

DELMAR'S

Mini Guide

to the Most Commonly
Used Drugs

George R. Spratto

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PREFACE

Delmar's Mini Guide to The Most Commonly Used Drugs consists of approximately 100 drugs that may be prescribed or used in clients. The cards are intended to be a quick reference source for important information about the drug.

USING THE DRUG CARDS

The following components are described in the order in which they appear on the cards. Please note that the information presented for each drug is not comprehensive; the reader should consult other sources, such as *Delmar 2011 Edition Nurse's Drug Handbook™*, for more complete information.

- **Drug Name:** The generic drug name is the first item in the name block (in color at the beginning of each monograph).
- **Phonetic Pronunciation:** All generic drug names include phonetic pronunciation.
- **Trade Name:** Trade names are identified as OTC (over-the counter, no prescription required) or Rx (prescription).
- **Black Box Warning:** The black box icon indicates that the FDA has issued a boxed warning about potentially dangerous or life-threatening side effects. The actual black box warning is found in the accompanying online companion (OLC), available at <http://www.delmarlearning.com/companions>.
- **Pregnancy Category:** The FDA pregnancy category (A, B, C, D, or X) assigned to the drug is indicated.
- **Controlled Substance:** If the drug is controlled by the U.S. Federal Controlled Substances Act, the schedule in which the drug is placed (C-II, C-III, C-IV, or C-V) follows the trade name listing.
- **Classification:** The type of drug or the drug class under which the drug is listed is defined.
- **Uses:** Approved therapeutic uses for the drug are included.
- **Action/Kinetics:** The action portion describes the proposed mechanism(s) by which a drug achieves its therapeutic effect. Not all mechanisms of action are known, and some are self-evident, as when a hormone is administered as a replacement. The kinetics portion lists critical information, if known, about the rate of drug absorption (including, when known, the percent bioavailable), distribution, time for peak plasma levels or peak effect, minimum effective serum or plasma levels, biological half-life, duration of action, metabolism, and excretion route(s). Metabolism and excretion may be important for clients with systemic liver disease, kidney disease, or both.

The half-life ($t_{1/2}$ —the time required for one-half the drug to be excreted or removed from the blood, serum, or plasma) is important in determining how often a drug is to be administered and how long the client is to be assessed for side effects. Therapeutic levels indicate the desired concentration, in serum or plasma, for the drug to exert its beneficial effect and are helpful in predicting the onset of side effects or lack of drug effect.

- **Side Effects:** Listed are the most common undesired or bothersome effects the client may experience while taking a particular drug. In addition, potentially life-threatening side effects are displayed in red italics. Note that the side effects presented are not comprehensive for that particular drug.
- **Dosage:** The dosage form/route of administration and disease state (both in color) are given followed by the dosage. For ease of reading, shading separates dosages for various uses.

The listed dosage is to be considered as a general guideline; the exact amount of the drug to be given is determined by the provider. However, one should question orders when dosages differ markedly from the accepted norm.

- **Need to Know:** This numbered list provides information on important contraindications, special concerns, drug interactions, and nursing considerations (including administration and client information). This list is not intended to be complete; the reader must consult more comprehensive resources for this information.

ACKNOWLEDGMENTS

I would like to extend my thanks and appreciation to the Delmar Cengage Learning team who works so diligently to ensure that the manuscript process flows smoothly and keeps the schedule moving. Team members include Matthew Kane, Director of Learning Solutions; Maureen Rosener, Senior Acquisitions Editor; Beth Williams, Senior Product Manager; Stacey Lamodi, Senior Content Project Manager; Jack Pendleton, Senior Art Director; Mary Colleen Liburdi, Senior Technology Product Manager; and Erin Zeggert, Technology Project Manager.

I also extend greatest appreciation and love to my wife, Lynne, as well as my son Chris and his family (daughter-in-law Mary Alice and grandchildren Patrick Santopietro and Victoria Santopietro) and my son Gregg and his family (daughter-in-law Kim and grandchildren Alexandra and Dominic)—all of whom make the work of this project worthwhile by their unfailing support and encouragement.

Thanks are also extended to Drs. Marie Abate and Matthew Blommel, and their students, at the Drug Information Center, School of Pharmacy, West Virginia University.

George Spratto

Acetaminophen (APAP, Paracetamol)

(ah-SEAT-ah-MIN-oh-fen)

B

OTC: Acephen, Aminofen, Apap, Apra, Cetafen, Ed-Apap, ElixSure, FeverAll, Genapap, Genebs, Infantaire, Mapap, Masophen, Nortemp, Q-Pap, Quick Melts Children's Non-Aspirin, Silapap, Tylenol, UN-Aspirin, Valorin.

Acetaminophen, Buffered

OTC: Bromo Seltzer Effervescent Granules.

CLASSIFICATION(S): Non-narcotic analgesic

USES: (1) **Adults and children at least 12 years of age:** Temporary reduction of fever and relief of minor aches and pains due to backache, the common cold, headache, menstrual cramps, minor arthritis pain, muscular aches, and toothache. (2) **Children, 2–11 years of age:** Temporary reduction of fever and relief of minor aches and pains due to the common cold, flu, headache, sore throat, and toothache.

ACTION/KINETICS: Decreases fever by (1) a hypothalamic effect leading to sweating and vasodilation and (2) inhibits the effect of pyrogens on the hypothalamic heat-regulating centers. May cause analgesia by inhibiting CNS prostaglandin synthesis; however, due to minimal effects on peripheral prostaglandin synthesis, acetaminophen has no anti-inflammatory or uricosuric effects. Antipyretic and analgesic effects are comparable to those of aspirin. Immediate release products are absorbed rapidly. **Peak plasma levels:** 30–60 min. **$t_{1/2}$:** 2–3 hr. **Therapeutic serum levels** (analgesia): 5–20 mcg/mL. Metabolized in the liver and excreted in the urine as glucuronide and sulfate conjugates. Less than 5% is excreted unchanged. The $t_{1/2}$ may be increased two-fold in those with liver disease. An intermediate hydroxylated metabolite is hepatotoxic following large doses of acetaminophen. The extended-relief product uses a bilayer system that allows the outer layer to release acetaminophen rapidly while the inner layer is designed to release the remainder of the dose more slowly. This allows prolonged relief of symptoms. The buffered product is a mixture of acetamino-

phen, sodium bicarbonate, and citric acid that effervesces when placed in water. It also has a high sodium content (0.76 grams per $\frac{3}{4}$ capful).

SIDE EFFECTS: Few when taken in usual therapeutic doses. GI upset in some. *HEMOLYTIC ANEMIA.*

DOSAGE: Capsules; Elixir; Gelscaps; Oral Liquid; Oral Solution; Solution, Oral Concentrate (Drops); Suppositories; Suspension, Oral; Tablets (including Caplets); Tablets, Chewable/Dispersible; Tablets, Extended-Release; Tablets, Oral Disintegrating

ACETAMINOPHEN

Analgesic, antipyretic.

Adults: 325–650 mg q 4–6 hr of immediate release or 1,300 mg q 6 hr of extended release; **maximum per 24 hr:** 4 grams.
Children, 12 years of age (96 lbs or more or 43.6 kg or more): 640 mg q 4–6 hr, not to exceed 5 doses (3.2 grams total) in 24 hr; **11 years of age (72–95 lbs or 32.7–42.3 kg):** 480 mg q 4–6 hr, not to exceed 5 doses (2.4 grams total) in 24 hr; **9–10 years of age (60–71 lbs or 27.3–32.3 kg):** 400 mg q 4–6 hr, not to exceed 5 doses (2 grams total) in 24 hr; **6–8 years of age (48–59 lbs or 21.8–26.8 kg):** 320 mg q 4–6 hr, not to exceed 5 doses (1.6 grams total) in 24 hr; **4–5 years of age (36–47 lbs or 16.4–21.4 kg):** 240 mg q 4 hr, not to exceed 5 doses (1.2 grams total) in 24 hr; **2–3 years of age (24–35 lbs or 10.9–15.9 kg):** 160 mg q 4 hr, not to exceed 5 doses (800 mg total) in 24 hr; **1–2 years of age (18–23 lbs or 8.2–10.5 kg):** 120 mg q 4 hr, not to exceed 5 doses (600 mg total) in 24 hr; **4–11 months of age (12–17 lbs or 5.5–7.7 kg):** 80 mg q 4 hr, not to exceed 5 doses (total of 400 mg) in 24 hr; **0–3 months of age (6–11 lbs or 2.7–5 kg):** 40 mg q 4 hr, not to exceed 5 doses (total of 200 mg) in 24 hr.

DOSAGE: Junior Strength Chewable and Disintegrating Tablets, 160 mg

Analgesic, antipyretic.

Children, 12 years of age (96 lbs or more or 43.6 kg or more): 640 mg (4 tablets) q 4 hr, up to 5 times per day; **11 years of age (72–95 lbs or 32.7–42.3 kg):** 480 mg (3 tablets) q 4 hr, up to 5 times per day; **9–10 years of age (60–71 lbs or 27.3–32.3 kg):** 400 mg (2.5 tablets) q 4 hr, up to 5 times per day; **6–8 years of age (48–59 lbs or 21.8–26.8 kg):** 320 mg (2 tablets) q 4 hr, up to 5 times per day. *NOTE:* This dosage form is not recommended for children less than 6 years of age.

DOSAGE: Children's Chewable and Disintegrating Tablets, 80 mg

Analgesic, antipyretic.

Children, 11 years of age (72–95 lbs or 32.7–42.3 kg): 480 mg (6 tablets) q 4 hr, up to 5 times per day; **9–10 years of age (60–71 lbs or 27.3–32.3 kg):** 400 mg (5 tablets) q 4 hr, up to 5 times per day; **6–8 years of age (48–59 lbs or 21.8–26.8 kg):** 320 mg (4 tablets) q 4 hr, up to 5 times per day; **4–5 years of age (36–47 lbs or 16.4–21.4 kg):** 240 mg (3 tablets) q 4 hr, up to 5 times per day; **2–3 years of age (24–35 lbs or 10.9–15.9 kg):** 160 mg (2 tablets) q 4 hr, up to 5 times per day. *NOTE:* This dosage form is not recommended for children less than 2 years of age.

DOSAGE: Children's Liquid, Solution, or Suspension, 160 mg/5 mL

Analgesic, antipyretic.

Children, 11 years of age (72–95 lbs or 32.7–42.3 kg): 480 mg (15 mL) q 4 hr, up to 5 times per day; **9–10 years of age (60–71 lbs or 27.3–32.3 kg):** 400 mg (12.5 mL) q 4 hr, up to 5 times per day; **6–8 years of age (48–59 lbs or 21.8–26.8 kg):** 320 mg (10 mL) q 4 hr, up to 5 times per day; **4–5 years of age (36–47 lbs or 16.4–21.4 kg):** 240 mg (7.5 mL) q 4 hr, up to 5 times per day; **2–3 years of age (24–35 lbs or 10.9–15.9 kg):** 160 mg (5 mL) q 4 hr, up to 5 times per day.

kg): 160 mg (5 mL) q 4 hr, up to 5 times per day; **1–2 years of age (18–23 lbs or 8.2–10.5 kg):** 120 mg (3.75 mL) q 4 hr, up to 5 times per day; **4–11 months of age (12–17 lbs or 5.5–7.7 kg):** 80 mg (2.5 mL) q 4 hr, up to 5 times per day.

NOTE: This dosage form is not recommended for children less than 4 months of age.

DOSAGE: Infants' Concentrated Drops (80 mg/0.8 mL)

Analgesic, antipyretic.

Children, 2–3 years of age (24–35 lbs or 10.9–15.9 kg): 160 mg (1.6 mL or 2 droppersful) q 4 hr, up to 5 times per day; **1–2 years of age (18–23 lbs or 8.2–10.5 kg):** 120 mg (1.2 mL or 1.5 droppersful) q 4 hr, up to 5 times per day; **4–11 months of age (12–17 lbs or 5.5–7.7 kg):** 80 mg (0.8 mL or 1 dropperful) q 4 hr, up to 5 times per day; **0–3 months of age (6–11 lbs or 2.7–5 kg):** 40 mg (0.4 mL or $\frac{1}{2}$ dropperful) q 4 hr, up to 5 times per day.

DOSAGE: Suppositories

Analgesic, antipyretic.

Adults and children over 12 years of age: 650 mg (given as two 325 mg suppositories or one 650 mg suppository) q 4–6 hr, not to exceed 3.9 grams per 24 hr. Clients on long-term therapy should not exceed 2.6 grams/day. **Children, 6–12 years of age:** 325 mg q 4–6 hr with no more than 1.95 grams in 24 hr; **3–6 years of age:** 120 mg q 4–6 hr, with no more than 720 mg in 24 hr; **1–3 years of age:** 80 mg q 4 hr, with no more than 480 mg in 24 hr; **3–11 months of age:** 80 mg q 6 hr. Given as needed while symptoms persist.

DOSAGE: Granules, Effervescent ACETAMINOPHEN BUFFERED

Analgesic, antipyretic.

Adult, usual: 1 or 2 three-quarter capfuls are placed into an empty glass; add half a glass of cool water. May be taken while fizzing or after settling. Can be repeated q 4 hr as required or directed by provider.

NEED TO KNOW

1. Clients with cardiac or pulmonary disease are more susceptible to acetaminophen toxicity.
2. Toxicity, including serious liver damage (hepatocyte necrosis) and apoptosis, may occur with doses not far beyond labeled dosing, especially when using high doses and when taking more than one product containing acetaminophen and with three or more drinks of alcohol per day. Oral *N*-acetylcysteine is said to reduce or prevent hepatic damage by inactivating acetaminophen metabolites, which cause liver toxicity.
3. Do not exceed 4 grams/24 hr in adults and 75 mg/kg/day in children. Even though dosages are presented for children younger than 2 years of age (or less than 24 lbs), a health care provider should be consulted before use.
4. Consult a provider if pain gets worse or lasts for more than 5 days in children or 10 days in adults; if fever lasts for more than 3 days in adults or children; or if swelling is present or new symptoms occur, as these could be signs of a serious condition.
5. Do not combine products containing acetaminophen, many of which are OTC.
6. Dosage is age and weight determined; follow guidelines carefully.
7. Take as directed with food or milk to decrease GI upset.
8. S&S of acute toxicity that require immediate reporting include N&V or abdominal pain. Bluish coloration of skin/nailbeds or complaints of SOB, weakness, headache, or dizziness are S&S of methemoglobinemia caused by lack of oxygen and require immediate attention.
9. Abdominal pain, yellow discoloration of skin and eyes, dark urine, itching, clay-colored stools may indicate liver toxicity.
10. Avoid alcohol; may cause toxicity.

Acetaminophen and Codeine Phosphate

(ah-SEAT-ah-MIN-oh-fen, KOH-deen)

Rx: Tylenol with Codeine, Vopac, C-III.

C

CLASSIFICATION(S): Non-narcotic/narcotic analgesic combination**USES:** Relief of mild to moderately severe pain.**ACTION/KINETICS:** Acetaminophen may cause analgesia by inhibiting CNS prostaglandin synthesis. The mechanism of morphine is believed to involve decreased permeability of the cell membrane to sodium, which results in diminished transmission of pain impulses and therefore analgesia. Both are well absorbed after PO. Acetaminophen plasma $t_{1/2}$: 1–4 hr; codeine plasma $t_{1/2}$: 2.5–3 hr. Acetaminophen is metabolized mainly in the liver and excreted in the urine. Codeine is metabolized in the liver and excreted in the urine.**SIDE EFFECTS:** Lightheadedness, dizziness, sedation, shortness of breath, N&V, respiratory depression (high doses of codeine).**DOSAGE: Elixir (Oral Solution)***Mild to moderately severe pain.***Adults:** 15 mL (360 mg acetaminophen and 36 mg codeine phosphate) q 4 hr. **Children, 7–12 years of age:** 10 mL (240 mg acetaminophen and 24 mg codeine phosphate) 3–4 times per day. **Children, 3–6 years of age:** 5 mL (120 mg acetaminophen and 12 mg codeine phosphate) 3–4 times per day.**DOSAGE: Tablets***Mild to moderately severe pain.***Adults, acetaminophen:** 200–1,000 mg is the single dose range; maximum daily dose: 4,000 mg. **Adults, codeine:** 15–60 mg is the single dose range; maximum daily dose: 360 mg. Doses may be repeated q 4 hr.

DOSAGE: Tablets (Vopac)

Mild to moderately severe pain.

Adults: $\frac{1}{2}$ –2 tablets (acetaminophen, 650 mg and codeine phosphate, 30 mg) q 4 hr, up to 6 tablets per day.

NEED TO KNOW

1. Those with cardiac or pulmonary disease are more susceptible to acetaminophen toxicity.
2. Tablets contain sodium metabisulfite that may cause allergic-type reactions including anaphylaxis and life-threatening or less severe asthmatic episodes in susceptible individuals.
3. Acetaminophen toxicity, including serious liver damage and apoptosis, may occur with doses not far beyond labeled dosing. Consult a provider before use if more than three alcoholic drinks per day are consumed.
4. Take as directed with full glass of water. May take with food/milk if GI upset.
5. For constipation, increase fluid and fiber intake to offset.
6. Do not stop suddenly with prolonged use, may cause withdrawal.

Albuterol (Salbutamol) (al-BYOU-ter-ohl)

C

Rx: AccuNeb, ProAir HFA, Proventil, Proventil HFA, Ventolin, Ventolin HFA, VoSpire ER.

CLASSIFICATION(S): Sympathomimetic

USES: Inhalation: (1) Prophylaxis and relief of bronchospasm in reversible obstructive airway disease. (2) Acute attacks of bronchospasm (inhalation solution). (3) Prophylaxis of exercise-induced bronchospasm. **Syrup:** Relief of bronchospasm in adults and children 2 years and older with reversible obstructive airway disease.

Tablets and Extended-Release Tablets: Relief of bronchospasm in adults and children 6 years and older with reversible obstructive airway disease.

ACTION/KINETICS: Stimulates beta-2 receptors of the bronchi, leading to bronchodilation. Causes less tachycardia and is longer-acting than isoproterenol. Has minimal beta-1 activity. Available as an inhaler that contains no chlorofluorocarbons (Proventil HFA).

Onset, PO: 15–30 min; **inhalation,** within 5 min. **Peak effect, PO:** 2–3 hr; **inhalation,** 60–90 min (after 2 inhalations). **Duration, PO:** 4–8 hr (up to 12 hr for extended-release); **inhalation,** 3–6 hr. Metabolites and unchanged drug excreted in urine and feces.

SIDE EFFECTS: Headache, N&V, palpitations/tachycardia, tremor, bronchospasm. *ANGIOEDEMA, BRONCHOSPASM, OROPHARYNGEAL EDEMA.*

DOSAGE: Inhalation Aerosol

Bronchodilation.

Adults and children over 4 years of age (12 years of age and over for Proventil): 180 mcg (2 inhalations) q 4–6 hr. In some clients 1 inhalation (90 mcg) q 4 hr may be sufficient.

Maintenance (Proventil only): 180 mcg (2 inhalations) 4 times per day.

Prophylaxis of exercise-induced bronchospasm.

Adults and children over 4 years of age (12 years of age and over for Proventil): 180 mcg (2 inhalations) 15 min before exercise.

DOSAGE: Inhalation Solution

Bronchodilation.

Adults and children over 12 years of age: 2.5 mg 3–4 times per day by nebulization (dilute 0.5 mL of the 0.5% solution with 2.5 mL sterile NSS and deliver over 5–15 min). **Children, 2–12 years of age (15 kg or over), initial:** 2.5 mg (1 UD vial) 3–4 times per day by nebulization. **Children weighing less than 15 kg who require less than the 2.5 mg dose (i.e., less than a full UD vial):** Use the 0.5% inhalation solution. Give over about 5–15 min.

DOSAGE: Accuneb

Relief and prophylaxis of bronchospasms.

Initial, children 2–12 years of age: 1.25 mg or 0.63 mg given 3–4 times per day, as needed, by nebulization. Do not give more frequently. Administer over about 5–15 min.

DOSAGE: Syrup

Bronchodilation.

Adults and children over 14 years of age, usual initial: 2–4 mg (5–10 mL) 3–4 times per day, up to a maximum of 8 mg 4 times per day. In geriatric clients and those sensitive to β -adrenergic stimulation, restrict initial dose to 2 mg (5 mL) 3 or 4 times per day; adjust individually thereafter. **Children, over 6–12 years of age, initial:** 2 mg (5 mL) 3–4 times per day; **then,** increase as necessary to a maximum of 24 mg/day in divided doses. **Children, 2–6 years of age, initial:** 0.1 mg/kg 3 times per day, not to exceed 2 mg (5 mL) 3 times per day; **then,** increase as necessary up to 0.2 mg/kg 3 times per day, not to exceed 4 mg (10 mL) 3 times per day.

DOSAGE: Tablets

Bronchodilation.

Adults and children over 12 years of age, initial: 2 or 4 mg 3–4 times per day; **then,** increase dose as needed up to a maximum of 8 mg 4 times per day, as tolerated. In geriatric clients or those sensitive to beta agonists, start with 2 mg 3–4 times per day; increase dose gradually, if needed, to a maximum of 8 mg 3–4 times per day, not to exceed 32 mg/day in adults and children over 12 years of age. **Children, 6–12 years of age, usual, initial:** 2 mg 3–4 times per day; **then,** if necessary, increase the dose in a stepwise fashion to a maximum of 24 mg/day in divided doses.

DOSAGE: Vospire ER Tablets

Bronchodilation.

Adults and children over 12 years of age: 8 mg q 12 hr; in some clients (e.g., low adult body weight), 4 mg q 12 hr may be sufficient initially and then increased to 8 mg q 12 hr, de-

pending on the response. The dose can be increased stepwise and cautiously (under provider supervision) to a maximum of 32 mg/day in divided doses q 12 hr. **Children, 6–12 years of age:** 4 mg q 12 hr. The dose can be increased stepwise and cautiously (under provider supervision) to a maximum of 24 mg/day in divided doses q 12 hr.

NEED TO KNOW

1. Do not use the aerosol for prevention of exercise-induced bronchospasm. Tablets are not recommended for children less than 12 years of age.
2. May delay preterm labor.
3. Large IV doses may aggravate preexisting diabetes mellitus and ketoacidosis.
4. The aerosol and inhalation powder are indicated for children 4 years and older (12 years and older for Proventil); the solution for inhalation is indicated for children 2 years and older.
5. When given by nebulization, use either a face mask or mouth-piece. Use compressed air or oxygen with a gas flow of 6–10 L/min; a single treatment lasts from 5 to 15 min.
6. When given by IPPB, the inspiratory pressure should be from 10 to 20 cm water, with the duration of treatment ranging from 5 to 20 min depending on the client and instrument control.
7. A spacer used with the MDI may enhance drug dispersion. Maintain fluid intake of 2,000 mL/day. Always thoroughly rinse mouth and equipment with water following each use/dose to prevent oral fungal infections.
8. When using inhalers, do not use other albuterol inhalation medication unless specifically prescribed. If a steroid (Vanceril) inhaler is also prescribed, use this 20–30 min after albuterol to permit better lung penetration.

Alendronate Sodium

(ay-LEN-droh-nayt)

Rx: Fosamax.

C

CLASSIFICATION(S): Bone growth regulator, bisphosphonate

USES: Daily dosing: (1) Prevent osteoporosis in women who are at risk of developing osteoporosis and to maintain bone mass and reduce the risk of future fracture. (2) Treat osteoporosis in postmenopausal women to increase bone mass and reduce the incidence of fractures, including those of the hip and spine.

(3) Increase bone mass in men with osteoporosis. (4) Glucocorticoid-induced osteoporosis in men and women receiving daily dosage equivalent to prednisone 7.5 mg or greater and who have low bone mineral density. Used with adequate amounts of calcium and Vitamin D. (5) Paget's disease of bone in men and women with alkaline phosphatase at least two times the upper limit of normal, for those who are symptomatic, or those at risk for future complications from the disease. **Weekly dosing:** Treatment or prevention of postmenopausal osteoporosis in women or osteoporosis in men.

ACTION/KINETICS: Binds to bone hydroxyapatite and inhibits osteoclast activity, thereby preventing bone resorption. Appears to reduce fracture risk and reverse the progression of osteoporosis. Well absorbed orally and initially distributed to soft tissues, but then quickly redistributed to bone. Not metabolized; excreted through the urine. $t_{1/2}$, **terminal:** Believed to be more than 10 years, due to slow release from the skeleton.

SIDE EFFECTS: Abdominal pain, dyspepsia, nausea, constipation, diarrhea.

DOSAGE: Oral Solution; Tablets

Prevention of osteoporosis in postmenopausal women.

One 35 mg tablet once weekly or one 5 mg tablet once daily.

Treatment of osteoporosis in postmenopausal women.

One 70 mg tablet once weekly, 1 bottle of 70 mg oral solution once weekly, or one 10 mg tablet once daily.

Osteoporosis in men.

One 70 mg tablet once weekly, 1 bottle of 70 mg oral solution once weekly, or one 10 mg tablet once daily.

Glucocorticoid-induced osteoporosis.

One 5 mg tablet once daily for men and women. For postmenopausal women not receiving estrogen, the recommended dose is one 10 mg tablet daily. Also give clients adequate amounts of calcium and vitamin D.

Paget's disease of the bone.

40 mg once daily for 6 months for both men and women.

NEED TO KNOW

1. Do not use in severe renal insufficiency (C_{CR} less than 35 mL/min).
2. Use with caution in those with upper GI problems, such as dysphagia, symptomatic esophageal diseases, gastritis, duodenitis, or ulcers.
3. To facilitate stomach delivery and reduce esophagus irritation, do not lie down for at least 30 min following administration.
4. Due to possible interference with absorption, at least 30 min should elapse before taking antacids or calcium supplements.
5. If dietary intake is insufficient, give supplemental calcium and vitamin D when used for glucocorticoid-induced osteoporosis or Paget's disease.
6. Benefit seen only when each tablet is taken with 6–8 oz of plain water first thing in the morning at least 30 min before the first food, beverage, or medication of the day. Do not lie down after taking drug. Taking with juice or coffee will markedly reduce absorption.
7. If taking alendronate once weekly and a dose is missed, take dose the next morning, and then resume taking 1 dose a

week as originally scheduled on chosen day. Do not take 2 doses on the same day to catch up.

8. Stop drug and contact provider if swallowing difficulty, pain behind breastbone, or new/worsening heartburn occur.

Allopurinol (al-oh-PYOUR-ih-nohl)

C

Rx: Alopurinol for Injection, Zyloprim.

CLASSIFICATION(S): Antigout drug

USES: IV: Management of clients with leukemia, lymphoma, and solid tumor malignancies in whom cancer chemotherapy causes elevations of serum and urinary uric acid levels and who cannot tolerate PO therapy. **PO:** (1) Primary or secondary gout (acute attacks, tophi, joint destruction, nephropathy, uric acid lithiasis). (2) Clients with leukemia, lymphoma, or other malignancies in whom drug therapy causes elevations of serum and urinary uric acid. Recurrent calcium oxalate calculi where daily uric acid excretion exceeds 800 mg/day in males and 750 mg/day in females.

ACTION/KINETICS: Allopurinol and its major metabolite, oxipurinol, are potent inhibitors of xanthine oxidase, an enzyme involved in the synthesis of uric acid. Results in decreased uric acid levels. Also allopurinol increases reutilization of xanthine and hypoxanthine for synthesis of nucleotide and nucleic acid by acting on the enzyme hypoxanthine-guanine phosphoribosyltransferase. The resultant increases in nucleotides cause a negative feedback to inhibit synthesis of purines and a decrease in uric acid levels. **Peak plasma levels, after PO:** 1.5 hr for allopurinol and 4.5 hr for oxipurinol. **Onset, after PO:** 2–3 days. **t_{1/2}, after PO** (allopurinol); 1–3 hr; **t_{1/2}** (oxipurinol): 12–30 hr. **Peak serum levels after PO, allopurinol:** 2–3 mcg/mL; **oxipurinol:** 5–6.5 mcg/mL (up to 50 mcg/mL in clients with impaired renal function). **Maximum therapeutic effect, after PO:** 1–3 weeks. Well absorbed from GI tract, metabolized in liver, excreted in urine and feces (20%).

SIDE EFFECTS: Rash, N&V, renal failure/insufficiency. *STEVENS-JOHN-*

SON SYNDROME, TOXIC EPIDERMAL NECROLYSIS, STATUS EPILEPTICUS, HEPATIC NECROSIS, LIVER FAILURE, CARDIORESPIRATORY ARREST, HEART FAILURE, HEMORRHAGE, STROKE, SEPTIC SHOCK, VENTRICULAR FIBRILLATION, ARDS, RESPIRATORY FAILURE, PULMONARY EMBOLUS.

DOSAGE: IV Infusion

Lower serum uric acid in leukemia, lymphoma, or solid malignancies.

Adults: 200–400 mg/m²/day, to a maximum of 600 mg/day.

Children, initial: 200 mg/m²/day.

DOSAGE: Tablets

Gout/hyperuricemia.

Adults: 200–300 mg/day for mild gout and 400–600 mg/day for moderately severe tophaceous gout, not to exceed 800 mg/day. Minimum effective dose: 100–200 mg/day.

Prevention of uric acid nephropathy during vigorous treatment of neoplasms.

Adults: 600–800 mg/day for 2–3 days (with high fluid intake).

Prophylaxis of flare-up of acute gouty attacks.

Initial: 100 mg/day; increase by 100 mg at weekly intervals to achieve serum uric acid level of 6 mg/100 mL or less.

Hyperuricemia associated with malignancy.

Children, 6–10 years of age: 300 mg/day either as a single dose or 100 mg 3 times per day; **under 6 years of age:** 150 mg/day in three divided doses.

Recurrent calcium oxalate calculi.

200–300 mg/day in one or more doses (dose may be adjusted according to urinary levels of uric acid).

To ameliorate granulocyte suppressant effect of fluorouracil.

600 mg/day.

Reduce perioperative mortality and postoperative arrhythmias in coronary artery bypass surgery.

300 mg 12 hr and 1 hr before surgery.

Reduce relapse rates of *H. pylori*-induced duodenal ulcers; treat hematemesis from NSAID-induced erosive gastritis.

50 mg 4 times per day.

Alleviate pain due to acute pancreatitis.

50 mg 4 times per day.

Treat American cutaneous leishmaniasis and *T. cruzi*.

20 mg/kg for 15 days.

Treat Chagas' disease.

600–900 mg/day for 60 days.

Alternative to treat epileptic seizures refractory to standard therapy.

300 mg/day, except use 150 mg/day in those less than 20 kg.

DOSAGE: Mouthwash

Prevent fluorouracil-induced stomatitis.

20 mg in 3% methylcellulose (1 mg/mL compounded in the pharmacy).

NEED TO KNOW

1. Do not use in children except as an adjunct in treatment of neoplastic disease.
2. Keep urine slightly alkaline to prevent uric acid stone formation.
3. Reduce PO dose as follows in impaired renal function: creatinine clearance (C_{CR}) <10 mL/min: 100 mg 3 times per week; C_{CR} 10 mL/min: 100 mg every other day; C_{CR} 20 mL/min: 100 mg/day; C_{CR} 40 mL/min: 150 mg/day; C_{CR} 60 mL/min: 200 mg/day.
4. For either adults or children, give daily dose as a single infusion or in equally divided infusions at 6-, 8-, or 12-hr intervals at concentration not to exceed 6 mg/mL.
5. Whenever possible, administer 24–48 hr before start of chemotherapy known to cause tumor cell lysis (including corticosteroids).
6. Take with food or immediately after meals to lessen gastric irritation. Consume at least 10–12 8-oz glasses of fluid/day to prevent stone formation.

7. Report if rash or flu-like symptoms develop. Skin rashes may start after months of therapy; stop therapy/report to determine if drug-related.
8. Avoid excessive intake of vitamin C; may cause kidney stones.
9. Avoid caffeine and excessive intake of alcohol; decreases allo-purinol effect.
10. Gouty attacks may not end for 2 to 6 wk after beginning therapy; take as prescribed.

Alprazolam (al-PRAYZ-oh-lam)

D

Rx: Alprazolam Extended-Release, Alprazolam Intensol, Niravam, Xanax, Xanax XR, **C-IV**.

CLASSIFICATION(S): Antianxiety drug, benzodiazepine

USES: Immediate-Release Tablets, Orally Disintegrating Tablets, and Intensol: (1) Anxiety. (2) Anxiety associated with depression with or without agoraphobia. **Immediate- and Extended-Release Tablets, Orally Disintegrating Tablets:** Panic disorder with or without agoraphobia.

ACTION/KINETICS: Reduces anxiety by increasing or facilitating the inhibitory neurotransmitter activity of GABA. The skeletal muscle relaxant effect may be due to enhancement of GABA-mediated presynaptic inhibition at the spinal level as well as in the brain stem reticular formation. **Onset:** Intermediate. **Peak plasma levels: PO,** 8–37 ng/mL after 1–2 hr. **t_{1/2}:** 12–15 hr. Sublingual absorption is as rapid as PO use; completeness of absorption is comparable. Metabolized to alpha-hydroxyalprazolam, an active metabolite. **t_{1/2}:** 12–15 hr. Excreted in urine.

SIDE EFFECTS: Drowsiness, ataxia, confusion.

DOSAGE: Oral Solution; Tablets, Immediate-Release; Tablets, Oral Disintegrating

Anxiety disorders.

Adults, initial: 0.25–0.5 mg 3 times per day; **then,** titrate to needs of client at intervals of 3–4 days in increments of no more than 1 mg/day, with total daily dosage not to exceed 4 mg. **In elderly or debilitated, initial:** 0.25 mg 2–3 times per day; **then,** adjust dosage to needs of client.

DOSAGE: Tablets, Extended-Release; Tablets, Immediate-Release; Tablets, Oral Disintegrating

Panic disorders (use Niravam, Xanax, Xanax XR).

Immediate-Release Tablets, Oral Disintegrating Tablets:

Adults, initial: 0.5 mg 3 times per day; increase dose as needed, every 3–4 days in increments of no more than 1 mg/day up to a maximum of 10 mg/day (mean dose: 5–6 mg/day). **Extended-Release Tablets: Adults, initial:** 0.5 mg–1 mg once daily. **Total daily dose:** 3–6 mg/day.

Agoraphobia with social phobia.

Adults: 2–8 mg/day.

PMS.

0.25 mg 3 times per day.

NEED TO KNOW

1. Do not use with itraconazole or ketoconazole, or in acute narrow-angle glaucoma.
2. Azole antifungal drugs, clarithromycin, erythromycin, protease inhibitors, or SSRIs decrease the metabolism of alprazolam. Decrease the dose of alprazolam by 50% to 75%.
3. Reduce dosage in elderly and debilitated clients. Starting dose of immediate-release and intensol is 0.25 mg given 2 or 3 times per day. Increase dose gradually if needed. For extended-release tablets, begin with 0.5 mg once a day; gradually increase if needed and tolerated.
4. When discontinuing therapy or decreasing the daily dose, reduce dosage gradually. It is recommended the daily dose be

decreased by no more than 0.5 mg q 3 days; some clients may require an even slower dosage reduction.

