N, V, constipation, sexual dysfunction

**Notes:** w/ strong CYP2D6 inhib, ↑ dose by ½; w/ strong CYP2D6 inducers for > 2 wk, consider ↑ dose, NOT to exceed 3 × original dose

**Voriconazole (VFEND, Generic)**

**Uses:** *Invasive aspergillosis, candidemia, serious fungal Infxns*

**Acts:** ↓ Ergosterol synth. *Spectrum: Candida, Aspergillus, Scedosporium, Fusarium* sp

**Dose:** *Adults & Peds* > 12 y. IV: 6 mg/kg q2h × 2, then 4 mg/kg bid PO. < 40 kg: 100 mg q12h, up to 150 mg. > 40 kg: 200 mg q12h, up to 300 mg; w/ mild–mod hepatic impair; IV not rec d/t accumulation of IV diluent; w/ CYP3A4 substrates (Table 10, p 346); do not use w/ clopidogrel (↓ effect)

**W/P:** [D, ?/–] SJS, electrolyte disturbances CI: w/ Terfenadine, astemizole, cisapride, pimozide, quinidine, sirolimus, rifampin, carbamazepine, long-acting barbiturates, ritonavir, rifabutin, ergot alkaloids, St. John’s wort; in pt w/ galactose intol; skeletal events w/ long term use; w/ proarrhythmic cond

**Disp:** Tabs 50, 200 mg; susp 200 mg/5 mL; Inj 200 mg SE: Visual changes, fever, rash, GI upset, ↑ LFTs, edema

**Notes:** ✓ for multiple drug interactions (eg, ↓ dose w/ phenytoin); ✓ LFT before and during; ✓ vision w/ use 28 d

**Vorinostat (Zolinza)**

**Uses:** *Rx cutaneous manifestations in cutaneous T-cell lymphoma*

**Acts:** Histone deacetylase inhib

**Dose:** 400 mg PO daily w/ food; if intolerant. 300 mg PO d × 5 consecutive days each week

**W/P:** [D, ?/ −] w/ Warfarin (↑ INR) CI: Severe hepatic impair

**Disp:** Caps 100 mg SE: N/V/D, dehydration, fatigue, anorexia, dysgeusia, DVT, PE, ↓ plt, anemia, ↑ SCR, hyperglycemia, ↑ QTc, edema, muscle spasms

**Notes:** Monitor CBC, lytes (K⁺, Mg²⁺, Ca²⁺), glucose, & SCR q2wk × 2 mo then monthly; baseline & periodic ECGs; drink 2 L fluid/d

**Vortioxetine (Brintellix):**

**BOX:** ↑ Risk of suicidal behavior/thinking in children, adolescents, and young adults; monitor for ↑ suicidal behaviors or thought; has not been evaluated in peds

**Uses:** *Major depressive disorder*

**Acts:** Inhibit serotonin reuptake

**Dose:** *Adults.* 10 mg 1 ×/d, ↑ to 20 mg as tolerated; consider 5 mg/d if intol to higher doses

**W/P:** [C, −] Serotonin syndrome risk ↑ w/ other serotonergic drugs (TCA, tramadol, lithium, triptans, buspirone, St. John’s
Warfarin

(Wort); ↑ bleed risk; may induce mania or hypomania; SIADH w/ ↓ Na+ CI: w/ MAOIs, linezolid, or methylene blue (IV); stop MAOIs for 14 d before; stop 21 d before starting MAOIs Disp: Tabs 5, 10, 15, 20 mg SE: N, V, constipation, sexual dysfunction Notes: w/ strong CYP2D6 inhib, ↓ dose by ½; w/ strong CYP2D6 inducers for > 2 wk, consider ↑ dose, NOT to exceed 3 × original dose

Warfarin (Coumadin, Jantoven, Generic) BOX: Can cause major/fatal bleeding. Monitor INR. Drugs, dietary changes, other factors affect INR. Instruct pts about bleeding risk Uses: *Prophylaxis & Rx of PE & DVT, AF w/ embolization*, other postop indications Acts: ↓ Vit K-dependent clotting factors in this order: VII-IX-X-II Dose: Adults. Titrate, INR 2.0–3.0 for most; mechanical valves INR is 2.5–3.5. American College of Chest Physicians guidelines: 5 mg initial, may use 7.5–10 mg; ↓ if pt elderly or w/ other bleeding risk factors; maint 2–10 mg/d PO, follow daily INR initial to adjust dosage (Table 8, p 343). Peds. 0.05–0.34 mg/kg/24 h PO or IV; follow PT/INR to adjust dosage; monitor vit K intake; ↓ w/ hepatic impair/elderly W/P: [X, +] CI: Bleeding, peptic ulcer, PRG Disp: Tabs 1, 2, 2.5, 3, 4, 5, 6, 7.5, 10 mg; Inj SE: Bleeding d/t overanticoagulation or injury & therapeutic INR; bleeding, alopecia, skin necrosis, purple toe synd Notes: Monitor vit K intake (↓ effect); INR preferred test; to rapidly correct overanticoagulation: vit K, fresh-frozen plasma, or both. Caution pt on taking w/ other meds that can ↑ risk of bleed. Common warfarin interactions: Potentiated by: APAP, EtOH (w/ liver Dz), amiodarone, cinetidine, ciprofloxacin, cotrimoxazole, erythromycin, fluconazole, flu vaccine, isoniazid, itraconazole, metronidazole, omeprazole, propranolol, quinidine, tetracycline. Inhibited by: barbiturates, carbamazepine, chlordiazepoxide, cholestyramine, dicloxacillin, nafcillin, rifampin, sucralfate, high–vit K foods. Consider genotyping for VKORC1 & CYP2C9

Witch Hazel (Tucks Pads, Others [OTC]) Uses: After bowel movement, cleansing to decrease local irritation or relieve hemorrhoids; after anorectal surgery, episiotomy, Vag hygiene Acts: Astringent; shrinks blood vessels locally Dose: Apply PRN W/P: [?, ?] External use only CI: None Supplied: Presoaked pads SE: Mild itching or burning

Zafirlukast (Accolate, Generic) Uses: *Adjunctive Rx of asthma* Acts: Selective & competitive inhbit of leukotrienes Dose: Adults & Peds > 12 y. 20 mg bid. Peds 5–11 y. 10 mg PO bid (empty stomach) W/P: [B, –] Interacts w/ warfarin, ↑ INR CI: Component allergy, hepatic impair Disp: Tabs 10, 20 mg SE: Hepatic dysfunction, usually reversible on D/C; HA, dizziness, GI upset; Churg-Strauss synd, neuro-psych events (agitation, restlessness, suicidal ideation) Notes: Not for acute asthma

Zaleplon (Sonata, Generic) [C-IV] Uses: *Insomnia* Acts: A nonbenzodiazepine sedative/hypnotic, a pyrazolopyrimidine Dose: 5–20 mg hs PRN; not w/ high-fat meal; ↓ w/ hepatic Insuff, elderly W/P: [C, ?/] CI: Component allergy Disp: Caps 5, 10 mg SE: HA, edema, amnesia, somnolence, photosens Notes: Take immediately before desired onset
Zanamivir (Relenza)  Uses: *Influenza A & B w/ Sxs < 2 d; prophylaxis for influenza*  Acts: ↓ Viral neuraminidase  Dose:  
- Adults & Peds > 7 y. 2 Inh (10 mg) bid x 5d, initiate w/in 48 h of Sxs.  
- Prophylaxis household: 10 mg daily x 10 d.  
- Adults & Peds > 12 y. Prophylaxis community: 10 mg daily x 28 d  
W/P: [C, ?] Not OK for pt w/ airway Dz, reports of severe bronchospasms  
CI: Component or milk allergy  Disp: Powder for Inh 5 mg SE: Bronchospasm, HA, GI upset, allergic Rxn, abnormal behavior, ear, nose, throat Sx  
Notes: Uses a Diskhaler for administration; dose same time each day

Ziconotide (Prialt)  BOX: Psychological, cognitive, neurologic impair may develop over several wk; monitor frequently; may necessitate D/C  
Uses: *IT Rx of severe, refractory, chronic pain*  
Acts: N-type CCB in spinal cord  
Dose: Max initial dose 2.4 mcg/d IT at 0.1 mcg/h; may ↑ 2.4 mcg/d 2–3×/wk to max 19.2 mcg/d (0.8 mcg/h) by day 21  
W/P: [C, ?/] w/ Neuro-/psychological impair  
CI: Psychosis, bleeding diathesis, spinal canal obst  
Disp: Inj mcg/mL: 100/1, 500/5, 500/20  
SE: Dizziness, N/V, confusion, psych disturbances, abnormal vision, edema, ↑ SCF, amnesia, ataxia, meningitis; may require dosage adjustment  
Notes: May D/C abruptly; uses specific pumps (eg, Medtronic SynchroMed systems); do not ↑ more frequently than 2–3×/wk

Zidovudine (Retrovir, Generic)  BOX: Neutropenia, anemia, lactic acidosis, myopathy, & hepatomegaly w/ steatosis  
Uses: *HIV Infxn, prevent maternal HIV transmission*  
Acts: NRTI  
Dose:  
- Adults. 200 mg PO tid or 300 mg PO bid or 1 mg/kg/dose IV q4h.  
- PRG: 100 mg PO 5×/d until labor; during labor 2 mg/kg IV over 1 h then 1 mg/kg/h until cord clamped.  
- Peds 4 wk–18 y. 160 mg/m²/dose tid or see table below; ↓ in renal failure  
W/P: [C, ?/] w/ Ganciclovir, interferon alpha, ribavirin; may alter many other meds (see PI)  
CI: Allergy  
Disp: Caps 100 mg; tab 300 mg; syrup 50 mg/5 mL; Inj 10 mg/mL  
SE: Hematologic tox, HA, fever, rash, GI upset, malaise, myopathy, fat redistribution  
Notes: w/ Severe anemia/neutropenia dosage interruption may be needed

### Recommended Pediatric Dosage of Retrovir

<table>
<thead>
<tr>
<th>Body Weight (kg)</th>
<th>Total Daily Dose</th>
<th>Dosage Regimen and Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 to &lt; 9</td>
<td>24 mg/kg/d</td>
<td>bid 12 mg/kg</td>
</tr>
<tr>
<td>≥ 9 to &lt; 30</td>
<td>18 mg/kg/d</td>
<td>8 mg/kg</td>
</tr>
<tr>
<td>≥ 30</td>
<td>600 mg/d</td>
<td>tid 9 mg/kg</td>
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<td>6 mg/kg</td>
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<td></td>
<td>300 mg</td>
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<tr>
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<td>200 mg</td>
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</tbody>
</table>

Zidovudine/Lamivudine (Combivir, Generic)  BOX: Neutropenia, anemia, lactic acidosis, myopathy & hepatomegaly w/ steatosis  
Uses: *HIV Infxn*  
Acts: Combo of RT inhib  
Dose:  
- Adults & Peds > 12 y. 1 tab PO bid; ↓ in renal failure  
W/P: [C, ?/]  
CI: Component allergy  
Disp: Tab zidovudine 300 mg/lamivudine
150 mg SE: Hematologic tox, HA, fever, rash, GI upset, malaise, pancreatitis
Notes: Combo product ↓ daily pill burden; refer to individual component listings

**Zileuton (Zyflo, Zyflo CR)**

**Uses:** *Chronic Rx asthma*

**Acts:** Leukotriene inhib (↓ 5-lipoxygenase)

**Dose:** *Adults & Peds > 12 y:* 600 mg PO qid; CR 1200 mg bid 1 h after A.M./P.M. meal W/P: [C, ?/−] CI: Hepatic impair

**Disp:** Tabs 600 mg; CR tabs 600 mg

SE: Hematologic tox, HA, fever, rash, GI upset, malaise, pancreatitis

**Notes:** Monitor LFTs qmo × 3, then q2–3mo; take regularly; not for acute asthma; do not chew/crush CR

**Ziprasidone (Geodon, Generic)**

**BOX:** ↑ Mortality in elderly w/ dementia-related psychosis

**Uses:** *Schizophrenia, acute agitation bipolar disorder*

**Acts:** Atypical antipsychotic

**Dose:** 20 mg PO bid, may ↑ in 2-d intervals up to 80 mg bid; agitation 10–20 mg IM PRN up to 40 mg/d; separate 10mg doses by 2 h & 20 mg doses by 4 h (w/ food) W/P: [C, −] w/ ↓ Mg²⁺, ↓ K⁺ CI: QT prolongation, recent MI, uncompensated heart failure, meds that ↑ QT interval

**Disp:** Caps 20, 40, 60, 80 mg; susp 10 mg/mL; Inj 20 mg/mL

SE: ↓ HR; rash, somnolence, resp disorder, EPS, Wt gain, orthostatic ↓ BP

**Notes:** ✓ lytes

**Ziv-Aflibercept (Zaltrap)**

**BOX:** Severe/fatal hemorrhage possible including GI hemorrhage; D/C w/ GI perf; D/C w/ compromised wound healing, suspend Tx 4 wk prior & after surgery & until surgical wound is fully healed

**Uses:** *Metastatic colorectal CA (label/institution protocol)*

**Acts:** Binds VEGF-A & PIGF w/ ↓ neovascularization & ↓ vascular permeability

**Dose:** 4 mg/kg IV Inf over 1 h q2 wk W/P: [C, −] Severe D w/ dehydration; D/C w/ fistula, ATE, hypertensive crisis, RPLS; ✓ urine protein, suspend Tx if proteinuria ≥ 2 g/24 h, D/C w/ nephrotic synd or thrombotic microangiopathy; ✓ neutrophils, delay until ≥ 1.5 × 10⁹/L CI: None

**Disp:** Inj vial 25 mg/mL. (100 mg/4 mL, 200 mg/8 mL)

SE: D, ↓ WBC, ↓ plts, stomatitis, proteinuria, ↑ ALT/AST, fatigue, epistaxis, Abd pain, ↓ appetite, ↓ Wt, dysphonia, ↑ SCR, HA

**Notes:** Males/females: use contraception during Tx & for 3 mo after last dose

**Zoledronic Acid (Reclast, Zometa, Generic)**

**Uses:** *↑ Ca²⁺ of malignancy (HCM), ↓ skeletal-related events in CAP, multiple myeloma, & metastatic bone lesions (Zometa)*; *prevent/Rx of postmenopausal osteoporosis, Paget Dz, ↑ bone mass in men w/ osteoporosis, steroid-induced osteoporosis (Reclast)*

**Acts:** Bisphosphonate; ↓ osteoclastic bone resorption

**Dose:** *Zometa HCM:* 4 mg IV over ≥ 15 min; may retreat in 7 d w/ adequate renal Fxn. *Zometa bone lesions/myeloma:* 4 mg IV over > 15 min, repeat q3–4wk PRN; extend w/ ↑ Cr.  