5. Immediate-release and extended-release tablets are interchangeable on a daily mg-to-mg basis.
6. May take tablets with milk or food to decrease GI upset.
7. Avoid activities that require mental alertness until tolerance assessed; may cause drowsiness or impair judgment, thinking, or reflexes. Rise slowly to prevent lightheadedness or fainting.
8. Avoid smoking, alcohol consumption, or any other CNS depressants without provider approval.

Amitriptyline Hydrochloride

(ah-me-TRIP-tih-leen)



CLASSIFICATION(S): Antidepressant, tricyclic

USES: (1) Relief of symptoms of depression, including depression accompanied by anxiety and insomnia. (2) Chronic pain due to cancer or other pain syndromes. (3) Prophylaxis of cluster and migraine headaches.

ACTION/KINETICS: Metabolized to an active metabolite, nortriptyline. Has significant anticholinergic and sedative effects with moderate orthostatic hypotension. Very high ability to block serotonin uptake and moderate activity with respect to norepinephrine uptake. **Effective plasma levels of amitriptyline and nortriptyline:** Approximately 110–250 ng/mL. **Time to reach steady state:** 4–10 days. **t_{1/2}:** 31–46 hr. Up to 1 month may be required for beneficial effects to be manifested.

SIDE EFFECTS: Sedation, dry mouth, blurred vision, constipation, mydriasis, urinary retention, disturbance of accommodation.

DOSAGE: Tablets

Antidepressant.

Adults (outpatients): 75 mg/day in divided doses; may be in-

creased to 150 mg/day. *Alternate dosage:* **Initial:** 50–100 mg at bedtime; **then,** increase by 25–50 mg, if necessary, up to 150 mg/day. **Hospitalized clients, initial:** 100 mg/day; may be increased to 200–300 mg/day. **Maintenance, usual:** 40–100 mg/day (may be given as a single dose at bedtime). **Adolescent and geriatric:** 10 mg 3 times per day and 20 mg at bedtime up to a maximum of 100 mg/day.

Chronic pain.

50–100 mg/day.

Analgesic adjunct.

75–300 mg/day.

Dermatologic disorders.

10–50 mg/day.

NEED TO KNOW

1. Do not use in children less than 12 years old.
2. Antidepressants increase the risk of suicidal thinking and behavior (suicidality) in short-term studies in children and adolescents with major depressive disorders and other psychiatric disorders.
3. Sedative effects may be manifested before antidepressant effects.
4. When satisfactory improvement is noted, reduce the dose to the lowest effective amount.
5. Take with food; minimizes gastric upset. May increase appetite and cause some weight gain.
6. Do not drive or operate hazardous machinery until drug effects realized; causes high degree of sedation.
7. Report if blurred vision, sore throat, fever, increased heart rate, impaired coordination, difficult urination, excessive sedation, or seizures occur.
8. Beneficial antidepressant effects may not be noted for 4 to 6 wk but side effects may be noted earlier.
9. Elderly clients may be at increased risk for falls; start low doses, use precautions, and observe closely.
10. Avoid intake of alcohol or other CNS depressants.

**Amlodipine Besylate and
Benazepril Hydrochloride**
(am-LOH-dih-peen, beh-NAYZ-eh-prill)
Rx: Lotrel.



CLASSIFICATION(S): Antihypertensive

USES: Hypertension (not indicated for initial therapy).

ACTION/KINETICS: Benazepril (and its active metabolite benazeprilat) inhibit angiotensin-converting enzyme resulting in decreased plasma angiotensin II, which leads to decreased vasopressor activity and decreased aldosterone secretion. Amlodipine inhibits the transmembrane influx of calcium ions into vascular smooth muscle and cardiac muscle, resulting in a depression of automaticity and conduction velocity. There is a reduction of both supine and standing BP, with no compensatory tachycardia. Absorption of either drug is not affected by food. **Peak plasma levels, amlodipine:** 6–12 hr; **benazepril and benazeprilat:** 0.5–2 hr and 1.5–4 hr, respectively. Amlodipine is metabolized in the liver and excreted through the urine. Benazepril and metabolites are excreted through the urine. **$t_{1/2}$, elimination, amlodipine:** 2 days; **benazeprilat:** 10–11 hr.

SIDE EFFECTS: Cough, hypotension, edema (dependent, Angioedema, facial edema), headache, dizziness.

DOSAGE: Capsules

Hypertension.

One 2.5/10, 5/10, 5/20, 5/40, 10/20, or 10/40 capsule daily. (NOTE: Amlodipine amount listed first.) For the small, elderly, frail, or hepatically impaired, initial amlodipine dose is 2.5 mg.

NEED TO KNOW

1. When used in pregnancy during the second and third trimesters, ACE inhibitors can cause injury and even death to the developing fetus.

2. In clients with CHF, with or without associated renal insufficiency, benazepril may cause excessive hypotension.
3. To minimize dose-independent hazards, it is usually appropriate to begin Lotrel therapy only after a client has: (a) Failed to achieve the desired antihypertensive effect with one or the other monotherapy, or (b) demonstrated inability to achieve adequate antihypertensive effect with amlodipine therapy without developing edema.
4. If swelling of extremities/face, cough, SOB, dizziness, abdominal pain, dark urine, yellowing of skin, persistent sore throat occur—stop drug and report.
5. Poor fluid intake, excessive perspiration, diarrhea, or vomiting can lead to excessive decrease in BP resulting in lightheadedness or fainting.

Amoxicillin

(ah-mox-ih-SILL-in)

B

Rx: Amoxil, Amoxil Pediatric Drops, DisperMox, Moxatag, Trimox.

CLASSIFICATION(S): Antibiotic, penicillin

USES: (1) Ear, nose, and throat infections due to *Streptococcus* species (α - and β -lactamase-negative only), *S. pneumoniae*, *Staphylococcus* species, or *Haemophilus influenzae*. (2) GU infections due to *Escherichia coli*, *Proteus mirabilis*, or *Enterococcus faecalis*. (3) Skin and skin structure infections due to *Streptococcus* species (α - and β -hemolytic strains only), *Staphylococcus* species, or *E. coli*. (4) Lower respiratory tract infections due to *Streptococcus* species (α - and β -hemolytic strains only), *S. pneumoniae*, *Staphylococcus* species, or *H. haemophilus*. (5) Acute uncomplicated (anogenital and urethral) gonococcal infections due to *Neisseria gonorrhoeae* in males and females. (6) In combination with amoxicillin/lansoprazole (dual therapy) or amoxicillin/lansoprazole/clarithromycin (triple therapy) to treat duodenal ulcers due to *Helicobacter pylori*. Eradication of *H. pylori* has been shown to reduce the

risk of duodenal ulcer recurrence. (7) Postexposure prophylaxis following confirmed or suspected exposure to *Bacillus anthracis*. (8) Extended-release tablets (Moxatag) to treat tonsillitis and/or pharyngitis secondary to *Streptococcus pyogenes* in adults and children 12 years of age and older.

ACTION/KINETICS: Semisynthetic broad-spectrum penicillin closely related to ampicillin. Binds to penicillin-binding proteins (PBP-1 and PBP-3) in the cytoplasmic membranes of bacteria, thus inhibiting cell wall synthesis. Cell division and growth are inhibited. Destroyed by penicillinase, acid stable, and better absorbed than ampicillin. From 50 to 80% of a PO dose is absorbed from the GI tract. **Peak serum levels, PO:** 4–11 mcg/mL after 1–2 hr. **t_{1/2}:** 60 min. Mostly excreted unchanged in urine.

SIDE EFFECTS: Hypersensitivity, N&V, gastritis, stomatitis.

DOSAGE: Capsules; Oral Suspension; Tablets; Tablets, Chewable

Susceptible infections of ear, nose, throat, GU tract, skin and soft tissues. Mild to moderate infections.

Adults and children 40 kg or more, usual, mild to moderate infections: 250 mg q 8 hr or 500 mg q 12 hr; **severe infections:** 500 mg q 8 hr or 875 mg q 12 hr. **Children 3 months and older and less than 40 kg, mild to moderate infections:** 20 mg/kg/day in divided doses q 8 hr or 25 mg/kg/day in divided doses q 12 hr; **severe infections:** 40 mg/kg/day in divided doses q 8 hr or 45 mg/kg/day in divided doses q 12 hr. For children, do not exceed the maximum adult dose.

Infections of the lower respiratory tract.

Adults and children 40 kg and over, mild/moderate/severe infections: 500 mg q 8 hr or 875 mg q 12 hr. **Children 3 months and older and less than 40 kg, mild/moderate/severe infections:** 40 mg/kg/day in divided doses q 8 hr or 45 mg/kg/day in divided doses q 12 hr.

Gonococcal infections, uncomplicated urethral, endocervical, or rectal infections in males and females.

Adults: 3 grams as a single PO dose. **Children, over 2 years of age (prepubertal):** 50 mg/kg amoxicillin combined with 25 mg/kg probenecid as a single dose.

*Eradicate *H. pylori* infections to reduce risk of duodenal ulcer recurrence.*

The following regimens may be used. (1) **Dual therapy (amoxicillin/lansoprazole), adults:** Amoxicillin, 1,000 mg and lansoprazole, 30 mg, each given 3 times per day (q 8 hr) for 14 days. (2) **Triple therapy (amoxicillin/clarithromycin/lansoprazole), adults:** Amoxicillin, 1,000 mg, clarithromycin, 500 mg, and lansoprazole, 30 mg, each given 2 times per day (q 12 hr) for 14 days.

*Anthrax (postexposure prophylaxis following confirmed or suspected exposure to *Bacillus anthracis*).*

Adults: 500 PO 3 times per day. **Children, less than 9 years of age:** 80 mg/kg/day PO divided into 2–3 doses. Continue prophylaxis until exposure has been excluded. If exposure is confirmed and vaccine is available, continue prophylaxis for 4 weeks and until 3 doses of vaccine have been given or for 30–60 days if vaccine is unavailable.

DOSAGE: Tablets, Extended-Release

*Tonsillitis and/or pharyngitis secondary to *S. pyogenes*.*

Adults and children 12 years of age and older: 775 mg (1 extended-release tablet) daily for 10 days taken within 1 hr of finishing a meal. Ensure completion of the 10-day course of therapy.

NEED TO KNOW

1. Effectiveness of oral contraceptives may be decreased.
2. Clients with GFR of 10–30 mL/min should receive 250 or 500 mg q 12 hr, depending on severity of infection. Those with GFR <10 mL/min should receive 250 or 500 mg q 24 hr, depending on infection severity. Those on hemodialysis should receive 250 or 500 mg q 24 hr, depending on infection severity.

ty; should receive an additional dose both during and at end of dialysis.

3. The recommended upper dose of amoxicillin in neonates and infants 12 weeks of age and younger is 30 mg/kg/day divided every 12 hours.
4. Capsules, chewable tablets, and oral suspension may be taken without regard to meals.
5. Take entire prescription; don't stop if feeling "better"; creates antibiotic resistance.
6. Report any difficulty breathing, increased bruising/bleeding, sore throat, rash, diarrhea, worsening of symptoms, or lack of response.

Amphetamine Mixtures (am-FET-ah-meen)

C

Rx: Adderall, Adderall XR, C-II.

CLASSIFICATION(S): CNS stimulant

USES: (1) Attention-deficit/hyperactivity disorder (ADHD) in children over 3 years of age, along with other remedial approaches. Use with the following symptoms: Moderate to severe distractibility, short attention span, hyperactivity, emotional lability, and impulsivity. (2) Narcolepsy in adults and children over 6 years of age.

ACTION/KINETICS: Thought to act on the cerebral cortex and reticular activating system by releasing norepinephrine from central adrenergic neurons. Completely absorbed in 3 hr. **Peak effects:** 2–3 hr. **Duration:** 4–24 hr. **Therapeutic blood levels:** 5–10 mcg/dL. $t_{1/2}$, if urine pH is 5.6 or less: 7–8 hr; $t_{1/2}$, if urine pH is alkaline: 18.6–33.6 hr. For every one unit increase in urinary pH, there is an average 7 hr increase in plasma $t_{1/2}$. Metabolized in the liver and excreted in urine.

SIDE EFFECTS: Decreased appetite, upset stomach, insomnia, increased anxiety, irritability.

DOSAGE: Capsules, Extended-Release; Tablets

Attention-deficit/hyperactivity disorders in children.

3–5 years of age, initial: 2.5 mg/day; increase by 2.5 mg/day at weekly intervals until optimum dose is achieved (usual range 0.1–0.5 mg/kg/dose each morning). **6 years of age and older, initial:** 5 mg 1–2 times per day; increase in increments of 5 mg/day at weekly intervals until optimum dose is achieved (only rarely will doses exceed a total of 40 mg/day). For the extended release capsules, start with 10 mg once daily in the morning; increase in increments of 10 mg/day at weekly intervals, up to a maximum of 30 mg/day.

Attention-deficit/hyperactivity disorder in adults.

20 mg/day with or without food.

Narcolepsy.

Adults and children over 12 years of age, initial: 10 mg/day; increase in increments of 10 mg/day at weekly intervals until optimum dosage is achieved. **Children, 6–12 years of age, initial:** 5 mg/day; increase in increments of 5 mg/day until optimum dosage is achieved. For all ages, use immediate-release products. Give the first dose on awakening with additional 1–2 doses at intervals of 4–6 hr.

NEED TO KNOW

1. Do not use in children less than 3 years of age for attention deficit disorders, in children less than 6 years of age for narcolepsy, or in children or adults with a structural cardiac abnormality due to the possibility of sudden death.
2. Administration of amphetamines for prolonged periods of time may lead to drug dependence and must be avoided.
3. Take extended-release capsules upon awakening. Avoid afternoon doses R/T possibility of insomnia.
4. Those taking divided doses of immediate-release amphetamine may be switched to amphetamine extended-release at the same total daily dose taken once daily.

5. When possible, interrupt therapy occasionally to determine the need for continued therapy.
6. Take with water; do not take with milk, juice, or antacids.
7. Do not use caffeine/caffeine-containing products. Avoid OTC preparations containing caffeine or other stimulants.
8. After stimulant effects have worn off, drowsiness, trembling, unusual tiredness or weakness, or mental depression may occur.
9. Children receiving amphetamines may have growth retarded.

Ampicillin Oral (am-pih-SILL-in)

Rx: Principen.

Ampicillin Sodium, Parenteral

Rx: Ampicillin Sodium.

B

CLASSIFICATION(S): Antibiotic, penicillin

USES: (1) Respiratory tract infections due to non-penicillinase-producing *Haemophilus influenzae*, penicillinase (injection only) and non-penicillinase-producing staphylococci, and streptococci, including *Streptococcus pneumoniae*. (2) GI infections due to *Shigella*, *Salmonella typhosa* and other salmonella, *E. coli*, *P. mirabilis*, and enterococci. (3) GU infections due to *E. coli*, *P. mirabilis*, *Shigella*, *S. typhosa* and other salmonella, enterococci, and non-penicillinase-producing *Neisseria gonorrhoeae*. (4) Use of the injection only for bacterial meningitis due to *Neisseria meningitides*, *E. coli*, *Listeria monocytogenes*, and Group B streptococci. Addition of an aminoglycoside may enhance effectiveness against gram-negative bacteria. (5) Use of the injection only for septicemia and endocarditis due to *Streptococcus* species, penicillin G susceptible staphylococci, enterococci, *E. coli*, *P. mirabilis*, and *Salmonella*. Addition of an aminoglycoside may enhance effectiveness when treating streptococcal endocarditis.

ACTION/KINETICS: Synthetic, broad-spectrum antibiotic suitable for gram-negative bacteria. Acid resistant, destroyed by penicillinase. Absorbed more slowly than other penicillins. From 30 to 60% of PO dose absorbed from GI tract. **Peak serum levels; PO:** 1.8–2.9 mcg/mL after 2 hr; **IM,** 4.5–7 mcg/mL. **t_{1/2}:** 80 min–range 50–110 min. Partially inactivated in liver; 25–85% excreted unchanged in urine.

SIDE EFFECTS: Hypersensitivity, N&V, gastritis, stomatitis.

DOSAGE: Ampicillin Oral: Capsules, Oral Suspension; Ampicillin Sodium: IM, IV

Respiratory tract and soft tissue infections.

PO, 20 kg or more: 250 mg q 6 hr; **less than 20 kg:** 50 mg/kg/day in equally divided doses q 6–8 hr. **IV, IM, 40 kg or more:** 250–500 mg q 6 hr; **less than 40 kg:** 25–50 mg/kg/day in equally divided doses q 6–8 hr.

GI and GU infections, other than N. gonorrhoeae.

Adults/children, more than 20 kg: 500 mg PO q 6 hr. Use larger doses, if needed, for severe or chronic infections. **Children, less than 20 kg:** 100 mg/kg/day q 6 hr.

Bacterial meningitis.

Adults and children: 150–200 mg/kg/day in divided doses q 3 to 4 hr. Initially give IV drip, followed by IM q 3 to 4 hr.

Septicemia.

Adults/children: 150–200 mg/kg/day, IV for first 3 days, then IM q 3–4 hr.

Enterococcal endocarditis.

12 grams/day IV either continuously or in equally divided doses q 4 hr plus 1 mg/kg gentamicin, IM or IV, q 8 hr for 4–6 weeks.

Bacterial endocarditis prophylaxis (dental, oral, or upper respiratory tract procedures).

Clients at moderate risk or those unable to take PO medications: **Adults, IM, IV:** 2 grams 30 min prior to procedure; **children:** 50 mg/kg, 30 min prior to procedure. Clients at high

risk: **Adults, IM, IV:** 2 grams ampicillin plus gentamicin, 1.5 mg/kg, given 30 min before procedure followed in 6 hr by ampicillin, 1 gram IM or IV, or amoxicillin, 1 gram PO. **Children, IM, IV:** Ampicillin, 50 mg/kg, plus gentamicin, 1.5 mg/kg, 30 min prior to procedure followed in 6 hr by ampicillin, 25 mg/kg IM or IV, or amoxicillin, 25 mg/kg PO.

N. gonorrhoeae infections.

PO: Single dose of 3.5 grams given together with probenecid, 1 gram. **Parenteral, adults/children over 40 kg:** 500 mg IV or IM q 6 hr. **Children, less than 40 kg:** 50 mg/kg/day IV or IM in equally divided doses q 6 to 8 hr.

Urethritis in males caused by N. gonorrhoeae.

Parenteral, males over 40 kg: Two 500 mg doses IV or IM at an interval of 8 to 12 hr. Repeat treatment if necessary. In complicated gonorrheal urethritis, prolonged and intensive therapy is recommended.

Prophylaxis for neonatal Group B streptococcal disease.

If culture is positive or risk factors are present, give 2 grams IV during labor; then, 1 gram IV q 4 hr until delivery. In preterm, premature rupture of membranes in Group B negative women, give 2 grams ampicillin IV q 6 hr plus erythromycin, 250 mg IV, q 8 hr for 48 hr; then, amoxicillin, 250 mg plus erythromycin base, 333 mg, q 8 hr PO for 5 days.

NEED TO KNOW

1. For IM use, dilute only with sterile or bacteriostatic water for injection.
2. Take 1 hr before or 2 hr after meals; food may interfere with absorption.
3. Take for prescribed number of days even if symptoms subside.
4. May decrease effectiveness of oral contraceptives; use additional contraception during therapy.
5. Report any ampicillin rashes; a dull, red, itchy, flat or raised

rash occurs more often with this drug than with other penicillins; usually benign. If late skin rash develops with symptoms of fever, fatigue, sore throat, generalized lymph node swelling, and enlarged spleen, a heterophil antibody test may be ordered to rule out mononucleosis.

Aspirin (Acetylsalicylic Acid, ASA)

(ah-SEE-till-sal-ih-SILL-ick AH-sid)



OTC: Aspergum, Bayer Aspirin Caplets and Tablets, Bayer Children's Aspirin, Bayer, Genprin, Halfprin 81, Heartline, Norwich Extra Strength, Norwich Regular Strength, St. Joseph Adult Chewable Aspirin, Easprin, ZORprin.

Rx: Easprin, ZORprin.

Aspirin, Buffered

OTC: Adprin-B, Alka-Seltzer Extra Strength with Aspirin, Arthritis Pain Formula, Ascriptin A/D, Ascriptin, Asprimox Extra Protection for Arthritis Pain, Bayer Buffered Aspirin, Bufferin Extra Strength, Bufferin, Buffex, Cama Arthritis Pain Reliever, Extra Strength Bayer Plus Caplets, Tri-Buffered Bufferin Caplets and Tablets.

CLASSIFICATION(S): Nonsteroidal anti-inflammatory drug, analgesic, antipyretic

USES: Analgesic: (1) Pain from integumentary structures, myalgias, neuralgias, arthralgias, headache, dysmenorrhea, and similar types of pain. (2) Gout. (3) May be effective in less severe postoperative and postpartum pain; pain secondary to trauma and cancer. **Antipyretic, Anti-Inflammatory:** Arthritis, osteoarthritis, SLE, acute rheumatic fever, gout, and many other conditions. Mucocutaneous lymph node syndrome (Kawasaki disease). **Cardiovascular:** Despite the increased risk of GI bleeding, low-dose aspirin should be used for the following CV events:

1. Reduce risk of death and nonfatal stroke in those who have had an ischemic stroke or TIA.
2. Reduce risk of vascular mortality with suspected acute MI.

3. Reduce the combined risk of recurrent MI and death after an MI or unstable angina.
4. Reduce risk of MI and sudden death in chronic stable angina.
5. Pre-existing need for aspirin following coronary artery bypass grafting, PTCA, or carotid endarterectomy.
6. Used with ticlopidine as adjunctive therapy to reduce development of subacute stent thrombosis.

ACTION/KINETICS: Exhibits antipyretic, anti-inflammatory, and analgesic effects. The antipyretic effect is due to an action on the hypothalamus, resulting in heat loss by vasodilation of peripheral blood vessels and promoting sweating. The anti-inflammatory effects are probably mediated through inhibition of cyclo-oxygenase, which results in a decrease in prostaglandin (implicated in the inflammatory response) synthesis and other mediators of the pain response. The mechanism of action for the analgesic effects of aspirin is not known fully but is partly attributable to improvement of the inflammatory condition. Aspirin also produces inhibition of platelet aggregation by decreasing the synthesis of endoperoxides and thromboxanes—substances that mediate platelet aggregation. Rapidly absorbed after PO administration. Is hydrolyzed to the active salicylic acid. **Blood levels for arthritis and rheumatic disease:** Maintain 150–300 mcg/mL. **Blood levels for analgesic and antipyretic:** 25–50 mcg/mL. **Blood levels for acute rheumatic fever:** 150–300 mcg/mL. Tinnitus occurs at serum levels above 200 mcg/mL and serious toxicity above 400 mcg/mL. **t_{1/2}:** Aspirin, 15–20 min; salicylic acid, 2–20 hr, depending on the dose. Salicylic acid and metabolites are excreted by the kidney. The addition of antacids (buffered aspirin) may decrease GI irritation and increase the dissolution and absorption of such products.

SIDE EFFECTS: Dyspepsia, nausea, epigastric discomfort. The toxic effects of the salicylates are dose-related. **MASSIVE GI BLEEDING, POTENTIATION OF PEPTIC ULCER, BRONCHOSPASM, ASTHMA-LIKE SYMPTOMS, ANAPHYLAXIS.**

DOSAGE: Caplets; Gum; Suppositories; Tablets; Tablets, Chewable; Tablets, Coated; Tablets, Delayed-Release; Tablets, Effervescent; Tablets, Enteric-Coated

Analgesic, antipyretic.

Adults: 325–500 mg q 3 hr, 325–600 mg q 4 hr, or 650–1,000 mg q 6 hr. As an alternative, the adult chewable tablet (81 mg each) may be used in doses of 4–8 tablets q 4 hr as needed.

Children: 65 mg/kg/day (alternate dose: 1.5 grams/m²/day) in divided doses q 4–6 hr, not to exceed 3.6 grams/day. Alternatively, the following dosage regimen can be used: **Children, 2–3 years of age:** 162 mg q 4 hr as needed; **4–5 years of age:** 243 mg q 4 hr as needed; **6–8 years of age:** 320–325 mg q 4 hr as needed; **9–10 years of age:** 405 mg q 4 hr as needed; **11 years:** 486 mg q 4 hr as needed; **12–14 years of age:** 648 mg q 4 hr.

Arthritis, rheumatic diseases.

Adults: 3.2–6 grams/day in divided doses.

Juvenile rheumatoid arthritis.

60–110 mg/kg/day (alternate dose: 3 grams/m²/day) in divided doses q 6–8 hr. When initiating therapy at 60 mg/kg/day, dose may be increased by 20 mg/kg/day after 5–7 days and by 10 mg/kg/day after another 5–7 days.

Acute rheumatic fever.

Adults, initial: 5–8 grams/day. **Children, initial:** 100 mg/kg/day (3 grams/m²/day) for 2 weeks; **then,** decrease to 75 mg/kg/day for 4–6 weeks.

Reduce risk of death and nonfatal stroke following ischemic stroke or TIA.

50–325 mg/day.

Reduce risk of vascular mortality in suspected acute MI.

Initial: 160–162.5 mg, **then** daily for 30 days. Consider subsequent prophylactic therapy.

Reduce combined risk of recurrent MI and death in those with a previous MI or unstable angina or to reduce risk of MI and sudden death in those with chronic stable angina.

75–325 mg/day.

Pre-existing need for aspirin following coronary artery bypass grafting, PTCA, carotid endarterectomy.

Dosage varies by procedure.

Kawasaki disease.

Adults: 80–180 mg/kg/day during the febrile period. After the fever resolves, the dose may be adjusted to 10 mg/kg/day.

NEED TO KNOW

1. Clients with asthma, hay fever, or nasal polyps have a higher incidence of hypersensitivity reactions.
2. Do not use in pregnancy, especially the last trimester as the drug may cause problems in the newborn child or complications during delivery.
3. Controlled-release aspirin is not recommended for use as an antipyretic or short-term analgesic because adequate blood levels may not be reached.
4. Do not use in children or teenagers with chickenpox or flu symptoms due to the possibility of Reye's syndrome, a rare but serious illness.
5. There is increased potential for stomach bleeding in clients 60 years of age and older, in clients who have had prior ulcers or bleeding, and in those who take an anticoagulant when taking more than one product containing an NSAID, when taken with moderate amounts of alcohol, or when taken for longer than directed.
6. Asthma caused by hypersensitivity reaction to salicylates may be refractory to epinephrine, so antihistamines should also be available for parenteral and PO use.
7. Identify any asthma, hay fever, ulcer disease, or nasal polyps.
8. Drug causes irreversible platelet effects. Anticipate 4–7 days

for body to replace these once drug is discontinued; hence no salicylates one week prior to procedure.

9. The therapeutic serum level of salicylate is 150–300 mcg/mL for adult and juvenile rheumatoid arthritis and acute rheumatic fever.
10. To reduce gastric irritation or lodging in the esophagus, administer with meals, milk, a full glass of water, or crackers and remain upright for at least 20–30 min. Avoid antacids within 1 to 2 hr after ingestion of enteric-coated tablets. Sodium bicarbonate may decrease serum level of aspirin, reducing its effectiveness.
11. Report toxic effects: ringing in the ears, difficulty hearing, dizziness or fainting spells, unusual increase in sweating, severe abdominal pain, or mental confusion.
12. Dehydrated children who have a fever are especially susceptible to aspirin intoxication from even small doses.
13. Report gastric irritation/pain; may be S&S of hypersensitivity or toxicity.
14. Report unusual bruising or bleeding. Large doses may increase PT and should be avoided.

Atenolol
(ah-TEN-oh-lohl)
Rx: Tenormin.

C

CLASSIFICATION(S): Beta-adrenergic blocking agent

USES: (1) Hypertension (either alone or with other antihypertensives such as thiazide diuretics). (2) Long-term treatment of angina pectoris due to coronary atherosclerosis. (3) Acute MI.

ACTION/KINETICS: Combines reversibly with beta-adrenergic receptors to block the response to sympathetic nerve impulses, circulating catecholamines, or adrenergic drugs. Predominantly beta-1 blocking activity. Has no membrane stabilizing activity or intrinsic sympathomimetic activity. Low lipid solubility. **Peak**

blood levels: 2–4 hr. $t_{1/2}$: 6–9 hr. 50% eliminated unchanged in the

feces. Geriatric clients have a higher plasma level than younger clients and a total clearance value of about 50% less.

SIDE EFFECTS: Dizziness, fatigue, nausea, bradycardia, hypotension, vertigo.

DOSAGE: Tablets

Hypertension.

Initial: 50 mg/day, either alone or with diuretics; if response is inadequate, 100 mg/day. Doses higher than 100 mg/day will not produce further beneficial effects. Maximum effects usually seen within 1–2 weeks.

Angina.

Initial: 50 mg/day; if maximum response is not seen in 1 week, increase dose to 100 mg/day (some clients require 200 mg/day). **NOTE:** Adjust dosage in cases of renal failure to 50 mg/day if C_{CR} is 15–35 mL/min/1.73 m² and to 50 mg every other day if C_{CR} is less than 15 mL/min/1.73 m².

NEED TO KNOW

1. With hemodialysis, give 25 or 50 mg in the hospital after each dialysis. Give under supervision; significant decreases in BP may occur.
2. Take at same time each day. May take with food if GI upset occurs.
3. May mask symptoms of low blood sugar in those with diabetes. Monitor FS closely; may need to alter insulin dose while taking drug.
4. Report any difficulty breathing, swelling of extremities, irregular heart beat, altered mood, or depression.
5. May cause dizziness, lightheadedness, or fainting; alcohol, hot weather, exercise, or fever may increase effects. Avoid sudden position changes to prevent sudden drop in BP.
6. Sensitivity to cold may occur due to reduced blood flow to feet and hands.

Atorvastatin Calcium (ah-TORE-vah-stah-tin)

X

Rx: Lipitor.

CLASSIFICATION(S): Antihyperlipidemic, HMG-CoA reductase inhibitor

USES: (1) Heterozygous familial and nonfamilial hypercholesterolemia and mixed dyslipidemia. Adjunct to diet to decrease elevated total and LDL cholesterol, APO-B, and triglyceride levels and to increase HDL cholesterol in primary hypercholesterolemia (including heterozygous familial and nonfamilial) and mixed dyslipidemia (including Fredrickson type IIa and IIb). (2) Homozygous familial hypercholesterolemia. Adjunct to other lipid-lowering treatments (or if other treatments are not available) to reduce total and LDL cholesterol in homozygous familial hypercholesterolemia. (3) Primary dysbetalipoproteinemia (Fredrickson type III) in those who do not respond adequately to diet. (4) Hypertriglyceridemia. Adjunct to diet to treat elevated serum triglyceride levels (Fredrickson type IV). (5) Heterozygous familial hypercholesterolemia in children 10–17 years of age. Adjunct to diet to reduce total and LDL cholesterol and APO-B levels in boys and postmenarchal girls 10–17 years of age with heterozygous familial hypercholesterolemia; used after a trial of diet therapy if the following are present: (a) LDL cholesterol remains 190 mg/dL or higher or (b) LDL remains 160 mg/dL or higher and there is a positive family history of premature CV disease or two or more other CVD risk factors are present. (6) Clinically evident coronary heart disease. Reduce the risk of nonfatal MI, fatal and nonfatal stroke, revascularization procedures, hospitalization for CHF, and angina in clients with clinically evident coronary heart disease. (7) Prevention of cardiovascular disease. Reduce the risk of MI and stroke and the risk for revascularization procedures and angina in adults without clinically evident coronary heart disease but with multiple risk factors for coronary heart disease, including age, smoking, hypertension, low HDL-C, or a family history of early coronary heart disease. (8) Reduce the risk of stroke and MI in type 2 diabetics who show no ev-

idence of coronary heart disease but with other risk factors, including retinopathy, albuminuria, smoking, or hypertension.

ACTION/KINETICS: Competitively inhibits HMG-CoA reductase; this enzyme catalyzes the early rate-limiting step in the synthesis of cholesterol. Thus, cholesterol synthesis is inhibited/decreased. Decreases cholesterol, triglycerides, VLDL, and LDL, and increases HDL. Undergoes first-pass metabolism by CYP3A4 enzymes to active metabolites. $t_{1/2}$: 14 hr. Plasma levels are not affected by renal disease but they are markedly increased with chronic alcoholic liver disease. Metabolized in the liver to active metabolites. Decreases in LDL cholesterol range from 35–40% (10 mg/day) to 50–60% (80 mg/day). Less than 2% excreted in the urine.

SIDE EFFECTS: Headache, asthenia, abdominal pain/cramps, infection, diarrhea, sinusitis, pharyngitis, myalgia, arthralgia, back pain, rash/pruritus, flu syndrome.

DOSAGE: Tablets

Hypercholesterolemia (heterozygous familial and non-familial) and mixed dyslipidemia (Fredrickson types IIa and IIb).

Initial: 10–20 mg once daily (40 mg/day for those who require more than a 45% reduction in LDL cholesterol); **then**, a dose range of 10–80 mg once daily may be used. Individualize therapy according to goal of therapy and response.

Homozygous familial hypercholesterolemia.

Initial: 10–80 mg/day. Used as an adjunct to other lipid-lowering treatments, such as LDL apheresis.

Heterozygous familial hypercholesterolemia in children 10–17 years of age.

Initial: 10 mg/day; **then**, individualize dosage to a maximum of 20 mg/day. Adjust dosage at 4-week or more intervals.

Prophylaxis of CV disease.

Adults: 10 mg/day.

NEED TO KNOW

1. Do not use with active liver disease, unexplained persistently high LFTs, or with grapefruit juice.
2. Give as single dose at any time of the day, with or without food.
3. For additive effect, may be used in combination with a bile acid binding resin. Do not use atorvastatin with fibrates.
4. Continue dietary restrictions of saturated fat and cholesterol, regular exercise, and weight loss in the overall goal of lowering cholesterol levels.
5. Report any unexplained muscle pain, weakness, or tenderness, especially if accompanied by fever or malaise. Also any dark urine, fatigue, flu-like symptoms, pain under the right rib cage, persistent nausea, or yellowing of skin or eyes.
6. Practice reliable birth control; may cause fetal damage.

Azithromycin (ah-zith-roh-MY-sin)

B

Rx: AzaSite Ophthalmic Solution, Zithromax, Zmax.

CLASSIFICATION(S): Antibiotic, macrolide

USES: Adults, Oral: (1) Acute bacterial exacerbations of COPD due to *Haemophilus influenzae*, *Moraxella catarrhalis*, or *Streptococcus pneumoniae*. (2) Those who can take PO therapy for mild community-acquired pneumonia (CAP) due to *C. pneumoniae*, *M. pneumoniae*, *S. pneumoniae*, or *H. influenzae*. (3) Genital ulcer disease in men due to *Haemophilus ducreyi*. (4) As an alternative to first-line therapy to treat streptococcal pharyngitis or tonsillitis due to *Streptococcus pyogenes*. (5) PO for uncomplicated skin and skin structure infections due to *S. aureus*, *Staphylococcus pyogenes*, or *Streptococcus agalactiae*. Abscesses usually require surgical drainage. (6) Urethritis and cervicitis due to *C. trachomatis* or *Neisseria gonorrhoeae*. (7) Alone or with rifabutin for prophylaxis of disseminated *Mycobacterium avium* complex disease in advanced HIV infection. (8) Treatment of disseminated MAC disease in combina-

tion with ethambutol in advanced HIV infection. (9) Acute bacterial sinusitis due to *H. influenzae*, *M. catarrhalis*, or *Streptococcus pneumoniae*. **Adults, IV:** (1) Required initial IV therapy in CAP due to *S. pneumoniae*, *Chlamydia pneumoniae*, *Mycoplasma pneumoniae*, *S. pneumoniae*, *H. influenzae*, *M. catarrhalis*, *Legionella pneumophila*, and *Staphylococcus aureus*. (2) Initial IV therapy in PID due to *Chlamydia trachomatis*, *N. gonorrhoeae*, or *Mycoplasma hominis*. If anaerobic organisms are suspected of contributing to the infection, an antimicrobial with anaerobic activity may be added to the regimen. **Children, Oral:** (1) Acute otitis media due to *H. influenzae*, *M. catarrhalis*, or *S. pneumoniae* in children over 6 months of age. (2) Acute bacterial sinusitis in children 6 months and older due to *H. influenzae*, *M. catarrhalis*, or *S. pneumoniae*. (3) CAP due to *C. pneumoniae*, *H. influenzae*, *M. pneumoniae*, or *S. pneumoniae* in children over 6 months of age who can take PO therapy. (4) Pharyngitis/tonsillitis due to *S. pyogenes* in children over 2 years of age who cannot use first-line therapy. Penicillin IM is the usual drug of choice to treat *S. pyogenes* infections and for prophylaxis of rheumatic fever. Azithromycin is often effective to eradicate susceptible strains of *S. pyogenes* from the nasopharynx; perform susceptibility tests when clients are treated with azithromycin. **Ophthalmic:** Bacterial conjunctivitis due to coryneform group G, *Haemophilus influenzae*, *Staphylococcus aureus*, *Streptococcus mitis* group, and *Streptococcus pneumoniae*.

ACTION/KINETICS: A macrolide antibiotic derived from erythromycin. Acts by binding to the P site of the 50S ribosomal subunit and may inhibit RNA-dependent protein synthesis by stimulating the dissociation of peptidyl t-RNA from ribosomes. Rapidly absorbed and distributed widely throughout the body. Food increases the absorption of azithromycin. **Time to reach maximum concentration:** 2.2 hr. **t_{1/2}:** 68 hr. A loading dose will achieve steady-state levels more quickly. Mainly excreted unchanged through the bile with a small amount being excreted through the kidneys.

SIDE EFFECTS: Abdominal pain/discomfort, N&V, anorexia, diar-

rhea/loose stools, injection site reactions (local inflammation, pain), pruritus, rash, vaginitis. **VENTRICULAR ARRHYTHMIAS (INCLUDING VENTRICULAR TACHYCARDIA AND TORSADES DE POINTES IN CLIENTS WITH PROLONGED QT INTERVALS OBSERVED WITH OTHER MACROLIDES), ANAPHYLAXIS.**

DOSAGE: Oral Suspension; Tablets

Mild to moderate acute bacterial exacerbations of COPD, mild CAP, second-line therapy for pharyngitis/tonsillitis; uncomplicated skin and skin structure infections.

Adults and children over 16 years of age: 500 mg as a single dose on day 1 followed by 250 mg once daily on days 2–5 for a total dose of 1.5 grams. For acute bacterial exacerbations of COPD, can also give 500 mg/day for 3 days. For CAP, a single 2 gram dose of Zmax may be given.

Acute bacterial sinusitis.

Adults: 500 mg once daily for 3 days or 2 grams as a single dose of Zmax.

Nongonococcal urethritis and cervicitis due to C. trachomatis or genital ulcer disease due to H. ducreyi.

1 gram given as a single dose.

Prevention of disseminated MAC infections.

1,200 mg once weekly; may be combined with rifabutin.

Treatment of disseminated MAC infections.

600 mg/day in combination with ethambutol, 15 mg/kg.

Gonococcal urethritis/cervicitis due to N. gonorrhoeae.

2 grams given as a single dose.

Uncomplicated gonococcal infections of the cervix, urethra, and rectum due to N. gonorrhoeae.

1 gram given as a single dose plus a single dose of 400 mg PO cefixime, 125 mg IM ceftriaxone, 500 mg PO ciprofloxacin, or 400 mg PO ofloxacin.

Uncomplicated gonococcal pharyngitis.

1 gram given as a single dose plus a single dose of 125 mg IM ceftriaxone, 500 mg ciprofloxacin, or 400 mg ofloxacin.

Chlamydial infections caused by C. trachomatis.

1 gram given as a single dose.

DOSAGE: Oral Suspension

Otitis media or CAP in children 6 months and older.

Children, 6 months and older weighing at least 5 kg, 5-day regimen: 10 mg/kg as a single dose (not to exceed 500 mg) on day 1, followed by 5 mg/kg (not to exceed 250 mg/day) on days 2 through 5. **Children, 6 months and older weighing at least 5 kg, 3-day regimen for otitis media:** 10 mg/kg/day. **Children, 6 months and older weighing at least 5 kg, 1-day regimen for otitis media:** 30 mg/kg as a single dose.

Pharyngitis/tonsillitis in children.

Children: 12 mg/kg once daily for 5 days, not to exceed 500 mg/day.

Chlamydial infections in children caused by C. trachomatis.

Children 45 kg or more, and less than 8 years of age; or over 8 years of age: 1 gram given as a single dose.

Acute bacterial sinusitis, children 6 months and older.

Children, 6 months and older: 10 mg/kg once daily for 3 days.

DOSAGE: Oral Suspension for Extended Release

Acute bacterial sinusitis, CAP.

One dose of 2 grams taken at least 1 hr before or 2 hr after a meal.

DOSAGE: IV

CAP.

Adults: 500 mg IV as a single daily dose for at least 2 days followed by a single daily dose of 500 mg PO to complete a 7- to 10-day course of therapy.

PID.

Adults: 500 mg IV as a single daily dose for 1 or 2 days followed by a single daily dose of 250 mg PO to complete a 7-day course of therapy.

DOSAGE: Ophthalmic Solution

Bacterial conjunctivitis.

Initial: 1 drop in the affected eye(s) 2 times per day, 8–12 hr apart for the first 2 days; **then,** 1 drop in the affected eye(s) once daily for the next 5 days.

NEED TO KNOW

1. Possible cardiac arrhythmias and torsades de pointes development if azithromycin used in those at increased risk for prolonged cardiac repolarization.
2. Safety and efficacy for acute otitis media have not been determined in children less than 6 months of age or for pharyngitis/tonsillitis in children less than 2 years of age.
3. Tablets and oral suspension can be taken with or without food; however, there is increased tolerability when tablets are taken with food (can be taken with milk). Zmax should be taken at least 1 hr prior to or 2 hr after a meal.
4. Infuse IV at a rate of 1 mg/mL over 3 hr or 2 mg/mL over 1 hr; do not give as a bolus or IM.
5. May cause drowsiness or dizziness; use caution.
6. Avoid ingesting Al- or Mg-containing antacids simultaneously with azithromycin. Take 2 hr before or after.
7. Avoid sun exposure and use protection when outside.

Carisoprodol
(kar-eye-so-PROH-dohl)

Rx: Soma.

C

CLASSIFICATION(S): Skeletal muscle relaxant, centrally-acting

USES: As an adjunct to rest, PT, and other measures to treat skeletal muscle disorders including bursitis, low back disorders, contusions, fibrositis, spondylitis, sprains, and muscle strains.

ACTION/KINETICS: Does not directly relax skeletal muscles. Sedative effects may be responsible for muscle relaxation. **Onset:** 30

min. **Duration:** 4–6 hr. **Peak serum levels:** 4–7 mcg/mL. **t_{1/2}:** 8 hr. Metabolized in the liver and excreted in urine.

SIDE EFFECTS: Dizziness, drowsiness, N&V, headache, tachycardia. Allergic or idiosyncratic reactions (usually after the first to fourth dose).

DOSAGE: Tablets

Skeletal muscle disorders.

Adults: 350 mg 3–4 times per day (take last dose at bedtime).

NEED TO KNOW

1. Not recommended for use in children under 12 years of age.
2. Idiosyncratic reactions may occur rarely within minutes or hours after the first dose.
3. Take with food if GI upset. If unable to swallow tablets, mix with syrup, chocolate, or a jelly mixture.
4. May cause dizziness, drowsiness, palpitations; use caution when driving or undertaking tasks requiring mental alertness.
5. Avoid OTC agents and alcohol.

Carvedilol
(kar-VAY-dih-lol)

Rx: Coreg, Coreg CR.

C

CLASSIFICATION(S): Alpha-beta adrenergic blocking agent

USES: (1) Essential hypertension used either alone or in combination with other antihypertensive drugs, especially thiazide diuretics. (2) Mild to severe heart failure of ischemic or cardiomyopathic origin; used with diuretics, ACE inhibitors, and digitalis to increase survival and reduce risk of hospitalization. (3) Reduce CV mortality in clinically stable clients who have survived an acute MI and have a left ventricular ejection fraction of 40% or less (with or without symptomatic heart failure).

ACTION/KINETICS: Has both alpha- and beta-adrenergic blocking

activity. Decreases cardiac output, reduces exercise- or isoproterenol-induced tachycardia, reduces reflex orthostatic hypotension, causes vasodilation, and reduces peripheral vascular resistance. BP is lowered more in the standing than in the supine position. Significant beta-blocking activity occurs within 60 min while alpha-blocking action is observed within 30 min. Rapidly absorbed after PO administration; significant first-pass effect. **Terminal t_{1/2}:** 7–10 hr. Food delays absorption rate. Plasma levels average 50% higher in geriatric compared with younger clients. Extensively metabolized in the liver mainly by CYP2D6 and CYP2C9; metabolites excreted primarily via the bile into the feces.

SIDE EFFECTS: Dizziness, headache, N&V, diarrhea, URTI, fatigue, pain, bradycardia, hypotension, weight increase, hyperglycemia, increased cough, SOB. *CARDIAC FAILURE, CVA, CONVULSIONS, SUDDEN DEATH, GI HEMORRHAGE, ASTHMA, BRONCHOSPASM, STEVENS-JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS, APLASTIC ANEMIA (RARE), ANAPHYLACTOID REACTION.*

DOSAGE: Tablets, Immediate-Release

Essential hypertension.

Initial: 6.25 mg 2 times per day. If tolerated, using standing systolic pressure measured about 1 hr after dosing, maintain dose for 7–14 days. **Then,** increase to 12.5 mg 2 times per day, if necessary, based on trough BP, using standing systolic pressure 2 hr after dosing. Maintain this dose for 7–14 days; adjust upward to 25 mg 2 times per day if necessary and tolerated. Do not exceed 50 mg/day.

Congestive heart failure.

Individualize dose and closely monitor. **Initial:** 3.125 mg 2 times per day for 2 weeks. If tolerated, increase to 6.25 mg 2 times per day. Double dose every 2 weeks to the highest tolerated level, up to a maximum of 25 mg 2 times per day in those weighing less than 85 kg and 50 mg 2 times per day in those weighing over 85 kg. Reduce dose in those experiencing bradycardia (HR <55 beats/min).

Left ventricular dysfunction following MI.

Individualize dose and monitor during up-titration. **Initial:**

6.25 mg 2 times per day; increase after 3–10 days, based on tolerability, to 12.5 mg 2 times per day. Increase again to a target dose of 25 mg 2 times per day. A lower starting dose (3.125 mg 2 times per day) may be used due to low BP, HR, or fluid retention. The dosing regimen does not need to be altered in those who received an IV or PO beta-blocker during the acute phase of the MI.

Angina pectoris.

25–50 mg 2 times per day.

Idiopathic cardiomyopathy.

6.25–25 mg 2 times per day.

DOSAGE: Capsules, Extended-Release

Essential hypertension.

Initial: 20 mg once daily. If this dose is tolerated, using standing systolic pressure measured about 1 hr after dosing, maintain this dose for 7–14 days; **then**, increase to 40 mg once daily if needed, based on trough BP; maintain this dose for 7–14 days. Dose can then be adjusted upward to 80 mg once daily if tolerated and needed. Do not exceed a total daily dose of 80 mg.

Congestive heart failure.

Initial: 10 mg once daily for 2 weeks. Those who tolerate this dose may have their dose increased to 20, 40, or 80 mg over successive intervals of at least 2 weeks. Maintain clients on lower doses if higher doses are not tolerated.

Left ventricular dysfunction following MI.

Initial: 20 mg once daily; increase after 3–10 days, based on tolerability, to 40 mg once daily and then again to the target dose of 80 mg once daily. A dose of 10 mg once daily may be used and/or the rate of up-titration may be slowed if indicated (i.e., due to low BP or HR or fluid retention). Treatment may be started as an inpatient or outpatient and should be initiated after the client is hemodynamically stable and fluid retention has been minimized. The recommended dosing regimen need

not be altered in those who received treatment with an IV or PO beta-blocker during the acute phase of the MI.

NEED TO KNOW

1. Do not use in clients with NYHA Class IV decompensated cardiac failure requiring the use of IV inotropic therapy (wean from IV therapy before starting carvedilol), bronchial asthma, or related bronchospastic conditions, second- or third-degree AV block, SSS or severe bradycardia (unless a permanent pacemaker is in place), cardiogenic shock, drug hypersensitivity.
2. Use with caution in hypertensive clients with CHF controlled with digitalis, diuretics, or an ACE inhibitor. Use with caution in PVD, in surgical procedures using anesthetic agents that depress myocardial function, in diabetics receiving insulin or oral hypoglycemic drugs, in those subject to spontaneous hypoglycemia, or in thyrotoxicosis.
3. Abrupt withdrawal may cause severe exacerbation of angina and the occurrence of MI and ventricular arrhythmias; discontinue over 1–2 weeks.
4. Addition of a diuretic can produce additive effects and exaggerate orthostatic effect.
5. Episodes of dizziness or fluid retention during initiation of therapy can usually be managed by discontinuing drug; does not preclude subsequent successful titration of or a favorable response to the drug.
6. Reduce dose if bradycardia (HR less than 55 beats/min) occurs.
7. Take as prescribed with food; slows absorption/decreases low BP effects.
8. To prevent decrease in BP, sit or lie until symptoms subside; rise slowly from a sitting or lying position; avoid sudden position changes.
9. Report low heart rate, dark urine, fainting or persistent dizziness when arising from a sitting or lying position, fatigue, increasing shortness of breath, persistent anorexia, itching, right

upper quadrant tenderness, swelling of feet or ankles, unexplained flu-like symptoms, or weight gain more than 5 lb/week or 2 lb/day.

Celecoxib (sell-ah-KOX-ihb)

Rx: Celebrex.



CLASSIFICATION(S): Nonsteroidal anti-inflammatory drug, COX-2 inhibitor

USES: (1) Relief of signs and symptoms of osteoarthritis and rheumatoid arthritis in adults. (2) Relief of signs and symptoms of juvenile rheumatoid arthritis in clients 2 years of age and older. (3) Relief of signs and symptoms of ankylosing spondylitis. (4) Acute pain in adults. (5) Primary dysmenorrhea. (6) Reduce the number of adenomatous colorectal polyps in familial adenomatous polyposis, as an adjunct to usual care.

ACTION/KINETICS: Inhibits prostaglandin synthesis, primarily by inhibiting cyclo-oxygenase-2 (COX-2), thus decreasing inflammation. Does not inhibit the cyclo-oxygenase-1 (COX-1) isoenzyme. Does not affect platelet aggregation; renal effects similar to other NSAIDs. Causes fewer GI complications, such as bleeding and perforation, compared with other NSAIDs. **Peak plasma levels:** 3 hr. **t_{1/2}, terminal:** 11 hr when fasting; low solubility prolongs absorption. Metabolized in the liver to inactive compounds; excreted in the urine (27%) and feces (57%). African Americans show a 40% increase in the total amount absorbed compared with Caucasians.

SIDE EFFECTS: Abdominal pain/cramps, diarrhea, nausea, dyspepsia/indigestion, URTI. *GI HEMORRHAGE, MI.*

DOSAGE: Capsules

Osteoarthritis.

Adults: 100 mg twice a day or 200 mg per day as a single dose.

Rheumatoid arthritis.

Adults: 100–200 mg twice a day.

Juvenile rheumatoid arthritis.

Children 2 years of age and older weighing 10–25 kg: 50 mg capsule twice a day. **Children 2 years of age and older weighing more than 25 kg:** 100 mg capsule twice a day.

Anklyosing spondylitis.

200 mg daily either as a single dose or divided into 2 doses. If no effect is seen after 6 weeks, a trial of 400 mg/day may be beneficial. If no effect is seen after 6 weeks on 400 mg/day, a response is not likely; give consideration to alternate treatments.

Acute pain and primary dysmenorrhea.

Day 1, Initial: 400 mg; **then,** an additional 200 mg, if needed on day 1. On subsequent days, 200 mg 2 times per day, as needed.

Familial adenomatous polyposis.

400 mg twice a day with food. Continue usual medical care (e.g., endoscopic surveillance, surgery).

NEED TO KNOW

1. Do not use in severe hepatic impairment, in those who have shown an allergic reaction to sulfonamides, or in those who have experienced asthma, urticaria, or allergic-type reactions after taking aspirin or other NSAIDs.
2. Celecoxib may cause an increased risk of serious CV thrombotic events, MI, and stroke, which can be fatal. This risk may increase with duration of use.
3. Celecoxib is contraindicated for the treatment of perioperative pain in the setting of coronary artery bypass graft.
4. NSAIDs, including celecoxib, cause an increased risk of serious GI adverse effects, including bleeding, ulceration, and perforation of the stomach or intestines, which can be fatal. These reactions can occur at any time during use and without warning symptoms. Elderly clients are at higher risk for serious GI events.

5. Use with caution in pre-existing asthma, with drugs that are known to inhibit CYP2C9 in the liver, or when initiating the drug in significant dehydration.
6. Reduce daily dose by about 50% in clients with moderate impaired hepatic function (Child-Pugh class B).
7. Take with food; decreases stomach upset.
8. Report any S&S of liver toxicity (e.g., fatigue, flu-like symptoms, jaundice, lethargy, nausea, pruritus, right upper quadrant tenderness).
9. Avoid during pregnancy; use reliable contraception and do not breast feed.

Cephalexin (sef-ah-LEX-in)

Rx: Keflex.

B

CLASSIFICATION(S): Cephalosporin, first generation

USES: (1) Respiratory tract infections due to *Streptococcus pneumoniae* and *Streptococcus pyogenes*. (2) GU infections (including acute prostatitis due to *Escherichia coli*, *Proteus mirabilis*, or *Klebsiella pneumoniae*). (3) Bone infections caused by *P. mirabilis* or *Staphylococcus aureus*. (4) Skin and skin structure infections due to *S. aureus* and/or *S. pyogenes*. (5) Otitis media due to *S. pneumoniae*, *Haemophilus influenzae*, *S. pyogenes*, and *Moraxella catarrhalis*.

ACTION/KINETICS: Interferes with the final step in cell wall formation (inhibition of mucopeptide biosynthesis), resulting in unstable cell membranes that undergo lysis. Also, cell division and growth are inhibited. **Peak serum levels:** **PO**, 9–39 mcg/mL after 1 hr. **t_{1/2}**, **PO**: 50–80 min. Absorption delayed in children. The HCl monohydrate does not require conversion in the stomach before absorption. Ninety percent of drug excreted unchanged in urine within 8 hr.

SIDE EFFECTS: Diarrhea, N&V, abdominal pain, dizziness, skin rash, fever, vaginitis.

DOSAGE: Capsules; Oral Suspension (from Powder or Tablets); Tablets

General infections.

Adults, usual: 250 mg q 6 hr up to 4 grams/day in divided doses. **Children:** 25–50 mg/kg/day in four equally divided doses.

Infections of skin and skin structures, Streptococcal pharyngitis, uncomplicated cystitis, over 15 years of age.

Adults: 500 mg q 12 hr. Large doses may be needed for severe infections or for less susceptible organisms. Continue therapy for cystitis for 7–14 days. For *Streptococcal pharyngitis in children over 1 year* and for skin and skin structure infections, the total daily dose should be divided and given q 12 hr. In severe infections, the dose should be doubled.

Otitis media.

Children: 75–100 mg/kg/day in four divided doses.

NEED TO KNOW

1. If total daily dose is more than 4 grams, use parenteral drugs.
2. Continue for at least 10 days for β -hemolytic streptococcal infections.
3. Drug action can be prolonged by concurrent use of probenecid.
4. May take with meals for GI upset.
5. Consume 2–3 L/day of fluids to prevent dehydration.
6. Report persistent fever, diarrhea, yellow discoloration of the skin/eyes, N&V, skin rash, hives, muscle or joint pain or lack of response. Report S&S of superinfection: black “furry” tongue, white patches in mouth, foul-smelling stools, vaginal itching or discharge.

Cetirizine Hydrochloride

(seh-TIH-rah-zeen)

B**OTC:** Zyrtec Allergy, Zyrtec Children's Allergy, Zyrtec Children's Hives Relief, Zyrtec Hives Relief.**CLASSIFICATION(S):** Antihistamine, second generation, piperazine**USES:** (1) Relief of itching due to urticaria in adults and children 2 years of age and older. The drug will not prevent hives or an allergic skin reaction from occurring. (2) Temporary relief of runny nose, sneezing, itching of the nose or throat and/or itchy, watery eyes due to hay fever and upper respiratory allergies in adults and children 2 years of age and older.**ACTION/KINETICS:** Potent H₁-receptor antagonist. Mild bronchodilator that protects against histamine-induced bronchospasm; low to negligible anticholinergic and sedative activity. No antiemetic activity. Rapidly absorbed after PO administration. Food delays the time to peak serum levels but does not decrease the total amount of drug absorbed. Poorly penetrates the CNS, but high levels are distributed to the skin. $t_{1/2}$: 8.3 hr (longer in elderly clients and in those with impaired liver or renal function). Excreted mostly unchanged (95%) in the urine; 10% is excreted in the feces.**SIDE EFFECTS:** Somnolence, dry mouth, fatigue, pharyngitis, dizziness.**DOSAGE: Syrup***Urticaria, allergies, hay fever.***Adults and children, 6 years of age and older:** 5–10 mL (5–10 mg) once daily, depending on the severity of symptoms, not to exceed 10 mL (10 mg) in 24 hr. **Children, 2 to younger than 6 years of age:** 2.5 mg once daily; dose can be increased to a maximum of 5 mg once daily or 2.5 mg q 12 hr. **Elderly, 65 years of age and older:** 5 mL (5 mg) once daily. **Maximum dose:** 5 mL (5 mg) in 24 hr.

DOSAGE: Tablets; Tablets, Chewable

Seasonal or perennial allergic rhinitis, chronic urticaria.

Adults and children 6 years of age and older: One 10-mg tablet once daily or one to two 5-mg tablets once daily. **Maximum dose:** 10 mg in 24 hr. One 5-mg tablet may be sufficient for less severe symptoms. **Children, 2 to younger than 6 years of age:** 2.5 mg once daily; dose can be increased to a maximum of 5 mg once daily or 2.5 mg q 12 hr. **Elderly, 65 years of age and older:** One 5-mg tablet once daily. **Maximum dose:** 5 mg in 24 hr.

NEED TO KNOW

1. Do not use antihistamines in children less than 2 years of age.
2. Due to the possibility of sedation, use with caution in situations requiring mental alertness.
3. Consult a provider before using in clients with impaired renal and/or hepatic function.
4. May take with or without food; can vary time of administration based on need.
5. Use caution when performing activities that require mental alertness until drug effects realized; may cause drowsiness/sedation.
6. May cause dry mouth, fatigue.
7. Avoid prolonged or excessive exposure to direct or artificial sunlight.
8. Do not take cetirizine for at least 4 days before allergy skin testing scheduled.

Ciprofloxacin Hydrochloride (sip-row-FLOX-ah-sin)

C

Rx: Ciloxan Ophthalmic, Cipro, Cipro I.V., Cipro XR, Ciprofloxacin in 5% Dextrose, Proquin XR.

CLASSIFICATION(S): Antibiotic, fluoroquinolone

USES: Adults: Immediate Release (IR) Tablets and Oral Suspensions

sion. (1) Acute sinusitis. (2) Acute uncomplicated cystitis in women. (3) Chronic bacterial prostatitis. (4) UTIs. (5) Bone and joint infections. (6) With metronidazole for complicated intra-abdominal infections. (7) Infectious diarrhea. (8) Lower respiratory tract infections. (9) Acute exacerbations of chronic bronchitis. (10) Skin and skin structure infections. (11) Typhoid fever (enteric fever). (12) Uncomplicated cervical and urethral gonorrhea. **Adults and Children: Immediate-Release Tablets, IV, and Oral Suspension.** Reduce the incidence or progression of disease following exposure to aerosolized *Bacillus anthracis*. **Children, 1–17 years of age: Immediate-Release Tablets, IV, and Oral Suspension.** Complicated UTIs and pyelonephritis. **Cipro XR (Extended-Release Tablets) Only.** (1) Uncomplicated UTIs (acute cystitis). (2) Complicated UTIs. **NOTE:** Ciprofloxacin extended-release and immediate-release tablets are not interchangeable. **Proquin XR (Extended-Release Tablets) Only.** Uncomplicated UTIs (acute cystitis). **NOTE:** Proquin XR is not interchangeable with other ciprofloxacin ER or immediate-release oral formulations. **Adults: IV.** (1) Acute sinusitis. (2) Chronic bacterial prostatitis. (3) UTIs. (4) Bone and joint infections. (5) With metronidazole for complicated intra-abdominal infections. (6) Lower respiratory tract infections. (7) Acute exacerbations of chronic bronchitis. (8) Nosocomial pneumonia. (9) With piperacillin sodium as empirical therapy for febrile neutopenic clients. (10) Skin and skin structure infections. **Ocular Infections.** Superficial ocular infections involving the conjunctiva or cornea, including conjunctivitis, keratitis, keratoconjunctivitis, corneal ulcers, blepharitis, blepharoconjunctivitis, acute meibomianitis, and dacryocystitis. **Ophthalmic Ointment.** Bacterial conjunctivitis. **Ophthalmic Solution.** (1) Corneal ulcers. (2) Conjunctivitis. **ACTION/KINETICS:** Interferes with DNA gyrase and topoisomerase IV. DNA gyrase is an enzyme needed for replication, transcription, and repair of bacterial DNA. Topoisomerase IV plays a key role in the partitioning of chromosomal DNA during bacterial cell division. Effective against both gram-positive and gram-negative organisms. Rapidly and well absorbed following PO administra-

tion. Food delays absorption of the drug. **Maximum serum levels:** 2–4 mcg/mL 1–2 hr after dosing. **t_{1/2}:** 4 hr for PO use and 5–6 hr for IV use. Avoid peak serum levels above 5 mcg/mL. About 40–50% of a PO dose and 50–70% of an IV dose are excreted unchanged in the urine.

SIDE EFFECTS: **After ophthalmic use:** Irritation, burning, stinging, itching, inflammation. **After systemic use:** Headache, N&V, diarrhea, restlessness, rash. *INTESTINAL PERFORATION, ANGIOEDEMA, TOXIC EPIDERMAL NECROLYSIS, STEVENS-JOHNSON SYNDROME, MI, CEREBRAL THROMBOSIS, CARDIOPULMONARY ARREST, BRONCHOSPASM, PULMONARY EMBOLISM, EDEMA OF LARYNX OR LUNGS, AGRANULOCYTOSIS, HEPATIC NECROSIS.*

DOSAGE: Oral Suspension; Tablets, Immediate-Release

UTIs.

Adults, Acute, uncomplicated infections: 250 mg q 12 hr for 3 days. **Mild to moderate infections:** 250 mg q 12 hr for 7–14 days. **Severe/complicated infections:** 500 mg q 12 hr for 7–14 days.

Mild to moderate chronic bacterial prostatitis.

Adults: 500 mg q 12 hr for 28 days.

Mild to moderate acute sinusitis.

Adults: 500 mg q 12 hr for 10 days.

Urethral or cervical gonococcal infections, uncomplicated.

Adults: 250 mg as a single dose.

Infectious diarrhea, mild to severe.

Adults: 500 mg q 12 hr for 5–7 days.

Skin and skin structures or lower respiratory tract infections.

Adults, mild to moderate infections: 500 mg q 12 hr for 7–14 days; **severe/complicated infections:** 750 mg q 12 hr for 7–14 days.

Bone and joint infections.

Adults, mild to moderate infections: 500 mg q 12 hr for 4 to 6 weeks; **severe/complicated infections:** 750 mg q 12 hr for 4 to 6 weeks.

Intra-abdominal infections, complicated.

Adults: 500 mg q 12 hr for 7–14 days with metronidazole.

Typhoid fever, mild to moderate.

Adults: 500 mg q 12 hr for 10 days.

Inhalational anthrax (postexposure).

Adults: 500 mg q 12 hr for 60 days. **Children:** 15 mg/kg/dose, not to exceed 500 mg/dose or 1,000 mg/day, given for 60 days.

Complicated urinary tract infections or pyelonephritis in children 1 to 17 years of age.

10–20 mg/kg q 12 hr for 10–21 days. **Maximum dose:** 750 mg/dose, not to be exceeded even in children weighing more than 51 kg.

DOSAGE: Tablets, Extended-Release*Complicated UTIs or acute uncomplicated pyelonephritis.*

Adults: 1,000 mg q 24 hr for 7–14 days. **Proquin XR:** 500 mg once a day for 3 days, preferably with the evening meal.

Uncomplicated UTIs (acute cystitis).

Adults: 1,000 mg q 24 hr for 3 days. **Proquin XR:** 500 mg once a day for 3 days, preferably with the evening meal.

DOSAGE: IV Infusion*UTIs.*

Adults: 200 mg (mild to moderate) to 400 mg (severe or complicated) q 12 hr for 7–14 days.

Skin and skin structures or lower respiratory tract infections.

Adults. Mild to moderate infections: 400 mg q 12 hr for 7–14 days. **Severe/complicated infections:** 400 mg q 8 hr for 7–14 days.

Bone and joint infections.

Adults, mild to moderate infections: 400 mg q 12 hr for 4–6 weeks; **severe/complicated infections:** 400 mg q 8 hr for 4–6 weeks.

Nosocomial pneumonia, mild to severe.

Adults: 400 mg q 8 hr for 10–14 days.

Febrile neutropenic clients, empirical therapy, severe.

Adults: 400 mg q 8 hr with piperacillin, 50 mg/kg q 4 hr, not to exceed 24 grams/day, each for 7–14 days.

Acute sinusitis, mild to moderate.

Adults: 400 mg q 12 hr for 10 days.

Chronic bacterial prostatitis, mild to moderate.

Adults: 400 mg q 12 hr for 28 days.

Intra-abdominal infections, complicated.

Adults: 400 mg q 12 hr for 7–14 days.

Inhalational anthrax, postexposure.

Adults: 400 mg q 12 hr for 60 days. **Children:** 10 mg/kg q 12 hr, not to exceed 800 mg/day, for 60 days.

Disseminated gonococcal infections (alternate regimen).

Adults, initial: 400 mg IV q 12 hr for 24–48 hr after improvement begins; **then,** 500 mg PO twice a day for 7 days.

Complicated urinary tract infections or pyelonephritis in children, 1 to 17 years of age.

6–10 mg/kg q 8 hr for 10–21 days. **Maximum dose:** 400 mg/dose, not to be exceeded even in children weighing more than 51 kg.

DOSAGE: Ophthalmic Ointment

Ocular infections.

Initial: Apply $\frac{1}{2}$ in. ribbon to conjunctival sac 3 times per day for the first 2 days; **then,** $\frac{1}{2}$ in. ribbon twice a day for the next 5 days.

DOSAGE: Ophthalmic Solution

Corneal ulcers.

First day, initial: 2 gtt into the affected eye q 15 min for the first 6 hr; **then,** 2 gtt into the affected eye q 30 min for the remainder of the first day. **Second day:** 2 gtt into the affected eye hourly. **Third–fourteenth day:** 2 gtt into the affected eye

q 4 hr. If corneal re-epithelialization has not occurred after 14 days, treatment may be continued.

Conjunctivitis.

Initial: 1–2 gtt into the conjunctival sac q 2 hr while awake for 2 days; **then,** 1 or 2 gtt q 4 hr while awake for the next 5 days.

NEED TO KNOW

1. Do not use in children.
2. Possible antibiotic resistance when used to treat *Pseudomonas aeruginosa* infections.
3. Dose must be reduced in those with impaired renal function (i.e., <50 mL/min). If the C_{CR} is 30–50 mL/min, the dose of immediate-release tablets and suspension should be 250–500 mg q 12 hr; if the C_{CR} is 5–29 mL/min, the dose of immediate-release tablets and suspension should be 250–500 mg q 18 hr. For IV use, give 200–400 mg q 18–24 hr if the C_{CR} is 5–29 mL/min. If the client is on hemodialysis or peritoneal dialysis, the dose of immediate-release and suspension should be 250–500 mg q 24 hr after dialysis.
4. Although food delays drug absorption, it may be taken with or without meals; however, coadministration with dairy products alone or with calcium-fortified products should be avoided. A minimum of 2 hr between substantial calcium intake (>80 mg) and dosing with ciprofloxacin ER is recommended.
5. If started on IV ciprofloxacin, may be switched to tablets or suspension when clinically indicated. Equivalent dosing regimens are as follows:
 - 250 mg tablet q 12 hr = 200 mg IV q 12 hr.
 - 500 mg tablet q 12 hr = 400 mg IV q 12 hr.
 - 750 mg tablet q 12 hr = 400 mg IV q 8 hr.
6. Use caution; avoid sun exposure, direct or artificial sunlight may cause photosensitivity reaction.
7. Drink 2–3 L per day of fluids to keep the urine acidic and reduce risk of crystalluria.
8. Report any persistent joint/tendon pain (especially knee) or GI

symptoms such as diarrhea, vomiting, or abdominal pain. Stop therapy, report and refrain from exercise if pain, tenderness, or rupture of tendon occurs, or nerve problems (e.g. burning, pain, tingling, numbness, and/or weakness) develops.

Citalopram Hydrobromide

(sigh-TAL-oh-pram)

Rx: Celexa.