**Disp:** Vial 4 mg, 5 mg SE: Fever, flu-like synd, GI upset, insomnia, anemia; electrolyte abnormalities, bone, jt, muscle pain, AF, osteonecrosis of jaw, atyp femur Fx

**Notes:**
Zoster Vaccine, Live

Requires vigorous prehydration; do not exceed rec doses/Inf duration to ↓ renal dysfunction; follow Cr; effect prolonged w/ Cr ↑; avoid oral surgery; dental exam recommended prior to Rx; ↓ dose w/ renal dysfunction; give Ca²⁺ and vit D supls; may ↑ atypical subtrochanteric femur fractures

**Zolmitriptan (Zomig, Zomig ZMT, Zomig Nasal)**  
Uses: *Acute Rx migraine*  
Acts: Selective serotonin agonist; causes vasoconstriction  
Dose: Initial 2.5 mg PO, may repeat after 2 h, 10 mg max in 24 h; nasal 5 mg; if HA returns, repeat after 2 h, 10 mg max 24 h  
W/P: [C, ?/−]  
CI: Ischemic heart Dz, Prinzmetal angina, uncontrolled HTN, accessory conduction pathway disorders, ergots, MAOIs  
Disp: Tabs 2.5, 5 mg; rapid tabs (ZMT) 2.5, 5 mg; nasal 5 mg, SE: Dizziness, hot flashes, paresthesias, chest tightness, myalgia, diaphoresis, unusual taste, coronary artery spasm

**Zolpidem (Ambien IR, Ambien CR, Edluar, ZolpiMist, Generic)**  
[C-IV]  
Uses: *Short-term Tx of insomnia; Ambien and Edluar w/ difficulty of sleep onset; Ambien CR w/ difficulty of sleep onset and/or sleep maint*  
Acts: Hypnotic agent  
Dose: *Adults, Men.* Ambien: 5–10 mg or 12.5 mg CR PO qhs; Edluar: 10 mg SL qhs; Zolpimist: 10 mg spray qhs; *Women:* 5 mg for immediate release (Ambien, Edluar, and Zolpimist); 6.25 mg for extended-release products (Ambien CR) ↓ dose in elderly, debilitated, & hepatic impair (5 mg or 6.25 mg CR)  
W/P: [C, M] May cause anaphylaxis, angioedema, abnormal thinking, CNS depression, withdrawal; evaluate for other comorbid conditions; next-day psychomotor impairment/impaired driving when Ambien is taken w/ less than a full night of sleep remaining (7–8 h)  
CI: None  
Disp: Ambien IR: Tabs 5, 10 mg; Ambien CR 6.25, 12.5 mg; Edluar: SL tabs 5, 10 mg; Zolpimist: Oral soln 5 mg/spray (60 actuations/unit)  
SE: Drowsiness, dizziness, D, drugged feeling, HA, dry mouth, depression  
Notes: Take tabs on empty stomach; be able to sleep 7–8 h; Zolpimist: Prime w/ 5 sprays initially, and w/ 1 spray if not used in 14 d; store upright.

**Zonisamide (Zonegran, Generic)**  
Uses: *Adjunct Rx complex partial Szs*  
Acts: Anticonvulsant  
Dose: Initial 100 mg/d PO; may ↑ by 100 mg/d q2wk to 400 mg/d W/P: [C, −] ↑ q2wks w/ CYP3A4 inhib; ↓ levels w/ carbamazepine, phenytoin, phenobarbital, valproic acid  
CI: Allergy to sulfonamides  
Disp: Caps 25, 50, 100 mg  
SE: Metabolic acidosis, dizziness, drowsiness, confusion, ataxia, memory impair, paresthesias, psychosis, nystagmus, diplopia, tremor, anemia, leukopenia; GI upset, nephrolithiasis (? d/t metabolic acidosis), SJS; monitor for ↓ sweating & ↑ body temperature  
Notes: Swallow caps whole

**Zoster Vaccine, Live (Zostavax)**  
Uses: *Prevent varicella zoster in adults > 60 y*  
Acts: Active immunization (live attenuated varicella) virus  
Dose: *Adults.* 0.65 mL SQ × 1  
CI: Gelatin, neomycin anaphylaxis; fever, untreated TB, immunosuppression, PRG  
W/P: [C, ?/−]  
Disp: Single-dose vial  
SE: Inj site Rxn, HA  
Notes: May be used if previous Hx of zoster; do not use in place of varicella virus vaccine in children; contact precautions not necessary; antivirals and immune globulins may ↓ effectiveness
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The following is a guide to some common herbal products. These may be sold separately or in combination with other products. According to the FDA, “Manufacturers of dietary supplements can make claims about how their products affect the structure or function of the body, but they may not claim to prevent, treat, cure, mitigate, or diagnose a disease without prior FDA approval.” The table on p 315 summarizes some of the common dangerous aspects of natural and herbal agents.

**Black Cohosh**
- **Uses:** Sx of menopause (eg, hot flashes), PMS, hypercholesterolemia, peripheral arterial Dz; has anti-inflammatory & sedative effects
- **Efficacy:** May have short-term benefit on menopausal Sx
- **Dose:** 20–40 mg bid
- **W/P:** May further ↓ lipids &/or BP w/ prescription meds
- **CI:** PRG (miscarriage, prematurity reports); lactation
- **SE:** w/ OD, N/V, dizziness, nervous system & visual changes, ↓ HR, & (possibly) Szs, liver damage/failure

**Chamomile**
- **Uses:** Antispasmodic, sedative, anti-inflammatory, astringent, antibacterial
- **Dose:** 10–15 g PO daily (3 g dried flower heads tid–qid between meals; can steep in 250 mL hot H₂O)
- **W/P:** w/ Allergy to chrysanthemums, ragweed, asters (family Compositae)
- **SE:** Contact dermatitis; allergy, anaphylaxis
- **Interactions:** w/ Anticoagulants, additive w/ sedatives (benzodiazepines); delayed ↓ gastric absorption of meds if taken together (↓ GI motility)

**Cranberry** (*Vaccinium macrocarpon*)
- **Uses:** Prevention & Rx UTI
- **Efficacy:** Possibly effective
- **Dose:** 300–400 mg bid, in 6-oz juice qid; tincture 1/2–1 tsp up to 3×/d; tea 2–3 tsps of dried flowers/cup; creams apply topically 2–3×/d PO
- **W/P:** May ↑ kidney stones in some susceptible individuals, V
- **SE:** None known
- **Interactions:** May potentiate warfarin

**Dong Quai** (*Angelica polymorpha, sinensis*)
- **Uses:** Uterine stimulant; anemia, menstrual cramps, irregular menses, & menopausal Sx; anti-inflammatory, vasodilator, CNS stimulant, immunosuppressant, analgesic, antipyretic, antiasthmatic
- **Efficacy:** Possibly effective for menopausal Sx
- **Dose:** 3–15 g daily, 9–12 g PO tab bid.
- **W/P:** Avoid in PRG & lactation
- **SE:** D, photosens, skin CA
- **Interactions:** Anti-coagulants (↑ INR w/ warfarin)

**Echinacea** (*Echinacea purpurea*)
- **Uses:** Immune system stimulant; prevention/Rx URI of colds, flu; supportive care in chronic Infxns of the resp/lower urinary tract
- **Efficacy:** Not established; may ↓ severity & duration of URI
- **Dose:** Caps 500 mg, 6–9 mL expressed juice or 2–5 g dried root PO
- **W/P:** Do not use w/ progressive systemic or immune Dzs (eg, TB, collagen–vascular disorders, MS); may interfere w/ immunosuppressive Rx, not OK w/ PRG; do not use > 8 consecutive
Evening Primrose Oil

**Uses:** PMS, diabetic neuropathy, ADHD

**Efficacy:** Possibly for PMS, not for menopausal Sx

**Dose:** 2–4 g/d PO

**SE:** Indigestion, N, soft stools, HA

**Interactions:** Anabolic steroids, amiodarone, MTX, corticosteroids, cyclosporine

---

Fish Oil Supplements (Omega-3 Polyunsaturated Fatty Acid)

**Uses:** CAD, hypercholesterolemia, hypertriglyceridemia, type 2 DM, arthritis

**Efficacy:** No definitive data on ↓ cardiac risk in general population; may ↓ lipids & help w/ secondary MI prevention

**Dose:** One FDA approved (see Lovaza, p 225); OTC 1500–3000 mg/d; AHA rec: 1 g/d

**W/P:** Mercury contamination possible, some studies suggest ↑ cardiac events

**SE:** ↑ Bleeding risk, dyspepsia, belching, aftertaste

**Interactions:** ASA, warfarin

---

Ginger (Zingiber officinale)

**Uses:** Prevent motion sickness; N/V d/t anesthesia

**Efficacy:** Benefit in ↓ N/V w/ motion or PRG; weak for post op or chemotherapy

**Dose:** 1–4 g rhizome or 0.5–2 g powder PO daily

**SE:** Heartburn

**Interactions:** Excessive consumption may interfere w/ cardiac, DM, or anticoagulant meds (↓ plt aggregation)

---

Garlic (Allium sativum)

**Uses:** Antioxidant; hyperlipidemia, HTN; anti-infective (antibacterial, antifungal); tick repellant (oral)

**Efficacy:** ↓ Cholesterol by 4–6%; soln ↓ BP; possible ↓ GI/CAP risk

**Dose:** 2–5 g, fresh garlic; 0.4–1.2 g of dried powder; 2–5 mg oil; 300–1000 mg extract or other formulations = 2–5 mg of allicin daily, 400–1200 mg powder (2–5 mg allicin) PO

**SE:** ↑ Insulin/lipid/cholesterol levels, anemia, oral burning sensation, N/V/D

**Interactions:** Warfarin & ASA (↓ plt aggregation), additive w/ DM agents (↑ hypoglycemia), CYP 3A4 inducer (may ↑ cyclosporine, HIV antivirals, oral contraceptives)

---

Ginseng

**Uses:** Memory deficits, dementia, anxiety, improvement Sx peripheral vascular Dz, vertigo, tinnitus, asthma/bronchospasm, antioxidant, premenstrual Sx (especially breast tenderness), impotence, SSRI-induced sexual dysfunction

**Dose:** 60–80 mg standardized dry extract PO bid–tid

**Efficacy:** Small cognition benefit w/ dementia; no other demonstrated benefit in healthy adults

**W/P:** ↑ Bleeding risk (antagonism of plt-activating factor), concerning w/ anti-platlet agents (D/C 3 d pre op); reports of ↑ Sz risk

**SE:** GI upset, HA, dizziness, heart palpitations, rash

**Interactions:** ASA, salicylates, warfarin, antidepressants

---

Feverfew (Tanacetum parthenium)

**Uses:** Prevent/Rx migraine; fever; menstrual disorders; arthritis; toothache; insect bites

**Efficacy:** Weak for migraine prevention

**Dose:** 125 mg PO of dried leaf (standardized to 0.2% of parthenolide)

**SE:** Oral ulcers, gastric disturbance, swollen lips, Abd pain; long-term SE unknown

**Interactions:** ASA, warfarin

---

Ginkgo Biloba

**Uses:** Memory deficits, dementia, anxiety, improvement Sx peripheral vascular Dz, vertigo, tinnitus, asthma/bronchospasm, antioxidant, premenstrual Sx (especially breast tenderness), impotence, SSRI-induced sexual dysfunction

**Dose:** 60–80 mg standardized dry extract PO bid–tid

**Efficacy:** Small cognition benefit w/ dementia; no other demonstrated benefit in healthy adults

**W/P:** ↑ Bleeding risk (antagonism of plt-activating factor), concerning w/ anti-platlet agents (D/C 3 d pre op); reports of ↑ Sz risk