CLASSIFICATION(S): Antidepressant, selective serotonin reuptake inhibitor

USES: Treatment of depression in those with DSM-III and DSM III-R category of major depressive disorder.

ACTION/KINETICS: Inhibits reuptake of serotonin into CNS neurons resulting in increased levels of serotonin in synapses. Has minimal effects on reuptake of norepinephrine and dopamine.

Peak plasma levels: 120–150 nmol/L after about 4 hr. $t_{1/2}$, **terminal:** 35 hr. Half-life and AUC are increased in geriatric clients.

Steady state plasma levels: About 1 week. Metabolized in the liver and excreted in the urine (20%) and feces (65%).

SIDE EFFECTS: Somnolence, insomnia, nausea, excessive sweating, dry mouth, tremor, loose stools/diarrhea. *SUICIDE IDEATION/AT-TEMPT, CARDIAC FAILURE, MI, CVA, VAGINAL HEMORRHAGE.*

DOSAGE: Oral Solution; Tablets; Tablets, Orally-Disintegrating Depression.

Adults, initial: 20 mg once daily in a.m. or p.m. with or without food. Increase dose in increments of 20 mg at intervals of no less than 1 week. Doses greater than 40 mg/day are not recommended. For the elderly or those with hepatic impairment, 20 mg/day is recommended; titrate to 40 mg/day only for nonresponders. Initial treatment is continued for 6 or 8 weeks. **Maintenance:** Up to 24 weeks following 6 or 8 weeks of initial treatment. Periodically re-evaluate the long-term usefulness of the drug if used for extended periods.

NEED TO KNOW

1. Do not use with MAO inhibitors, with alcohol, or during lactation.
2. Antidepressants increased the risk of suicidal thinking and behavior (suicidality) in short-term studies in children and adolescents with major depressive disorder and other psychiatric disorders.
3. Use with caution in severe renal impairment, a history of seizure disorders, or in diseases or conditions that produce altered metabolism or hemodynamic responses.
4. Complications may develop in neonates exposed to citalopram; complications can develop immediately on delivery of the neonate and may require prolonged hospitalization, respiratory support, and tube feeding.
5. Allow at least 14 days to elapse between discontinuation of an MAO inhibitor and initiation of citalopram or vice versa.
6. A gradual reduction in dose, rather than abrupt cessation, is recommended whenever possible.
7. Take as directed, once daily, with or without food.
8. Use caution operating machines or cars until drug effects known. May impair judgment, thinking, motor skills, or cause drowsiness.
9. Avoid alcohol or other CNS depressants. Do not take aspirin or aspirin-containing products, NSAIDs, ginkgo biloba, or any other medication or herbal product that can affect coagulation.
10. May see improvement in 1 to 4 weeks.
11. May increase sensitivity to sunlight; wear sunscreen and protective clothing, and avoid prolonged exposures.

Clonazepam (kloh-NAY-zeh-pam)

Rx: Klonopin, Klonopin Wafers, **C-IV**.

CLASSIFICATION(S): Anticonvulsant, miscellaneous

USES: (1) Alone or as an adjunct to treat absence seizures (petit mal variant) including Lennox-Gastaut syndrome. (2) Alone or as an adjunct to treat akinetic and myoclonic seizures. (3) Some effectiveness in absence seizures resistant to succinimide therapy. (4) Panic disorder with or without agoraphobia, as defined by DSM-IV.

ACTION/KINETICS: Benzodiazepine derivative which increases presynaptic inhibition and suppresses the spread of seizure activity. **Peak plasma levels:** 1–2 hr. **t_{1/2}:** 18–50 hr. **Therapeutic serum levels:** 20–80 ng/mL. Metabolized almost completely in the liver to inactive metabolites, which are excreted in the urine. Even though a benzodiazepine, clonazepam is used mainly as an anticonvulsant.

SIDE EFFECTS: Drowsiness, dizziness, fatigue, asthenia, dry mouth, diarrhea, GI upset, changes in appetite. **GRAND MAL SEIZURES.**

DOSAGE: Tablets; Tablets, Oral Disintegrating (also called Wafers)

Seizure disorders.

Adults, initial: 0.5 mg 3 times per day; do not exceed this dose. Increase by 0.5–1 mg/day q 3 days until seizures are under control or side effects become excessive; **maximum:** 20 mg/day. In those over 65 years, start on low doses and closely observe. **Children up to 10 years of age or 30 kg:** 0.01–0.03 mg/kg/day in two to three divided doses up to a maximum of 0.05 mg/kg/day. Increase by increments of no more than 0.25–0.5 mg q 3 days until seizures are under control or maintenance of 0.1–0.2 mg/kg is attained.

Panic disorder.

Adults, initial: 0.25 mg twice a day. Can increase to the target

dose by 1 mg/day after 3 days. Some may benefit from doses up to 4 mg/day (increase dose in increments of 0.125–0.25 mg twice a day every 3 days), although incidence of side effects may increase. To reduce somnolence, give 1 dose at bedtime.

NEED TO KNOW

1. Do not use in severe liver disease, acute narrow-angle glaucoma, pregnancy.
2. About one-third of clients show some loss of anticonvulsant activity within 3 months; dosage adjustment may reestablish effectiveness.
3. Adding clonazepam to existing anticonvulsant therapy may increase depressant effects.
4. With panic disorder, discontinue treatment gradually with a decrease of 0.125 mg twice a day every 3 days until drug is completely withdrawn. Re-evaluate long-term usefulness periodically.
5. Take with water and swallow whole. May take with food if GI upset occurs. Do not crush, chew, or break tablet.
6. May cause drowsiness or impair judgment, thinking, or reflexes.
7. Do not stop suddenly after long term use; taper to prevent seizure.
8. Avoid alcohol and any other CNS depressants.

Clonidine Hydrochloride (KLOH-nih-deen)

C

Rx: Catapres, Catapres-TTS-1, -2, and -3, Duraclon.

CLASSIFICATION(S): Antihypertensive, centrally-acting

USES: Oral, Transdermal: (1) Alone or with a diuretic or other antihypertensives to treat mild to moderate hypertension. (2) Treat spasticity. **Epidural:** With opiates for severe pain in cancer clients

not relieved by opiate analgesics alone. Most effective for neuro-pathic pain.

ACTION/KINETICS: Stimulates alpha-adrenergic receptors of the CNS, resulting in inhibition of the sympathetic vasomotor centers and decreased nerve impulses. Thus, bradycardia and a fall in both SBP and DBP occur. Few orthostatic effects. Although NaCl excretion is markedly decreased, potassium excretion remains unchanged. To relieve spasticity, it decreases excitatory amino acids by central presynaptic alpha-receptor agonism. Tolerance to the drug may develop. Epidural use causes analgesia at presynaptic and postjunctional alpha-2-adrenergic receptors in the spinal cord due to prevention of pain signal transmission to the brain. **Onset, PO:** 30–60 min; **transdermal:** 2–3 days. **Peak plasma levels, PO:** 3–5 hr; **transdermal:** 2–3 days. **Maximum effect, PO:** 2–4 hr. **Duration, PO:** 12–24 hr; **transdermal:** 7 days (with system in place). **t_{1/2}:** 12–16 hr. Approximately 50% excreted unchanged in the urine; 20% excreted through the feces. **Epidural: t_{1/2}, distribution:** 19 min; **elimination:** 22 hr.

SIDE EFFECTS: Dry mouth, drowsiness, dizziness, sedation, constipation. **ANGIONEUROTIC EDEMA.**

DOSAGE: Film, Extended-Release, Transdermal

Hypertension.

Initial: Use 0.1-mg system; **then,** if after 1–2 weeks adequate control has not been achieved, can use another 0.1-mg system or a larger system. The antihypertensive effect may not be seen for 2–3 days. The system should be changed q 7 days.

Treat spasticity.

Adults and children: 0.1–0.3 mg; apply patch q 7 days.

DOSAGE: Epidural Infusion

Analgesia.

Initial: 0.3 mg/hr. Dose may then be titrated up or down, depending on pain relief and side effects.

DOSAGE: Tablets*Hypertension.*

Initial: 0.1 mg twice a day; **then,** increase by 0.1–0.2 mg/day until desired response is attained; **maintenance:** 0.2–0.6 mg/day in divided doses (maximum: 2.4 mg/day). Tolerance necessitates increased dosage or concomitant administration of a diuretic. Gradual increase of dosage after initiation minimizes side effects. **Children:** 0.05–0.4 mg once a day.

NOTE: In hypertensive clients unable to take PO medication, clonidine may be administered sublingually at doses of 0.2–0.4 mcg/day

Treat spasticity.

Adults and children: 0.1–0.3 mg; given in divided doses.

NEED TO KNOW

1. Do not use epidurally in presence of an injection site infection, in clients on anticoagulant therapy, in bleeding diathesis, or administration above the C4 dermatome.
2. Use with caution during lactation and in the presence of severe coronary insufficiency, recent MI, cerebrovascular disease, or chronic renal failure.
3. Geriatric clients may be more sensitive to the hypotensive effects; a decreased dosage may also be necessary in these clients due to age-related decreases in renal function.
4. For children, restrict epidural use to severe intractable pain from malignancy that is unresponsive to epidural or spinal opiates or other analgesic approaches.
5. May take 2–3 days to achieve effective blood levels using transdermal system. Therefore, reduce any prior drug dosage gradually.
6. If drug to be discontinued, do so gradually over a period of 2–4 days.
7. With transdermal system, apply to hairless area of skin, such as upper arm or torso. Change system q 7 days; use different site with each application.

8. If taken PO, take last dose of the day at bedtime to ensure overnight control of BP.
9. Do not engage in activities that require mental alertness, such as operating machinery or driving a car; may cause drowsiness, dizziness, lightheadedness, or blurred vision.
10. Clonidine may reduce the effect of levodopa; report any increase in the S&S of Parkinson's disease previously controlled with levodopa.
11. Report any depression (may be precipitated by drug), especially with history of mental depression.

Clopidogrel Bisulfate

(kloh-PID-oh-grel)

Rx: Plavix.

B

CLASSIFICATION(S): Antiplatelet drug

USES: (1) Non-ST-segment elevation acute coronary syndrome (unstable angina/non-Q-wave MI), including those who are to be managed medically and those who are to be managed with percutaneous coronary intervention (with or without stent) or coronary artery bypass graft. Clopidogrel decreases the rate of a combined end point of CV death, MI, or stroke, or refractory ischemia. (2) To reduce the rate of death from any cause and the rate of a combined end point of death, reinfarction, or stroke in those with ST-segment elevation acute MI. (3) To reduce the rate of a combined end point of new ischemic stroke (fatal or not), new MI (fatal or not), and other vascular death in those with a history of recent MI, recent stroke, or established peripheral arterial disease.

ACTION/KINETICS: Inhibits platelet aggregation by inhibiting binding of adenosine diphosphate (ADP) to its platelet receptor and subsequent ADP-mediated activation of glycoprotein GPIIb/IIIa complex. Effect on receptors is irreversible; thus, platelets are affected for remainder of their lifespan. Also inhibits platelet aggregation caused by agonists other than ADP by blocking amplification of platelet activation by released ADP. Rapidly absorbed

from GI tract; food does not affect bioavailability. **Peak plasma levels:** About 1 hr. Extensively metabolized in liver; about 50% excreted in urine and 46% in feces. **$t_{1/2}$, elimination:** 8 hr.

SIDE EFFECTS: Skin/appendage disorders, headache, URTI, chest pain, flu-like symptoms. *INTRACRANIAL HEMORRHAGE, MAJOR/LIFE-THREATENING BLEEDING, RETROPERITONEAL HEMORRHAGE, HEMORRHAGE OF OPERATIVE WOUND, CARDIAC FAILURE, PULMONARY HEMORRHAGE, PERFORATED HEMORRHAGIC GASTRITIS, HEMORRHAGIC UPPER GI ULCER, PERFORATED GASTRIC ULCER, APLASTIC ANEMIA, PANCYTOPENIA, AGRANULOCYTOSIS, ANGIOEDEMA, STEVENS-JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS, ACUTE RENAL FAILURE, ANAPHYLAXIS.*

DOSAGE: Tablets

Acute coronary syndrome, non-ST-segment elevation.

Initial: Single 300 mg loading dose; **then,** 75 mg once daily. Initiate and continue aspirin (75–325 mg once daily). Many clients also receive heparin acutely.

Acute coronary syndrome, ST-segment elevation.

75 mg once daily, given with aspirin, with or without thrombolytics. Clopidogrel may be initiated with or without a loading dose of 300 mg.

Recent MI, stroke, or established peripheral arterial disease.

Adults: 75 mg once daily.

NEED TO KNOW

1. Do not use in active pathological bleeding such as peptic ulcer or intracranial hemorrhage.
2. Use with caution in those at risk of increased bleeding from trauma, surgery, or other pathological conditions.
3. May take without regard to food. Food will lessen chance of stomach upset.
4. Avoid OTC agents especially aspirin, aspirin-containing products, or NSAIDs, unless prescribed.
5. Report any unusual bruising or bleeding; advise all providers of prescribed therapy.

6. Stop drug 7 days prior to elective surgery.

Cyclobenzaprine Hydrochloride

(sye-kloh-BENZ-ah-preen)

Rx: Amrix, Fexmid, Flexeril.

B

CLASSIFICATION(S): Skeletal muscle relaxant, centrally-acting

USES: Adjunct to rest and physical therapy for relief of muscle spasms associated with acute and/or painful musculoskeletal conditions.

ACTION/KINETICS: Thought to inhibit reflexes by reducing tonic somatic motor activity. Does not interfere with muscle function. Related to the tricyclic antidepressants; possesses both sedative and anticholinergic properties. Tablets are from 33–55% bioavailable. **Onset:** 1 hr. **Time to peak plasma levels:** About 8 hr. **Therapeutic plasma levels:** 20–30 ng/mL. Food increases the C_{max} and AUC. **Duration:** 12–24 hr. **$t_{1/2}$,** **elimination:** About 18 hr for tablets and 32 hr for capsules. Metabolized mainly by CYP3A4 and CYP1A2. Inactive metabolites are excreted in the urine.

SIDE EFFECTS: Drowsiness, dizziness, dry mouth, confusion, nausea, constipation, dyspepsia, unpleasant taste, headache, fatigue.

CONVULSIONS, ARRHYTHMIAS, ANAPHYLAXIS, EDEMA OF THE FACE AND TONGUE.

DOSAGE: Capsules, Extended-Release

Skeletal muscle disorders.

Adults: 15 mg once daily. Some may require 30 mg/day given once daily or 15 mg 2 times per day.

DOSAGE: Tablets

Skeletal muscle disorders.

Adults: 5 mg 3 times per day. Depending on client response, may be increased to either 7.5 or 10 mg 3 times per day. Doses of 5 mg produce less sedation.

NEED TO KNOW

1. Do not use with arrhythmias, heart block or conduction distur-

bances, CHF, during acute recovery phase of MI, hyperthyroidism, or concomitant with MAO inhibitors or within 14 days of their discontinuation; hyperpyretic crisis seizures and death may result if used together.

2. Due to atropine-like effects, use with caution in situations where cholinergic blockade is not desired (e.g., history of urinary retention, angle-closure glaucoma, increased intraocular pressure).
3. Use only for 2–3 weeks.
4. Take at about the same times each day. Moist heat, gentle stretching and PT may help during the recovery phase.
5. Avoid alcohol during therapy.
6. Due to drug-induced drowsiness, dizziness, and/or blurred vision, observe caution if performing activities that require mental alertness.
7. Notify provider if S&S do not improve within 2–3 weeks of therapy.

Diazepam (dye-AYZ-eh-pam)

D

Rx: Diastat AcuDial, Diazepam Intensol, Valium, **C-IV**.

CLASSIFICATION(S): Antianxiety drug, benzodiazepine

USES: PO: (1) Management of anxiety disorders or for short-term relief of symptoms of anxiety. (2) Adjunct therapy in convulsive disorders; effectiveness as sole therapy has not been proven. (3) Adjunct for relief of skeletal muscle spasm caused by reflex spasm to local pathology (e.g., inflammation of muscles or joints or secondary to trauma). Also, spasticity due to upper motor neuron disorders (e.g., cerebral palsy, paraplegia). Athetosis, stiff-man syndrome. (4) Acute alcohol withdrawal for symptomatic relief of acute agitation, tremor, impending or acute delirium tremens, and hallucinosis. **Parenteral:** (1) Adjunct therapy in status epilepticus and severe recurrent convulsive seizures. (2) IV prior to cardiover-

sion for relief of anxiety and tension and to decrease client's recall. (3) Relief of anxiety and tension in those undergoing surgical procedures. As an adjunct prior to endoscopic or surgical procedures if apprehension, anxiety, or acute stress reactions are present; also, to diminish client recall of the procedures. (4) Treatment of tetanus. (5) Adjunct for the relief of skeletal muscle spasm due to reflex spasm caused by local pathology (e.g., inflammation of muscles or joints, secondary to trauma). Also, spasticity due to upper motor neuron disorders (e.g., cerebral palsy, paraplegia); athetosis; stiff-man syndrome. (6) Symptomatic relief of acute agitation, tremor, impending or acute delirium tremens, and hallucinosis.

Rectal gel: Management of selective refractory clients with epilepsy who are stable on regimens of anticonvulsant drugs who require intermittent diazepam to control increased seizure activity.

ACTION/KINETICS: Reduces anxiety by increasing or facilitating the inhibitory neurotransmitter activity of GABA. The skeletal muscle relaxant effect may be due to enhancement of GABA-mediated presynaptic inhibition at the spinal level as well as in the brain stem reticular formation. **Onset:** **PO**, 30–60 min; **IM**, 15–30 min; **IV**, more rapid. **Peak plasma levels:** **PO**, 0.5–2 hr; **IM**, 0.5–1.5; **IV**, 0.25 hr. **Duration:** 3 hr. $t_{1/2}$: 20–50 hr. Metabolized in the liver to the active metabolites desmethyldiazepam, oxazepam, and temazepam. Diazepam and metabolites are excreted through the urine.

SIDE EFFECTS: Drowsiness (transient), ataxia, confusion.

DOSAGE: Oral Solution; Solution, Intensol; Tablets

Management and relief of anxiety disorders.

Adults: 2–10 mg 2 to 4 times per day. **Children, initial:** 1–2.5 mg 3–4 times per day; **then**, increase gradually as needed and tolerated. Not to be used in children less than 6 months of age. **Elderly clients or in presence of debilitating disease, initial:** 2–2.5 mg 1 or 2 times per day; **then**, increase gradually as needed and tolerated.

Acute alcohol withdrawal.

10 mg 3 or 4 times per day during the first 24 hr; reduce to 5 mg 3 or 4 times per day, as needed.

Adjunct in skeletal muscle spasms.

Adults: 2–10 mg 3 or 4 times per day. **Children:** 0.12–0.8 mg/kg per 24 hr divided 3 to 4 times per day.

Adjunct in convulsive disorders.

Adults: 2–10 mg 2–4 times per day. **Elderly or debilitated clients, initial:** 2–2.5 mg 1 or 2 times per day; **then,** increase dose gradually as needed and tolerated. Limit dose to the smallest effective amount to preclude development of ataxia or oversedation. **Children at least 6 months of age, initial:** 1–2.5 mg 3 or 4 times per day; **then,** increase dose gradually as needed and tolerated.

DOSAGE: IM; IV*Moderate anxiety disorders and symptoms of anxiety.*

Adults: 2–5 mg IM or IV. Repeat in 3–4 hr if needed.

Severe anxiety disorders and symptoms of anxiety.

Adults: 5–10 mg IM or IV. Repeat in 3–4 hr if needed.

Acute alcohol withdrawal.

Adults, initial: 10 mg IM or IV; **then,** 5–10 mg in 3–4 hr if needed.

Endoscopic procedures.

Adults, IV: Titrate dosage to desired sedative response (e.g., slurring of speech). Give slowly and just prior to procedure. Reduce narcotic dosage by at least one-third; in some cases, narcotics may be omitted. **Usual:** 10 mg or less; up to 20 mg may be used, especially when concomitant narcotics are omitted. **Adults, IM:** 5–10 mg 30 min prior to procedure if IV route cannot be used.

Muscle spasms.

Adults, initial: 5–10 mg IM or IV; **then,** 5–10 mg in 3–4 hr if needed. Tetanus may require larger doses.

Sedation or muscle relaxation in children.

0.04–0.2 mg/kg per dose q 2–4 hr up to a maximum of 0.6 mg/kg within an 8-hr period.

Tetanus.

Children, 5 years of age and older: 5–10 mg given q 3–4 hr, if needed. **Infants older than 30 days of age:** 1–2 mg IM or slowly IV given q 3–4 hr as needed.

Preoperative medication.

Adults: 10 mg IM before surgery. If atropine, scopolamine, or other premedications are desired, use separate syringes.

Cardioversion.

Adults: 5–15 mg IV, 5–10 min prior to procedure.

Status epilepticus or severe recurrent convulsive seizures.

Adults, initial: 5–10 mg IV (preferred); **then,** may be repeated at 10–15 min intervals up to a maximum of 30 mg, if needed. May repeat therapy in 2–4 hr. Use with extreme caution in chronic lung disease or unstable cardiovascular status. **Children, at least 5 years of age:** 1 mg q 2–5 min IV (preferred) up to a maximum of 10 mg. Repeat in 2–4 hr if needed. **Infants older than 30 days of age and younger than 5 years of age:** 0.2–0.5 mg by slow IV q 2–5 min up to a maximum of 5 mg. May be repeated in 2–4 hr if needed.

DOSAGE: Rectal Gel

Convulsive disorders.

Depending on age dose ranges from 0.2–0.5 mg/kg; calculate the recommended dose by rounding up to the next available unit dose. If needed, a second dose may be given 4–12 hr after the first dose. Do not treat more than 5 episodes per month or more than 1 episode q 5 days. **Adults and children 12 years of age and older:** 0.2 mg/kg. In the elderly or debilitated, adjust dose downward to reduce ataxia or oversedation. **Children, 6–11 years of age:** 0.3 mg/kg; **children, 2–5 years of age:** 0.5 mg/kg.

NEED TO KNOW

1. When used as an adjunct for seizure disorders, diazepam may increase the frequency or severity of clonic-tonic seizures, for which an increase in the dose of anticonvulsant medication is necessary.

2. Prolonged CNS depression has been observed in neonates, probably due to inability to biotransform diazepam into inactive metabolite.
3. Use IV diazepam with extreme caution in the elderly, in very ill clients, and in those with limited pulmonary reserve as apnea or cardiac arrest may occur.
4. Except for the deltoid muscle, absorption from IM sites is slow, erratic, and painful, and not generally recommended.
5. IV route is preferred in the convulsing client; EEG monitoring of seizure may be helpful.
6. IV diazepam will control seizures promptly; however, many clients experience a return to seizure activity (probably due to the short duration of IV diazepam). Be prepared to readminister.
7. Diazepam is not recommended for maintenance of seizure control. Consider other agents for long-term control.
8. Parenteral administration may cause bradycardia, respiratory/cardiac arrest; have emergency equipment/drugs available.
9. May take without regard to meals; take with food if GI upset.
10. May cause dizziness/drowsiness; avoid activities that require mental alertness until drug effects realized.
11. Avoid alcohol and other CNS depressants.
12. Report if S&S (e.g., anxiety, panic attacks, seizures) do not improve or worsen, or if adverse SE (e.g., drowsiness, memory impairment) occur.

Doxycycline Anhydrous

(dox-ih-SYE-kleen)

Rx: Oracea.

Doxycycline Calcium

Rx: Vibramycin.

Doxycycline Hyclate

Rx: Atridox, Doryx, Doxy 100 and 200, Periostat, Vibra-Tabs, Vibramycin.

Doxycycline Monohydrate

Rx: Adoxa, Monodox, Vibramycin.

D

CLASSIFICATION(S): Antibiotic, tetracycline

USES: Doxycycline calcium, doxycycline hyclate, and doxycycline monohydrate. (1) Gram-negative organisms, including *Haemophilus ducreyi* (chancroid), *Francisella tularensis* (tularemia), *Yersenia pestis* (plague), *Bartonella bacilliformis* (bartonellosis), *Campylobacter fetus* (fetus infections), *Vibrio cholerae* (cholera), *Brucella* species (with streptomycin) to treat brucellosis, *Calymmatobacterium granulomatis* (granuloma inguinale). (2) *Rickettsiae* (e.g., Rocky Mountain spotted fever, typhus fever and the typhus group, Q fever, rickettsialpox, tick fevers). (3) *Mycoplasma pneumoniae* (e.g., respiratory tract infections). (4) *Chlamydia trachomatis* (e.g., lymphogranuloma venereum, trachoma, inclusion conjunctivitis, uncomplicated urethral, endocervical, or rectal infections). (5) *Chlamydia psittaci* (psittacosis). (6) *Borellia recurrentis* (e.g., relapsing fever). (7) *Ureaplasma urealyticum* (e.g., nongonococcal urethritis). (8) For the following infections following susceptibility testing as resistance has been documented: *Escherichia coli*, *Enterobacter aerogenes*, *Acinetobacter* species, *Haemophilus influenzae* (e.g., respiratory tract infections), *Klebsiella* species (e.g., respiratory and urinary tract infections), *Streptococcus pneumoniae* (e.g., upper respiratory tract infections), and *Shigella* species. (9) Alternative therapy for the following infections when penicillin is contraindicated: Uncomplicated gonorrhrea due to *Neisseria gonor-*

rhoecae, syphilis due to *Treponema pallidum*, yaws due to *Treponema pertenue*, listeriosis due to *Listeria monocytogenes*, Vincent's infection due to *Fusobacterium fusiforme*, actinomycosis due to *Actinomyces israelii*, and infections due to *Clostridium* species.

(10) Adjunct to amebicides for acute intestinal amebiasis. (11) Adjunctive therapy for severe acne. (12) Reduce incidence or progression of anthrax (including inhalational anthrax) following exposure to aerosolized *Bacillus anthracis*. (13) Prophylaxis of malaria due to *Plasmodium falciparum* in short-term travelers (less than 4 months) to areas with chloroquine and/or pyrimethamine-sulfadoxine resistant strains. **Investigational:** Lyme disease, syphilis, pelvic inflammatory disease, epididymitis due to gonococcal or chlamydial infection, sexual assault prophylaxis. **Doxycycline hyclate.**

(1) Trachoma (infectious agent not always eliminated).

(2) Inclusion conjunctivitis (may also be combined with topical drugs). (3) Acute epididymo-orchitis due to *Chlamydia trachomatis*. **Doxycycline monohydrate.** Treatment of only inflammatory lesions (papules and pustules) or rosacea in adults. **Dental:**

(1) Atridox injection for chronic adult periodontitis for a gain in clinical attachment, reduction in probing depth, and reduction in bleeding on probing. (2) Periostat as an adjunct to scaling and root planing to promote attachment level gain and reduce pocket depth in adult periodontitis. (3) Oraxyl as an adjunct to scaling and root planing to promote attachment level gain and reduce pocket depth in those with adult periodontitis. **NOTE:** Do not use for streptococcal disease unless organism is susceptible. Tetracyclines are not the drugs of choice to treat any type of staphylococcal infection.

ACTION/KINETICS: Inhibits protein synthesis by binding to the ribosomal 30S subunit. Blocks binding of aminoacyl transfer RNA to the messenger RNA complex. Cell wall synthesis is not inhibited. More slowly absorbed, and thus more persistent, than other tetracyclines. Preferred for clients with impaired renal function for treating infections outside the urinary tract. $t_{1/2}$: 15–25 hr; 30–42% excreted unchanged in urine. High lipid solubility.

SIDE EFFECTS: Anorexia, N&V, diarrhea, dizziness, headache, rashes.

DOSAGE: Capsules; Capsule, Enteric-Coated; IV; Oral Suspension; Syrup; Tablets; Tablets, Delayed-Release

Infections.

Adults, first day: 100 mg q 12 hr; **maintenance:** 100 mg/day. For more severe infections (e.g., chronic UTIs), give 100 mg q 12 hr. **Children, over 8 years of age (45 kg or less), first day:** 4.4 mg/kg in 2 doses; **then,** 2.2–4.4 mg/kg/day in divided doses depending on severity of infection. Children over 45 kg should receive the adult dose.

Uncomplicated gonorrhea in adults (except anorectal infections in men).

Adults: 100 mg twice a day for at least 7 days. Alternatively, 300 mg immediately followed in 1 hr with 300 mg. Give with plenty of water.

Nongonococcal urethritis due to C. trachomatis or U. urealyticum .

100 mg PO twice a day for 7 days.

Syphilis, early.

100 mg PO twice a day for 2 weeks (except Doryx). When using Doryx: Give 300 mg/day in divided PO doses for 10 days.

Syphilis, more than 1 year duration.

100 mg PO 2 times per day for 4 weeks (except Adoxa, Doryx, Monodox).

Uncomplicated urethral, endocervical or rectal infections in adults due to C. trachomatis .

100 mg PO twice a day for at least 7 days.

Acute epididymo-orchitis due to N. gonorrhoeae or C. trachomatis.

100 mg PO twice a day for at least 10 days.

Pelvic inflammatory disease.

100 mg PO or IV q 12 hr *plus* cefotetan, 2 grams IV, q 12 hr or cefoxitin, 2 grams IV, q 6 hr. May discontinue parenteral therapy after 24 hr; continue PO therapy with doxycycline for 14 days.

Epididymitis likely due to gonococcal or chlamydial infection.

100 mg twice a day for 10 days *plus* a single dose of ceftriaxone, 250 mg IM.

Sexual assault prophylaxis.

100 mg twice a day for 7 days plus ceftriaxone and metronidazole.

Prophylaxis of malaria.

Adults: 100 mg PO once daily (except Doryx); **children, over 8 years of age:** 2 mg/kg/day up to 100 mg/day. Begin 1–2 days before travel to endemic area and continue during travel and for 4 weeks after returning.

Anthrax, inhalation, post-exposure.

Adults and children weighing 45 kg or more: 100 mg q 12 hr for 60 days. **Children, less than 45 kg:** 2.2 mg/kg q 12 hr for 60 days.

Lyme disease.

Tick bite from endemic area: 200 mg once. **Early Lyme disease:** 100 mg twice a day for 14–21 days. **Carditis (first degree AV block):** 100 mg twice a day for 14–21 days. **Facial nerve paralysis:** 100 mg twice a day for 14–21 days. **Arthritis:** 100 mg twice a day for 30–60 days.

DOSAGE: Tablets ORACEA

Inflammatory lesions of rosacea.

40 mg once daily in the morning on an empty stomach, preferably at least 1 hr before or 2 hr after meals. Oracea contains 30 mg immediate release and 10 mg delayed release anhydrous doxycycline.

DOSAGE: Capsules ORAXYL

Adjunct to promote attachment and level gain and to reduce pocket depth in adult periodontitis.

One capsule (20 mg) twice a day, up to 9 months.

DOSAGE: Tablets PERIOSTAT

Adjunct to promote attachment and level gain and to reduce pocket depth in adult periodontitis.

20 mg twice a day following scaling and planing. May be used for up to 9 months. Do not exceed recommended dose.

DOSAGE: Injection ATRIDOX

Chronic adult periodontitis.

After preparing the injection (see package insert), keeping the tip near the base of the pocket, express the drug into the pocket until the formulation reaches the top of the gingival margin. Cover the pocket containing doxycycline with either Coe-Pak periodontal dressing or Octylident dental adhesive.

DOSAGE: IV Infusion Only

Infections.

Adults: 200 mg IV on day 1 given in 1 or 2 infusions; **then,** 100–200 mg, depending on severity of condition (give 200 mg in 1 or 2 infusions). **Children, over 8 years of age, up to 45 kg:** 4.4 mg/kg on day 1 in 1 or 2 infusions; **then,** 2.2–4.4 mg/kg given as 1 or 2 infusions, depending on severity of the infection. **Children, over 45 kg:** Use adult dose.

DOSAGE: Gel, 10%

Reduce bacteria due to periodontal disease.

Apply to affected area; gel conforms to shape of the periodontal pocket and solidifies. It releases doxycycline for about 7 days.

NEED TO KNOW

1. Do not use during pregnancy (may stunt fetal growth) and in children up to 8 years of age (tetracycline may cause permanent discoloration of the teeth).
2. Safety for IV use in children less than 8 years of age has not been established.
3. When used for streptococcal infections, continue therapy for 10 days.

4. Malaria prophylaxis can begin 1–2 days before travel begins, during travel, and for 4 weeks after leaving the malarial area.
5. Avoid rapid administration. Duration of IV infusion may vary with the dose; usually from 1–4 hr. A recommended minimum infusion time for 100 mg of a 0.5 mg/mL solution is 1 hr. Switch to oral therapy as soon as possible.
6. May take with food; take caps with a full glass of water to prevent esophageal ulceration and remain upright for 45 min. With syrup or oral suspension measure and give prescribed dose using dosing spoon, dosing syringe, or medicine cup.
7. Stop drug and report if skin rash, hives, itching, SOB, headache, or blurred vision occur.
8. May cause dizziness, light-headedness, or blurred vision; use caution while performing activities that require mental alertness until drug effects realized.
9. Avoid direct exposure to sunlight and wear protective clothing and sunscreens when exposed.

Duloxetine Hydrochloride

(doo-LOX-eh-teen)

Rx: Cymbalta.



CLASSIFICATION(S): Antidepressant, selective serotonin, and norepinephrine reuptake inhibitor

USES: (1) Treatment of major depressive disorder as defined in the DSM-IV. (2) Management of neuropathic pain associated with diabetic peripheral neuropathy. (3) Treatment of generalized anxiety disorder. (4) Fibromyalgia.

ACTION/KINETICS: Antidepressant and pain inhibitory effect believed to be related to potentiation of serotonergic and noradrenergic activity in the CNS. Potent inhibitor of neuronal reuptake of serotonin and norepinephrine. Well absorbed after PO administration. **Maximum plasma levels:** 6 hr (there is a 2-hr lag until absorption begins). Food delays the time to peak levels from 6 to 10

hr. There is a 3-hr delay in absorption and a one-third increase in apparent clearance after an evening dose compared with a morning dose. Undergoes extensive metabolism by the liver isoenzymes, CYP2D6 and CYP1A2. $t_{1/2}$, **elimination:** 8–17 hr. Excreted in both the urine (70%) and feces (20%).

SIDE EFFECTS: N&V, somnolence, dizziness, headache, constipation, dry mouth, fatigue, insomnia, decreased appetite, increased sweating. *COMPLETED SUICIDE, SEIZURES, SEROTONIN SYNDROME.*

DOSAGE: Capsules, Delayed-Release

Major depressive disorder.

Adults, initial: 20 mg twice a day to 60 mg/day (given either once a day or 30 mg twice a day) without regard to meals. There is no evidence that doses greater than 60 mg/day confer additional benefits. Periodically evaluate to determine need for maintenance treatment.