**SE:** GI upset, HA, dizziness, heart palpitations, rash

**Interactions:** ASA, salicylates, warfarin, antidepressants
Resveratrol

Efficacy: Not established
Dose: 1–2 g of root or 100–300 mg of extract (7% ginsenosides) PO tid
W/P: w/ Cardiac Dz, DM, ↓ BP, HTN, mania, schizophrenia, w/ corticosteroids; avoid in PRG; D/C 7 d pre op (bleeding risk)
SE: Controversial “ginseng abuse synd” w/ high dose (nervousness, excitation, HA, insomnia); palpitations, vag bleeding, breast nodules, hypoglycemia

Interactions: Warfarin, antidepressants, & caffeine (↑ stimulant effect), DM meds (↑ hypoglycemia)

Glucosamine Sulfate (Chitosamine) and Chondroitin Sulfate

Uses: Osteoarthritis (Glucosamine: rate-limiting step in glycosaminoglycan synth), ↑ cartilage rebuilding; Chondroitin: biological polymer, flexible matrix between protein filaments in cartilage; draws fluids/nutrients into joint, “shock absorption”
Efficacy: Controversial
Dose: Glucosamine 500 PO tid, chondroitin 400 mg PO tid
W/P: Many forms come from shellfish, so avoid if have shellfish allergy
SE: ↑ Insulin resistance in DM; concentrated in cartilage, theoretically unlikely to cause toxic/teratogenic effects

Interactions: Glucosamine: None. Chondroitin: Monitor anticoagulant Rx

Kava Kava (Kava Kava Root Extract, Piper methysticum)

Uses: Anxiety, stress, restlessness, insomnia
Efficacy: Possible mild anxiolytic
Dose: Standardized extract (70% kavala lactones) 100 mg PO bid–tid
W/P: Hepatotoxic risk, banned in Europe/Canada; not OK in PRG, lactation; D/C 24 h pre op (may ↑ sedative effect of anesthetics)
SE: Mild GI disturbances; rare allergic skin/rash Rxns, may ↑ cholesterol; ↑ LFTs/jaundice; vision changes, red eyes, puffy face, muscle weakness

Interactions: Avoid w/ sedatives, alcohol, stimulants, barbiturates (may potentiate CNS effect)

Melatonin

Uses: Insomnia, jet lag, antioxidant, immunostimulant
Efficacy: Sedation most pronounced w/ elderly pts w/ ↓ endogenous melatonin levels; some evidence for jet lag
Dose: 1–3 mg 20 min before hs (w/ CR 2 h before hs)
W/P: Use synthetic rather than animal pineal gland, “heavy head,” HA, depression, daytime sedation, dizziness

Interactions: β-Blockers, steroids, NSAIDs, benzodiazepines

Milk Thistle (Silybum marianum)

Uses: Prevent/Rx liver damage (eg, from alcohol, toxins, cirrhosis, chronic hep); preventive w/ chronic toxin exposure (painters, chemical workers, etc.)
Efficacy: Use before exposure more effective than use after damage has occurred
Dose: 80–200 mg PO tid
SE: GI intolerance

Interactions: None

Red Yeast Rice

Uses: Hyperlipidemia
Efficacy: HMG-CoA reductase activity, naturally occurring lovastatin; ↓ LDL, ↓ triglycerides, ↑ HDL; ↓ secondary CAD events
Dose: 1200–1800 mg bid
W/P: CI w/ PRG, lactation; do not use w/ liver Dz, recent surgery, serious infection; may contain a mycotoxin, citrinin, can cause renal failure
Disp: Caps 600–1200 mg
SE: N, V, Abd pain, hepatitis, myopathy, rhabdomyolysis
Interactions: Possible interactions many drugs, avoid w/ CYP3A4 inhibitors or EtOH
Notes: Use only in adults; generic lovastatin cheaper

Resveratrol

Uses: Cardioprotective, prevent aging; ? antioxidant
Efficacy: Limited human research
W/P: Avoid w/ Hx of estrogen responsive CA or w/
Saw Palmetto

CYP3A4 metabolized drugs **Disp:** Caps, tabs 20–500 mg, skins of red grapes, plums, blueberries, cranberries, red wine **SE:** D/N, anorexia, insomnia, anxiety, jt pain, antiplatelet aggregation **Interactions:** Avoid w/ other antiplatelet drugs or anticoagulants; CYP3A4 inhibitor

**Saw Palmetto** (*Serenoa repens*) **Uses:** Rx BPH, hair tonic, PCa prevention (weak 5α-reductase inhib like finasteride, dutasteride) **Efficacy:** Small, no sig benefit for prostatic Sx **Dose:** 320 mg daily **W/P:** Possible hormonal effects, avoid in PRG, w/ women of childbearing years **SE:** Mild GI upset, mild HA, D w/ large amounts **Interactions:** ↑ Iron absorption; ↑ estrogen replacement effects

**St. John’s Wort** (*Hypericum perforatum*) **Uses:** Mild–mod depression, anxiety, gastritis, insomnia, vitiligo; anti-inflammatory; immune stimulant/anti-HIV/antiviral **Efficacy:** Variable; benefit w/ mild–mod depression in several trials, but not always seen in clinical practice **Dose:** 2–4 g of herb or 0.2–1 mg of total hypericin (standardized extract) daily; also 300 mg PO tid (0.3% hypericin) **W/P:** Excess doses may potentiate MAOI, cause allergic Rxn, not OK in PRG **SE:** Photosens, xerostomia, dizziness, constipation, confusion, fluctuating mood w/ chronic use **Interactions:** CYP 3A enzyme inducer; do not use w/ Rx antidepressants (especially MAOI); ↓ cyclosporine efficacy (may cause rejection), digoxin (may ↑ CHF), protease inhib, theophylline, OCP; potency varies between products/batches

**Valerian** (*Valeriana officinalis*) **Uses:** Anxiolytic, sedative, restlessness, dysmenorrhea **Efficacy:** Probably effective sedative (reduces sleep latency) **Dose:** 2–3 g in extract PO daily bid added to 2/3 cup boiling H₂O, tincture 15–20 drops in H₂O, oral 400–900 mg hs (combined w/ OTC sleep product Alluna) **W/P:** Hepatotoxicity w/ long-term use **SE:** Sedation, hangover effect, HA, cardiac disturbances, GI upset **Interactions:** Caution w/ other sedating agents (eg, alcohol or prescription sedatives): may cause drowsiness w/ impaired Fxn

**Yohimbine** (*Pausinystalia yohimbe*) [Yocon, Yohimex] **Uses:** Improve sexual vigor, Rx ED **Efficacy:** Variable **Dose:** 1 tab = 5.4 mg PO tid (use w/ physician supervision) **W/P:** Do not use w/ renal/hepatic Dz; may exacerbate schizophrenia/mania (if pt predisposed). α₂-Adrenergic antagonist (↓ BP, Abd distress, weakness w/ high doses), OD can be fatal; salivation, dilated pupils, arrhythmias **SE:** Anxiety, tremors, dizziness, ↑ BP, ↑ HR **Interactions:** Do not use w/ antidepressants (eg, MAOIs or similar agents)

# Unsafe Herbs With Known Toxicity

<table>
<thead>
<tr>
<th>Agent</th>
<th>Toxicities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aconite</td>
<td>Salivation, N/V, blurred vision, cardiac arrhythmias</td>
</tr>
<tr>
<td>Aristolochic acid</td>
<td>Nephrotox</td>
</tr>
<tr>
<td>Calamus</td>
<td>Possible carcinogenicity</td>
</tr>
<tr>
<td>Chaparral</td>
<td>Hepatotox, possible carcinogenicity, nephrotox</td>
</tr>
<tr>
<td>“Chinese herbal mixtures”</td>
<td>May contain ma huang or other dangerous herbs</td>
</tr>
<tr>
<td>Coltsfoot</td>
<td>Hepatotox, possibly carcinogenic</td>
</tr>
<tr>
<td>Comfrey</td>
<td>Hepatotox, carcinogenic</td>
</tr>
<tr>
<td>Ephedra/ma huang</td>
<td>Adverse cardiac events, stroke, Sz</td>
</tr>
<tr>
<td>Juniper</td>
<td>High allergy potential, D, Sz, nephrotox</td>
</tr>
<tr>
<td>Kava kava</td>
<td>Hepatotox</td>
</tr>
<tr>
<td>Licorice</td>
<td>Chronic daily amounts (&gt; 30 g/mo) can result in increased K⁺, Na/fluid retention w/ HTN, myoglobinuria, hyporeflexia</td>
</tr>
<tr>
<td>Life root</td>
<td>Hepatotox, liver CA</td>
</tr>
<tr>
<td>Pokeweed</td>
<td>GI cramping, N/D/V, labored breathing, increased BP, Sz</td>
</tr>
<tr>
<td>Sassafras</td>
<td>V, stupor, hallucinations, dermatitis, abortion, hypothermia, liver CA</td>
</tr>
<tr>
<td>Usnic acid</td>
<td>Hepatotox</td>
</tr>
<tr>
<td>Yohimbine</td>
<td>Hypotension, Abd distress, CNS stimulation (mania/&amp; psychosis in predisposed individuals)</td>
</tr>
</tbody>
</table>

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# TABLE 1
Local Anesthetic Comparison Chart for Commonly Used Injectable Agents

<table>
<thead>
<tr>
<th>Agent</th>
<th>Proprietary Names</th>
<th>Onset</th>
<th>Duration</th>
<th>Maximum Dose</th>
<th>Volume in 70-kg Adulta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bupivacaine</td>
<td>Marcaine</td>
<td>7–30 min</td>
<td>5–7 h</td>
<td>3</td>
<td>70 mL of 0.25% solution</td>
</tr>
<tr>
<td>Lidocaine</td>
<td>Xylocaine, Anestacon</td>
<td>5–30 min</td>
<td>2 h</td>
<td>4</td>
<td>28 mL of 1% solution</td>
</tr>
<tr>
<td>Lidocaine with epinephrine</td>
<td>(1:200,000)</td>
<td>5–30 min</td>
<td>2–3 h</td>
<td>7</td>
<td>50 mL of 1% solution</td>
</tr>
<tr>
<td>Mepivacaine</td>
<td>Carbocaine</td>
<td>5–30 min</td>
<td>2–3 h</td>
<td>7</td>
<td>50 mL of 1% solution</td>
</tr>
<tr>
<td>Procaine</td>
<td>Novocaine</td>
<td>Rapid</td>
<td>30 min–1 h</td>
<td>10–15</td>
<td>70–105 mL of 1% solution</td>
</tr>
</tbody>
</table>

*a To calculate the maximum dose if not a 70-kg adult, use the fact that a 1% solution has 10 mg/mL drug.
TABLE 2
Comparison of Systemic Steroids (See also p 272)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Relative Equivalent Dose (mg)</th>
<th>Relative Mineralocorticoid Activity</th>
<th>Duration (h)</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>Betamethasone</td>
<td>0.75</td>
<td>0</td>
<td>36–72</td>
<td>PO, IM</td>
</tr>
<tr>
<td>Cortisone</td>
<td>25</td>
<td>2</td>
<td>8–12</td>
<td>PO, IM</td>
</tr>
<tr>
<td>Dexamethasone</td>
<td>0.75</td>
<td>0</td>
<td>36–72</td>
<td>PO, IV</td>
</tr>
<tr>
<td>Hydrocortisone (Solu-Cortef, Hydrocortone)</td>
<td>20</td>
<td>2</td>
<td>8–12</td>
<td>PO, IM, IV</td>
</tr>
<tr>
<td>Methylprednisolone acetate (Depo-Medrol)</td>
<td>4</td>
<td>0</td>
<td>36–72</td>
<td>PO, IM, IV</td>
</tr>
<tr>
<td>Methylprednisolone succinate (Solu-Medrol)</td>
<td>4</td>
<td>0</td>
<td>8–12</td>
<td>PO, IM, IV</td>
</tr>
<tr>
<td>Prednisone</td>
<td>5</td>
<td>1</td>
<td>12–36</td>
<td>PO</td>
</tr>
<tr>
<td>Prednisolone</td>
<td>5</td>
<td>1</td>
<td>12–36</td>
<td>PO, IM, IV</td>
</tr>
<tr>
<td>Agent</td>
<td>Common Trade Names</td>
<td>Potency</td>
<td>Apply</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td><strong>Alclometasone dipropionate</strong></td>
<td>Aclovate, cream, oint 0.05%</td>
<td>Low</td>
<td>bid/tid</td>
<td></td>
</tr>
<tr>
<td><strong>Amcinonide</strong></td>
<td>Cream, lotion, oint 0.1%</td>
<td>High</td>
<td>bid/tid</td>
<td></td>
</tr>
<tr>
<td><strong>Betamethasone</strong></td>
<td><strong>Betamethasone valerate</strong></td>
<td>Low</td>
<td>q day/bid</td>
<td></td>
</tr>
<tr>
<td><strong>Betamethasone valerate</strong></td>
<td><strong>Betamethasone dipropionate</strong></td>
<td>Intermediate</td>
<td>q day/bid</td>
<td></td>
</tr>
<tr>
<td><strong>Betamethasone dipropionate, augmented</strong></td>
<td><strong>Diprolene oint, lotion, gel 0.05%</strong></td>
<td>Ultrahigh</td>
<td>q day/bid</td>
<td></td>
</tr>
<tr>
<td><strong>Clobetasol propionate</strong></td>
<td>Temovate, Clobex, Cormax cream, gel, oint, lotion, foam, aerosol, shampoo, soln, 0.05%, 0.05%, 0.5%</td>
<td>Ultrahigh</td>
<td>bid (2 wk max)</td>
<td></td>
</tr>
<tr>
<td><strong>Clocortolone pivalate</strong></td>
<td>Cloderm cream 0.1%</td>
<td>Intermediate</td>
<td>q day–qid</td>
<td></td>
</tr>
<tr>
<td><strong>Desonide</strong></td>
<td>DesOwen, cream, oint, lotion 0.05%</td>
<td>Low</td>
<td>bid–qid</td>
<td></td>
</tr>
<tr>
<td><strong>Desoximetasone</strong></td>
<td><strong>Desoximetasone 0.05%</strong></td>
<td>Intermediate</td>
<td>q day–qid</td>
<td></td>
</tr>
<tr>
<td><strong>Desoximetasone 0.25%</strong></td>
<td><strong>Topicort cream, gel 0.05%</strong></td>
<td>Intermediate</td>
<td>q day–qid</td>
<td></td>
</tr>
<tr>
<td><strong>Dexamethasone base</strong></td>
<td><strong>Aerosol 0.01%, cream 0.1%</strong></td>
<td>High</td>
<td>q day–bid</td>
<td></td>
</tr>
<tr>
<td><strong>Diflorasone diacetate</strong></td>
<td><strong>ApexiCon cream, oint 0.05%</strong></td>
<td>Low</td>
<td>bid–qid</td>
<td></td>
</tr>
<tr>
<td><strong>Flucinolone</strong></td>
<td><strong>Flucinolone acetonide 0.01%</strong></td>
<td>Ultrahigh</td>
<td>bid/qid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synalar cream, soln 0.01%</td>
<td>Low</td>
<td>bid/tid</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capex shampoo 0.01%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steroid</td>
<td>Formulations</td>
<td>Strength</td>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------------------------------------------</td>
<td>----------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>Fluocinolone acetonide 0.025%</td>
<td>Synalar oint, cream 0.025%</td>
<td>Intermediate</td>
<td>bid/tid</td>
<td></td>
</tr>
<tr>
<td>Fluocinonide 0.1%</td>
<td>Vanos cream 0.1%</td>
<td>High</td>
<td>qd/bid</td>
<td></td>
</tr>
<tr>
<td><strong>Flurandrenolide</strong></td>
<td>Cordran cream, oint 0.25%</td>
<td>Intermediate</td>
<td>qd</td>
<td></td>
</tr>
<tr>
<td><strong>Fluticasone propionate</strong></td>
<td>Cultivate cream, lotion 0.05%, oint 0.005%</td>
<td>Intermediate</td>
<td>bid</td>
<td></td>
</tr>
<tr>
<td><strong>Halobetasol</strong></td>
<td>Ultravate cream, oint 0.05%</td>
<td>Very high</td>
<td>bid</td>
<td></td>
</tr>
<tr>
<td><strong>Halcinonide</strong></td>
<td>Halog cream oint 0.1%</td>
<td>High</td>
<td>qd–bid</td>
<td></td>
</tr>
<tr>
<td><strong>Hydrocortisone</strong></td>
<td>Cortizone, Caldecort, Hycort, Hytöne, etc.—aerosol 1%, cream 0.5, 1, 2.5%, gel 0.5%, oint 0.5, 1, 2.5%, lotion 0.5, 1, 2.5%, paste 0.5%, soln 1%</td>
<td>Low</td>
<td>tid/qid</td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone acetate</td>
<td>Cream, oint 0.5, 1%</td>
<td>Low</td>
<td>tid/qid</td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone butyrate</td>
<td>Locoid oint, cream, lotion soln 0.1%</td>
<td>Intermediate</td>
<td>bid/tid</td>
<td></td>
</tr>
<tr>
<td>Hydrocortisone valerate</td>
<td>Cream, oint 0.2%</td>
<td>Intermediate</td>
<td>bid/tid</td>
<td></td>
</tr>
<tr>
<td><strong>Mometasone furoate</strong></td>
<td>Elocon cream, oint, lotion, soln 0.1%</td>
<td>Intermediate</td>
<td>qd</td>
<td></td>
</tr>
<tr>
<td><strong>Prednicarbate</strong></td>
<td>Dermatop cream, oint 0.1%</td>
<td>Intermediate</td>
<td>bid</td>
<td></td>
</tr>
<tr>
<td><strong>Triamcinolone</strong></td>
<td>Cream, oint, lotion 0.025%</td>
<td>Low</td>
<td>tid/qid</td>
<td></td>
</tr>
<tr>
<td>Triamcinolone acetonide 0.025%</td>
<td>Cream, oint, lotion 0.025%</td>
<td>Low</td>
<td>tid/qid</td>
<td></td>
</tr>
<tr>
<td>Triamcinolone acetonide 0.1%</td>
<td>Cream, oint, lotion 0.1%</td>
<td>Intermediate</td>
<td>tid/qid</td>
<td></td>
</tr>
<tr>
<td>Kenalog aerosol 0.147 mg/g</td>
<td></td>
<td>Intermediate</td>
<td>tid/qid</td>
<td></td>
</tr>
<tr>
<td>Triamcinolone acetonide 0.5%</td>
<td>Cream, oint 0.5%</td>
<td>High</td>
<td>tid/qid</td>
<td></td>
</tr>
</tbody>
</table>
**Table 4**  
*Comparison of Insulins (See also p. 167)*

Products are classified based on onset and duration of action. Insulin is 100 Units per mL unless otherwise noted. Cartridge volume of insulin pens is 3 mL. Approximate performance characteristics of the different insulins are listed. See individual package inserts for specifics.

<table>
<thead>
<tr>
<th>Type of Insulin</th>
<th>Onset</th>
<th>Peak</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ultra Rapid</strong></td>
<td>0.5–1.5 h</td>
<td>3–4 h</td>
<td></td>
</tr>
<tr>
<td><strong>glulisine</strong> [rDNA origin]</td>
<td>Onset &lt; 0.25 h</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Apidra, Apidra SoloSTAR pen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>lispro</strong> [rDNA origin]</td>
<td>Onset 0.5–1 h</td>
<td>Peak 2–3 h</td>
<td>Duration 4–6 h</td>
</tr>
<tr>
<td>• HumaLOG, HumaLOG KwikPen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HumaPen Luxura HD pen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>aspart</strong> [rDNA origin]</td>
<td>Onset 0.5–1 h</td>
<td>Peak 2–3 h</td>
<td>Duration 4–6 h</td>
</tr>
<tr>
<td>• NovoLOG, NovoLOG FlexPen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• NovoPen Echo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rapid (regular insulin)</strong></td>
<td>Onset 0.5–1 h</td>
<td>Peak 2–3 h</td>
<td>Duration 4–6 h</td>
</tr>
<tr>
<td><strong>regular</strong></td>
<td>Onset 0.5–1 h</td>
<td>Peak 2–3 h</td>
<td>Duration 4–6 h</td>
</tr>
<tr>
<td>• HumuLIN R, NovoLIN R</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Insulin Type</td>
<td>Onset</td>
<td>Peak</td>
<td>Duration</td>
</tr>
<tr>
<td>------------------------------</td>
<td>---------------</td>
<td>----------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Intermediate</td>
<td>1–4 h</td>
<td>6–10 h</td>
<td>10–16 h</td>
</tr>
<tr>
<td>NPH</td>
<td></td>
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</tr>
<tr>
<td>• Humulin N, Humulin N Pen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Novolin N</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prolonged</td>
<td>1–4 h</td>
<td>No peak/ max effect 5h</td>
<td>24 h</td>
</tr>
<tr>
<td>glargine [rDNA origin]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lantus, Lantus SoloSTAR pen</td>
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<td></td>
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</tr>
<tr>
<td>detemir [rDNA origin]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Levemir, Levemir FlexPen</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Combination Insulins</td>
<td>&lt;0.25 h</td>
<td>Dual</td>
<td>Up to 10 h</td>
</tr>
<tr>
<td><strong>lispro protamine suspension/insulin lispro</strong></td>
<td></td>
<td>based on agent</td>
<td></td>
</tr>
<tr>
<td>• HumaLOG Mix 75/25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• HumaLOG Mix 75/25 KwikPen</td>
<td></td>
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</tr>
<tr>
<td>• HumaLOG Mix 50/50</td>
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<tr>
<td>• HumaLOG Mix 50/50 KwikPen</td>
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Table 4 (continued)  
Comparison of Insulins (See also p. 167)

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<th>Peak Dual</th>
<th>Duration Up to</th>
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<td></td>
<td>&lt;0.25 h</td>
<td>based on agent</td>
<td>10 h</td>
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<tr>
<td>aspart protamine suspension/insulin aspart</td>
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<tr>
<td></td>
<td>0.5–1 h</td>
<td>based on agent</td>
<td></td>
</tr>
</tbody>
</table>

NPH/insulin regular

- HumuLIN 70/30
- HumuLIN 70/30 Pen
- NovoLIN 70/30

**About insulin pens:**

Insulin pens can increase patient acceptance and adherence. Depending on the pen, the insulin cartridges may be pre-filled disposable single use OR refillable/reusable. Dosage ranges vary but are typically 1 to 60–80 units, in increments of 1 unit, with HumaPen Luxura HD, and NovoPen Echo offering 0.5 unit increments. Features that are helpful for patients with reduced vision are: a large or magnified dosing window, audible dosing clicks (end of dose click). Many pens allow for adjusting the dose without wasting insulin and prevent dialing a dose that is larger than the number of units remaining in the pen. NovoPen Echo is the first pen to record the dose and time of last injection and can accommodate different types of insulin in the cartridges.