Diabetic peripheral neuropathic pain.

Adults, initial: 60 mg/day given once a day without regard to meals. Periodically evaluate to determine need for maintenance treatment; efficacy beyond 12 weeks has not been evaluated.

Generalized anxiety disorder.

Initial: 60 mg once daily without regard to meals. For some, it may be beneficial to start at 30 mg once daily for 1 week to allow adjustment to the drug before increasing to 60 mg once daily. There is no evidence that doses higher than 60 mg daily confer additional benefit. If doses greater than 60 mg are used, increase doses in increments of 30 mg once daily up to a maximum of 120 mg once daily. Efficacy of duloxetine for more than 10 weeks has not been evaluated. Periodically evaluate the long-term usefulness of the drug.

Fibromyalgia.

Initial: 30 mg once daily for the first week; **then,** 60 mg twice a day in those with and without depression.

NEED TO KNOW

1. Do not use in end-stage renal disease or severe renal impairment (C_{CR} less than 30 mL/min), any hepatic insufficiency, chronic liver disease, substantial alcohol use, uncontrolled narrow-angle glaucoma, or concomitant use in those taking MAO inhibitors.
2. Antidepressants increase the risk of suicidal thinking and behavior (suicidality) in children and adolescents with major depressive disorder and other psychiatric disorders.
3. Duloxetine is not approved for use in children.
4. Use with caution in clients with a history of mania, seizure disorder, with controlled narrow-angle glaucoma, in the elderly, and with conditions that may slow gastric emptying.
5. Treatment for several months or longer may be needed for acute episodes of major depression. Periodically reassess clients to determine need for and appropriate dose for maintenance therapy.
6. Abrupt discontinuation may cause dizziness, N&V, headache, paresthesia, irritability, and nightmares. Reduce dose gradually rather than abruptly discontinuing the drug.
7. Wait at least 14 days between discontinuing an MAO inhibitor and initiating duloxetine. Also, at least 5 days should elapse after stopping duloxetine and starting an MAO inhibitor.
8. Take as directed without regard to meals.
9. Avoid heavy alcohol use, may cause severe liver injury.
10. Practice reliable contraception.

Enalapril Maleate (en-AL-ah-prill)

Rx: Enalaprilat, Vasotec.



CLASSIFICATION(S): Antihypertensive, ACE inhibitor

USES: PO: (1) Alone or in combination with other antihypertensives (especially thiazide diuretics) for the treatment of hypertension. Hypertension in children. (2) In combination with digitalis and diuretic in acute and chronic CHF. (3) Asymptomatic left ventricular dysfunction (ejection fraction less than 35%) in clinically stable asymptomatic clients. **IV:** Treatment of hypertension when PO therapy is not practical.

ACTION/KINETICS: Enalapril (and its active metabolite enalaprilat) inhibit angiotensin-converting enzyme resulting in decreased plasma angiotensin II, which leads to decreased vasopressor activity and decreased aldosterone secretion. The parenteral product is enalaprilat injection. About 60% bioavailable after PO. **Onset, PO:** 1 hr; **IV:** 15 min. **Time to peak action, PO:** 4–6 hr; **IV:** 1–4 hr. **Duration, PO:** 24 hr or more; **IV:** About 6 hr. **t_{1/2}, enalapril, PO:** 1.3 hr; **IV:** 15 min. **t_{1/2}, enalaprilat, PO:** 11 hr. Excreted through the urine (half unchanged) and feces; over 90% of enalaprilat is excreted through the urine.

SIDE EFFECTS: Dizziness, headache, hypotension, syncope, chest pain, fatigue, diarrhea, cough. *CVA, MI, CARDIAC ARREST, PULMONARY EMBOLISM AND INFARCTION, PULMONARY EDEMA, STEVENS-JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS, ANGIOEDEMA.*

DOSAGE: Tablets ENALAPRIL

Hypertension in clients not taking diuretics.

Initial: 5 mg once a day; **then,** adjust dosage according to response (range: 10–40 mg/day in one to two doses). In some clients treated once daily, the antihypertensive effect may decrease toward the end of the dosing interval; if this occurs, consider an increase in dosage or twice-daily administration.

Hypertension in clients taking diuretics.

Initial: 2.5 mg. Since hypotension may occur following the initiation of enalapril, the diuretic should be discontinued, if possible, for 2–3 days before initiating enalapril. If BP is not maintained with enalapril alone, diuretic therapy may be resumed.

Hypertension in clients with impaired renal function.

Initial: 5 mg/day if C_{CR} ranges between 30 and 80 mL/min and serum creatinine is less than 3 mg/dL; 2.5 mg/day if C_{CR} is less than 30 mL/min and serum creatinine is more than 3 mg/dL and in dialysis clients on dialysis days.

Hypertension in children.

Initial: 0.08 mg/kg, up to 5 mg, once daily. Adjust dose depending on response. Do not give to neonates and children with a GFR less than 30 mL/min/1.73 m².

Heart failure (adjunct with diuretics and digitalis).

Initial: 2.5 mg 1–2 times per day; **then**, depending on the response, 2.5–20 mg/day in two divided doses. Dose should not exceed 40 mg/day. Dosage must be adjusted in clients with renal impairment or hyponatremia.

Heart failure and renal impairment or hyponatremia.

Initial: 2.5 mg/day if serum sodium is less than 130 mEq/L or serum creatinine is more than 1.6 mg/dL. The dose may be increased to 2.5 mg twice a day and then 5 mg twice a day or higher if required; dose is given at intervals of 4 or more days. Maximum daily dose is 40 mg.

Asymptomatic LV dysfunction.

2.5 mg twice a day, titrated as tolerated to the daily dose of 20 mg in divided doses.

DOSAGE: IV ENALAPRILAT*Hypertension.*

1.25 mg over a 5-min period; repeat q 6 hr.

Antihypertensive in clients taking diuretics.

Initial: 0.625 mg over 5 min; if there is an inadequate re-

sponse after 1 hr, administer another 0.625-mg dose. Thereafter, 1.25 mg q 6 hr.

Hypertension in clients with impaired renal function.

$C_{CR} >30$ mL/min (serum creatinine up to about 3 mg/mL):

1.25 mg enalaprilat. **$C_{CR} <30$ mL/min or less (serum creatinine up to 3 mg/mL or less):** 0.625 mg initially. If there is an inadequate response after 1 hr, repeat the 0.625 mg dose. Additional doses of 1.25 mg may be given at 6-hr intervals.

Hypertensive emergency.

1.25 mg IV over 5 min q 6 hr; titrate by 1.25 mg increments up to a maximum dose of 5 mg.

NEED TO KNOW

1. When used during the second and third trimesters of pregnancy, ACE inhibitors can cause injury and even death to the developing fetus. Discontinue drug therapy as soon as possible once pregnancy is detected.
2. To convert from IV to PO therapy in clients on a diuretic, begin with 2.5 mg/day for clients responding to a 0.625-mg IV dose. Thereafter, 2.5 mg/day may be given.
3. Use lower dose if receiving diuretics or in impaired renal function.
4. Coadministration of enalapril with potassium supplements, potassium salt substitutes, or potassium-sparing diuretics may lead to increases in serum potassium.
5. To convert from PO to IV therapy in clients not on a diuretic, use the recommended IV dose (i.e., 1.25 mg every 6 hr). To convert from IV to PO therapy, begin with 5 mg/day.
6. When used initially for heart failure, observe for at least 2 hr after initial dose and until BP has stabilized for an additional hour. If possible, reduce dose of diuretic.
7. Avoid sudden position changes to prevent drop in BP.
8. Any persistent dry cough, flu-like symptoms, rash, or unusual side effects should be reported immediately.

Escitalopram Oxalate

(eh-sye-TAL-oh-pram)

Rx: Lexapro.



CLASSIFICATION(S): Antidepressant, selective serotonin reuptake inhibitor

USES: (1) Major depressive disorder, including maintenance, as defined in the DSM-IV-TR category. (2) Generalized anxiety disorder.

ACTION/KINETICS: Inhibits CNS neuronal reuptake of serotonin. Minimal effects on norepinephrine and dopamine reuptake. **Peak plasma levels:** About 5 hr. Absorption is not affected by food.

Steady state: About 1 week following once-daily dosing. Metabolized in the liver by the CYP3A4 and CYP2C19 isoenzymes. **t_{1/2}, terminal:** 27–32 hr. About 7% excreted in the urine.

SIDE EFFECTS: Nausea, dry mouth, increased sweating, dizziness, diarrhea, flu-like symptoms, fatigue, insomnia, somnolence, rhinitis, ejaculation disorder. *SUICIDE ATTEMPTS.*

DOSAGE: Oral Solution; Tablets*Major depressive illness.*

Initial: 10 mg once daily, including the elderly or those with hepatic impairment. Increase dose to 20 mg, if necessary, after a minimum of 1 week. **Maintenance therapy:** 10 or 20 mg/day for up to 36 weeks after an initial 8 weeks of treatment. Periodically reassess to determine the need for maintenance treatment.

Generalized anxiety disorder.

Initial: 10 mg once daily. Dose may be increased to 20 mg once daily after a minimum of 1 week. Efficacy after 8 weeks of treatment has not been determined.

NEED TO KNOW

1. Do not use in clients taking MAO inhibitors or citalopram (Celexa).
2. Antidepressants increased the risk compared with placebo of suicidal thinking and behavior (suicidality) in children, adolescents, and young adults in short-term studies of major depressive disorder and other psychiatric disorders.
3. Escitalopram is not approved for use in children.
4. To prevent serious reactions, do not use escitalopram in combination with an MAO inhibitor, within 14 days of discontinuing treatment with an MAO inhibitor, or within 14 days after discontinuing escitalopram before starting an MAO inhibitor.
5. Use with caution in seizure disorders, in clients with diseases or conditions that produce altered metabolism or hemodynamic responses, in impaired hepatic function, in severe renal impairment, and in those taking CNS drugs.
6. There may be a need for prolonged hospitalization, respiratory support, and tube feeding in neonates exposed to escitalopram late in the third trimester.
7. Give once daily in the morning or evening with or without food.
8. Discontinuing escitalopram may cause symptoms, including dysphoric mood, irritability, agitation, dizziness, sensory disturbances, anxiety, confusion, headache, lethargy, emotional lability, hypomania, or insomnia. A gradual reduction in dose, rather than abrupt cessation, is recommended whenever possible.
9. Drug is an isomer of Celexa and should not be taken with Celexa.
10. Report any abnormal changes in mood or thinking especially: agitation, anxiety, hostility or aggressiveness, impulsivity, irritability, panic attacks, suicidal thoughts or behavior.
11. May see improvement in 1 to 4 weeks; continue as prescribed.

Esomeprazole Magnesium

(es-oh-MEP-rah-zole)

Rx: Nexium.

B**CLASSIFICATION(S):** Proton pump inhibitor

USES: PO only: (1) Short-term treatment (4–8 weeks) in the healing and symptomatic resolution of diagnostically confirmed erosive esophagitis. An additional 4- to 8-week course may be instituted for those who have not healed. (2) To maintain symptom resolution and healing of erosive esophagitis. (3) Treatment of heartburn and other symptoms associated with GERD in adults. (4) Reduce occurrence of gastric ulcers associated with continuous NSAID therapy in those at risk for developing gastric ulcers (those 60 years and older and/or documented history of gastric ulcers). (5) In combination with amoxicillin and clarithromycin to treat and eradicate *H. pylori* infection and duodenal ulcer disease (active or history in the past 5 years). (6) Long-term treatment of pathological hypersecretory conditions, including Zollinger-Ellison syndrome. **IV only:** Short-term treatment (up to 10 days) of GERD in clients with a history of erosive esophagitis as an alternative to PO therapy when therapy with capsules is not possible or appropriate.

ACTION/KINETICS: Suppresses the final step in gastric acid production by inhibiting the H^+/K^+ -ATPase in the gastric parietal cells. This decreases gastric acid secretion. **Peak plasma levels:** 1.5 hr. Absorption is decreased by food. Extensively metabolized in the liver by the cytochrome P450 enzyme system. **$t_{1/2}$, elimination:** 1–1.5 hr. About 80% excreted as inactive metabolites in the urine with 20% excreted in the feces.

SIDE EFFECTS: Headache, diarrhea, nausea, stomach pain, constipation, dry mouth. *GI HEMORRHAGE, LARYNGEAL EDEMA, ANGIOEDEMA, ALLERGIC REACTION, ANAPHYLAXIS.*

DOSAGE: Capsules, Delayed-Release; Suspension, Delayed-Release

Healing of erosive esophagitis.

20 or 40 mg once daily for 4–8 weeks. For those who do not heal within 4–8 weeks, consider an additional 4–8 weeks of therapy.

Maintenance of healing of erosive esophagitis.

20 mg once daily, for up to 6 months.

Symptomatic GERD in adults.

20 mg once daily for 4 weeks. If symptoms do not resolve completely, consider an additional 4 weeks of therapy.

Reduce risk of NSAID-associated gastric ulcers.

20 or 40 mg once daily for up to 6 months.

*Eradication of *H. pylori* to reduce risk of duodenal ulcer recurrence.*

Use the following triple therapy: Esomeprazole, 40 mg once daily for 10 days; amoxicillin, 1,000 mg twice a day for 10 days; and, clarithromycin, 500 mg twice a day for 10 days.

Short-term treatment of GERD in children.

Children, 12–17 years of age: 20 or 40 mg once daily for up to 8 weeks. **Children, 1–11 years of age:** 10 or 20 mg once daily for up to 8 weeks.

Pathological hypersecretory conditions, including Zollinger-Ellison syndrome.

40 mg twice daily; adjust dose to needs of client.

Healing of erosive esophagitis in children.

Children, less than 20 kg: 10 mg once daily for 8 weeks.
Children, 20 kg or more: 10 or 20 mg once daily for 8 weeks.

DOSAGE: IV

GERD with history of erosive esophagitis.

20 or 40 mg given once daily by IV injection (no less than 3 minutes) or by IV infusion over 10–30 minutes.

NEED TO KNOW

1. Symptomatic response does not preclude the presence of gastric malignancy.
2. Esomeprazole may interfere with the absorption of drugs where gastric pH is an important factor in bioavailability (e.g., digoxin, iron salts, ketoconazole).
3. Do not exceed a dose of 20 mg daily in clients with severe hepatic dysfunction.
4. Take the delayed-release capsules whole at least 1 hr before meals. If unable to swallow whole may empty capsule onto one tablespoon of applesauce in a cup. Mix pellets into applesauce and swallow immediately, taking care not to chew pellets.
5. Mix the contents of the packet of delayed-release powder for suspension with 15 mL of water; leave 2–3 min to thicken; stir and drink within 30 min. The suspension may also be administered via a nasogastric or gastric tube.
6. Side effects of prolonged therapy and suppression of acid secretion alter bacterial colonization and lead to hypochlorhydria and hypergastrinemia, which may lead to an increased risk for gastric tumors.
7. Report if bloody or coffee ground-like vomit, black, tarry stools, recurrent heartburn/indigestion or abdominal pain, increased need for antacid use, or bothersome adverse reactions (e.g., constipation, gas, headache) are noted.

**Estrogens Conjugated, Oral
(Conjugated Estrogenic Substances)**

(ES-troh-jens)

Rx: Premarin.

Estrogens Conjugated, Parenteral

Rx: Premarin Intravenous.

Estrogens Conjugated, Synthetic (A & B)

Rx: Cenestin, Enjuvia.

Estrogens Conjugated, Vaginal

Rx: Premarin Vaginal Cream.



CLASSIFICATION(S): Estrogen, natural and synthetic

USES: Conjugated Estrogens, PO: (1) Moderate to severe vasomotor symptoms due to menopause. (2) Moderate to severe symptoms of vulvar and vaginal atrophy associated with menopause. (3) Prophylaxis of postmenopausal osteoporosis.

(4) Hypoestrogenism due to hypogonadism, castration, or primary ovarian failure. (5) Palliation of breast cancer in selected women and men with metastatic disease. (6) Palliation only of advanced androgen-dependent prostatic carcinoma. **Conjugated Estrogens, Parenteral:** Abnormal bleeding due to imbalance of hormones and in the absence of disease. **Conjugated Estrogens, Synthetic, A & B, PO:** (1) Moderate to severe vasomotor symptoms associated with menopause. (2) Moderate to severe vulvar and vaginal atrophy associated with menopause (Synthetic Conjugated Estrogens A). (3) Moderate to severe vaginal dryness and pain with intercourse and symptoms of vulvar and vaginal atrophy associated with menopause (Synthetic Conjugated Estrogens B).

Conjugated Estrogens, Vaginal: Atrophic vaginitis and kraurosis vulvae associated with menopause.

ACTION/KINETICS: Estrogens combine with receptors in the cytoplasm of cells, resulting in an increase in protein synthesis. During menopause, estrogens are used as replacement therapy. Metabolized in the liver and excreted mainly in the urine.

SIDE EFFECTS: After PO Use: Abdominal/back pain, asthenia, breast pain, headache, infection, dyspepsia, nausea, arthralgia, pharyngitis, URTI.

DOSAGE: Tablets ESTROGENS CONJUGATED, ORAL (PREMARIN)

Moderate to severe vasomotor symptoms due to menopause, moderate to severe symptoms of vulvar and vaginal atrophy associated with menopause.

Start with the lowest dose. If the client has not menstruated in 2 or more months, begin therapy on any day; if, however, the client is menstruating, begin therapy on day 5 of bleeding.

Prophylaxis of osteoporosis.

0.625 mg/day continuously or cyclically (such as 25 days on, 5 days off). Mainstays of therapy include calcium; exercise and nutrition may be important adjuncts.

Primary ovarian failure, female castration.

1.25 mg/day given cyclically (3 weeks on, 1 week off). **Maintenance:** Adjust dose to lowest effective level.

Hypogonadism in females.

0.3–0.625 mg/day given cyclically (3 weeks on, 1 week off). Adjust dose depending on severity of symptoms and responsiveness of the endometrium. Dose may be gradually titrated upward at 6–12 month intervals as needed to achieve appropriate bone age advancement and eventual epiphyseal closure. Chronic dosing with 0.625 mg is sufficient to induce artificial cyclical menses with sequential progestin administration and to maintain bone density after skeletal maturity has been achieved.

Palliation of mammary carcinoma in men or postmenopausal women.

10 mg 3 times per day for at least 90 days.

Palliation of prostatic carcinoma (advanced androgen-dependent).

1.25–2.5 mg 3 times per day. Effectiveness can be measured

by phosphatase determinations and symptomatic improvement.

DOSAGE: IM; IV ESTROGENS CONJUGATED, PARENTERAL (PREMARIN INTRAVENOUS)

Abnormal bleeding.

25 mg; repeat after 6–12 hr if necessary.

DOSAGE: Tablets ESTROGENS CONJUGATED, SYNTHETIC A (CENESTIN)

Moderate-to-severe vasomotor symptoms due to menopause.

Initial: 0.45 mg daily; **then**, adjust dose based on individual client response. Discontinue as soon as possible. Attempt to discontinue or taper dosage at 3- to 6-month intervals.

Vulvar and vaginal atrophy.

0.3 mg/day.

DOSAGE: Tablets ESTROGENS CONJUGATED, SYNTHETIC B (ENJUVIA)

Moderate-to-severe vasomotor symptoms due to menopause.

Initial: 0.3 mg daily. Adjust dosage based on individual client response. Periodically reassess dosage.

Vaginal dryness/vulvar and vaginal atrophy associated with menopause.

0.3 mg once daily. If to be used solely for treating moderate to severe vaginal dryness and pain during intercourse, consider using topical vaginal products.

DOSAGE: Vaginal Cream ESTROGENS CONJUGATED, VAGINAL (PREMARIN VAGINAL CREAM)

Atrophic vaginitis and kraurosis vulvae associated with menopause.

0.5–2 grams daily for 3 weeks on and 1 week off. Repeat as needed. Attempt to taper the dose or discontinue the medication at 3- to 6-month intervals.

NEED TO KNOW

1. Do not use for prevention of CV disease due to increased risk of MI, stroke, invasive breast cancer, and venous thromboembolism.
2. Use of estrogen replacement therapy for prolonged periods of

time may increase the risk of fatal ovarian cancer and an increased risk of endometrial cancer.

3. For all uses, except palliation of mammary and prostatic carcinoma, oral conjugated estrogens are best administered cyclically—3 weeks on and 1 week off.
4. When estrogen is used for a postmenopausal woman with a uterus, also initiate a progestin to reduce the risk of endometrial cancer.
5. Limit the use of estrogen, alone or with a progestin, to the shortest duration consistent with treatment goals and risks. Evaluate periodically to determine if treatment is still required.
6. May take with food to decrease GI upset.
7. Report to provider if pain in groin/calves, chest pain, difficulty breathing or unexplained SOB, abnormal vaginal bleeding, breast lumps, sudden severe headache, dizziness/fainting, vision or speech problems, weakness or numbness of arms or legs, severe abdominal pain or swelling, yellowing of skin or eyes, severe depression experienced.

Ezetimibe (eh-ZET-eh-myb)

Rx: Zetia.

C

CLASSIFICATION(S): Antihyperlipidemic drug

USES: (1) Primary hypercholesterolemia, either as monotherapy or combination therapy with HMG-CoA reductase inhibitors, to reduce elevated total cholesterol, LDL-C, and APO B. (2) With atorvastatin or simvastatin to reduce elevated total-C and LDL-C levels in homozygous familial hypercholesterolemia as an adjunct to other lipid-lowering treatments (e.g., LDL apheresis) or if such treatments are unavailable. (3) As adjunctive therapy to diet to reduce elevated sitosterol and campesterol levels in homozygous familial sitosterolemia. (4) With fenofibrate as adjunctive therapy to diet to reduce total cholesterol, LDL-C, APO B, and non-high-den-

sity lipoprotein cholesterol (non-HDL-C) in clients with mixed hyperlipidemia.

ACTION/KINETICS: Acts at the brush border of the small intestine to inhibit the absorption of cholesterol, leading to a decrease in the delivery of cholesterol to the liver. This results in a decrease of hepatic cholesterol stores and an increase in clearance of cholesterol from the blood. This complements the mechanism of action of HMG-CoA reductase inhibitors. Reduces total cholesterol, LDL cholesterol, APO B, and triglycerides as well as increases HDL cholesterol. Peak plasma ezetimibe levels: 4–12 hr. C_{max} is increased by a high-fat meal. $t_{1/2}$, **parent drug and active metabolite:** 22 hr. After PO administration, is rapidly conjugated to the active phenolic glucuronide in the small intestine and liver. Mainly excreted through the feces with smaller amounts through the urine.

SIDE EFFECTS: Back/abdominal pain, diarrhea, arthralgia, sinusitis, coughing, pharyngitis. *PANCREATITIS, ANAPHYLAXIS.*

DOSAGE: Tablets

Primary hypercholesterolemia, homozygous familial hypercholesterolemia, homozygous sitosterolemia, with fenofibrate in mixed hyperlipidemia.

10 mg once daily with or without food.

NEED TO KNOW

1. Do not use with HMG-CoA reductase inhibitors in pregnant or nursing women and in active liver disease or unexplained persistent elevations in serum transaminases.
2. Place client on a standard cholesterol-lowering diet before therapy and for duration of treatment.
3. Give at least 2 hr before or at least 4 hr after giving a bile sequestrant.
4. Take daily as directed with or without food. Avoid taking with antacids; reduces drug effect.
5. Report any S&S of infections, unexplained muscle pain, tenderness/weakness (especially if accompanied by fever or malaise), surgery, trauma, or metabolic disorders.

6. Not for use during pregnancy; use barrier contraception.

Ezetimibe and Simvastatin (eh-ZET-eh-myb, sim-vah-STAH-tin)

X

Rx: Vytorin 10/10, 10/20, 10/40, or 10/80.

CLASSIFICATION(S): Combination antihyperlipidemic

USES: (1) Adjunctive therapy to diet to reduce elevated total-C, LDL-C, APO B, triglycerides, and non-HDL-C and to increase HDL-C in clients with primary (heterozygous familial or non-familial) hypercholesterolemia or mixed hyperlipidemia. (2) Reduction of elevated total-C and LDL-C in clients with homozygous familial hypercholesterolemia, as an adjunct to other lipid-lowering treatments (or if such treatments are not available).

ACTION/KINETICS: Ezetimibe reduces blood cholesterol by inhibiting absorption of cholesterol by the small intestine, leading to a decrease of hepatic cholesterol stores and an increased clearance of cholesterol from the blood. Simvastatin decreases cholesterol by inhibiting conversion of HMG-CoA to mevalonate, an early step in the biosynthesis of cholesterol. Also, simvastatin reduces VLDL and triglycerides and increases HDL-C. Ezetimibe is absorbed and converted to the active exetimibe-glucuronide. High fat or non-fat meals have no effect on the extent of absorption. Ezetimibe is metabolized in the small intestine and liver by glucuroide conjugation and excreted in both the feces and urine. Simvastatin undergoes extensive first-pass liver metabolism and is mainly excreted in the bile.

SIDE EFFECTS: Headache, myalgia, URTI, influenza, abdominal pain, diarrhea, arthralgia, back pain, sinusitis, pharyngitis, chest pain, dizziness, fatigue.

DOSAGE: Tablets

Primary hypercholesterolemia.

Usual, initial: 10/20 mg/day. Beginning with 10/10 mg/day

may be considered for those requiring less aggressive LDL-C reductions. Those requiring a larger LDL-C reduction (>55%) may be started on 10/40 mg/day. After initiation or titration of Vytorin, lipid levels may be analyzed after 2 or more weeks; adjust dosage, if necessary. **Dose range:** 10/10 mg/day through 10/80 mg/day. **NOTE:** The amount of ezetimibe is listed first.

Homozygous familial hypercholesterolemia.

10/40 mg/day or 10/80 mg/day, with other lipid-lowering treatments (e.g., LDL apheresis).

NEED TO KNOW

1. Use not recommended with moderate or severe hepatic insufficiency.
2. Give to women of childbearing age only when such clients are highly unlikely to conceive.
3. There is a possible association between the use of ezetimibe/simvastatin and a potentially increased incidence of cancer.
4. Place client on a standard cholesterol-lowering diet before giving Vytorin; continue the diet during Vytorin treatment.
5. If given with bile acid sequestrants, give Vytorin either 2 hr or more before or 4 hr or more after giving the bile acid sequestrant.
6. Take as a single dose in the evening, with or without food.
7. May cause visual changes or drowsiness; avoid activities that require mental alertness until drug effects realized.
8. Avoid grapefruit and grapefruit juice; may increase drug concentrations and adverse effects.
9. Avoid alcohol; may increase risk of liver problems.

Fenofibrate (fee-noh-FY-brayt)

C

Rx: Capsules: Lipofen. **Capsules, Micronized:** Antara, Lofibra. **Tablets:** Lofibra, Tricor, Triglide.

CLASSIFICATION(S): Antihyperlipidemic

USES: (1) Adjunctive therapy to diet to reduce elevated LDL-C, total-C, triglycerides, and APO B and to increase HDL-C in adults with primary hypercholesterolemia or mixed dyslipidemia (Fredrickson Types IIa and IIb). (2) Adjunctive therapy to diet to treat adults with hypertriglyceridemia (Fredrickson Types IV and V hyperlipidemia).

ACTION/KINETICS: Is converted to the active fenofibric acid, which lowers plasma triglycerides. Probable mechanism is to inhibit triglyceride synthesis, resulting in a reduction of cholesterol, triglycerides, APO B, and VLDL and by stimulating catabolism of triglyceride-rich lipoprotein. Increases urinary excretion of uric acid. Well absorbed; absorption is increased when given with food. **Peak plasma levels:** 3–8 hr, depending on the product; **steady-state plasma levels:** within 5–7 days. $t_{1/2}$: 16–23 hr with once daily dosing. Fenofibric acid and an inactive metabolite are excreted through the urine (60%) and feces (25%).

SIDE EFFECTS: Abnormal LFTs, respiratory disorder, abdominal/back pain, headache, nausea, diarrhea, rhinitis, asthenia, flu syndrome. *PANCREATITIS, RECTAL HEMORRHAGE, MI, STEVENS-JOHNSON SYNDROME AND TOXIC EPIDERMAL NECROLYSIS.*

DOSAGE: Tablets

Primary hypertriglyceridemia, mixed hyperlipidemia.

Individualize dose depending on client response; adjust, if necessary, following repeat lipid determinations at 4- to 8-week intervals. **Antara, initial:** 130 mg/day without regard to meals; for renal function impairment or the elderly, give 43 mg/day initially. **Lipofen, initial:** 150 mg/day with meals. In

the elderly and in impaired renal function, start with 50 mg/day. **Lofibra capsules, initial:** 200 mg/day with meals; for renal function impairment or the elderly, give 67 mg/day. **Lofibra tablets, initial:** 160 mg/day with meals; for renal function impairment or the elderly, give 54 mg/day. **Tricor, initial:** 145 mg/day without regard to meals; for renal function impairment or the elderly, give 48 mg/day initially. **Triglide, initial:** 160 mg/day without regard to meals; for renal function impairment or the elderly, give 50 mg/day.

Hypertriglyceridemia.

Individualize dosage according to client response and adjust if necessary following repeat lipid determinations at 4- to 8-week intervals. **Antara, initial:** 43–130 mg/day without regard to meals; maximum dosage: 130 mg/day. **Lipofen, initial:** 50–150 mg/day with meals; maximum dosage: 150 mg/day. **Lofibra capsules, initial:** 67–200 mg/day with meals; maximum dosage: 200 mg/day. **Lofibra tablets, initial:** 54–160 mg/day with meals; maximum dosage: 160 mg/day. **Tricor, initial:** 48–145 mg/day without regard to meals; maximum dosage: 145 mg/day. **Triglide, initial:** 50–160 mg/day without regard to meals; maximum dosage: 160 mg/day.

NEED TO KNOW

1. Do not use in hepatic dysfunction (including primary biliary cirrhosis and unexplained, persistent abnormal liver function), severe renal dysfunction, and preexisting gallbladder disease.
2. Place clients on an appropriate triglyceride-lowering diet before starting fenofibrate and continue during treatment.
3. Withdraw therapy in clients who do not have an adequate response after 2 months with the maximum recommended dosage.
4. Take as directed with/without meals; except take Lofibra capsules and tablets and Lipofen capsules with food to increase absorption and lipid-lowering effectiveness.
5. Take at the same time each day; never take more than 1 dose of fenofibrate/day.

- If also prescribed bile acid resin (e.g., cholestyramine); take fenofibrate 1 hr before or 4 to 6 hr after the resin.
- Avoid therapy with pregnancy and breastfeeding.

Fexofenadine Hydrochloride

(fex-oh-FEN-ah-deen)

Rx: Allegra, Allegra ODT.

C

CLASSIFICATION(S): Antihistamine, second generation, piperidine

USES: (1) Seasonal allergic rhinitis, including sneezing; rhinorrhea; itchy nose, throat, or palate; and itchy, watery, and red eyes in adults and children 2 years of age and older. (2) Uncomplicated skin manifestations of chronic idiopathic urticaria in adults and children 2 years of age and older. Significantly reduces pruritus and number of wheals.

ACTION/KINETICS: Fexofenadine, a metabolite of terfenadine, is an H₁-histamine receptor blocker. Low to no sedative or anticholinergic effects. **Onset:** Rapid. **Peak plasma levels:** 2.6 hr. **t_{1/2}, terminal:** 14.4 hr. Approximately 90% of the drug is excreted through the feces (80%) and urine (10%) unchanged.

SIDE EFFECTS: Headache, dyspepsia, coughing, URTI, viral infection, back pain.

DOSAGE: Oral Suspension; Tablets; Tablets, Oral Disintegrating

Seasonal allergic rhinitis; chronic idiopathic urticaria.

Adults and children over 12 years of age: 60 mg twice a day or 180 mg once daily. **Children, 2–11 years of age:** 30 mg twice a day. **NOTE: Adults and children over 12 years of age with decreased renal function, initial:** 60 mg once daily. **Children 2–11 years of age with decreased renal function, initial:** 30 mg once daily.

NEED TO KNOW

1. Safety and efficacy have not been determined in children under 12 years of age; use is not recommended in children less than 2 years of age.
2. Take tablets with water. May take with food to decrease GI upset. Avoid taking with grapefruit juice.
3. Do not take within 15 min of aluminum- or magnesium-containing antacids.
4. Avoid activities that require mental alertness until drug effects realized. May experience headaches, sore throat, nausea, and dysmenorrhea.
5. Avoid alcohol and CNS depressants.

Fluconazole
(flew-KON-ah-zohl)
Rx: Diflucan.

C

CLASSIFICATION(S): Antifungal

USES: (1) Oropharyngeal and esophageal candidiasis. (2) Serious systemic candidal infection (including UTIs, peritonitis, candidemia, disseminated candidiasis, and pneumonia). (3) Cryptococcal meningitis. (4) Vaginal candidiasis and infections due to *Candida*. (5) Decrease the incidence of candidiasis in clients undergoing a bone marrow transplant who receive cytotoxic chemotherapy or radiation therapy. (6) Cryptococcal meningitis and candidal infections in children.

ACTION/KINETICS: Is a highly selective inhibitor of fungal cytochrome P450 and sterol C-14 alpha-demethylation. The loss of normal sterols correlates with accumulation of 14-alpha-methyl sterols in fungi and may be responsible for the fungistatic activity. There is a decrease in cell wall integrity and extrusion of intracellular material, leading to death. **Peak plasma levels:** 1–2 hr.

Steady-state levels: 5–10 days after 50–400 mg given once a day. **t_{1/2}:** 30 hr, which allows for once daily dosing. Penetrates all body fluids at steady state. Not affected by agents that increase gastric

pH. Eighty percent of the drug is excreted unchanged by the kidneys.

SIDE EFFECTS: Following single doses: Headache, nausea, abdominal pain, diarrhea. **Following multiple doses:** Nausea, headache, skin rash, vomiting, abdominal pain. *ANGIOEDEMA, ANAPHYLAXIS (RARE), SERIOUS HEPATIC REACTIONS, SEIZURES, STEVENS-JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS.*

DOSAGE: IV; Oral Suspension; Tablets

Oropharyngeal or esophageal candidiasis.

Adults, first day: 200 mg; **then,** 100 mg/day for a minimum of 14 days (for oropharyngeal candidiasis) or 21 days (for esophageal candidiasis). Up to 400 mg/day may be required for esophageal candidiasis. **Children, first day:** 6 mg/kg; **then,** 3 mg/kg once daily for a minimum of 14 days (for oropharyngeal candidiasis) or 21 days (for esophageal candidiasis).

Vaginal candidiasis.

150 mg as a single oral dose.

Candidal UTI and peritonitis.

50–200 mg/day.

Systemic candidiasis (e.g., candidemia, disseminated candidiasis, and pneumonia).

Optimal dosage and duration in adults have not been determined although doses up to 400 mg/day have been used.

Children: 6–12 mg/kg/day.

Acute cryptococcal meningitis.

Adults, first day: 400 mg; **then,** 200 mg/day (up to 400 mg may be required) for 10 to 12 weeks after CSF culture is negative. **Children, first day:** 12 mg/kg; **then,** 6 mg/kg once daily for 10 to 12 weeks after CSF culture is negative.

Maintenance to prevent relapse of cryptococcal meningitis in AIDS clients.

Adults: 200 mg once daily. **Children:** 6 mg/kg once daily.

Prevention of candidiasis in bone marrow transplant.

400 mg once daily. In clients expected to have severe granulocytopenia (less than 500 neutrophils/mm³), start fluconazole several days before the anticipated onset of neutropenia and continue for 7 days after the neutrophil count rises above 1,000 cells/mm³. In clients with renal impairment, an initial loading dose of 50–400 mg can be given; then daily dose is based on C_{CR}.

NEED TO KNOW

1. Use with caution if client shows hypersensitivity to other azoles. Use with extreme caution in renal impairment.
2. A loading dose of twice the daily dose is recommended for the first day of therapy in order to obtain plasma levels close to the steady state by the second day of therapy.
3. To prevent relapse, maintenance therapy usually required in clients with AIDS, cryptococcal meningitis, or recurrent oropharyngeal candidiasis.
4. Do not exceed continuous IV infusion rate of 200 mg/hr.
5. Take tablets with a full glass of water without regard to meals; may take with food if GI upset occurs.
6. Report rash, N&V, diarrhea, yellowing of skin, clay-colored stools, dark urine, lack of response, or persistent side effects; may need to be discontinued.
7. Avoid prolonged or excessive exposure to direct or artificial sunlight.

Fluoxetine Hydrochloride

(flew-**OX**-eh-teen)



Rx: Prozac, Prozac Pulvules, Prozac Weekly, Sarafem Pulvules.

CLASSIFICATION(S): Antidepressant, selective serotonin reuptake inhibitor

USES: Prozac: (1) Major depressive disorder as defined in the

DSM-IV in children (8–18 years) and adults. (2) Obsessive-compulsive disorders (OCD as defined in the DSM-III-R) in children (8–18 years) and adults. (3) Long-term treatment of binge-eating and vomiting behaviors in moderate to severe bulimia nervosa. (4) Panic disorder with or without agoraphobia as defined in DSM-IV. **Serafem:** Premenstrual dysphoric disorder.

ACTION/KINETICS: Antidepressant effect likely due to inhibition of CNS neuronal uptake of serotonin and to a lesser extent norepinephrine and dopamine. Results in increased levels of serotonin in synapses. Metabolized in the liver to norfluoxetine, a metabolite with equal potency to fluoxetine. Norfluoxetine is further metabolized by the liver to inactive metabolites that are excreted by the kidneys. **Time to peak plasma levels:** 6–8 hr. **Peak plasma concentrations:** 15–55 ng/mL. **$t_{1/2}$, fluoxetine:** 1–6 days; **$t_{1/2}$, norfluoxetine:** 4–16 days. **Time to steady state:** About 4 weeks. Active drug maintained in the body for weeks after withdrawal. Impaired hepatic function increases the half-life.

SIDE EFFECTS: Insomnia, nausea, somnolence, nervousness, anxiety, tremor, diarrhea/loose stools, anorexia, dry mouth. **SOME CLIENTS MAY EXPERIENCE SEIZURES OR ATTEMPT SUICIDE.**

DOSAGE: Capsules; Capsules, Delayed Release; Oral Solution; Tablets PROZAC

Major depressive disorder.

Adults, initial: 20 mg/day in the morning. If clinical improvement is not observed after several weeks, the dose may be increased to a maximum of 80 mg/day in two equally divided doses. For weekly dosing for stabilized clients requiring maintenance therapy, can use Prozac Weekly (90 mg delayed release capsule), given 7 days after the last 20 mg dose. If satisfactory response is not maintained, reestablish a daily dosing regimen. **Children, 8–18 years of age, initial:** 10 or 20 mg/day. After 1 week at 10 mg/day increase the dose to 20 mg/day.

OCD.

Adults, initial: 20 mg/day in the morning. If improvement is not significant after several weeks, the dose may be increased. Full effect may be delayed until 5 weeks of treatment or longer. **Usual dosage range:** 20–60 mg/day; the total daily dosage should not exceed 80 mg. Adjust dose to maintain client on lowest effective dosage. **Adolescents and higher weight children, initial:** 10 mg/day. After 2 weeks, increase the dose to 20 mg/day; additional dose increases may be considered after several more weeks if clinical improvement is insufficient. Recommended dose range: 20–60 mg/day. **Lower weight children, initial:** 10 mg/day. Dosage may be increased after several weeks if there is not sufficient improvement. Dose range: 20–30 mg/day. **Maintenance, adults and children:** Clients have been continued on therapy for an additional 6 months after an initial 13 weeks of treatment, without loss of efficacy. Adjust dose to maintain on lowest effective dose; periodically reassess to determine need for continued treatment.

Bulimia nervosa.

Initial: 60 mg/day given in the morning. May be necessary to titrate up to this dose over several days. **Maintenance:** Therapy has been continued for an additional 52 weeks beyond the initial 8 weeks.

Panic disorder.

Initial: 10 mg/day. After 1 week, increase the dose to 20 mg/day. A dose increase may be considered after several weeks if no improvement is noted. Doses above 60 mg/day have not been evaluated in panic disorders. **Maintenance:** Consider maintenance therapy for responding clients; periodically assess to determine the need for continued treatment.

Raynaud phenomenon.

20–60 mg/day.

DOSAGE: Capsules SARAFEM

Premenstrual dysphoric disorder.

Initial: 20 mg/day (not to exceed 80 mg/day) given every day

of the menstrual cycle or intermittently (starting a daily dose 14 days before anticipated menses onset through the first full day of menses; repeat with each new cycle). Efficacy has been maintained for up to 6 months at doses of 20 mg/day given continuously and up to 3 months at a dose of 20 mg/day given intermittently. Reassess clients to determine continued need for the drug.

NEED TO KNOW

1. Do not use thioridazine with fluoxetine or within a minimum of 5 weeks after fluoxetine has been discontinued.
2. Antidepressants increased the risk of suicidal thinking and behavior (suicidality) in short-term studies in children and adolescents with major depressive disorder and other psychiatric disorders.
3. Fluoxetine is approved for use in children with major depressive disorder and obsessive-compulsive disorder. Sarafem is not approved for use in children.
4. A lower dose or less frequent dosing should be considered for those with impaired hepatic function, elderly clients, those with concurrent diseases, or those who are taking multiple medications.
5. Divide doses greater than 20 mg/day and give in the a.m. and at noon.
6. The maximum therapeutic effect may not be observed until 4–5 weeks after beginning therapy.
7. If therapy needs to be discontinued, gradually reduce the dose, rather than discontinue abruptly.
8. Allow 14 days to elapse between discontinuing an MAO inhibitor and starting fluoxetine therapy; also, allow 5 weeks or more to elapse between stopping fluoxetine and starting an MAO inhibitor.
9. May be taken with food to decrease chance of stomach upset.
10. Use caution when driving or performing tasks that require

mental alertness; may cause drowsiness/dizziness. Change positions slowly to avoid drop in BP.

11. Avoid alcohol; do not take any OTC agents without approval. Use sunscreen and avoid prolonged sun exposure.

Fluticasone Furoate

(flu-TIH-kah-sohn)

Rx: Veramyst.

Fluticasone Propionate

(flu-TIH-kah-sohn)

Rx: Cream, Lotion, Ointment: Cutivate. **Aerosol, Inhalation Suspension:** Flovent HFA. **Spray, Intranasal Suspension:** Flonase.

CLASSIFICATION(S): Glucocorticoid

USES: Fluticasone furoate. Intranasal (Veramyst): Symptoms of seasonal and perennial allergic rhinitis in clients 2 years of age and older. **Fluticasone propionate. Aerosol, inhalation suspension (Flovent HFA):** Maintenance treatment of asthma as prophylactic therapy in clients 4 years of age and older. Also for those requiring oral corticosteroid therapy. **Intranasal (Flonase Spray):** To manage nasal symptoms of seasonal and perennial allergic and nonallergic rhinitis in adults and children over 4 years of age. **Topical:** (1) Relief of inflammatory and pruritic corticosteroid-responsive dermatoses in adults. (2) Atopic dermatitis in clients as young as 3 months.

ACTION/KINETICS: Anti-inflammatory due to ability to inhibit prostaglandin synthesis. Also inhibits accumulation of macrophages and leukocytes at sites of inflammation as well as inhibits phagocytosis and lysosomal enzyme release. Following intranasal use, a small amount is absorbed into the general circulation. **Onset:** Approximately 12 hr. **Maximum effect:** May take several days. **t_{1/2}:** About 3.1 hr. Absorbed drug is metabolized in the liver by CYP3A4 and excreted in the feces (>95%) and urine (<5%).

SIDE EFFECTS: Use of Flonase: Headache, pharyngitis, epistaxis,

nasal burning/irritation, N&V, asthma symptoms, cough. **Use of Flovent:** Throat irritation, URTI, sinusitis/sinus infection, oral candidiasis, headache, fever. *ANAPHYLAXIS, POSSIBLE SEVERE FATAL ASTHMA.*

DOSAGE: Spray, Intranasal Suspension FLUTICASONE FUROATE (VERAMYST)

Seasonal and perennial allergic rhinitis.

Adults and children 12 years of age and older, initial: 110 mcg once daily given as 2 sprays (27.5 mcg/spray) in each nostril. Titrate to the minimum effective dose to reduce the possibility of side effects. When the maximum benefit has been reached, reduce the dose to 55 mcg (1 spray in each nostril) once daily. **Children, 2–11 years of age, initial:** 55 mcg once daily given as 1 spray (27.5 mcg/spray) in each nostril. Children not responding adequately to the 55 mcg dose may use 110 mcg (2 sprays/nostril) once daily. Once symptoms have been controlled, decrease the dose to 55 mcg daily.

DOSAGE: Aerosol, Inhalation Suspension FLUTICASONE PROPIONATE (FLOVENT HFA)

Asthma.

Adults and children over 12 years of age, initial: 88 mcg twice a day (maximum: 440 mcg twice a day) if previous therapy was bronchodilators alone; 88–220 mcg twice a day (maximum: 440 mcg twice a day) if previous therapy was inhaled corticosteroids; and, 440 mcg twice a day (maximum: 880 mcg twice a day) if previous therapy was oral corticosteroids. Starting doses more than 88 mcg twice daily may be considered for those with poor asthma control or those who have previously required doses of inhaled corticosteroids that are in the higher range for that specific agent. **Children, 4–11 years of age:** 88 mcg twice a day (maximum: 88 mcg/day).

DOSAGE: Spray, Intranasal Suspension FLUTICASONE PROPIONATE (FLONASE)

Allergic rhinitis.

Adults, initial: Two sprays (50 mcg each) per nostril once daily (total daily dose: 200 mcg). Or, 100 mcg given twice a day (e.g., 8 a.m. and 8 p.m.) Maximum dose is two sprays (200 mcg) in each nostril once a day. After a few days, may reduce dose to 100 mcg (1 spray/nostril) once daily for maintenance.

Adolescents and children 4 years of age and older, initial: 100 mcg (1 spray/nostril once a day). If no response to 100 mcg, may use 200 mcg/day (2 sprays/nostril). Once control achieved, decrease dose to 100 mcg (1 spray/nostril) daily. Do not exceed a dose of 200 mcg/day. The spray is not recommended for children under 4 years of age.

DOSAGE: Cream; Lotion; Ointment

Dermatoses in adults, atopic dermatitis.

Apply sparingly to affected area 2–4 times daily. For Cutivate Cream, apply a thin film to the affected areas once daily. For Cutivate Lotion, apply a thin film to the affected areas once daily.

NEED TO KNOW

1. Do not use for relief of acute bronchospasm. Do not use following nasal septal ulcers, nasal surgery, or nasal trauma until healing has occurred.
2. Use care when transferring from systemic corticosteroids to fluticasone propionate because deaths due to adrenal insufficiency have occurred in those with asthma during and after transfer from systemic corticosteroids to less systemically available inhaled corticosteroids.
3. During periods of stress or severe asthma attack, clients who have been withdrawn from systemic corticosteroids should be instructed to resume oral corticosteroids (in large doses) immediately and to contact their providers for further instruction.
4. Use with caution, if at all, in active or quiescent tuberculosis

infections; untreated fungal, bacterial, or systemic viral infections; or ocular herpes simplex.

5. Maximum benefits may not occur for 1–2 weeks or longer.
6. If taking chronic oral steroids, reduce prednisone no faster than 2.5 mg/day on a weekly basis, beginning after 1 or more weeks of aerosol therapy. After prednisone reduction is complete, decrease fluticasone dosage to the lowest effective dose.
7. Do not interrupt therapy if side effects evident; notify provider as drug may require slow withdrawal. The dosage should also be slowly reduced if S&S of hypercorticism or adrenal suppression occur such as depression, lassitude, joint and muscle pain; report if evident, especially when replacing systemic corticosteroids with topical.
8. With topical products report evidence of infection, lack of healing, or lack of response; do not cover with occlusive dressing. Do not apply to face, underarms, or groin areas unless specifically directed.

Fluticasone Propionate and Salmeterol Xinafoate

(flu-TIH-kah-sohn, sal-MET-er-ole)

Rx: Advair Diskus, Advair HFA.



CLASSIFICATION(S): Anti-asthmatic combination drug

USES: (1) Long-term, twice-daily maintenance treatment of asthma in clients 4 years of age and older (Advair Diskus) or in clients 12 years of age and older (Advair HFA). (2) Twice-daily maintenance treatment of airflow obstruction in clients with COPD associated with chronic bronchitis (use only Advair Diskus: Fluticasone 250 mcg/Salmeterol 50 mcg). Do not use higher doses of fluticasone.

ACTION/KINETICS: The precise mechanism of fluticasone is unknown but corticosteroids inhibit multiple cell types (e.g., mast

cells, eosinophils, basophils, lymphocytes, macrophages, and neutrophils) and mediator production or secretion (e.g., histamine, eicosanoids, leukotrienes, cytokines) involved in the asthmatic response. Salmeterol is a long-acting beta₂-adrenergic agonist that catalyzes the conversion of ATP to cyclic-AMP. Increased cyclic-AMP levels cause relaxation of bronchial smooth muscle and inhibition of release of mediators of immediate hypersensitivity, especially from mast cells. **Onset:** 30–60 min; **maximum improvement in forced expiratory volume in 1 second (FEV₁):** Within 3 hr; **duration:** 12 hr.

Fluticasone propionate. Peak plasma levels: 1–2 hr. **t_{1/2}, elimination:** 7.8 hr. Metabolized by CYP3A4 in the liver. Excreted in the feces as parent drug and metabolites.

Salmeterol xinafoate. Peak plasma levels: About 5 min but plasma levels are low. Extensively metabolized; eliminated mostly in the feces.

SIDE EFFECTS: URTI, pharyngitis, headache, URT inflammation, cough, hoarseness/dysphonia, bronchitis, N&V. **PARADOXICAL BRONCHOSPASM, LARYNGEAL SPASM, CHOKING, ANGIOEDEMA, BRONCHOSPASM.**

DOSAGE: Inhalation Aerosol (Advair HFA)

Asthma.

Adults and children over 12 years of age: Two inhalations twice a day (morning and evening) every day. For those who do not respond adequately to the initial dose after 2 weeks of therapy, replace the current strength of Advair HFA with a higher strength. **Maximum dosage:** Two inhalations of Advair HFA 230/21 twice a day.

DOSAGE: Inhalation Powder (Advair Diskus)

Asthma.

Adults and children 12 years of age and older: 1 inhalation twice daily (morning and evening) about 12 hours apart. Recommended starting doses depend on clients' current asthma therapy. Clients not currently on inhaled corticosteroid, whose disease severity warrants treatment with two maintenance therapies, including those on non-corticosteroid maintenance

therapy, start with Advair Diskus 100/50 twice daily. For clients on inhaled corticosteroid, dosage depends on the steroid being used but the recommended Advair Diskus dosage is 500 mcg/50 mcg twice daily. **Children, 4–11 years of age:** 1 Inhalation of fluticasone 100 mcg/salmeterol 50 mcg Diskus twice daily (morning and evening), approximately 12 hr apart.

COPD associated with chronic bronchitis.

Adults: 1 Inhalation of fluticasone 250 mcg/ salmeterol 50 mcg twice daily (morning and evening) about 12 hr apart. The 250 mcg/50 mcg product is the only strength approved for COPD with chronic bronchitis. If shortness of breath occurs in the period between doses, an inhaled short-acting beta₂ agonist (e.g., formoterol) should be taken for immediate relief.

NEED TO KNOW

1. Do not use as the primary treatment of status epilepticus or other acute episodes of asthma where intensive measures are needed.
2. Do not use to relieve acute bronchospasm.
3. Long-acting beta₂ adrenergic agonists, such as salmeterol, may increase the risk of asthma-related death.
4. Use with caution in CV disorders, especially coronary insufficiency, cardiac arrhythmias, and hypertension. Use with caution, if at all, with active quiescent tuberculosis infections of the respiratory tract; untreated systemic fungal, bacterial, viral, or parasitic infections; or ocular herpes simplex.
5. More frequent administration than twice daily is not recommended. If symptoms arise between doses, an inhaled, short-acting beta₂-agonist should be used for immediate relief.
6. Improvement in asthma control can occur within 30 min but maximum benefits may not be reached for 1 week or longer after beginning treatment.
7. Do not administer inhaler with a spacer device.
8. Do not give to child under 12 years of age; can affect growth in children.

9. Long-term use of steroids may lead to bone loss (osteoporosis), especially in smoker, if no regular exercise, if vitamin D or calcium deficient in diet, or if family history of osteoporosis.

Furosemide
(fur-**OH**-seh-myd)
Rx: Lasix.



CLASSIFICATION(S): Diuretic, loop

USES: (1) Edema associated with CHF, nephrotic syndrome, hepatic cirrhosis, and ascites. (2) IV for acute pulmonary edema. (3) PO to treat hypertension in conjunction with spironolactone, triamterene, and other diuretics *except* ethacrynic acid.

ACTION/KINETICS: Inhibits the reabsorption of sodium and chloride in the proximal and distal tubules as well as the ascending loop of Henle; this results in the excretion of sodium, chloride, and, to a lesser degree, potassium and bicarbonate ions. The resulting urine is more acid. Diuretic action is independent of changes in clients' acid-base balance. Has a slight antihypertensive effect. **Onset: PO, IM:** 30–60 min; **IV:** 5 min. **Peak: PO, IM:** 1–2 hr; **IV:** 20–60 min. **t_{1/2}:** About 2 hr after PO use. **Duration: PO, IM:** 6–8 hr; **IV:** 2 hr. Metabolized in the liver and excreted through the urine. May be effective for clients resistant to thiazides and for those with reduced GFRs.

SIDE EFFECTS: Jaundice, tinnitus, hearing impairment, hypotension, water/electrolyte depletion, pancreatitis, abdominal pain, dizziness, anemia. *AGRANULOCYTOSIS, APLASTIC ANEMIA, CARDIAC ARREST.*

DOSAGE: IM; IV

Edema.

Adults, initial: 20–40 mg; if response inadequate after 2 hr, increase dose in 20-mg increments. **Children, initial:** 1 mg/kg given slowly; if response inadequate after 2 hr, increase dose by 1 mg/kg. Doses greater than 6 mg/kg should not be given.

Antihypercalcemic.

Adults: 80–100 mg for severe cases; dose may be repeated q 1–2 hr if needed.

DOSAGE: IV*Acute pulmonary edema.*

Adults: 40 mg slowly over 1–2 min; if response inadequate after 1 hr, give 80 mg slowly over 1–2 min. Concomitant oxygen and digitalis may be used.

CHF, chronic renal failure.

Adults: 2–2.5 grams/day. For IV bolus injections, the maximum should not exceed 1 gram/day given over 30 min.

Hypertensive crisis, normal renal function.

40–80 mg.

Hypertensive crisis with pulmonary edema or acute renal failure.

100–200 mg.

DOSAGE: Oral Solution; Tablets*Edema.*

Adults, initial: 20–80 mg/day as a single dose. For resistant cases, dosage can be increased by 20–40 mg q 6–8 hr until desired diuretic response is attained. Maximum daily dose should not exceed 600 mg. **Children, initial:** 2 mg/kg as a single dose; **then,** dose can be increased by 1–2 mg/kg q 6–8 hr until desired response is attained (up to 5 mg/kg may be required in children with nephrotic syndrome; maximum dose should not exceed 6 mg/kg). A dose range of 0.5–2 mg/kg twice a day has also been recommended.

Hypertension.

Adults, initial: 40 mg twice a day. Adjust dosage depending on response.

CHF and chronic renal failure.

Adults: 2–2.5 grams/day.

Antihypercalcemic.

Adults: 120 mg/day in one to three doses.

NEED TO KNOW

1. **Never use with ethacrynic acid.**
2. Do not use in anuria, hypersensitivity to drug, severe renal disease associated with azotemia and oliguria, hepatic coma associated with electrolyte depletion.
3. Furosemide is a potent diuretic. Excess amounts can lead to profound diuresis with water and electrolyte depletion.
4. Food decreases bioavailability of furosemide and ultimately the degree of diuresis.
5. If used with other antihypertensives, reduce dose of other agents by at least 50% when furosemide is added in order to prevent an excessive drop in BP.
6. Give IV injections slowly over 1–2 min.
7. Take in the morning on an empty stomach to enhance absorption and avoid interruption of sleep from frequent urination. May take with food or milk if GI upset.
8. Drug may cause BP drop. Change positions from lying to standing slowly.
9. Salicylate intoxication occurs at lower levels than normal because of competition at the renal excretory sites.
10. Immediately report any muscle pain/weakness/cramps, dizziness, ringing in the ears/hearing loss, sore throat, fever, severe abdominal pain, numbness or tingling, persistent nausea or vomiting, diarrhea, excessive thirst, unexplained tiredness, drowsiness, feeling of the room spinning, confusion or changes in thinking, increased heart rate, or unexplained joint pain.

Gabapentin
(gab-ah-PEN-tin)

Rx: Gabarone, Neurontin.

C

CLASSIFICATION(S): Anticonvulsant, miscellaneous

USES: (1) Treatment of partial seizures with and without secondary generalization in clients 12 years and older. (2) Adjunct to

treat partial seizures in children 3–12 years of age. (3) In adults, management of post-herpetic neuralgia or pain in the area affected by herpes zoster after treating the disease.

ACTION/KINETICS: Anticonvulsant and analgesic mechanisms are not known. Is related chemically to GABA but does not interact with GABA receptors. Food has no effect on the rate and extent of absorption; however, as the dose increases, the bioavailability decreases. $t_{1/2}$: 5–7 hr. Excreted unchanged through the urine. Adjust dosage in those with impaired renal function.

SIDE EFFECTS: Dizziness, somnolence, peripheral edema, ataxia, nystagmus, tremor. *CONVULSIONS (INCLUDING THE POSSIBILITY OF PRECIPITATION OF STATUS EPILEPTICUS), INTRACRANIAL HEMORRHAGE, SUICIDAL TENDENCIES, SUDDEN UNEXPLAINED DEATHS, GUM HEMORRHAGE, VAGINAL HEMORRHAGE.*

DOSAGE: Capsules; Oral Solution; Tablets

Partial seizures with and without secondary generalization.

Clients 12 years and older: Dose range of 900–1,800 mg/day in three divided doses using 300 or 400 mg capsules or 600 or 800 mg tablets. **Initial dose:** 300 mg 3 times per day; dose may be increased, as needed, up to 1,800 mg/day. Doses up to 2,400 and 3,600 mg/day have been well tolerated for short periods. In clients with a C_{CR} of 30–60 mL/min, the dose is 300 mg twice a day; if the C_{CR} is 15–30 mL/min, the dose is 300 mg/day; if the C_{CR} <15 mL/min, the dose is 300 mg every other day.

Adjunctive therapy for partial seizures in children.

Children 3–12 years of age, initial: 10–15 mg/kg/day in 3 divided doses. Attain effective dose by titration over 3 days. Effective dose in clients 5 years and older is 25–35 mg/kg/day and in clients 3 and 4 years of age is 40 mg/kg/day; give in divided doses 3 times per day. May use capsules, oral solution, or tablets.

Postherpetic neuralgia.

Adults, initial: Single 300 mg dose on day 1; 600 mg/day on

day 2 (divided twice daily); and 900 mg/day on day 3 (divided 3 times daily). Then, titrate dose up as needed for pain relief to a daily dose of 1,800 mg (divided 3 times daily). Beneficial effects of dose greater than 1,800 mg/day not determined.

NEED TO KNOW

1. Use in children 3–12 years of age is associated with various neuropsychiatric side effects (e.g., emotional lability, hostility including aggression, thought disorder including concentration problems and change in school performance, hyperkinesia).
2. May cause an increased risk of suicidal behavior and ideation.
3. Do not allow 12 hr to pass between any 2 doses using the 3 times per day daily regimen.
4. The first dose on day 1 may be taken at bedtime to minimize somnolence, dizziness, fatigue, and ataxia.
5. When drug therapy is discontinued or supplemental therapy added, do so gradually over at least 1 week.
6. May be taken with or without food.
7. May cause dizziness, fatigue, drowsiness, incoordination, and eye twitching. Do not perform any activities that require mental alertness until full drug effects realized.
8. Report any increase in seizures, visual changes, unusual bruising/bleeding or effects, emotional lability, hostility, thought disorders/abnormal thinking, restlessness/hyperactivity, excessive dizziness/drowsiness, or increased swelling in feet or ankles.
9. Avoid alcohol, CNS depressants; do not take any OTC agents without approval.

Glimepiride
(GLYE-meh-pye-ride)
Rx: Amaryl.

C

CLASSIFICATION(S): Antidiabetic, oral; second generation sulfonylurea

USES: (1) As an adjunct to diet and exercise to lower blood glucose in non-insulin-dependent diabetes mellitus (type 2 diabetes mellitus) whose hyperglycemia can not be controlled by diet and exercise alone. (2) In combination with insulin to decrease blood glucose in those whose hyperglycemia cannot be controlled by diet and exercise in combination with an oral hypoglycemic drug. (3) In combination with metformin (Glucophage) if control is not reached with diet, exercise, and either hypoglycemic alone.

ACTION/KINETICS: Lowers blood glucose by stimulating the release of insulin from functioning pancreatic beta cells and by increasing the sensitivity of peripheral tissues to insulin. Completely absorbed from the GI tract within 1 hr. **Onset:** 2–3 hr. **t_{1/2}, serum:** About 9 hr. **Duration:** 24 hr. Completely metabolized in the liver and metabolites are excreted through both the urine and feces.

SIDE EFFECTS: Hypoglycemia, dizziness, weakness, headache, blurred vision, N&V, stomach pain, photosensitivity. **APLASTIC ANEMIA.**

DOSAGE: Tablets

Non-insulin-dependent diabetes mellitus (Type 2 diabetes).

Adults, initial: 1–2 mg once daily, given with breakfast or the first main meal. The initial dose should be 1 mg in those sensitive to hypoglycemic drugs, in those with impaired renal or hepatic function, and in elderly, debilitated, or malnourished clients. The maximum initial dose is 2 mg or less daily. **Maintenance:** 1–4 mg once daily up to a maximum of 8 mg once daily. After a dose of 2 mg is reached, increase the dose in increments of 2 mg or less at 1- to 2-week intervals (determined by the blood glucose response). **When combined with insu-**

lin therapy: 8 mg once daily with the first main meal with low-dose insulin. The fasting glucose level for beginning combination therapy is greater than 150 mg/dL glucose in the plasma or serum. After starting with low-dose insulin, upward adjustments of insulin can be done about weekly as determined by frequent fasting blood glucose determinations.

Type 2 diabetes—transfer from other hypoglycemic agents.

When transferring clients to glimepiride, no transition period is required. However, observe clients closely for 1 to 2 weeks for hypoglycemia when being transferred from longer half-life sulfonylureas (e.g., chlorpropamide) to glimepiride.

NEED TO KNOW

1. Do not use in diabetic ketoacidosis with or without coma.
2. The use of oral hypoglycemic drugs has been associated with increased CV mortality compared with treatment with diet alone or diet plus insulin.
3. Usually taken once a day with first main meal of day.
4. Avoid alcohol and direct or artificial sun exposure.

Hydrochlorothiazide
(hy-droh-klor-oh-**THIGH**-ah-zyd)

B

Rx: Ezide, Hydro-Par, HydroDIURIL, Microzide Capsules.

CLASSIFICATION(S): Diuretic, thiazide

USES: (1) Hypertension. Used alone or with other drugs used to treat hypertension. (2) Diuretic to treat edema due to CHF, hepatic cirrhosis, or corticosteroid or estrogen therapy. May also be used for edema due to various types of renal dysfunction, including nephrotic syndrome, acute glomerulonephritis, or chronic renal failure. (3) Microzide may be used for once-daily, low-dose treatment for hypertension.

ACTION/KINETICS: Promote the excretion of sodium and chloride, and thus water, by the distal renal tubule. Also increases excretion of potassium and to a lesser extent bicarbonate. The anti-

hypertensive activity is thought to be due to direct dilation of the arterioles, as well as to a reduction in the total fluid volume of the body and altered sodium balance. **Onset:** 2 hr. **Peak effect:** 4–6 hr. **Duration:** 6–12 hr. **t_{1/2}:** 5.6–14.8 hr. Hydrochlorothiazide is not metabolized but is eliminated rapidly by the kidney.

SIDE EFFECTS: Orthostatic hypotension, hypokalemia, weakness, headache, diarrhea, dizziness, gastric upset/irritation/cramping.

TOXIC EPIDERMAL NECROLYSIS, STEVENS-JOHNSON SYNDROME, ANAPHYLACTIC REACTIONS, RESPIRATORY DISTRESS INCLUDING PNEUMONITIS AND PULMONARY EDEMA.

DOSAGE: Capsules (including Microzide)

Hypertension.

Adults: 12.5 mg (1 capsule) once daily either alone or with other antihypertensives. **Maximum recommended dose:** 50 mg daily.

DOSAGE: Tablets

Antihypertensive.

Adults, initial: 25 mg/day as a single dose. The dose may be increased to 50 mg/day in one to two daily doses. Doses greater than 50 mg may cause significant reductions in serum potassium. **Children:** 1–2 mg/kg/day in single or 2 divided doses, not to exceed 37.5 mg/day in infants up to 2 years of age or 100 mg/day in children 2–12 years of age. In infants less than 6 months of age, doses up to 3 mg/kg/day in 2 divided doses may be needed.

Diuretic.

Adults, initial: 25–100 mg/day as a single or divided dose. Some clients with edema respond to administration on alternate days or on 3–5 days each week. Intermittent administration, an excessive response, and possible undesirable side effects are minimized. **Children:** 1–2 mg/kg/day in single or 2 divided doses, not to exceed 37.5 mg/day in infants up to 2 years of age or 100 mg/day in children 2–12 years of age. In

infants less than 6 months of age, doses up to 3 mg/kg/day in 2 divided doses may be needed.

NEED TO KNOW

1. Geriatric clients may be more sensitive to the usual adult dose.
2. Give twice a day at 6–12-hr intervals.
3. When used with other antihypertensives, hydrochlorothiazide dose is usually not more than 50 mg.
4. May take with food if GI upset.
5. May cause blurred vision and dizziness; change positions slowly and avoid activities that require mental alertness until drug effects realized.
6. With diabetes, monitor BS and potassium closely, may cause glucose intolerance.

Hydrocodone Bitartrate and Acetaminophen

(high-droh-KOH-dohn, ah-seat-ah-MIN-oh-fen)

C

Rx: Anexia 10/660, Anexia 5/325, Anexia 5/500, Anexia 7.5/325, Anexia 7.5/650, Bancap HC, Ceta-Plus, Co-Gesic, Dolacet, Duocet, Hy-Phen, Hycet, Hydrocet, Hydrogesic, Liquicet, Lorcet Plus, Lorcet-10/650, Lorcet-HD, Lortab 10/500, Lortab 5/500, Lortab 7.5/500, Margesic H, Maxidone, Norco, Norco 5/325, Norco 7.5/325, Panacet 5/500, Stagesic, T-Gesic, Vicodin, Vicodin ES, Vicodin HP, Xodol, Zydone, **C-III**.

CLASSIFICATION(S): Analgesic

USES: Relief of moderate to moderately severe pain.

ACTION/KINETICS: Hydrocodone produces its analgesic activity by an action on the CNS via opiate receptors. The analgesic action of acetaminophen is produced by both peripheral and central mechanisms. **Hydrocodone, maximum serum levels:** About 1.3 hr. **Acetaminophen, $t_{1/2}$:** 1.25–3 hr. Both hydrocodone and acet-

aminophen are metabolized in the liver and excreted through the urine.

SIDE EFFECTS: N&V, urinary retention, lightheadedness, dizziness, sedation, mental clouding.

DOSAGE: Capsules; Tablets

Analgesia.

For 2.5/500 product: 1 or 2 q 4 hr, up to 8 per day. **For 5/500 products:** 1 or 2 q 4–6 hr, up to 8 per day. **For 5/300, 5/325, 7.5/325, 10/325, and 7.5/400 products:** 1 q 4–6 hr, up to 6 or 8 per day, depending on the product. **For 7.5/500 and 7.5/650 products:** 1 q 4–6 hr. **For the 7.5/750 product:** 1 q 4–6 hr, up to 5 per day. **For 10/325, 10/400, 10/500, and 10/650 products:** 1 q 4–6 hr, up to 6 per day. **For 10/650, 10/660, and 10/750 products:** 1 q 4–6 hr, up to 5 per day.

DOSAGE: Oral Solution

Analgesia.

Children, 14 years of age and older: 15 mL q 4–6 hr, up to 120 mL/day; **10–13 years of age:** 10 mL q 4–6 hr, up to 60 mL/day; **7–9 years of age:** 7.5 mL q 4–6 hr, up to 45 mL/day; **4–6 years of age:** 5 mL q 4–6 hr, up to 30 mL/day; **2–3 years of age:** 3.75 mL q 4–6 hr, up to 22.5 mL/day. **NOTE: Dosages are based on a concentration of 2.5 mg hydrocodone bitartrate and 108 mg acetaminophen/5 mL.**

NEED TO KNOW

1. Use with caution, if at all, in clients with head injuries as the CSF pressure may be increased further. Use with caution in geriatric or debilitated clients; in those with impaired hepatic or renal function; in hypothyroidism, Addison's disease, prostatic hypertrophy, or urethral stricture; and in clients with pulmonary disease.
2. Use shortly before delivery may cause respiratory depression in the newborn.
3. May take with food/milk to decrease GI upset.