Do not confuse HumaLOG, NovoLOG, HumaLOG Mix, and NovoLOG Mix with each other or with other agents, as serious medication errors can occur. Use “TALL MAN LETTERS” for the ‘LOGs and the ‘LINs per FDA recommendations to avoid prescribing errors.
TABLE 5
Oral Contraceptives (See also p 227)
(Note: 21 = 21 Active pills; 24 = 24 Active pills; Standard for most products is 28 [unless specified] = 21 Active pills + 7 Placebo)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Note</th>
<th>Progestin (mg)</th>
<th>Estrogen (mcg)</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monophasics</strong></td>
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<td></td>
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<td>Altavera</td>
<td></td>
<td>Levonorgestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
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<tr>
<td>Alyacen 1/35</td>
<td></td>
<td>Norethindrone (1)</td>
<td>Ethinyl estradiol (35)</td>
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</tr>
<tr>
<td>Apri</td>
<td></td>
<td>Desogestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
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<tr>
<td>Aviane</td>
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<td>Levonorgestrel (0.1)</td>
<td>Ethinyl estradiol (20)</td>
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</tr>
<tr>
<td>Balziva</td>
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<td>Norethindrone (0.4)</td>
<td>Ethinyl estradiol (35)</td>
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<tr>
<td>Beyaz</td>
<td>b, c, e</td>
<td>Drospirenone (3)</td>
<td>Ethinyl estradiol (20)</td>
<td>0.451 mg levomefolate in all including 7 placebo</td>
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<td>Ethinyl estradiol (35)</td>
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<td>Briellyn</td>
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<td>Ethinyl estradiol (35)</td>
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<td>Cryselle</td>
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<td>Ethinyl estradiol (30)</td>
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<td>Norethindrone (1)</td>
<td>Ethinyl estradiol (35)</td>
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<td>Norgestrel (0.3)</td>
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<td>Desogestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
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<tr>
<td>Enskyce</td>
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<td>Desogestrel (0.15)</td>
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<td>Ethinyl estradiol (20)</td>
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<tr>
<td>Femcon Fe</td>
<td></td>
<td>Norethindrone (0.4)</td>
<td>Ethinyl estradiol (35)</td>
<td>75 mg Fe x 7 d in 28 d</td>
</tr>
<tr>
<td>Junel Fe 1/20</td>
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<td>Norethindrone acetate (1)</td>
<td>Ethinyl estradiol (20)</td>
<td>75 mg Fe x 7 d in 28 d</td>
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<tr>
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<td>Ethinyl estradiol (30)</td>
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<td>Ethinyl estradiol (30)</td>
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<td>Lo Minastrin Fe</td>
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<td>Ethinyl estradiol (10)</td>
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<td>75 mg Fe x 7 d in 28 d</td>
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<td>Estrogen Type</td>
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<td>Loestrin 1.5/20</td>
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<td>Ethinyl estradiol (20)</td>
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<tr>
<td>Loryna c, e</td>
<td>Drospirenone (3)</td>
<td>Ethinyl estradiol (20)</td>
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<tr>
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<td>Ethinyl estradiol (20)</td>
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<td>Ethinyl estradiol (30)</td>
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<tr>
<td>Microgestin Fe 1/20</td>
<td>Norethindrone acetate (1)</td>
<td>Ethinyl estradiol (20)</td>
<td>75mg Fe x 7 d in 28 d</td>
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<tr>
<td>Microgestin Fe 1.5/30</td>
<td>Norethindrone acetate (1.5)</td>
<td>Ethinyl estradiol (30)</td>
<td>75mg Fe x 7 d in 28 d</td>
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<tr>
<td>Minastrin 24 Fe (chew)</td>
<td>Norethindrone 1 mg</td>
<td>Ethinyl estradiol (20)</td>
<td>75mg Fe x 4 d</td>
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<tr>
<td>Mircette</td>
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<td>2 inert, 2 ethinyl estradiol 10 mcg</td>
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<td>Ethinyl estradiol (35)</td>
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<td>Necon 0.5/35</td>
<td>Norethindrone (0.5)</td>
<td>Mestranol (35)</td>
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<td>Mestranol (50)</td>
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<td>Ethinyl estradiol (35)</td>
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<tr>
<td>Norethin 1/35E</td>
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<td>Ethinyl estradiol (35)</td>
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<td>Norinyl 1/35</td>
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(Continued)
TABLE 5 (continued)
Oral Contraceptives (See also p 227)
(Note: 21 = 21 Active pills; 24 = 24 Active pills; Standard for most products is 28 [unless specified] = 21 Active pills + 7 Placebo^a)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Note</th>
<th>Progestin (mg)</th>
<th>Estrogen (mcg)</th>
<th>Extra</th>
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<td>Norethindrone (0.5)</td>
<td>Ethinyl estradiol (35)</td>
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<td>Nortrel 1/35</td>
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<td>Norethindrone (1)</td>
<td>Ethinyl estradiol (35)</td>
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</tr>
<tr>
<td>Ocella c</td>
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<td>Drospirenone (3)</td>
<td>Ethinyl estradiol (30)</td>
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</tr>
<tr>
<td>Ogestrel 0.5/50</td>
<td>c</td>
<td>Norgestrel (0.5)</td>
<td>Ethinyl estradiol (50)</td>
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<td>Ethinyl estradiol (35)</td>
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<td>75 mg Fe x 7 d in 28 d</td>
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<tr>
<td>Philith</td>
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<td>Ethinyl estradiol (35)</td>
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<td>Pirmella 1/35</td>
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<td>Norethindrone (1)</td>
<td>Ethinyl estradiol (35)</td>
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<tr>
<td>Previ fem</td>
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<td>Ethinyl estradiol (35)</td>
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<td>Portia</td>
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<tr>
<td>Reclipsen</td>
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<td>Ethinyl estradiol (30)</td>
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</tr>
<tr>
<td>Safryal</td>
<td>b, c</td>
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<td>Ethinyl estradiol (30)</td>
<td>0.451 mg levomefolate in all including 7 placebo</td>
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<td>Product</td>
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<td>Estrogen Dosage</td>
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<td>Nortrel 1/35</td>
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<td>Norgestimate (0.25) Ethinyl estradiol (35)</td>
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<td>Ortho-Novum</td>
<td>Norethindrone (1) Ethinyl estradiol (35)</td>
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<tr>
<td>Ovcon 35</td>
<td>Norethindrone (0.4) Ethinyl estradiol (35)</td>
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<tr>
<td>Ovcon 35 Fe</td>
<td>Norethindrone (0.4) Ethinyl estradiol (35)</td>
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<td>Norethindrone (0.4) Ethinyl estradiol (35)</td>
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<td>Pirmella 1/35</td>
<td>Norethindrone (1) Ethinyl estradiol (35)</td>
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<tr>
<td>Previfem</td>
<td>Norgestimate (0.25) Ethinyl estradiol (35)</td>
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<tr>
<td>Portia</td>
<td>Levonorgestrel (0.15) Ethinyl estradiol (30)</td>
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<td>Reclipsen</td>
<td>Desogestrel (0.15) Ethinyl estradiol (30)</td>
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<tr>
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<td>Desogestrel (0.15) Ethinyl estradiol (30)</td>
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<td>Sprintec</td>
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<td>Levonorgestrel (0.1) Ethinyl estradiol (20)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Syeda c</td>
<td>Drospirenone (3) Ethinyl estradiol (30)</td>
<td></td>
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</tr>
<tr>
<td>Vestura c, e</td>
<td>Drospirenone (3) Ethinyl estradiol (20)</td>
<td></td>
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<tr>
<td>Vyfemla</td>
<td>Norethindrone (0.4) Ethinyl estradiol (35)</td>
<td></td>
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<tr>
<td>Wera</td>
<td>Norethindrone (0.5) Ethinyl estradiol (35)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Wymza Fe</td>
<td>Norethindrone (0.4) Ethinyl estradiol (35)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yasmin c, d</td>
<td>Drospirenone (3) Ethinyl estradiol (30)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yaz d, e, f</td>
<td>Drospirenone (3) Ethinyl estradiol (20)</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Zarah c</td>
<td>Drospirenone (3) Ethinyl estradiol (30)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zenchent</td>
<td>Ethynodiol Diacetate (0.4) Ethinyl estradiol (35)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zeosa</td>
<td>Norgestimate (0.25) Ethinyl estradiol (35)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zovia 1/50</td>
<td>Ethynodiol Diacetate (1) Ethinyl estradiol (50)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zovia 1/35</td>
<td>Ethynodiol Diacetate (1) Ethinyl estradiol (35)</td>
<td></td>
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</tr>
<tr>
<td>Zovia 1/50</td>
<td>Ethynodiol Diacetate (1) Ethinyl estradiol (50)</td>
<td></td>
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</tr>
</tbody>
</table>

**Multiphasics**

<table>
<thead>
<tr>
<th>Product</th>
<th>Progestin Dosage</th>
<th>Estrogen Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alyacen 7/7/7</td>
<td>Norethindrone (0.5, 0.75, 1) Ethinyl estradiol (35, 35, 35)</td>
<td></td>
</tr>
<tr>
<td>Aranelle</td>
<td>Norethindrone (0.5, 1, 0.5) Ethinyl estradiol (35, 35, 35)</td>
<td></td>
</tr>
<tr>
<td>Azurette</td>
<td>Desogestrel (0.15, 0, 0) Ethinyl estradiol (20, 0, 10)</td>
<td></td>
</tr>
<tr>
<td>Caziant</td>
<td>Desogestrel (0.1, 0.125, 0.15) Ethinyl estradiol (25, 25, 25)</td>
<td></td>
</tr>
</tbody>
</table>

(Continued)
TABLE 5 (continued)

Oral Contraceptives (See also p 227)
(Note: 21 = 21 Active pills; 24 = 24 Active pills; Standard for most products is 28 [unless specified] = 21 Active pills + 7 Placebo)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Note</th>
<th>Progestin (mg)</th>
<th>Estrogen (mcg)</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiphasics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cesia</td>
<td></td>
<td>Desogestrel (0.1, 0.125, 0.15)</td>
<td>Ethinyl estradiol (25, 25)</td>
<td></td>
</tr>
<tr>
<td>Cyclafem 7/7/7</td>
<td></td>
<td>Norethindrone (0.5, 0.75, 1)</td>
<td>Ethinyl estradiol (35, 35)</td>
<td></td>
</tr>
<tr>
<td>Cyclessa</td>
<td></td>
<td>Desogestrel (0.1, 0.125, 0.15)</td>
<td>Ethinyl estradiol (25, 25)</td>
<td></td>
</tr>
<tr>
<td>Dasetta 7/7/7</td>
<td></td>
<td>Norethindrone (0.5, 0.75, 1)</td>
<td>Ethinyl estradiol (35, 35)</td>
<td></td>
</tr>
<tr>
<td>Enpresse</td>
<td></td>
<td>Levonorgestrel (0.05, 0.075, 0.125)</td>
<td>Ethinyl estradiol (30, 40, 30)</td>
<td></td>
</tr>
<tr>
<td>Estrostep Fe e</td>
<td></td>
<td>Norethindrone acetate (1, 1, 1)</td>
<td>Ethinyl estradiol (20, 30, 35)</td>
<td>75 mg Fe x 7 d in 28 d</td>
</tr>
<tr>
<td>Generess Fe e</td>
<td></td>
<td>Norethindrone acetate (0.8)</td>
<td>Ethinyl estradiol (25)</td>
<td>75 mg Fe x 4 d</td>
</tr>
<tr>
<td>Kariva</td>
<td></td>
<td>Desogestrel (0.15, 0, 0)</td>
<td>Ethinyl estradiol (20, 0, 10)</td>
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<tr>
<td>Leena</td>
<td></td>
<td>Norethindrone (0.5, 1,0.5)</td>
<td>Ethinyl estradiol (35, 35, 35)</td>
<td></td>
</tr>
<tr>
<td>Lessina</td>
<td></td>
<td>Levonorgestrel (0.1)</td>
<td>Ethinyl estradiol (20)</td>
<td></td>
</tr>
<tr>
<td>Brand Name</td>
<td>Levonorgestrel or Norgestimate</td>
<td>Ethinyl Estradiol</td>
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<td></td>
</tr>
<tr>
<td>------------------</td>
<td>-------------------------------</td>
<td>-----------------------</td>
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<td></td>
</tr>
<tr>
<td>Kariva</td>
<td>Norethindrone acetate (0.8)</td>
<td>Ethinyl estradiol (25)</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Ethinyl estradiol (20, 0, 10)</td>
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<tr>
<td>Leena</td>
<td>Norethindrone (0.5, 1, 0.5)</td>
<td>Ethinyl estradiol (35,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ethinyl estradiol (35, 35, 35)</td>
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<td></td>
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<tr>
<td>Lessina</td>
<td>Levonorgestrel (0.05, 0.075, 0.125)</td>
<td>Ethinyl estradiol (30, 40, 30)</td>
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</tr>
<tr>
<td></td>
<td>Ethinyl estradiol (20, 0, 10)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Lo Loestrin Fe</td>
<td>Norethindrone acetate (1.0)</td>
<td>Ethinyl estradiol (10, 10)</td>
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<td></td>
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<td>Lutera</td>
<td>Levonorgestrel (0.1)</td>
<td>Ethinyl estradiol (20)</td>
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<td></td>
</tr>
<tr>
<td>Mircette</td>
<td>Desogestrel (0.15, 0, 0)</td>
<td>Ethinyl estradiol (20, 0, 10)</td>
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</tr>
<tr>
<td>Myzilra</td>
<td>Levonorgestrel (0.05, 0.075, 0.125)</td>
<td>Ethinyl estradiol (30, 40, 30)</td>
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<tr>
<td>Natazia</td>
<td>Dienogest (0, 2, 3, 0)</td>
<td>Estradiol valerat (3, 2, 2, 1)</td>
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<tr>
<td>Necon 10/11</td>
<td>Norethindrone (0.5, 1)</td>
<td>Ethinyl estradiol (35)</td>
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</tr>
<tr>
<td>Necon 7/7/7</td>
<td>Norethindrone (0.5, 0.75, 1)</td>
<td>Ethinyl estradiol (35, 35, 35)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nortrel 7/7/7</td>
<td>Norethindrone (0.5, 0.75, 1)</td>
<td>Ethinyl estradiol (35, 35, 35)</td>
<td></td>
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</tr>
<tr>
<td>Orsytthia</td>
<td>Levonorgestrel (0.1)</td>
<td>Ethinyl estradiol (20)</td>
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<tr>
<td>Ortho-Novum 10/11</td>
<td>Norethindrone (0.5, 1)</td>
<td>Ethinyl estradiol (35)</td>
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<tr>
<td>Ortho-Novum 7/7/7</td>
<td>Norethindrone (0.5, 0.75, 1)</td>
<td>Ethinyl estradiol (35, 35, 35)</td>
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<tr>
<td>Ortho Tri-Cyclen</td>
<td>Norgestimate (0.18, 0.215, 0.25)</td>
<td>Ethinyl estradiol (25, 25, 25)</td>
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<td></td>
</tr>
<tr>
<td>Ortho Tri-Cyclen Lo</td>
<td>Norgestimate (0.18, 0.215, 0.25)</td>
<td>Ethinyl estradiol (35, 35, 35)</td>
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<tr>
<td>Pirmella 7/7/7</td>
<td>Norethindrone (0.5, 0.75, 1)</td>
<td>Ethinyl estradiol (35, 35, 35)</td>
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</tr>
<tr>
<td>Previafem</td>
<td>Norgestimate (0.25)</td>
<td>Ethinyl estradiol (35)</td>
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</tbody>
</table>

(Continued)
**TABLE 5 (continued)**
**Oral Contraceptives (See also p 227)**
(Note: 21 = 21 Active pills; 24 = 24 Active pills; Standard for most products is 28 [unless specified] = 21 Active pills + 7 Placebo)³