4. Causes dizziness, lethargy, and impaired physical and mental performance.
5. Avoid alcohol and OTC agents or CNS depressants.
6. Drug is for short term use; may be habit forming.

Ibuprofen

(eye-byou-PROH-fen)

(First Two Trimesters) **B**

(Third Trimester) **D**

OTC: Capsules: Advil Liqui-Gels, Advil Migraine. **Gelcaps:** Ibutab, Midol Maximum Strength Cramp Formula, Motrin IB. **Oral Drops:** Infants' Motrin, PediaCare Fever. **Suspension:** Children's Advil, Children's Motrin, PediaCare Fever, Pediatric Advil Drops. **Tablets:** Advil, Junior Strength Motrin, Menadol, Motrin IB, Motrin Migraine Pain. **Tablets, Chewable:** Children's Advil, Children's Motrin, Junior Strength Advil, Junior Strength Motrin.

Rx: Tablets: Various generic products.

Ibuprofen Lysine

Rx: NeoProfen.

CLASSIFICATION(S): Nonsteroidal anti-inflammatory drug

USES: Ibuprofen. Rx: (1) Analgesic for mild to moderate pain.

(2) Primary dysmenorrhea. (3) Relief of signs and symptoms of rheumatoid arthritis or osteoarthritis. **Ibuprofen. OTC: Liquid-Filled Capsules, Adults:** Migraine headaches. **Gelcaps and Tablets, Adults:** (1) Temporary relief of minor aches and pains due to the common cold, headache, toothache, muscular aches, backache, minor pain of arthritis, menstrual cramps. (2) Reduce fever.

Chewable Tablets, Junior Strength Tablets, Oral Suspension, Oral Drops, Children: (1) Temporary reduction of fever. (2) Relief of minor aches and pains due to colds, flu, sore throat, headaches, and toothaches. **Ibuprofen lysine. Rx (IV):** To close clinically significant patent ductus arteriosus in infants whose gestational age is 32 weeks or less, weight is 500–1,500 grams, and the condition cannot be managed through usual therapy (e.g., diuretics, fluid restriction, respiratory support).

ACTION/KINETICS: Anti-inflammatory effect is likely due to inhibition of cyclo-oxygenase. Inhibition of cyclo-oxygenase results in decreased prostaglandin synthesis. Effective in reducing joint swelling, pain, and morning stiffness, as well as to increase mobili-

ty in those with inflammatory disease. The antipyretic action occurs by decreasing prostaglandin synthesis in the hypothalamus resulting in an increase in peripheral blood flow and heat loss, as well as promoting sweating. The mechanism to close patent ductus arteriosus is not known. **Time to peak levels:** 1–2 hr. **Onset:** 30 min for analgesia and approximately 1 week for anti-inflammatory effect. **Peak serum levels:** 1–2 hr. **Duration:** 4–6 hr for analgesia and 1–2 weeks for anti-inflammatory effect. Food delays absorption rate but not total amount of drug absorbed. $t_{1/2}$: 1.8–2 hr. 45–79% excreted in the urine.

SIDE EFFECTS: **Ibuprofen:** Dizziness, rash, nausea, epigastric/GI pain, heartburn. **Ibuprofen lysine:** Skin lesion/irritation. *SEPSIS*, GI disorders, anemia, *INTRAVENTRICULAR HEMORRHAGE*, impaired renal function, *APNEA*, respiratory failure, RTI, *MENINGITIS*.

DOSAGE: Rx: Tablets

Rheumatoid arthritis and osteoarthritis, including flareups of chronic disease.

Either 300 mg 4 times per day or 400, 600, or 800 mg 3–4 times per day; adjust dosage according to client response. Individual clients may show a better response to 3,200 mg daily compared with 2,400 mg. However, evaluate the increased clinical benefits of the higher dose to potential increased risk. Full therapeutic response may not be noted for 2 or more weeks.

Mild to moderate pain.

Adults: 400 mg q 4–6 hr, as needed. Doses greater than 400 mg are no more effective than the 400 mg dose.

Primary dysmenorrhea.

Adults: 400 mg q 4 hr, as needed, for the relief of pain. Begin treatment with the earliest onset of pain.

DOSAGE: OTC: Oral Drops

Antipyretic.

Children, 6–11 months (12–17 pounds): 50 mg (1.25 mL) q

6–8 hr, up to 4 times per day. **Children, 12–23 months (18–23 pounds):** 75 mg (1.875 mL) q 6–8 hr, up to 4 times per day.

DOSAGE: OTC: Gelcaps and Tablets

Mild to moderate pain, antipyretic, dysmenorrhea.

Adults: 200 mg q 4–6 hr while symptoms persist. If pain or fever does not respond to 1 gelcap or tablet, 2 gelcaps or tablets (i.e., 400 mg) may be taken, but do not exceed 6 gelcaps or tablets (i.e., 1,200 mg) in 24 hr unless directed by provider. For capsules, do not take more than 2 capsules in 24 hr.

DOSAGE: OTC: Oral Suspension

Pain, fever.

Usual dose: 7.5 mg/kg. **Children, 2–3 years of age (24–35 pounds):** 100 mg (5 mL) q 6–8 hr, up to 4 times per day. **Children, 4–5 years of age (36–47 pounds):** 150 mg (7.5 mL) q 6–8 hr, up to 4 times per day. **Children, 6–8 years of age (48–59 pounds):** 200 mg (10 mL) q 6–8 hr, up to 4 times per day. **Children, 9–10 years of age (60–71 pounds):** 250 mg (12.5 mL) q 6–8 hr, up to 4 times per day. **Children, 11 years of age (72–95 pounds):** 300 mg (15 mL) q 6–8 hr, up to 4 times per day.

DOSAGE: OTC: Chewable Tablets (50 mg)

Pain, fever.

Children, 4–5 years of age (36–47 pounds): 150 mg (3 tablets) q 6–8 hr, up to 4 times per day. **Children, 6–8 years of age (48–59 pounds):** 4 tablets (200 mg) q 6–8 hr, up to 4 times per day. **Children, 9–10 years of age (60–71 pounds):** 250 mg (5 tablets) q 6–8 hr, up to 4 times per day. **Children, 11 years of age (72–95 pounds):** 300 mg (6 tablets) q 6–8 hr, up to 4 times per day. Usually use weight to dose; otherwise, use age.

DOSAGE: OTC: Junior Strength Chewable Tablets (100 mg)

Pain, fever.

Children, 6–8 years of age (48–59 pounds): 200 mg (2 tablets) q 6–8 hr, up to 4 times per day. **Children, 9–10 years of**

age (60–71 pounds): 250 mg (2.5 tablets) q 6–8 hr, up to 4 times per day. **Children, 11 years of age (72–95 pounds):** 300 mg (3 tablets) q 6–8 hr, up to 4 times per day. Use weight to dose; otherwise use age.

DOSAGE: IV infusion IBUPROFEN LYSINE

Patent ductus arteriosus.

10 mg/kg by IV infusion over 15 min for one dose and then 5 mg/kg 24 and 48 hr later, with all doses based on birth weight. Administration of the second or third dose to an infant with urinary output <0.6 mL/kg/hr should be delayed until renal function returns to normal.

NEED TO KNOW

1. Do not use in pregnancy, especially during the last trimester.
2. Do not use in clients with the aspirin triad (bronchial asthma, rhinitis, aspirin intolerance).
3. Do not use to treat perioperative pain in the setting of coronary artery bypass graft surgery.
4. Ibuprofen lysine is contraindicated in preterm infants with a proven or suspected infection not receiving treatment; congenital heart disease needing a patent ductus arteriosus to achieve satisfactory pulmonary or systemic blood flow; thrombocytopenia; in those who are bleeding (especially those with active intracranial hemorrhage or GI bleeding); a coagulation defect, proven or suspected necrotizing enterocolitis, or significant impaired renal function.
5. NSAIDs may cause an increased risk of serious CV thrombotic events, MI, and stroke, which can be fatal. This risk may increase with duration of use.
6. NSAIDs cause an increased risk of serious GI adverse events including bleeding, ulceration, and perforation of the stomach or intestines, which can be fatal.
7. Do not use OTC ibuprofen as an antipyretic for more than 3 days or as an analgesic for more than 10 days, unless medically prescribed.

8. If GI distress occurs with any product, take with meals or milk.
9. Oral Drops or Suspension: Consult a provider before giving to children who are less than 6 months of age or weigh less than 24 pounds.
10. Chewable Tablets (50 mg): Consult a provider before giving to children who are less than 4 years of age or weigh less than 36 pounds.
11. Chewable Tablets (100 mg): Consult a provider before giving to children who are less than 6 years of age or weigh less than 48 pounds.
12. If the ductus arteriosus closes or is significantly reduced in size after completion of the first course of ibuprofen lysine, no further doses are necessary. If during continued treatment the ductus arteriosus fails to close or reopens, then a second course of ibuprofen, alternative pharmacologic therapy, or surgery may be necessary.
13. Report any persistent/recurrent GI upset or stomach pain, skin rash/itching, vomiting blood, bloody or black stools, rapid weight gain/swelling, changes in urine output, increased joint pain, unusual bruising/bleeding, unexplained tiredness/fatigue, ringing in ears, intestinal flu-like symptoms, yellowing of the skin or eyes, visual changes.

Insulin Glargine
(IN-sue-lin **GLAR**-jeen)
Rx: Lantus.

C

CLASSIFICATION(S): Insulin, rDNA origin

USES: Once daily treatment of adults and children (6 years of age and older) with type 1 diabetes mellitus or adults with type 2 diabetes mellitus who require long-acting insulin to control hyperglycemia.

ACTION/KINETICS: Long-acting recombinant human insulin analog. Is designed to have low aqueous solubility at neutral pH; at pH 4, it is completely soluble. After injection into SC tissue, the

acidic solution is neutralized, leading to formation of microprecipitates from which small amounts of insulin glargine are slowly released. This allows a relatively constant concentration/time profile over 24 hr with no pronounced peak. Potency is about the same as human insulin. **Onset:** 1.1 hr. **Peak:** No pronounced peak; small amounts are released slowly resulting in relatively constant levels over 24 hr. **Duration:** Prolonged (greater than 24 hr) when compared with NPH human insulin (about 14.5 hr). Metabolized in the liver. Dosage adjustment may be necessary in impaired renal or hepatic function.

SIDE EFFECTS: Hypoglycemia, hypokalemia, injection site reaction, lipodystrophy, pruritus, rash, allergic reactions.

DOSAGE: SC

Diabetes mellitus.

Dose individualized. Give once daily at the same time every day (any time of the day is appropriate). **Initial:** Average of 10 units once daily at the same time each day; **then,** adjust according to client need to a total daily dose ranging from 2–100 units.

NEED TO KNOW

1. Do not use IV (may cause severe hypoglycemia).
2. The long duration of insulin glargine may delay recovery from hypoglycemia.
3. Not the drug of choice for diabetic ketoacidosis (use a short-acting IV insulin).
4. May be given SC in the abdomen, deltoid, or thigh. Rotate sites from one injection to the next.
5. Do not dilute or mix with any other insulin or solution as the mixture may become cloudy and the properties of either insulin glargine or other insulins may be altered.
6. Carry oral glucose tablets in event of hypoglycemia (low blood sugar).

Lansoprazole
(lan-SAHPr-rah-zohl)

B

Rx: Prevacid, Prevacid IV.

CLASSIFICATION(S): Proton pump inhibitor

USES: PO. (1) Short-term treatment (up to 4 weeks) for healing and symptomatic relief of active duodenal ulcer. (2) Maintain healing of duodenal ulcer. (3) With clarithromycin and/or amoxicillin to eradicate *Helicobacter pylori* infection in duodenal ulcer disease (active or 1-year history of duodenal ulcer). Use lansoprazole and amoxicillin (dual therapy) in those who are either allergic to, intolerant of, or resistant to clarithromycin. (4) Short-term treatment (up to 8 weeks) for healing and symptomatic relief of active benign gastric ulcer. (5) Treatment of NSAID-associated gastric ulcer in those who continue NSAID use. (6) Reduce the risk of NSAID-associated gastric ulcer in those with a history of documented gastric ulcer who required an NSAID. Use for up to 12 weeks. (7) Short-term treatment (up to 8 weeks) for healing and symptomatic relief of all grades of erosive esophagitis. Maintain healing of erosive esophagitis for up to 12 weeks. (8) Long-term treatment of pathologic hypersecretory conditions, including Zollinger-Ellison syndrome (PO only). (9) Heartburn and other symptoms of GERD. (10) Short-term treatment of symptomatic GERD and erosive esophagitis including in children, aged 1 to 17 years. **IV.** Short-term (up to 7 days) treatment of all grades of erosive esophagitis. Then, switch to PO lansoprazole formulations.

ACTION/KINETICS: Drug is a gastric acid (proton) pump inhibitor in that it blocks the final step of acid production. Suppresses gastric acid secretion by inhibition of the (H⁺, K⁺)-ATPase system located at the secretory surface of the parietal cells in the stomach. Both basal and stimulated gastric acid secretion are inhibited, regardless of the stimulus. May have antimicrobial activity against *H. pylori*. Absorption begins only after lansoprazole granules leave the stomach, but absorption is rapid. Bioavailability is greater than 80%. **Peak plasma levels:** 1.7 hr. **Mean plasma t_{1/2}, PO:** 1.5 hr; **IV:** 1.3 hr. **Onset:** 1–3 hr. **Duration:** Over 24 hr. Food does not appear

to affect the rate of absorption, if given before meals. Metabolized in the liver with metabolites excreted through both the urine (33%) and feces (66%).

SIDE EFFECTS: Diarrhea, headache, N&V, constipation, rash. *GI HEMORRHAGE, RECTAL HEMORRHAGE, PANCREATITIS, CVA, MI, SHOCK, PANCYTOPENIA, APLASTIC ANEMIA, STEVENS-JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS, CARCINOMA, ALLERGIC REACTION, ANAPHYLACTOID-LIKE REACTION.*

DOSAGE: Capsules, Delayed-Release; Oral Suspension, Delayed-Release; Tablets, Orally Disintegrating, Delayed-Release

Treatment of duodenal ulcer.

Adults, short-term treatment: 15 mg once daily before breakfast for 4 weeks.

Maintenance of healed duodenal ulcer.

Adults: 15 mg once daily.

Duodenal ulcer associated with H. pylori infections.

The following regimens may be used: (1) **Triple therapy:** Lansoprazole, 30 mg, plus clarithromycin, 500 mg, plus amoxicillin, 1 gram, each taken twice a day (q 12 hr) for 10 or 14 days. (2) **Dual therapy:** Lansoprazole, 30 mg plus amoxicillin, 1 gram each taken 3 times per day (q 8 hr) for 14 days (for clients intolerant or resistant to clarithromycin).

Treatment of gastric ulcer.

30 mg once daily for up to 8 weeks.

Reduce risk of NSAID-associated gastric ulcer.

15 mg once daily for up to 12 weeks.

Treatment of NSAID-associated gastric ulcer.

30 mg once daily for 8 weeks.

GERD.

Adults and children, 12–17 years of age: 15 mg once daily for up to 8 weeks. An additional 8 weeks of therapy may be given to adults who do not heal within 8 weeks. **Children, 1–11 years of age, 30 kg or less:** 15 mg/day for up to 12

weeks; if symptoms remain after 2 or more weeks, can increase the dose to 30 mg twice a day. **Children, 1–11 years of age, over 30 kg:** 30 mg/day for up to 12 weeks; if symptoms remain after 2 or more weeks, can increase the dose to 30 mg twice a day.

Erosive esophagitis.

Adults, and children 12–17 years of age, short-term treatment: 30 mg once daily before meals for up to 8 weeks. For adults who do not heal in 8 weeks, an additional 8 weeks of therapy may be given. If there is a recurrence, an additional 8-week course may be considered. **Adults, maintenance:** 15 mg once daily. **Children, 1–11 years of age, short-term treatment, 30 kg or less:** 15 mg/day for up to 12 weeks; if symptoms remain after 2 or more weeks, can increase the dose to 30 mg twice a day. **Children, 1–11 years of age, short-term treatment, over 30 kg:** 30 mg/day for up to 12 weeks; if symptoms remain after 2 or more weeks, can increase the dose to 30 mg twice a day.

Pathologic hypersecretory conditions (including Zollinger-Ellison syndrome).

Individualize dose. **Initial:** 60 mg once daily. Adjust the dose to client need. Dosage may be continued as long as necessary. Doses up to 90 or 120 mg (in divided doses) daily have been given. Some clients have been treated for longer than 4 years.

DOSAGE: IV

Erosive esophagitis.

Adults: 30 mg/day given over 30 min for up to 7 days. When able to take PO medication, switch to PO Prevacid and continue for up to 6–8 weeks.

NEED TO KNOW

1. Symptomatic relief does not preclude the presence of gastric malignancy.
2. The 15 mg delayed-release capsule contains phenylalanine. Do not administer to client with phenylketonuria without approval.

3. For those unable to swallow capsules, open delayed-release capsule and sprinkle contents on a tablespoon of applesauce, *Ensure*, pudding, cottage cheese, yogurt, or strained pears and swallow immediately.
4. To give capsules with an NG tube in place, open capsule and mix intact granules with 40 mL of apple juice; do not use other liquids.
5. The delayed-release, orally disintegrating tablets may be given with an oral syringe or NG tube.
6. The reconstituted solution must be further diluted before administration and given over 30 min.
7. Give lansoprazole admixtures IV using the in-line filter provided.
8. Take as prescribed (usually 30 min before meals).
9. May have to stop drug if reports of any severe headaches, worsening of symptoms, fever, chills, or diarrhea.
10. Avoid alcohol, aspirin, NSAIDs, and OTC agents unless prescribed; may increase GI irritation.

Levofloxacin (lee-voh-FLOX-ah-sin)

Rx: Levaquin, Quixin.

C

CLASSIFICATION(S): Antibiotic, fluoroquinolone

USES: (1) Acute bacterial sinusitis (5 day to 10–14 day treatment regimen). (2) Acute bacterial exacerbation of chronic bronchitis due to methicillin–susceptible organisms. (3) Community acquired pneumonia (5 day treatment regimen). (4) Community acquired pneumonia (7–14 day treatment regimen). (5) Nosocomial (hospital acquired) pneumonia due to methicillin-susceptible organisms. When *P. aeruginosa* is documented or presumed to be the pathogen, also use an antipseudomonal beta-lactam. (6) Uncomplicated mild to moderate infections of the skin and skin structures, including abscesses, cellulitis, furuncles, impetigo, pyoderma, and

wound infections. (7) Complicated skin and skin structure infections, including surgical incisions, infected bites and lacerations, major abscesses, and infected ulcers. (8) Complicated UTIs (5 day treatment regimen). (9) Mild to moderate complicated UTIs (10 day treatment regimen). (10) Uncomplicated UTIs (mild to moderate). (11) Acute mild to moderate pyelonephritis (5 or 10 day treatment regimen). (12) Chronic bacterial prostatitis. (13) Reduce the incidence or progression of inhalational anthrax following exposure to *Bacillus anthracis*. **Ophthalmic.** (1) Bacterial conjunctivitis. (2) Corneal ulcers.

ACTION/KINETICS: Interferes with DNA gyrase and topoisomerase IV. DNA gyrase is an enzyme needed for replication, transcription, and repair of bacterial DNA. Topoisomerase IV plays a key role in the partitioning of chromosomal DNA during bacterial cell division. Effective against both gram-positive and gram-negative organisms. $t_{1/2}$, **after multiple doses:** 7–8.8 hr. About 87% excreted unchanged in the urine after PO use.

SIDE EFFECTS: Headache, dizziness, insomnia, N&V, diarrhea, dyspepsia/heartburn, constipation.

DOSAGE: Slow IV Infusion; Oral Solution; Tablets

Acute maxillary (bacterial) sinusitis.

500 mg once daily for 10–14 days or 750 mg once daily for 5 days.

Acute bacterial exacerbation of chronic bronchitis.

500 mg once daily for 7 days.

Community acquired pneumonia due to methicillin-susceptible S. aureus, K. pneumoniae, M. catarrhalis, C. pneumoniae, L. pneumophila, M. pneumoniae.

500 mg once daily for 7–14 days.

Community acquired pneumonia due to S. pneumoniae (excluding multidrug-resistant strains), H. influenzae, H. parainfluenzae, M. pneumoniae, C. pneumoniae.

750 mg for 5 days.

Nosocomial pneumonia.

750 mg once daily for 7–14 days.

Uncomplicated skin and skin structure infections.

500 mg once daily for 7–10 days.

Complicated skin and skin structure infections.

750 mg once daily for 7–14 days.

Complicated UTI or acute pyelonephritis (5 day treatment regimen).

750 mg once daily for 5 days.

Complicated UTI or acute pyelonephritis (10 day regimen).

250 mg once daily for 10 days.

Uncomplicated UTIs.

250 mg once daily for 3 days.

Chronic bacterial prostatitis.

500 mg once daily for 28 days.

Inhalation anthrax (postexposure).

Adults: 500 mg once daily for 60 days. Begin therapy as soon as possible after suspected or confirmed exposure to aerosolized *B. anthracis*. Safety beyond use for 28 days has not been studied; only use prolonged therapy in adults when the benefit outweighs the risk.

Disseminated gonococcal infections.

IV: 250 mg once daily for 24–48 hr (after improvement begins); then, 500 mg/day PO for 7 days.

DOSAGE: Ophthalmic Solution*Bacterial conjunctivitis.*

Days 1 and 2: 1–2 gtt in affected eye(s) q 2 hr while awake, up to 8 times per day. **Days 3 through 7:** 1–2 gtt in affected eye(s) q 4 hr while awake, up to 4 times per day.

Bacterial corneal ulcer.

Days 1 and 2: 1–2 gtt in the affected eye(s) q 30 min while awake. Awaken at about 4 and 6 hr after retiring and instill 1–2 gtt. **Days 3 through 7 to 9:** Instill 1–2 gtt hourly while

awake. **Days 7 to 9 to treatment completion:** 1–2 gtt 4 times per day.

Corneal ulcer.

Days 1 through 3: 1–2 gtt in the affected eye(s) q 30 min to 2 hr while awake and about every 4–6 hr after retiring. **Days 4 through treatment completion:** 1–2 gtt in the affected eye(s) q 1 to 4 hr while awake.

NEED TO KNOW

1. Do not use by IM, intrathecal, intraperitoneal, or SC administration.
2. Safety and efficacy have not been determined in those less than 18 years of age.
3. Increased risk of tendon rupture, especially in the elderly, if taken with corticosteroids.
4. For PO or IV dosing, reduce dose with impaired renal function as follows: (a) **If the dosage is 750 mg q 24 hr in normal renal function:** If C_{CR} is 20–49 mL/min, give 750 mg q 48 hr; if C_{CR} is 10–19 mL/min, give 750 mg as the initial dose and then 500 mg q 48 hr; in hemodialysis or chronic ambulation peritoneal dialysis, give 750 mg as the initial dose and then 500 mg q 48 hr. (b) **If the dosage is 500 mg q 24 hr in normal renal function:** If C_{CR} is 20–49 mL/min, give 500 mg as the initial dose and then 250 mg q 24 hr; if C_{CR} is 10–19 mL/min, give 500 mg as the initial dose and then 250 mg q 48 hr; in hemodialysis or chronic ambulation peritoneal dialysis, give 500 mg as the initial dose and then 250 mg q 48 hr. (c) **If the dosage is 250 mg q 24 hr in normal renal function:** If C_{CR} is 20–49 mL/min, no dosage adjustment is required; if C_{CR} is 10–19 mL/min, give 250 mg q 48 hr (if treating uncomplicated UTI, no dosage adjustment is needed); in hemodialysis or chronic ambulation peritoneal dialysis: No information on dosing adjustment available.
5. Oral doses are given at least 2 hr before or 2 hr after antacids containing Mg or Al, as well as sucralfate, iron products, mul-

- tivitamin preparations containing zinc, and didanosine (chewable/buffered tablets or pediatric powder for PO solution).
- Administer doses of 250 or 500 mg by slow infusion over 60 min q 24 hr or 750 mg given by slow infusion over 90 min q 24 hr. Avoid rapid or bolus IV infusion.
 - Tablets can be taken without regard to food. Consume plenty of fluids to prevent urinary crystal formation.
 - Take the oral solution 1 hr before or 2 hr after eating.
 - If using other eye drops, separate each medication by at least 5 min.
 - Avoid prolonged exposure to sunlight or UV light.
 - Use caution until drug effects realized; may experience dizziness, drowsiness, or visual changes. May also experience N&V, abdominal pain, diarrhea/constipation, and photosensitivity.
 - Report pain or inflammation in tendon of foot, rash, or if S&S do not improve or worsen after 72 hr of therapy.

Levothyroxine Sodium (T_4) (lee-voh-thigh-ROX-een)



Rx: Levothroid, Levoxyl, Synthroid, Thyro-Tabs, Tirosint, Unithroid.

CLASSIFICATION(S): Thyroid product

USES: (1) Replacement or supplemental therapy for congenital or acquired hypothyroidism of any etiology, except transient hypothyroidism during the recovery phase of subacute thyroiditis. (2) Treatment or prevention of various types of euthyroid goiters, including thyroid nodules, subacute or chronic lymphocytic thyroiditis, and multinodular goiter. (3) Adjunct to surgery and radioiodine therapy to manage thyrotropin-dependent well-differentiated thyroid cancer.

ACTION/KINETICS: Levothyroxine is the synthetic sodium salt of the levoisomer of T_4 (tetraiodothyronine). Absorption from the GI

tract is incomplete and variable, especially when taken with food. Has a slower onset but a longer duration than sodium liothyronine. More active on a weight basis than thyroid. Is usually the drug of choice. Effect is predictable as thyroid content is standard. **Time to peak therapeutic effect:** 3–4 weeks. $t_{1/2}$: 6–7 days in a euthyroid person, 9–10 days in a hypothyroid client, and 3–4 days in a hyperthyroid client. **Duration:** 1–3 weeks after withdrawal of chronic therapy. *NOTE:* All levothyroxine products are not bioequivalent; thus, changing brands is not recommended. **SIDE EFFECTS:** Symptoms of hyperthyroidism.

DOSAGE: Capsules; Tablets

Mild hypothyroidism.

Adults, initial: 50 mcg once daily; **then,** increase by 25–50 mcg q 2–3 weeks until desired clinical response is attained. **Maintenance, usual:** 75–125 mcg/day (although doses up to 200 mcg/day may be required in some clients).

Severe hypothyroidism.

Adults, initial: 12.5–25 mcg once daily; **then,** increase dose, as necessary, in increments of 25 mcg at 2- to 3-week intervals.

Congenital hypothyroidism.

Children, 12 years of age and older: 2–3 mcg/kg once daily until the adult daily dose (usually 150 mcg) is reached. **6–12 years of age:** 4–5 mcg/kg/day or 100–150 mcg once daily. **1–5 years of age:** 5–6 mcg/kg/day or 75–100 mcg once daily. **6–12 months of age:** 6–8 mcg/kg/day or 50–75 mcg once daily. **Less than 6 months of age:** 8–10 mcg/kg/day or 25–50 mcg once daily.

DOSAGE: IM; IV

Myxedematous coma.

Adults, initial: 400 mcg by rapid IV injection, even in geriatric clients; **then,** 100–200 mcg/day, IV. **Maintenance:** 100–200 mcg/day, IV. Smaller daily doses should be given until client can tolerate PO medication.

Hypothyroidism.

Adults: 50–100 mcg once daily; **Children, IV, IM:** A dose of 75% of the usual PO pediatric dose should be given.

TSH suppression in well-differentiated thyroid cancer or thyroid nodules.

Individualize dose. **Usual dose:** 2 mcg/kg/day.

NEED TO KNOW

1. In euthyroid clients, doses within the range of daily hormonal requirements are ineffective for weight reduction. Larger doses may produce serious or even life-threatening manifestations of toxicity, especially when given with sympathomimetic amines such as those used for their anorectic effects.
2. Errors have occurred when prescribers have ordered 0.25 mg (250 mcg) instead of the correct dose of 0.025 mg (25 mcg). Be careful with decimal point placements and when converting a dose from micrograms to milligrams.
3. Take with a full glass of water to prevent choking, gagging, dysphagia, or getting tablets stuck in the throat.
4. Transfer from liothyronine to levothyroxine: Administer replacement drug for several days before discontinuing liothyronine. Transfer from levothyroxine to liothyronine: Discontinue levothyroxine before starting low daily dose of liothyronine.
5. Take at the same time each day on an empty stomach 1 hr before or 2–3 hr after a meal. Take in the morning to prevent insomnia. Do not take with food unless specifically instructed; may interfere with absorption. Avoid iodine-rich foods.
6. Report severe headache, palpitations, chest pain, diarrhea, irritability, excitability, insomnia, intolerance to heat, significant weight loss, and/or excessive sweating.
7. If taking raloxifene, take levothyroxine at least 12 hr earlier in the day.

Lisinopril
(lie-SIN-oh-prill)
Rx: Prinivil, Zestril.



CLASSIFICATION(S): Antihypertensive, ACE inhibitor

USES: (1) Alone or in combination with a diuretic (usually a thiazide) to treat hypertension. (2) Hypertension in children, aged 6–16 years. (3) Adjunctive therapy to manage heart failure in those who are not responding adequately to diuretics and digoxin. (4) Use within 24 hr of acute MI to improve survival in hemodynamically stable clients (clients should receive the standard treatment, including thrombolytics, aspirin, and beta blockers).

ACTION/KINETICS: Inhibits angiotensin-converting enzyme resulting in decreased plasma angiotensin II, which leads to decreased vasopressor activity and decreased aldosterone secretion. Both supine and standing BPs are reduced, although the drug is less effective in African Americans than in Caucasians. Although food does not alter the bioavailability of lisinopril, only 25% of a PO dose is absorbed. **Onset:** 1 hr. **Peak serum levels:** 7 hr. **Duration:** 24 hr. **t_{1/2}:** 12 hr. 100% of the drug is excreted unchanged in the urine.

SIDE EFFECTS: Chest pain, dizziness, headache, hypotension, fatigue, diarrhea, URTI. *STROKE, MI, CVA, BRONCHOSPASM, PULMONARY EMBOLISM/INFARCTION, ANGIOEDEMA (MAY BE FATAL IF LARYNGEAL EDEMA OCCURS), BONE MARROW DEPRESSION, ANAPHYLACTOID REACTION, MALIGNANT LUNG NEOPLASMS.*

DOSAGE: Tablets

Essential hypertension, used alone.

Adults, Initial: 10 mg once daily. Adjust dosage depending on response (range: 20–40 mg/day given as a single dose). Doses greater than 80 mg/day do not give a greater effect.

Children over 6 years of age, initial: 0.07 mg/kg once daily up to 5 mg total). Adjust dose according to BP response; doses above 0.61 mg/kg (or in excess of 40 mg) have not been studied in children.

Essential hypertension in combination with a diuretic.

If BP is not controlled with lisinopril alone, a low dose of a diuretic may be added to the regimen. Hydrochlorothiazide, 12.5 mg, provides an additive effect. The dose of lisinopril may be reduced if a diuretic is used.

CHF.

Initial: 5 mg once daily (2.5 mg/day in clients with hyponatremia) in combination with diuretics and digitalis. **Dosage range:** 5–20 mg/day (of Zestril) as a single dose, up to a maximum of 40 mg/day; do not use increments of more than 10 mg at intervals of less than 2 weeks.

Acute MI to improve survival.

First dose: 5 mg within 24 hr of the onset of symptoms; **then,** 5 mg after 24 hr, 10 mg after 48 hr, and then 10 mg daily. Continue dosing for 6 weeks. In clients with a systolic pressure less than 120 mm Hg when treatment is started or within 3 days after the infarct should be given 2.5 mg. If hypotension occurs (systolic BP less than 100 mm Hg), the dose may be temporarily reduced to 2.5 mg. If prolonged hypotension occurs, withdraw the drug.

NEED TO KNOW

1. Do not use in children less than 6 years of age or in children with a GFR less than 30 mL/min/1.73 m².
2. When used during the second and third trimesters of pregnancy, ACE inhibitors can cause injury and even death to the developing fetus. When pregnancy is detected, discontinue lisinopril as soon as possible.
3. Reduce dosage in renal impairment as follows: **C_{CR}, 10–30 mL/min (serum creatinine 3 mg/dL or more):** Give an initial dose of 5 mg/day for hypertension. **C_{CR}, less than 10 mL/min or dialysis clients:** Give an initial dose of 2.5 mg/day and adjust dose depending on BP response.
4. When considering use of lisinopril in a client taking diuretics, discontinue the diuretic, if possible, 2–3 days before begin-

ning lisinopril therapy. If diuretic cannot be discontinued, the initial dose of lisinopril should be 5 mg; observe closely for at least 2 hr.

5. Maximum antihypertensive effects may not be observed for 2–4 weeks.
6. Use of potassium supplements, potassium-sparing diuretics, or potassium salt substitutes with Prinzide or Zestoretic may lead to increases in serum potassium.
7. May cause dizziness; use caution with activities requiring mental alertness until drug effects realized.
8. Report new or unusual side effects or aggravation of existing conditions, as well as sore throat, hoarseness, cough, chest pain, difficulty breathing, or swelling of hands, feet, tongue/throat, or face.
9. Use reliable contraception; harmful to fetus in 2nd and 3rd trimester.

Lisinopril and Hydrochlorothiazide

(lie-SIN-oh-prill,

hy-droh-klor-oh-THIGH-ah-zyd)

Rx: Prinzide, Zestoretic.

(First Trimesters) **C**

(Second and Third Trimesters) **D**

CLASSIFICATION(S): Antihypertensive (combination ACE inhibitor and thiazide diuretic)

USES: Hypertension (not indicated for initial therapy).

ACTION/KINETICS: Lisinopril inhibits angiotensin-converting enzyme resulting in decreased plasma angiotensin II, which leads to decreased vasopressor activity and decreased aldosterone secretion. Hydrochlorothiazide promotes the excretion of sodium and chloride, and thus water, by the distal renal tubule. Also increases excretion of potassium and to a lesser extent bicarbonate. The antihypertensive activity is thought to be due to direct dilation of the arterioles, as well as to a reduction in the total fluid volume of the body and altered sodium balance. Lisinopril, about 25% absorbed; peak serum levels: About 7 hr. Lisinopril absorption not af-

affected by food. **Hydrochlorothiazide, onset:** 2 hr; **peak effect:** 4 hr; **duration:** 6–12 hr. $t_{1/2}$, **lisinopril:** 12 hr; **hydrochlorothiazide:** 5.6–14.8 hr. Lisinopril and hydrochlorothiazide are excreted unchanged in the urine.

SIDE EFFECTS: Dizziness, headache, cough, fatigue, orthostatic hypotension, hypokalemia.

DOSAGE: Tablets

Hypertension.

Individualized, usual: 1 or 2 tablets daily of one of the strengths (depending on response). For geriatric clients, begin therapy at the low end of the dosage range. Strengths are: 10/12.5, 20/12.5, and 20/25 (lisinopril listed first).