<table>
<thead>
<tr>
<th>Drug</th>
<th>Note</th>
<th>Progestin (mg)</th>
<th>Estrogen (mcg)</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Multiphasics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tilia Fe</td>
<td></td>
<td>Norethindrone acetate (1, 1, 1)</td>
<td>Ethinyl estradiol (20, 30, 35)</td>
<td>75 mg Fe x 7 d in 28 d</td>
</tr>
<tr>
<td>Tri-Estarylla</td>
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<td>Norgestimate (0.18, 0.215, 0.25)</td>
<td>Ethinyl estradiol (25, 25, 25)</td>
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</tr>
<tr>
<td>Tri-Legest</td>
<td></td>
<td>Norethindrone acetate (1, 1, 1)</td>
<td>Ethinyl estradiol (20, 30, 35)</td>
<td>75 mg Fe x 7 d in 28 d</td>
</tr>
<tr>
<td>Tri-Legest Fe</td>
<td></td>
<td>Norethindrone acetate (1, 1, 1)</td>
<td>Ethinyl estradiol (20, 30, 35)</td>
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<tr>
<td>Tri-Levlen</td>
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<td>Levonorgestrel (0.05, 0.075, 0.125)</td>
<td>Ethinyl estradiol (30, 40, 30)</td>
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<tr>
<td>Tri-Linyah</td>
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<td>Norgestimate (0.18, 0.215, 0.25)</td>
<td>Ethinyl estradiol (25, 25, 25)</td>
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<tr>
<td>Tri-Nessa</td>
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<td>Desogestrel (0.1, 0.125, 0.15)</td>
<td>Ethinyl estradiol (25, 25, 25)</td>
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<tr>
<td>Tri-Norinyl</td>
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<td>Ethinyl estradiol (35, 35, 35)</td>
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<tr>
<td>Tri-Previfem</td>
<td></td>
<td>Desogestrel (0.1, 0.125, 0.15)</td>
<td>Ethinyl estradiol (25, 25, 25)</td>
<td></td>
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<tr>
<td>Brand</td>
<td>Progestin</td>
<td>Estrogen</td>
<td>Dose</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>------------</td>
<td>------------------------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Tri-Sprintec</td>
<td>Desogestrel (0.1, 0.125, 0.15)</td>
<td>Ethinyl estradiol (25, 25, 25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trivora</td>
<td>Levonorgestrel (0.05, 0.075, 0.125)</td>
<td>Ethinyl estradiol (30, 40, 30)</td>
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<td></td>
</tr>
<tr>
<td>Velivet</td>
<td>Desogestrel (0.1, 0.125, 0.15)</td>
<td>Ethinyl estradiol (25, 25, 25)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Viorele</td>
<td>Desogestrel (0.15, 0.0)</td>
<td>Ethinyl estradiol (20, 0, 10)</td>
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</tr>
</tbody>
</table>

**Progestin Only (aka “mini-pills”)**

<table>
<thead>
<tr>
<th>Brand</th>
<th>Progestin</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camila</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Errin</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Heather</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Jencycla</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Jencycla</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Jolivette</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Micronor</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Nor-QD</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
</tr>
<tr>
<td>Nora-BE</td>
<td>Norethindrone (0.35)</td>
<td>None</td>
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</table>

**Extended-Cycle Combination (aka COCP [combined oral contraceptive pills]) 91 d**

<table>
<thead>
<tr>
<th>Brand</th>
<th>Progestin</th>
<th>Estrogen</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daysee</td>
<td>Levonorgestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
<td>7 (0 mg/10 mcg)</td>
</tr>
<tr>
<td>Introvale</td>
<td>Levonorgestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
<td>7 inert</td>
</tr>
<tr>
<td>Jolessa</td>
<td>Levonorgestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
<td>7 inert</td>
</tr>
<tr>
<td>LoSeasonique</td>
<td>Levonorgestrel (0.1)</td>
<td>Ethinyl estradiol (20, 10)</td>
<td>7 (0 mg/10 mcg)</td>
</tr>
</tbody>
</table>

(Continued)
### TABLE 5 (continued)
**Oral Contraceptives (See also p 227)**
(Note: 21 = 21 Active pills; 24 = 24 Active pills; Standard for most products is 28 [unless specified] = 21 Active pills + 7 Placebo³)

<table>
<thead>
<tr>
<th>Drug</th>
<th>Note</th>
<th>Progestin (mg)</th>
<th>Estrogen (mcg)</th>
<th>Extra</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extended-Cycle Combination (aka COCP [combined oral contraceptive pills]) 91 d</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quasense</td>
<td></td>
<td>Levonorgestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
<td>7 inert</td>
</tr>
<tr>
<td>Seasonale</td>
<td></td>
<td>Levonorgestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
<td>7 inert</td>
</tr>
<tr>
<td>Seasonique</td>
<td></td>
<td>Levonorgestrel (0.15)</td>
<td>Ethinyl estradiol (30)</td>
<td>7 (0 mg/10 mcg)</td>
</tr>
</tbody>
</table>

| **Extended-Cycle Combination, ascending dose** |      | Ethinyl estradiol | Levonorgestrel |
| Quartette 91 d               |      | 0.02 mg (42 d)    | 0.15 mg (42 d) |
|                             |      | 0.025 mg (21 d)   | 0.15 mg (21 d) |
|                             |      | 0.03 mg (21 d)    | 0.15 mg (21 d) |
|                             |      | 0.01 mg (7 d)     |                |

³The designations 21 and 28 refer to number of days in regimen available, if not listed then assume 28.

³Raises folate levels to help decrease neural tube defect risk with eventual pregnancy.

³Drospirenone containing pills have increased risk for blood clots compared to other progestins.

⁴Avoid in patients with hyperkalemia risk.

⁵Also approved for acne.

⁶Approved for premenstrual dysphoric disorder (PMDD) in women who use contraception for birth control.

⁷First “four phasic” OCP.
# TABLE 6
Oral Potassium Supplements (See also p 247)

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Salt</th>
<th>Form</th>
<th>mEq Potassium/ Dosing Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glu-K</td>
<td>Gluconate</td>
<td>Tablet</td>
<td>2 mEq/tablet</td>
</tr>
<tr>
<td>Kaon elixir</td>
<td>Gluconate</td>
<td>Liquid</td>
<td>20 mEq/15 mL</td>
</tr>
<tr>
<td>Kaon-Cl 10</td>
<td>KCl</td>
<td>Tablet, SR</td>
<td>10 mEq/tablet</td>
</tr>
<tr>
<td>Kaon-Cl 20%</td>
<td>KCl</td>
<td>Liquid</td>
<td>40 mEq/15 mL</td>
</tr>
<tr>
<td>K-Dur 20</td>
<td>KCl</td>
<td>Tablet, SR</td>
<td>20 mEq/tablet</td>
</tr>
<tr>
<td>KayCiel</td>
<td>KCl</td>
<td>Liquid</td>
<td>20 mEq/15 mL</td>
</tr>
<tr>
<td>K-Lor</td>
<td>KCl</td>
<td>Powder</td>
<td>20 mEq/packet</td>
</tr>
<tr>
<td>K-lyte/Cl</td>
<td>KCl/bicarbonate</td>
<td>Effervescent</td>
<td>25 mEq/tablet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tablet</td>
<td></td>
</tr>
<tr>
<td>Klorvess</td>
<td>KCl/bicarbonate</td>
<td>Effervescent</td>
<td>20 mEq/tablet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tablet</td>
<td></td>
</tr>
<tr>
<td>Klotrix</td>
<td>KCl</td>
<td>Tablet, SR</td>
<td>10 mEq/tablet</td>
</tr>
<tr>
<td>K-Lyte</td>
<td>Bicarbonate/citrate</td>
<td>Effervescent</td>
<td>25 mEq/tablet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tablet</td>
<td></td>
</tr>
<tr>
<td>Klor-Con/EF</td>
<td>Bicarbonate/citrate</td>
<td>Effervescent</td>
<td>25 mEq/tablet</td>
</tr>
<tr>
<td></td>
<td></td>
<td>tablet</td>
<td></td>
</tr>
<tr>
<td>K-Tab</td>
<td>KCl</td>
<td>Tablet, SR</td>
<td>10 mEq/tablet</td>
</tr>
<tr>
<td>Micro-K</td>
<td>KCl</td>
<td>Capsule, SR</td>
<td>8 mEq/capsule</td>
</tr>
<tr>
<td>Potassium</td>
<td>KCl</td>
<td>Liquid</td>
<td>20 mEq/15 mL</td>
</tr>
<tr>
<td>Chloride 10%</td>
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<td></td>
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</tr>
<tr>
<td>Potassium</td>
<td>KCl</td>
<td>Liquid</td>
<td>40 mEq/15 mL</td>
</tr>
<tr>
<td>Chloride 20%</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Slow-K</td>
<td>KCl</td>
<td>Tablet, SR</td>
<td>8 mEq/tablet</td>
</tr>
<tr>
<td>Tri-K</td>
<td>Acetate/bicarbonate</td>
<td>Liquid</td>
<td>45 mEq/15 mL</td>
</tr>
<tr>
<td></td>
<td>and citrate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twin-K</td>
<td>Citrate/gluconate</td>
<td>Liquid</td>
<td>20 mEq/5 mL</td>
</tr>
</tbody>
</table>

SR = sustained release.

Note: Alcohol and sugar content vary between preparations.
### TABLE 7
Tetanus Prophylaxis (See also p 286)

<table>
<thead>
<tr>
<th>History of Absorbed Tetanus Toxoid Immunization</th>
<th>Clean, Minor Wounds</th>
<th>All Other Wounds&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unknown or &lt; 3 doses</td>
<td>Td&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Td&lt;sup&gt;d&lt;/sup&gt;</td>
</tr>
<tr>
<td>= 3 doses</td>
<td>TIG&lt;sup&gt;c&lt;/sup&gt;</td>
<td>TIG&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>No&lt;sup&gt;e&lt;/sup&gt;</td>
<td>No</td>
<td>No&lt;sup&gt;f&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> Such as, but not limited to, wounds contaminated with dirt, feces, soil, saliva, etc.; puncture wounds; avulsions; and wounds resulting from missiles, crushing, burns, and frostbite.

<sup>b</sup> Td = tetanus-diphtheria toxoid (adult type), 0.5 mL IM.
- For children < 7 y, DPT (DT, if pertussis vaccine is contraindicated) is preferred to tetanus toxoid alone.
- For persons > 7 y, Td is preferred to tetanus toxoid alone.
- DT = diphtheria-tetanus toxoid (pediatric), used for those who cannot receive pertussis.

<sup>c</sup> TIG = tetanus immune globulin, 250 units IM.

<sup>d</sup> If only 3 doses of fluid toxoid have been received, then a fourth dose of toxoid, preferably an adsorbed toxoid, should be given.

<sup>e</sup> Yes, if >10 y since last dose.

<sup>f</sup> Yes, if > 5 y since last dose.

Data from Guidelines from the Centers for Disease Control and Prevention and reported in MMWR [MMWR, December 1, 2006; 55(RR-15):1-48].
### TABLE 8
Oral Anticoagulant Standards of Practice (See also warfarin p 306)

<table>
<thead>
<tr>
<th>Thromboembolic Disorder</th>
<th>INR</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Deep Venous Thrombosis &amp; Pulmonary Embolism</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment of single episode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transient risk factor</td>
<td>2–3</td>
<td>3 mo</td>
</tr>
<tr>
<td>Idiopathic</td>
<td>2–3</td>
<td>long-term</td>
</tr>
<tr>
<td>Recurrent systemic embolism</td>
<td>2–3</td>
<td>long-term</td>
</tr>
<tr>
<td><strong>Prevention of Systemic Embolism</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Atrial fibrillation (AF)</td>
<td>2–3</td>
<td>long-term</td>
</tr>
<tr>
<td>AF: cardioversion</td>
<td>2–3</td>
<td>3 wk prior; 4 wk post sinus rhythm</td>
</tr>
<tr>
<td>Mitral valvular heart dx</td>
<td>2–3</td>
<td>long-term</td>
</tr>
<tr>
<td>Cardiomyopathy (usually ASA)</td>
<td>2–3</td>
<td>long-term</td>
</tr>
<tr>
<td><strong>Acute Myocardial Infarction</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High risk</td>
<td>2–3 + low-dose aspirin</td>
<td>long-term</td>
</tr>
<tr>
<td>All other infarcts (usually ASA)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### TABLE 8
Oral Anticoagulant Standards of Practice (See also warfarin p 306) (continued)

<table>
<thead>
<tr>
<th>Thromboembolic Disorder</th>
<th>INR</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prosthetic Valves</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bioprosthetic heart valves</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mitral position</td>
<td>2–3</td>
<td>3 mo</td>
</tr>
<tr>
<td>Aortic position</td>
<td>2–3</td>
<td>3 mo</td>
</tr>
<tr>
<td>Bileaflet mechanical valves in aortic position</td>
<td>2–3</td>
<td>long-term</td>
</tr>
<tr>
<td>Other mechanical prosthetic valves</td>
<td>2.5–3.5</td>
<td>long-term</td>
</tr>
</tbody>
</table>

* 3 mo if mod or high risk of bleeding or distal DVT; if low risk of bleeding, then long-term for proximal DVT/PE.

* Paroxysmal AF or ≥2 risk factors (age > 75, Hx, BP, DM, mod/severe LV dysfunction or CHF), then warfarin; 1 risk factor warfarin or 75–325 mg ASA; 0 risk factors ASA.

* Mitral valve Dz: rheumatic if Hx systemic embolism, or AF or LA thrombus or LA > 55 mm; MVP: only if AF, systemic embolism or TIA on ASA; mitral valve calcification: warfarin if AF or recurrent embolism on ASA; aortic valve w/ calcification: warfarin not recommended.

* In adults only ASA; only indication for anticoagulation cardiomyopathy in children, to begin no later than their activation on transplant list.

* High risk = large anterior MI, significant CHF, intracardiac thrombus visible on TE, AF, and Hx of a thromboembolic event.

* If meticulous INR monitoring and highly skilled dose titration are expected and widely accessible, then INR 3.5 (3.0–4.0) w/o ASA or 2.5 (2.0–3.0) w/ ASA long-term (4 years).

* Usually ASA 50–100 mg; warfarin if Hx embolism, LA thrombus, AF, low EF, hypercoagulable state, 3 mo, or until thrombus resolves.

* Target INR 2.5–3.5 if AF, large anterior MI, LA enlargement, hypercoagulable state, or low EF.

* Add ASA 50–100 mg if high risk (AF, hypercoagulable state, low EF, or Hx of ASCVD).

ACCP guidelines-Antithrombotic Therapy and Prevention of Thrombosis: American College of Chest Physicians Evidence-Based Clinical Practice Guidelines (9th Ed.) CHEST 2012; 141 (suppl 2) 1s-801s.
### TABLE 9
**Antiarrhythmics: Vaughn Williams Classification**

<table>
<thead>
<tr>
<th>Class I: Sodium Channel Blockade</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Class Ia:</strong> Lengthens duration of action potential (↑ the refractory period in atrial and ventricular muscle, in SA and AV conduction systems, and Purkinje fibers)</td>
</tr>
<tr>
<td>1. Amiodarone (also classes II, III, IV)</td>
</tr>
<tr>
<td>2. Disopyramide (Norpace)</td>
</tr>
<tr>
<td>3. Imipramine (MAO inhibitor)</td>
</tr>
<tr>
<td>4. Procainamide (Pronestyl)</td>
</tr>
<tr>
<td>5. Quinidine</td>
</tr>
<tr>
<td><strong>B. Class Ib:</strong> No effect on action potential</td>
</tr>
<tr>
<td>1. Lidocaine (Xylocaine)</td>
</tr>
<tr>
<td>2. Mexiletine (Mexitil)</td>
</tr>
<tr>
<td>3. Phenytoin (Dilantin)</td>
</tr>
<tr>
<td>4. Tocainide (Tonocard)</td>
</tr>
<tr>
<td><strong>C. Class Ic:</strong> Greater sodium current depression (blocks the fast inward Na⁺ current in heart muscle and Purkinje fibers, and slows the rate of ↑ of phase 0 of the action potential)</td>
</tr>
<tr>
<td>1. Flecainide (Tambocor)</td>
</tr>
<tr>
<td>2. Propafenone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class II: β-Blocker</th>
</tr>
</thead>
<tbody>
<tr>
<td>D. Amiodarone (also classes Ia, III, IV)</td>
</tr>
<tr>
<td>E. Esmolol (Brevibloc)</td>
</tr>
<tr>
<td>F. Sotalol (also class III)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class III: Prolong Refractory Period via Action Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>G. Amiodarone (also classes Ia, II, IV)</td>
</tr>
<tr>
<td>H. Sotalol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class IV: Calcium Channel Blocker</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Amiodarone (also classes Ia, II, III)</td>
</tr>
<tr>
<td>J. Diltiazem (Cardizem)</td>
</tr>
<tr>
<td>K. Verapamil (Calan)</td>
</tr>
</tbody>
</table>
TABLE 10
Cytochrome P–450 Isoenzymes and Common Drugs They Metabolize, Inhibit, and Induce

Increased or decreased (primarily hepatic cytochrome P-450) metabolism of medications may influence the effectiveness of drugs or result in significant drug-drug interactions. Understanding the common cytochrome P-450 isoforms (eg, CYP2C9, CYP2D9, CYP2C19, CYP3A4) and common drugs that are metabolized by (aka “substrates”), inhibit, or induce activity of the isoform helps identify and minimize significant drug interactions.

<table>
<thead>
<tr>
<th>Isoform</th>
<th>Substrates</th>
<th>Inhibitors</th>
<th>Inducers</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYP1A2</td>
<td>Acetaminophen, caffeine, cyclobenzaprine, clozapine, imipramine, mexiletine, naproxen, propranolol, theophylline</td>
<td>Amiodarone, cimetidine, most fluoroquinolone antibiotics, fluvoxamine, verapamil</td>
<td>Carbamazepine, charcoal-broiled foods, cruciferous vegetables, omeprazole, modafinil, tobacco smoking</td>
</tr>
<tr>
<td>CYP2C9</td>
<td>Most NSAIDs (including COX-2), glipizide, irbesartan, losartan, phenytoin, tamoxifen, warfarin</td>
<td>Amiodarone, fluconazole, isoniazid (INH), ketoconazole, metronidazole</td>
<td>Aprepitant, Barbiturates, rifampin</td>
</tr>
<tr>
<td>CYP2C19</td>
<td>Amitriptyline, clopidogrel, cyclophosphamide, diazepam, lansoprazole, omeprazole, pantoprazole, phenytoin, rabeprazole</td>
<td>Fluoxetine, fluvoxamine, isoniazid, ketoconazole, lansoprazole, omeprazole, ticlopidine</td>
<td>Barbiturates, carbamazepine, prednisone, rifampin</td>
</tr>
<tr>
<td>CYP2D6</td>
<td><strong>Antidepressants:</strong> Most tricyclic antidepressants, clomipramine, fluoxetine, paroxetine, venlafaxine <strong>Antipsychotics:</strong> Aripiprazole, clozapine, haloperidol, risperidone, thioridazine <strong>Beta-blockers:</strong> Carvedilol, metoprolol, propranolol, timolol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Continued)
TABLE 10
Cytochrome P-450 Isoenzymes and Common Drugs
They Metabolize, Inhibit, and Induce (continued)

**CYP2D6 (continued)**

**Opioids:** Codeine, hydrocodone, oxycodone, tramadol

**Others:** Amphetamine, dextromethorphan, duloxetine, encainide, flecainide, mexiletine, ondansetron, propafenone, selegiline, tamoxifen

**Inhibitors:** Amiodarone, bupropion, cimetidine, clomipramine, doxepin, duloxetine, fluoxetine, haloperidol, methadone, paroxetine, quinidine, ritonavir

**Inducers:** Dexamethasone, rifampin

**CYP3A**

(involved in the metabolism of > 50% of drugs metabolized by the liver)

**Substrates:**

**Anticholinergics:** Darifenacin, oxybutynin, solifenacin, tolterodine

**Benzodiazepines:** Alprazolam, diazepam, midazolam, triazolam

**Calcium channel blockers:** Amlodipine, diltiazem, felodipine, nifedipine, nimodipine, nisoldipine, verapamil

**Chemotherapy:** Cyclophosphamide, erlotinib, ifosfamide, paclitaxel, tamoxifen, vinblastine, vincristine

**HIV protease inhibitors:** Atazanavir, indinavir, nelfinavir, ritonavir, saquinavir

**HMG-CoA reductase inhibitors:** Atorvastatin, lovastatin, simvastatin

**Immunosuppressive agents:** Cyclosporine, tacrolimus

**Macrolide-type antibiotics:** Clarithromycin, erythromycin, telithromycin, troleandomycin

**Opioids:** Alfentanil, cocaine, fentanyl, methadone, sufentanil

**Steroids:** Budesonide, cortisol, 17β-estradiol, progesterone

**Others:** Acetaminophen, amiodarone, carbamazepine, delavirdine, efavirenz, nevirapine, quinidine, repaglinide, sildenafil, tadalafl, trazodone, vardenafil

**Inhibitors:** Amiodarone, amprenavir, aprepitant, atazanavir, ciprofloxacin, cisaipride, clarithromycin, diltiazem, erythromycin, fluconazole, fluvoxamine, grapefruit juice (in high ingestion), indinavir, itraconazole, ketoconazole, nefazodone, nelfinavir, norfloxacin, ritonavir, saquinavir, telithromycin, troleandomycin, verapamil, voriconazole

*(Continued)*
A life-threatening condition, when selective serotonin reuptake inhibitors (SSRIs) and 5-hydroxytryptamione receptor agonists (triptans) are used together. However, many other drugs have been implicated (see below).

Signs and symptoms of serotonin syndrome include the following:

- Restlessness, coma, N/V/D, hallucinations, loss of coordination, overactive reflexes, hypertension, mydriasis, rapid changes in BP, increased body temperature

**Class** | **Drugs**
--- | ---
Antidepressants | MAOIs, TCAs, SSRIs, SNRIs, mirtazapine, venlafaxine
CNS stimulants | Amphetamines, phentermine, methylphenidate, sibutramine
5-HT1 agonists | Triptans
Illicit drugs | Cocaine, methylenedioxymethamphetamine (ecstasy), lysergic acid diethylamide (LSD)
Opioids | Tramadol, oxycodone, morphine, meperidine
Others | Buspirone, chlorpheniramine, dextromethorphan, linezolid, lithium, selegiline, tryptophan, St. John’s wort

Management includes removal of the precipitating drugs and supportive care. To control agitation, the serotonin antagonist cyproheptadine can be used. When symptoms are mild, discontinuation of the medication or medications and the control of agitation with benzodiazepines may be needed. Critically ill patients may require sedation and mechanical ventilation as well as control of hyperthermia. (Ables AZ, Nagubilli R. Prevention, recognition, and management of serotonin syndrome. Am Fam Physician. May 1, 2010;81(9):1139-1142.)

**MOAI** = monoamine oxidase inhibitor.
**TCA** = tricyclic antidepressant.
**SNRI** = serotonin-norepinephrine reuptake inhibitors.
**TABLE 12**

Selected Multivitamin Supplements

This table lists common multivitamins available without a prescription, and most chains have generic versions. Many specialty vitamin combinations are available and are not included in this table. (Examples are B vitamins plus C; disease-specific supplements; pediatric and infant formulations; prenatal vitamins, etc.) A check (✓) indicates the component is found in the formulation; NA indicates it is not in the formulation. Details of the specific composition of these multivitamins can be found at www.eDrugbook.com or on the product site.

<table>
<thead>
<tr>
<th>Fat-Soluble Vitamins</th>
<th>Water-Soluble Vitamins</th>
<th>Minerals</th>
<th>Trace Elements</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>A, D, E, K</td>
<td>C, B1, B2, B3, B5, B6, B12, Folate</td>
<td>Biotin</td>
<td>Ca, P, Mg, Fe, Zn, I, Se, K</td>
<td>Mn, Cu, Cr, Mo</td>
</tr>
<tr>
<td><strong>Centrum</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Centrum Performance</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Centrum Silver</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>NatureMade Multi Complete</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td><strong>NatureMade Multi Daily</strong></td>
<td>✓</td>
<td>NA</td>
<td>NA</td>
<td>✓</td>
</tr>
<tr>
<td><strong>NatureMade Multi Max</strong></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

(Continued)
**TABLE 12 (continued)**

**Selected Multivitamin Supplements**

This table lists common multivitamins available without a prescription, and most chains have generic versions. Many specialty vitamin combinations are available and are not included in this table. (Examples are B vitamins plus C; disease-specific supplements; pediatric and infant formulations; prenatal vitamins, etc.) A check (✓) indicates the component is found in the formulation; NA indicates it is not in the formulation. Details of the specific composition of these multivitamins can be found at www.eDrugbook.com or on the product site.

<table>
<thead>
<tr>
<th>Fat-Soluble Vitamins</th>
<th>Water-Soluble Vitamins&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Minerals&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Trace Elements&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C, B&lt;sub&gt;1&lt;/sub&gt;, B&lt;sub&gt;2&lt;/sub&gt;, B&lt;sub&gt;3&lt;/sub&gt;, B&lt;sub&gt;5&lt;/sub&gt;, B&lt;sub&gt;6&lt;/sub&gt;, B&lt;sub&gt;12&lt;/sub&gt;, Folate, Biotin</td>
<td>Ca P Mg Fe Zn I Se K</td>
<td>Mn Cu Cr Mo</td>
<td></td>
</tr>
<tr>
<td>NatureMade Multi 50+</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ NA ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>One-A-Day 50 Plus</td>
<td>✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓ NA ✓ NA ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>One-A-Day Essential</td>
<td>✓ NA ✓ ✓</td>
<td>NA NA NA NA NA NA NA NA</td>
<td>NA NA NA NA</td>
<td></td>
</tr>
<tr>
<td>One-A-Day Maximum</td>
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<td>✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
<td>✓ ✓ ✓ ✓</td>
<td></td>
</tr>
<tr>
<td>Therapeutic Vitamin</td>
<td>✓ NA ✓ ✓</td>
<td>✓ NA NA NA NA NA NA NA</td>
<td>NA NA NA NA</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Trace vitamins include vitamins A, D, E, K.

<sup>b</sup> Minerals include Ca, P, Mg, Fe, Zn, I, Se, K, Mn, Cu, Cr, Mo.
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Theragran-M</td>
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<tr>
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<tr>
<td>Unicap T</td>
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<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

*Vitamin B1 = thiamine; B2 = riboflavin; B3 = niacin; B5 = pantothenic acid; B6 = pyridoxine; B12 = cyanocobalamin.

*Ca = calcium; Cr = chromium; Cu = copper; Fe = iron; Fl = fluoride; I = iodine; K = potassium; Mg = magnesium; Mn = manganese; Mo = molybdenum; P = phosphorus; Se = selenium; Zn = zinc.
### TABLE 13
Influenza Vaccine Strains for 2014–2015 (See also pp 165-167)

The 2013–2014 trivalent influenza vaccine is made from the following three viruses:
- A/California/7/2009 (H1N1)-like virus
- A/Texas/50/2012 (H3N2)-like virus
- B/Massachusetts/2/2012-like virus.

It is recommended that quadrivalent vaccines containing two influenza B viruses contain the above three viruses and a B/Brisbane/60/2008-like virus. (http://www.cdc.gov/flu/about/season/flu-season-2014-2015.htm Accessed 29 August 2014)

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<th>Age</th>
<th>Brand Name Product</th>
<th>Dosage Form/Strength</th>
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<tr>
<td>6–35 mo</td>
<td>Fluzone</td>
<td>0.25 mL prefilled syringe</td>
</tr>
<tr>
<td></td>
<td>Fluzone Quadrivalent</td>
<td>0.25 mL prefilled syringe</td>
</tr>
<tr>
<td>2–49 y</td>
<td>FluMist Quadrivalent</td>
<td>0.2 mL prefilled intranasal sprayer</td>
</tr>
<tr>
<td>≥36 mo</td>
<td>Fluarix</td>
<td>0.5 mL prefilled syringe &amp; single-dose vial; 5 mL multi-dose vial</td>
</tr>
<tr>
<td></td>
<td>Fluarix Quadrivalent</td>
<td>0.5 mL prefilled syringe</td>
</tr>
<tr>
<td></td>
<td>Fluzone</td>
<td>0.5 mL prefilled syringe &amp; single-dose vial; 5 mL multi-dose vial</td>
</tr>
<tr>
<td></td>
<td>Fluarix Quadrivalent</td>
<td>0.5 mL prefilled syringe</td>
</tr>
<tr>
<td>≥4 y</td>
<td>Fluvirin</td>
<td>0.5 mL prefilled syringe &amp; 5 mL multi-dose vial</td>
</tr>
<tr>
<td>≥9 y&lt;sup&gt;a&lt;/sup&gt;</td>
<td>Afluria</td>
<td>0.5 mL prefilled syringe &amp; 5 mL multi-dose vial</td>
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<tr>
<td>≥18 y</td>
<td>Flucelvax</td>
<td>0.5 mL prefilled syringe</td>
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<tr>
<td></td>
<td>FluLaval</td>
<td>5 mL multi-dose vial</td>
</tr>
<tr>
<td>18–49 y</td>
<td>FluBlok&lt;sup&gt;b&lt;/sup&gt;</td>
<td>0.5 mL single-dose vial</td>
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<tr>
<td>18–64 y</td>
<td>Fluzone Intradermal</td>
<td>0.1 mL prefilled microinjection system</td>
</tr>
<tr>
<td>≥65 y</td>
<td>Fluzone High-Dose</td>
<td>0.5 mL prefilled syringe</td>
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<sup>a</sup> Age indication per package labeling is ≥ 5 y; ACIP (http://www.cdc.gov/vaccines/hcp/acip-recs/vacc-specific/flu.html Accessed August 18, 2014) recommends Afluria not be used in children 6–8 y due to increased risk of febrile Rxn.

<sup>b</sup> Adolescents of age 18 yrs and older with egg allergy of any severity can receive the recombinant influenza vaccine (RIV) (Flublok). RIV does not contain any egg protein.
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ADULT EMERGENCY CARDIAC CARE (ECC) MEDICATIONS BASED ON 2010 AHA GUIDELINES
(Commonly used medications listed. See individual drug listings for details.)

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<tr>
<td>Abciximab (ReoPro)</td>
<td>ACS with immediate PCI: 0.25-mg/kg IV bolus 10-60 min before PCI, then 0.125 mcg/kg/minute (max 10 mcg/min) for 12 hours; w/ heparin. ACS w/ planned PCI w/in 24 h: 0.25 mg/kg IV bolus, then 10 mcg/min IV over 18–24 h, concluding 1 h post PCI.</td>
</tr>
<tr>
<td>Adenosine (Adenocard)</td>
<td>6 mg rapid IV push, then 20 mL NS bolus. Elevate extremity; repeat 12 mg in 1–2 min PRN × 2.</td>
</tr>
<tr>
<td>Alteplase, recombinant (Activase)</td>
<td>STEMI: 15-mg bolus; then 0.75 mg/kg over 30 min (50 mg max); then 0.50 mg/kg over next 60 min (35 mg max; max total dose 100 mg) Acute ischemic stroke: 0.9 mg/kg IV (max 90 mg) over 60 min; give 10% of total dose over 1 min; remaining 90% over 1 h (or 3-h Inf).</td>
</tr>
<tr>
<td>Amiodarone (Cordarone, Pacerone)</td>
<td>VF/VT Cardiac arrest refractory to CPR, shock and pressor: 300 mg IV/IO push; can give additional 150 mg IV/IO once; Life-threatening arrhythmias: Max dose 2.2 g IV/24h. Initial, 15 mg/min IV for 10 min (150 mg), then 1 mg/min IV for 6 h (360 mg), then 0.5 min/min IV for 18h (540 mg)</td>
</tr>
<tr>
<td>Aspirin</td>
<td>ACS: 30 units IV over 2–5 min.</td>
</tr>
<tr>
<td>Anistreplase (Eminase)</td>
<td>ACS: 30 units IV over 2–5 min.</td>
</tr>
<tr>
<td>Atenolol (Tenormin)</td>
<td>AMI: 5 mg IV over 5 min; in 10 min, 5 mg slow IV; if tolerated in 10 min, start 50 mg PO, titrate.</td>
</tr>
<tr>
<td>Atropine sulfate</td>
<td>Asystole or PEA: Routine use for asystole or PEA no longer recommended.</td>
</tr>
<tr>
<td>Calcium chloride</td>
<td>Bradycardia: 0.5 mg IV q3–5 min as needed; max 3 mg or 0.04 mg/kg.</td>
</tr>
<tr>
<td></td>
<td>Hyperkalemia/hypermagnesemia/CCB overdose: 500–1000 mg (5–10 mL of 10% soln) IV; repeat PRN; comparable dose of 10% calcium gluconate is 15–30 mL.</td>
</tr>
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### Generic (Trade) Adult Dose

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<td><strong>Clopidogrel (Plavix)</strong></td>
<td>ACS: 300–600 mg PO loading dose, then 75 mg/d PO; full effect takes several d.</td>
</tr>
<tr>
<td><strong>Diltiazem (Cardizem)</strong></td>
<td>Acute rate control: 0.25 mg/kg (15–20 mg) over 2 min, followed in 15 min by 0.35 mg/kg (20–25 mg) over 2 min; maint inf 5–15 mg/h.</td>
</tr>
<tr>
<td><strong>Dobutamine (Dobutrex)</strong></td>
<td>2–20 mcg/kg/min; titrate to HR not &gt;10% of baseline.</td>
</tr>
<tr>
<td><strong>Dopamine</strong></td>
<td>2–20 mcg/kg/min.</td>
</tr>
<tr>
<td><strong>Epinephrine</strong></td>
<td>1 mg (10 mL of 1:1000 soln) IV/IO push, repeat q3–5 min (0.2 mg/kg max) if 1 mg dose fails. Inf: 0.1–0.5 mcg/kg/min, titrate. ET 2–2.5 mg in 20 mL NS. Profound bradycardia/hypotension: 2–10 mcg/min (1 mg in 250 mL D5W) Allergic Rxn: 0.3–0.5 mg (0.3–0.5 mL of 1:1000 soln) SQ. Anaphylaxis: 0.3–0.5 (3–5 mL of 1:1000 soln) IV.</td>
</tr>
<tr>
<td><strong>Eptifibatide (Integrilin)</strong></td>
<td>ACS: 180 mcg/kg/min IV bolus over 1–2 min, then 2 mcg/kg/min, then repeat bolus in 10 min; continue infusion 18–24 h post PCI.</td>
</tr>
<tr>
<td><strong>Esmolol (Brevibloc)</strong></td>
<td>0.5 mg/kg (500 mcg/kg) over 1 min, then 0.05 mg/kg/min (50 mcg/kg/min) Inf; if inadequate response after 5 min, repeat 0.5 mg/kg bolus, then titrate Inf up to 0.2 mg/kg/min (200 mcg/kg/min); maximum 0.3 mg/kg/min (300 mcg/kg/min).</td>
</tr>
<tr>
<td><strong>Glucagon</strong></td>
<td>β-Blocker or CCB overdose: 3–10 mg slow IV over 3–5 min; follow with Inf of 3–5 mg/h; Hypoglycemia: 1 mg IV, IM, or SQ.</td>
</tr>
<tr>
<td><strong>Heparin (unfractionated)</strong></td>
<td>STEMI: Bolus 60 units/kg (max 4000 units); then 12 units/kg/h (max 1000 units/h) round to nearest 50 units; keep aPTT 1.5–2 X control 48 h or until angiography.</td>
</tr>
<tr>
<td><strong>Ibutilide</strong></td>
<td>SVT (AFib and AFlutter): ≥ 60 kg, 1 mg (10 mL) over 10 min; a second dose may be used; &lt; 60 kg 0.01 mg/kg over 10 min.</td>
</tr>
<tr>
<td><strong>Labetalol (Trandate)</strong></td>
<td>10–20 mg IV over 1–2 min; repeat or double dose q10min (150 mg max); or initial bolus, then maint inf 1–8 mg/min (max 300 mg/24h)</td>
</tr>
<tr>
<td><strong>Lidocaine</strong></td>
<td>Cardiac arrest from VF/VT refractory VF: Initial: 1–1.5 mg/kg IV/IO, additional 0.5–0.75 mg/kg IV push, repeat in 5–10 min, max total 3 mg/kg. ET: 2–4 mg/kg as last resort. Reperfusing stable VT, wide complex tachycardia or ectopy: Doses of 0.5–0.75 mg/kg to 1–1.5 mg/kg may be used initially; repeat 0.5–0.75 mg/kg q5–10min; max dose 3 mg/kg.</td>
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<td>Magnesium sulfate</td>
<td><strong>VF/pulseless VT arrest with torsade de pointes:</strong> 1–2 g IV push (2–4 mL 50% solution) in 10 mL D5W. If pulse present, then 1–2 g in 50–100 mL D5W over 5–60 min.</td>
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<tr>
<td>Metoprolol</td>
<td><strong>AMI:</strong> 5 mg slow IV q5min, total 15 mg; then 50 mg PO, titrate to effect.</td>
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<tr>
<td>Morphine</td>
<td><strong>ACS:</strong> 2–4 mg IV (over 1–5 min) q 5–15 min PRN if symptoms not relieved with NTG or symptoms recur w/ caution; can be reversed with 0.4–2mg IV naloxone.</td>
</tr>
<tr>
<td>Nitroglycerin</td>
<td>SL tab or spray: 0.4 mg, repeat q5min, if unrelieved after 1st dose call 911. IV infusion: Start 10–20 mcg/min, titrate by 10 mcg/min q3–5 min to chest pain relief or 200 mcg/min. CIs: Sildenafil or Vardenafil use &lt; 24h, tadalafl &lt; 48h, SBP &lt; 90mmHg</td>
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<tr>
<td>Nitroprusside</td>
<td>0.1 mcg/kg/min start, titrate q 5 min (max dose 5–10 mcg/kg/min).</td>
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<tr>
<td>Procainamide</td>
<td><strong>Stable monomorphic VT, refractory reentry SVT, stable wide-complex tachycardia,</strong> <strong>AFib w/ WPW:</strong> 20 mg/min IV until one of these: arrhythmia stopped, hypotension, QRS widens &gt;50%, total 17 mg/kg; then main Inf of 1–4 mg/min.</td>
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<tr>
<td>Propranolol (Inderal)</td>
<td><strong>SVT:</strong> 0.5 to 1 mg IV given over 1 min; repeat PRN up to 0.1 mg/kg.</td>
</tr>
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<td>Reteplase, recombinant (Retavase)</td>
<td>10 Units IV bolus over 2 min; 30 min later, 10 units IV bolus over 2 min w/NS flush before and after each dose.</td>
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<tr>
<td>Sodium bicarbonate</td>
<td><strong>Cardiac Arrest w/ good ventilation, hyperkalemia, OD of TCAs, ASA, cocaine, diphenhydramine:</strong> 1 mEq/kg IV bolus; repeat 1/2 dose q10min PRN. If rapidly available, use ABG to guide therapy (ABG results unreliable in cardiac arrest).</td>
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<tr>
<td>Sotalol (Betapace)</td>
<td><strong>SVT and ventricular arrhythmias:</strong> 1–1.5 mg/kg IV over 5 min.</td>
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<td>Streptokinase</td>
<td><strong>AMI:</strong> 1.5 million units over 1 h.</td>
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<tr>
<td>Tirofiban (Aggrastat)</td>
<td><strong>ACS or PCI:</strong> 0.4 mcg/kg/min IV for 30 min, then 0.1 mcg/kg/min for 18–24 h post PCI.</td>
</tr>
<tr>
<td>Verapamil</td>
<td><strong>Reentry SVT w/ narrow QRS:</strong> 2.5–5 mg IV over 2 min (slower in older pts); repeat 5–10 mg, in 15–30 min PRN max of 20 mg; or 5 mg bolus q15min (max 30 mg).</td>
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ABG: arterial blood gas, QRS: electrocardiogram complex