NEED TO KNOW

1. Do not use in those with a history of angioedema related to previous treatment with ACE inhibitors, hereditary or idiopathic angioedema, anuria, or hypersensitivity to other sulfonamide-derived drugs.
2. Angioedema and anaphylactoid reactions are possible with ACE inhibitors.
3. Use thiazides with caution in severe renal disease, impaired hepatic function, or progressive liver disease. Use lisinopril with caution in aortic stenosis or hypertrophic cardiomyopathy.
4. Clients whose BP is controlled adequately with 25 mg/day of hydrochlorothiazide, but who experience significant hypokalemia, may achieve similar or greater BP control with less potassium loss if they are switched to the 10/12.5 mg product.
5. Take as directed with a full glass of water.
6. Avoid activities that cause excessive overheating; may become dehydrated.
7. Avoid prolonged sun/UV exposure; use protection if exposed to prevent sensitivity reaction.
8. Report new or unusual side effects or aggravation of existing

conditions, as well as sore throat, hoarseness, cough, chest pain, difficulty breathing, or swelling of hands, feet, tongue/throat, or face.

Loratidine

(loh-**RAH**-tih-deen)

B

OTC: Oral Solution: Claritin Allergy Children's, Clear-Atadine Children's. **Syrup:** Alavert Children's, Children's Loratidine Syrup, Claritin, Claritin Allergy Children's, Clear-Atadine Children's, Dimetapp Children's ND Non-Drowsy Allergy, Non-Drowsy Allergy Relief for Kids.

Tablets: Claritin 24-Hour Allergy, Claritin Hives Relief, Clear-Atadine. **Tablets, Chewable:** Claritin Children's Allergy. **Tablets, Orally Disintegrating:** Alavert, Claritin RediTabs, Dimetapp Children's ND Non-Drowsy Allergy, Non-Drowsy Allergy Relief, Triaminic Allerchews.

CLASSIFICATION(S): Antihistamine, second generation, piperidine

USES: Relief of nasal and nonnasal symptoms of seasonal allergic rhinitis, including runny nose, itchy and watery eyes, itchy palate, and sneezing.

ACTION/KINETICS: Metabolized in the liver to active metabolite descarboethoxyloratidine. Low to no sedative and anticholinergic effects; no antiemetic effect. Does not alter cardiac repolarization and has not been linked to development of torsades de pointes as seen with astemizole and terfenadine. **Onset:** 1–3 hr. **Maximum effect:** 8–12 hr. Food delays absorption. $t_{1/2}$, **loratidine:** 8.4 hr; $t_{1/2}$, **descarboethoxyloratidine:** 28 hr. **Duration:** 24 hr. Excreted through both the urine and feces.

SIDE EFFECTS: Headache, somnolence, fatigue, dry mouth. **BRONCHOSPASM.**

DOSAGE: Oral Solution; Syrup; Tablets; Tablets, Chewable; Tablets, Orally Disintegrating*Allergic rhinitis, chronic idiopathic urticaria.*

Adults and children, 6 years of age and older: 10 mg once daily. **Children, 2–5 years of age:** 5 mg (chewable tablet or syrup) once daily. *In clients with impaired kidney function (GFR <30 mL/min):* **Adults and children 6 years of age and older, initial:** 10 mg every other day; **children, 2–5 years of age, initial:** 5 mg every other day.

NEED TO KNOW

1. Not recommended for use in children less than 2 years of age.
2. Use the syrup or chewable/orally disintegrating tablets for children ages 2 to 11.
3. Take with or without food. If stomach upset occurs, take with food.
4. Do not perform activities that require mental alertness until drug effects realized; should not cause drowsiness.
5. Increase fluid intake to 1.5 to 2 qt/day in adults to decrease viscosity of secretions.
6. With allergy skin testing, avoid taking medication for 4 days before test.
7. Avoid prolonged or excessive exposure to direct or artificial sunlight.

Lorazepam
(lor-AYZ-eh-pam)**D****Rx:** Ativan, Lorazepam Intensol, C-IV.**CLASSIFICATION(S):** Antianxiety drug, benzodiazepine**USES: PO:** Short-term relief of anxiety disorders or symptoms of anxiety with depression. **Parenteral:** (1) Preanesthetic medication

to produce sedation, relief of anxiety, and a decreased ability to recall events related to surgery. (2) Status epilepticus.

ACTION/KINETICS: Reduces anxiety by increasing or facilitating the inhibitory neurotransmitter activity of GABA. Absorbed and eliminated faster than other benzodiazepines. **Peak plasma levels, PO:** 1–6 hr; **IM:** 1–1.5 hr. **t_{1/2}:** 10–20 hr. Metabolized to inactive compounds, which are excreted through the kidneys.

SIDE EFFECTS: Drowsiness (transient), ataxia, confusion.

DOSAGE: Oral Concentrate; Tablets

Anxiety.

Adults, initial: 2–3 mg/day given 2 or 3 times per day. Dose range varies from 1 to 10 mg/day given in divided doses.

Insomnia due to anxiety or transient situational stress.

Single dose of 2–4 mg at bedtime.

DOSAGE: IM

Preanesthetic.

0.05 mg/kg, up to a maximum of 4 mg. For optimum effect, give at least 2 hr before surgical procedure. Administer narcotic analgesics at their usual preoperative time.

DOSAGE: IV

Status epilepticus.

Adults, 18 years of age and older, usual: 4 mg given slowly (2 mg/min). If seizures continue or recur after a 10–15-min period, an additional 4 mg IV may be given slowly.

Preanesthetic.

Initial: 2 mg total or 0.044 mg/kg (whichever is smaller). This will sedate most adults. Do not exceed dose in clients over 50 years of age. Doses as high as 0.05 mg/kg (up to a total of 4 mg) may be given if a greater lack of recall is desired. For optimum effect, give 15–20 min prior to procedure.

NEED TO KNOW

1. PO dosage has not been established in children less than 12

years of age and IV dosage has not been established in children less than 18 years of age.

2. For the elderly or debilitated, start with 1–2 mg/day of tablet or solution in divided doses. Adjust dose as needed and tolerated. When higher doses are needed, increase the evening dose before the daytime dose.
3. IM administration is not recommended for status epilepticus as therapeutic levels may not be reached as quickly as with IV.
4. Reduce dose of lorazepam by 50% when given with probenecid or valproate.
5. It may be necessary to increase dose of lorazepam in females who are also taking oral contraceptives.
6. Do not exceed 2 mg/min IV. Have available equipment to maintain a patent airway.
7. May cause dizziness, drowsiness, impaired judgement, loss of recall; avoid activities that require mental alertness until drug effects realized.
8. Report increased depression or suicidal ideations or any new onset rash immediately.
9. Avoid alcohol and CNS depressants.
10. With long-term therapy, do not stop suddenly; must be tapered to prevent severe withdrawal symptoms.

Lovastatin (Mevinolin)
(LOW-vah-STAT-in, me-VIN-oh-lin)

X

Rx: Altoprev, Mevacor.

CLASSIFICATION(S): Antihyperlipidemic, HMG-CoA reductase inhibitor

USES: Immediate-Release Only: (1) As an adjunct to diet to reduce elevated total and LDL cholesterol in primary hypercholesterolemia (types IIa and IIb) when the response to diet restricted in saturated fat and cholesterol and to other nonpharmacological regimens has been inadequate. (2) As an adjunct to diet to reduce

total and LDL cholesterol and apolipoprotein B levels in adolescent boys and girls (who are at least 1 year postmenarche) and 10–17 years old, with heterozygous familial hypercholesterolemia. Used in those after an adequate trial of diet, the LDL cholesterol remains higher than 189 mg/dL or if LDL cholesterol remains higher than 160 mg/dL *and* there is a positive family history of premature CV disease or 2 or more CV disease risk factors present. **Extended-Release Only:** Adjunct to diet to decrease elevated total and LDL cholesterol, apolipoprotein B, and triglycerides and to increase HDL cholesterol in those with primary hypercholesterolemia (heterozygous familial and nonfamilial and mixed dyslipidemia Fredrickson types IIa and IIb) when response to diet restricted in saturated fat and cholesterol and other nonpharmacological measures have been inadequate. **Immediate-Release or Extended-Release:** (1) To slow the progression of coronary atherosclerosis in clients with CAD in order to lower total and LDL cholesterol levels to target levels. (2) Primary prevention of coronary heart disease in those without symptomatic CV disease, average to moderately elevated total cholesterol and LDL cholesterol, and below average HDL cholesterol. Used to reduce risk of MI, unstable angina, and coronary revascularization procedures.

ACTION/KINETICS: Competitively inhibits HMG-CoA reductase; this enzyme catalyzes the early rate-limiting step in the synthesis of cholesterol. Thus, cholesterol synthesis is inhibited/decreased. Decreases total cholesterol, triglycerides, LDL, and VLDL and increases HDL. Extensive first-pass metabolism (by CYP2C9); less than 5% reaches the general circulation. Absorption is decreased by about one-third if the drug is given on an empty stomach rather than with food. **Onset:** Within 2 weeks using multiple doses. **Time to peak plasma levels:** 2–4 hr. **Time to peak effect:** 4–6 weeks using multiple doses. $t_{1/2}$: 3–4 hr for immediate-release. **Duration:** 4–6 weeks after termination of therapy. Metabolized in the liver (its main site of action) to active metabolites. Severe renal impairment increases plasma levels. Over 80% of a PO dose is excreted in the feces, via the bile, and approximately 10% is excreted through the urine.

SIDE EFFECTS: Headache, diarrhea, flatulence, N&V, abdominal pain/cramps, constipation, dyspepsia, myalgia, back pain, rash/pruritus, flu syndrome, infection, pain.

DOSAGE: Tablets, Extended-Release

Hyperlipidemia, coronary heart disease, primary prevention of coronary heart disease.

Initial: 20, 40, or 60 mg once a day at bedtime; **range:** 10–60 mg/day in single doses. Start with 10 mg once a day for those requiring small reductions in lipid levels. Adjust dose at intervals of 4 weeks or more.

DOSAGE: Tablets, Immediate-Release

Hypercholesterolemia, coronary heart disease, primary prevention of coronary heart disease.

Adults/adolescents, initial: 20 mg once daily with the evening meal. Initiate at 10 mg/day in clients who require smaller reductions. Initiate at 20 mg/day in those requiring reductions in LDL-C of 20% or more. **Dose range:** 10–80 mg (maximum)/day in single or two divided doses. Adjust dose at intervals of every 4 weeks, if necessary. If C_{CR} is less than 30 mL/min, use doses greater than 20 mg/day with caution.

Adolescents, 10–17 years of age, with heterozygous familial hypercholesterolemia.

Dose range: 10–40 mg/day (maximum). Individualize dose depending on goal of therapy. Start clients with 20 mg/day who require decreases in LDL cholesterol of 20% or more to achieve their goal. For those requiring smaller reductions, start with 10 mg/day. Adjust dose at intervals of 4 weeks or more.

NEED TO KNOW

1. Carefully monitor clients with impaired renal function.
2. If lovastatin is used with gemfibrozil, other fibrates, or lipid-lowering doses of niacin (1 gram per day or more), do not ex-

- ceed a dose of 20 mg/day of lovastatin R/T increased risk of myopathy.
3. If used with severe renal insufficiency ($C_{CR} < 30$ mL/min), increase lovastatin doses about 20 mg/day carefully and only if deemed necessary.
 4. Do not exceed dose of 40 mg/day of lovastatin if taking amiodarone or verapamil.
 5. If lovastatin is used with cyclosporine, start with 10 mg lovastatin and do not exceed 20 mg/day lovastatin as there is an increased risk of myopathy.
 6. Take with meals. Avoid coadministration with grapefruit juice due to increased serum levels of lovastatin.
 7. Follow a standard cholesterol-lowering diet before starting lovastatin and continue during therapy.
 8. Practice reliable birth control; drug is pregnancy category X.
 9. Report unexplained muscle pain, tenderness, or weakness, or fever. These may be mistaken for the flu, but could be serious side effects of drug therapy.
 10. Any RUQ abdominal pain or yellowing of eyes, skin, stools should be reported.

Meloxicam
(meh-**LOX**-ih-kam)
Rx: Mobic.



CLASSIFICATION(S): Nonsteroidal anti-inflammatory drug

USES: (1) Signs and symptoms of osteoarthritis. (2) Signs and symptoms of rheumatoid arthritis in adults. (3) Relief of signs and symptoms of pauciarticular or polyarticular course juvenile rheumatoid arthritis in clients 2 years of age and older.

ACTION/KINETICS: Anti-inflammatory effect is likely due to inhibition of cyclo-oxygenase. Inhibition of cyclo-oxygenase results in decreased prostaglandin synthesis. Effective in reducing joint swelling, pain, and morning stiffness, as well as increasing mobility in those with inflammatory disease. Does not alter the course of the disease, however. Steady state reached in 5 days. Metabolized in the liver by P450-mediated metabolism. **Peak:** 4–5 hr. **t_{1/2}, elimination:** 15–20 hr. Excreted in about equal amounts in the urine and feces.

SIDE EFFECTS: Headache, dizziness, insomnia, rash, abdominal pain/cramps, diarrhea, N&V, constipation, flatulence, dyspepsia/indigestion, UTI, edema, URTI, pharyngitis.

DOSAGE: Oral Suspension; Tablets

Osteoarthritis, rheumatoid arthritis.

Initial and maintenance: 7.5 mg once daily. Some may gain additional benefit from 15 mg once daily. Maximum recommended daily dose: 15 mg.

Pauciarticular/polyarticular course juvenile rheumatoid arthritis.

Recommended PO dose: 0.125 mg/kg once daily, up to a maximum of 7.5 mg daily. The following dosage recommendations are based on weight using the oral suspension (1.5 mg/mL): **12 kg (26 lbs):** 1 mL (1.5 mg); **24 kg (54 lbs):** 2 mL (3 mg); **36 kg (80 lbs):** 3 mL (4.5 mg); **48 kg (106 lbs):** 4 mL (6 mg); **greater or equal to 60 kg (132 lbs):** 5 mL (7.5 mg).

NEED TO KNOW

1. Do not use in those who have exhibited asthma, urticaria, or allergic-type reactions after taking aspirin or other NSAIDs (anaphylaxis is possible).
2. Do not use for treatment of perioperative pain in the setting of coronary artery bypass graft surgery.
3. Do not use in advanced renal disease or late pregnancy (may cause premature closure of the ductus arteriosus).
4. NSAIDs may cause an increased risk of serious CV thrombotic events, MI, and stroke, which can be fatal. The risk may increase with duration of use.
5. NSAIDs cause an increased risk of serious GI adverse reactions, including bleeding, ulceration, and perforation of the stomach or intestines, which can be fatal. These reactions can occur at any time during use and without warning symptoms. Elderly clients are at higher risk for serious GI reactions.
6. The maximum recommended daily dose is 15 mg, regardless of the formulation.
7. May be taken without regard to meals.
8. Report unusual or persistent side effects including dyspepsia, abdominal pain, dizziness, weight gain, skin rash, swelling of ankles, chest pain, SOB, or lack of effect, and changes in stool or skin color. Alcohol and tobacco may aggravate GI S&S.

Metformin Hydrochloride
(met-FOR-min)**Rx:** Fortamet, Glucophage, Glucophage XR, Glumetza, Riomet.**CLASSIFICATION(S):** Antidiabetic, oral; biguanide**USES:** (1) As monotherapy, as an adjunct to diet and exercise, to improve glycemic control in clients with type 2 diabetes. The immediate-release tablets and PO solution can be used in clients 10

years of age and older. (2) Extended-release form used to treat type 2 diabetes as initial therapy or in combination with a sulfonylurea or insulin in clients aged 17 years and older.

ACTION/KINETICS: Decreases hepatic glucose production, decreases intestinal absorption of glucose, and increases peripheral uptake and utilization of glucose. Does not cause hypoglycemia in either diabetic or nondiabetic clients, and it does not cause hyperinsulinemia. Insulin secretion remains unchanged, while fasting insulin levels and day-long plasma insulin response may decrease. In contrast to sulfonylureas, the body weight of clients treated with metformin remains stable or may decrease somewhat. Food decreases and slightly delays the absorption of metformin. Steady-state plasma levels (less than 1 mcg/mL) are reached within 24–48 hr. Excreted unchanged in the urine; no biliary excretion. **t_{1/2}, plasma elimination:** 6.2 hr. The plasma and blood half-lives are prolonged with decreased renal function and in the elderly.

SIDE EFFECTS: Hypoglycemia, diarrhea, N&V, asthenia, flatulence, headache, abdominal pain/discomfort. **LACTIC ACIDOSIS** (fatal in approximately 50% of cases).

DOSAGE: Oral Solution

Type 2 diabetes.

Individualize dosage. **Adults and adolescents over 16 years of age:** Up to 2,550 mg/day. **Children, 10–16 years of age:** up to 2,000 mg/day.

DOSAGE: Tablets; Tablets, Extended-Release

Type 2 diabetes.

Individualize dosage regimen. Adults, using 500-mg immediate-release tablet: Starting dose is one 500-mg tablet twice a day given with the morning and evening meals. Dosage increases may be made in increments of 500 mg every week, given in divided doses, up to a maximum of 2,500 mg/day. If a 2,500-mg daily dose is required, it may be better tolerated when given in divided doses 3 times per day with meals. The extended-release tablet is given once daily. **Adults, using 850-mg immediate-release tablet:** Starting dose is

850 mg once daily given with the morning meal. Dosage increases may be made in increments of 850 mg every other week, given in divided doses, up to a maximum of 2,550 mg/day. **Usual maintenance dose:** 850 mg twice a day with the morning and evening meals. However, some may require 850 mg 3 times per day with meals. **Adults, using 500-mg extended-release tablet, initial:** 500 mg once daily with the evening meal. Adjust dose, if needed, in increments of 500 mg/week, up to a maximum of 2,000 mg once daily with the evening meal. If glycemic control is not achieved on 2,000 mg once daily, consider 1,000 mg twice a day. If higher doses are needed, use total daily dose up to 2,550 mg given in divided doses. **Adults using 1,000-mg extended-release tablet, initial:** 1,000 mg once daily with the evening meal. Dosage may be increased weekly in 500 mg increments, based on efficacy and tolerance, but must not exceed 2,500 mg/day. *NOTE:* Initial dose of metformin immediate release in children is 500 mg twice a day given with meals. Increase dose, if necessary, in increments of 500 mg/week, up to a maximum of 2,000 mg daily given in divided doses. Safety and efficacy of metformin extended-release have not been determined in children.

NEED TO KNOW

1. Do not use in renal disease or dysfunction (serum creatinine levels greater than 1.5 mg/dL in males and greater than 1.4 mg/dL in females) or abnormal C_{CR} due to cardiovascular collapse, acute MI, or septicemia. Do not use in CHF requiring pharmacologic intervention.
2. Do not use in acute or chronic metabolic acidosis, including diabetic ketoacidosis, with or without coma, abnormal hepatic function, or acute hemodynamic compromise of hypoxic states.
3. Lactic acidosis is a rare, but serious, metabolic complication that can occur due to metformin accumulation during treatment with metformin.

4. Clients with CHF requiring pharmacologic management, in particular those with unstable or acute CHF who are at risk of hypoperfusion and hypoxemia, are at increased risk of lactic acidosis.
5. Metformin treatment should not be initiated in clients greater than 80 years of age unless measurement of creatinine clearance demonstrates that renal function is not reduced, as these clients are more susceptible to developing lactic acidosis.
6. Metformin should be promptly withheld in the presence of any condition associated with hypoxemia, dehydration, or sepsis.
7. Clients should be cautioned against excessive alcohol intake, either acute or chronic, when taking metformin, since alcohol potentiates the effects of metformin on lactate metabolism.
8. Lactic acidosis should be suspected in any diabetic client with metabolic acidosis lacking evidence of ketoacidosis (ketonuria and ketonemia).
9. Use of oral hypoglycemic agents may increase the risk of **cardiovascular mortality**.
10. Give with meals starting at a low dose with gradual escalation.
11. No transition period required when transferring from standard oral hypoglycemic drugs (other than chlorpropamide) to metformin. When transferring from chlorpropamide, exercise caution during first 2 weeks R/T chlorpropamide's long duration of action.
12. If exposed to stress (e.g., fever, trauma, infection, surgery) may experience loss of glycemic control. May be necessary to withhold metformin and administer insulin temporarily.
13. May cause a metallic taste; should subside.
14. Avoid alcohol and situations that may precipitate dehydration.
15. Stop drug and immediately report any symptoms of difficulty breathing, severe weakness, muscle pain, increased sleepiness, dizziness, palpitation, or sudden increased abdominal distress.

Methylprednisolone
(meth-ill-pred-NISS-oh-lohn)

Rx: Tablets: Medrol.

Methylprednisolone Acetate

Rx: Parenteral: Depo-Medrol.

Methylprednisolone Sodium Succinate

Rx: A-Methapred, Solu-Medrol.

C

CLASSIFICATION(S): Glucocorticoid

USES: When used for anti-inflammatory or immunosuppressant therapy, the corticosteroid should possess minimal mineralocorticoid activity. Therapy with glucocorticoids is not curative and in many situations should be considered as adjunctive rather than primary therapy.

ACTION/KINETICS: The anti-inflammatory effect is due to inhibition of prostaglandin synthesis. The drug also inhibits accumulation of macrophages and leukocytes at sites of inflammation and inhibits phagocytosis and lysosomal enzyme release. Low incidence of increased appetite, peptic ulcer, psychic stimulation, and sodium and water retention. May mask negative nitrogen balance.

Onset: Slow, 12–24 hr. $t_{1/2}$, **plasma:** 78–188 min. **Duration:** Long, up to 1 week. Rapid onset of sodium succinate by both IV and IM routes. Long duration of action of the acetate due to low solubility.

SIDE EFFECTS: After PO use: GI upset, headache, dizziness, changes in menstrual cycle, insomnia, weight gain. **After parenteral use:** Nausea, increased appetite, indigestion, dizziness, weight gain, weakness, sleep disturbances.

DOSAGE: Tablets METHYLPREDNISOLONE

NOTE: Initial dosage of methylprednisolone tablets varies from 4 to 48 mg/day, depending on the specific disease. Maintain or adjust the initial dose until a satisfactory response is noted. If there is

lack of a response, discontinue and transfer the client to other therapy.

Rheumatoid arthritis.

Adults: 6–16 mg/day. Decrease gradually when condition is under control. **Children:** 6–10 mg/day.

SLE.

Adults, acute: 20–96 mg/day; **maintenance:** 8–20 mg/day.

Acute rheumatic fever.

1 mg/kg body weight daily. Drug is always given in four equally divided doses after meals and at bedtime.

DOSAGE: IM only. METHYLPREDNISOLONE ACETATE

Adrenogenital syndrome.

40 mg q 2 weeks.

Rheumatoid arthritis.

40–120 mg/week.

Dermatologic lesions, dermatitis.

40–120 mg/week for 1–4 weeks; for severe cases, a single dose of 80–120 mg should provide relief. In chronic contact dermatitis, repeated injections q 5–10 days may be needed.

Seborrheic dermatitis.

80 mg/week.

Asthma, allergic rhinitis.

80–120 mg.

Intra-articular and soft tissue.

Large joints: 20–80 mg; **medium joints:** 10–40 mg; **small joints:** 4–10 mg. **Ganglion, tendinitis, epicondylitis, bursitis:** 4–30 mg.

Intralesional.

20–60 mg.

DOSAGE: IM; IV METHYLPREDNISOLONE SODIUM SUCCINATE

Most conditions.

Adults, initial: 10–40 mg, depending on the disease; **then,** adjust dose depending on response, with subsequent doses given either **IM or IV.**

Severe conditions.

Adults: 30 mg/kg infused IV over 10–20 min; may be repeated q 4–6 hr for 2–3 days only. **Children:** Not less than 0.5 mg/kg/day.

NEED TO KNOW

1. Dosage must be individualized.
2. For alternate day therapy, twice the usual PO dose is given every other morning (client receives beneficial effect while minimizing side effects including suppression of adrenal cortical function).
3. Take as directed; take with food or milk to diminish GI upset. Usually if administered before 9 a.m. may mimic normal peak body corticosteroid levels and prevent insomnia.
4. Report unusual weight gain, mood swings, extremity swelling (cushingoid symptoms), fatigue, nausea, anorexia, joint pain, muscle weakness, dizziness, fever (adrenal insufficiency), black or tarry stools, acne and skin flushing, prolonged sore throat/colds, infections, or worsening of problem.
5. Severe stress or trauma may require increased dosage.
6. Do not stop suddenly with prolonged therapy; must be tapered off to prevent adverse SE.

Metoprolol Succinate

(me-toe-PROH-lohl)

Rx: Toprol XL.

Metoprolol Tartrate

Rx: Lopressor.

C, B**CLASSIFICATION(S):** Beta-adrenergic blocking agent

USES: Metoprolol Succinate: (1) Alone or with other drugs to treat hypertension. (2) Chronic management of angina pectoris. (3) Treatment of stable, symptomatic (NYHA Class II or III) heart

failure of ischemic, hypertensive, or cardiomyopathic origin. **Metoprolol Tartrate:** (1) Hypertension (either alone or with other antihypertensive agents, such as thiazide diuretics). (2) Acute MI in hemodynamically stable clients. (3) Angina pectoris.

ACTION/KINETICS: Combines reversibly mainly with beta₁-adrenergic receptors to block the response to sympathetic nerve impulses, circulating catecholamines, or adrenergic drugs. Blockade of beta₁-receptors decreases HR, myocardial contractility, and CO and slows AV conduction, all of which lead to a decrease in BP. Beta₂-receptors are blocked at high doses. Moderate lipid solubility. **Onset:** 15 min. **Peak plasma levels:** 90 min. **t_{1/2}:** 3–7 hr. Effect of drug is cumulative. Food increases bioavailability. Exhibits significant first-pass effect. Metabolized in liver and excreted in urine.

SIDE EFFECTS: Fatigue, dizziness, depression, shortness of breath, bradycardia, diarrhea.

DOSAGE: Tablets, Extended-Release METOPROLOL SUCCINATE

Angina pectoris.

Individualized, initial: 100 mg/day in a single dose. Dose may be increased slowly, at weekly intervals, until optimum effect is reached or there is a pronounced slowing of HR. Doses above 400 mg/day have not been studied.

Hypertension.

Initial: 25–100 mg/day in a single dose with or without a diuretic. Dosage may be increased in weekly intervals until maximum effect is reached. Doses above 400 mg/day have not been studied.

CHF.

Individualize dose. **Initial:** 25 mg once daily for 2 weeks in clients with NYHA Class II heart failure and 12.5 mg once daily in those with more severe heart failure. Double the dose q 2 weeks to the highest dose level tolerated or up to 200 mg.

DOSAGE: Tablets METOPROLOL TARTRATE

Hypertension.

Initial: 100 mg/day in single or divided doses; **then,** dose may

be increased weekly to maintenance level of 100–450 mg/day. A diuretic may also be used.

Angina pectoris.

Initial: 100 mg/day in 2 divided doses. Dose may be increased gradually at weekly intervals until optimum response is obtained or a pronounced slowing of HR occurs. Effective dose range: 100–400 mg/day. If treatment is to be discontinued, reduce dose gradually over 1–2 weeks.

Aggressive behavior.

200–300 mg/day.

Essential tremors.

50–300 mg/day.

Prophylaxis of migraine.

50–100 mg twice a day.

Ventricular arrhythmias.

200 mg/day.

DOSAGE: Injection (IV); Tablets

Early treatment of MI.

Three IV bolus injections of 5 mg each at approximately 2-min intervals. If client tolerates the full IV dose, give 50 mg q 6 hr PO beginning 15 min after the last IV dose (or as soon as client's condition allows). This dose is continued for 48 hr followed by **late treatment:** 100 mg twice a day as soon as feasible; continue for 1–3 months (although data suggest treatment should be continued for 1–3 years). In clients who do not tolerate the full IV dose, begin with 25–50 mg q 6 hr PO beginning 15 min after the last IV dose or as soon as client's condition allows.

NEED TO KNOW

1. Do not use in myocardial infarction in clients with a HR of less than 45 bpm, in second- or third-degree heart block, or if SBP is less than 100 mm Hg. Do not use in moderate to severe cardiac failure.

2. For CHF, do not increase dose until symptoms of worsening CHF have been stabilized.
3. If CHF clients experience symptomatic bradycardia, reduce dose.
4. Take with food.
5. Avoid activities that require mental alertness until drug effects realized; may cause drowsiness. Alcohol may intensify these effects.
6. Report any symptoms of fluid overload such as sudden weight gain, SOB, or swelling of extremities. Avoid salt.
7. May cause an increased sensitivity to cold.

Mometasone Furoate Monohydrate

(moh-MET-ah-sohn)

Rx: Nasonex.

Mometasone Furoate

Rx: **Cream, Lotion, Ointment, Topical Solution:** Elocon.

Powder for Inhalation: Asmanex Twisthaler.

C

CLASSIFICATION(S): Glucocorticoid

USES: Mometasone Furoate. Cream, Lotion, Ointment, Topical Solution: Dermatoses. **Powder for Inhalation:** Maintenance treatment of chronic asthma in clients 4 years and older. For asthma clients who require PO corticosteroid therapy, where adding mometasone may reduce or eliminate the need for PO corticosteroids. **Mometasone Furoate Monohydrate. Nasal Spray:**

(1) Treatment of the nasal symptoms of seasonal allergic rhinitis and perennial allergic rhinitis in adults and children 2 years and older. (2) Prophylaxis of nasal symptoms of seasonal allergic rhinitis in adults and adolescents 12 years and older. (3) Treatment of nasal polyps in clients 18 years and older.

ACTION/KINETICS: Anti-inflammatory due to ability to inhibit prostaglandin synthesis. Also inhibits accumulation of macrophages and leukocytes at sites of inflammation as well as to inhibit phagocytosis and lysosomal enzyme release. No effect on adre-

nal function. Metabolized in the liver by CYP3A4 enzymes. $t_{1/2}$: 5.8 hr. Excreted in the feces and urine.

SIDE EFFECTS: **For Asmanex:** Dry/irritated throat, hoarseness, cough, dry mouth, taste alteration. **For Nasonex:** Headache, pharyngitis, epistaxis, nasal burning/irritation.

DOSAGE: Cream, Lotion, Ointment MOMETASONE FUROATE

Dermatoses.

Apply sparingly to affected area(s) 2–4 times per day.

DOSAGE: Topical Solution

Dermatoses.

Apply a few drops to the affected skin once a day; massage lightly until solution disappears.

DOSAGE: Powder for Inhalation (Asmanex Twisthaler)

Chronic asthma.

Recommended starting doses. Previous therapy in clients 12 years of age and older who received bronchodilators alone or inhaled corticosteroids: 220 mcg once daily in the evening; **highest recommended daily dose:** 440 mcg given in divided doses of 220 mcg twice daily or as 440 mcg once daily. **Previous therapy in clients 12 years of age and older who received oral corticosteroids:** 440 mcg twice daily; **highest recommended daily dose:** 880 mcg. Reduce prednisone no faster than 2.5 mg/day on a weekly basis beginning after at least 1 week of mometasone therapy. Monitor carefully. **Children, 4–11 years of age:** 110 mcg once daily in the evening, not to exceed 110 mcg/day.

DOSAGE: Nasal Spray (Nasonex) MOMETASONE FUROATE

MONOHYDRATE

Prophylaxis and treatment of seasonal/perennial allergic rhinitis.

Adults and children over 12 years of age: 2 sprays (50 mcg in each spray) in each nostril once daily (i.e., total daily dose: 200 mcg). In those with a known seasonal allergen that precipitates seasonal allergic rhinitis, give prophylactically, 200

mcg/day, 2 to 4 weeks prior to the anticipated start of the pollen season. **Children 2–11 years of age:** One spray (50 mcg) in each nostril once daily (total daily dose: 100 mcg).

Treatment of nasal polyps.

Adults 18 years of age and older: 2 sprays (100 mcg) into each nostril twice a day (i.e., total daily dose of 400 mcg). In some, a dose of 2 sprays once daily in each nostril (i.e., total daily dose of 200 mcg) may be effective.

NEED TO KNOW

1. Do not use in those with recent nasal septum ulcers, nasal surgery, or nasal trauma until healing has occurred.
2. Not indicated to relieve acute bronchospasms.
3. Use with caution, if at all, in those with active or quiescent tuberculosis infection of the respiratory tract, or in untreated fungal, bacterial, systemic viral infections, or ocular herpes simplex. Use with caution during lactation.
4. Maximum benefit: Within 1 to 2 weeks. For those 12 years of age or older who do not respond adequately to the starting dose after 2 weeks, higher doses may be tried.
5. Do not increase dose/frequency; does not increase effectiveness. A spacer facilitates oral inhaler administration.
6. When using oral inhaler, inhale deeply and rapidly and hold breath for about 10 seconds, or as long as possible. Do not breathe out through the inhaler. Rinse mouth/equipment after inhalation use.

Montelukast Sodium
(mon-teh-**LOO**-kast)
Rx: Singulair.

B

CLASSIFICATION(S): Antiasthmatic, leukotriene receptor antagonist

USES: (1) Prophylaxis and chronic treatment of asthma in adults and children 12 months of age and older. (2) Relief of symptoms

DOSAGE: Tablets

Asthma, seasonal/perennial allergic rhinitis, prophylaxis of exercise-induced bronchoconstriction.

Adolescents and adults age 15 years of age and older: One 10 mg tablet once daily (in the evening for asthma; anytime for allergic rhinitis). To prevent exercise-induced bronchoconstriction, take at least 2 hr before exercise. An additional dose is not to be taken within 24 hr of a previous dose.

NEED TO KNOW

1. Do not use to reverse bronchospasm in acute asthma attacks, including status asthmaticus.
2. Safety and efficacy in children less than 12 months of age with asthma, 2 years of age and younger with seasonal allergic rhinitis, 6 months of age with perennial allergic rhinitis, or 15 years of age and younger with exercise-induced bronchoconstriction have not been determined.
3. Take daily as prescribed, even when symptom free.
4. Do not abruptly substitute montelukast for inhaled or oral corticosteroids.
5. For those with combined asthma and seasonal allergic rhinitis, give one tablet daily in the evening.
6. Those taking montelukast, 1 tablet daily, for another indication (including chronic asthma) should not take an additional dose to prevent exercise-induced bronchoconstriction.
7. With exercise-induced asthma, continue to use prescribed inhaler for prophylaxis.

Naproxen

(nah-PROX-en)

Rx: EC-Naprosyn, Naprosyn.**Naproxen Sodium****OTC:** Aleve, Midol Extended Relief.**Rx:** Anaprox, Anaprox DS, Napreelan.

■ B

CLASSIFICATION(S): Nonsteroidal anti-inflammatory drug**USES:** **Rx.** (1) Mild to moderate pain. (2) Musculoskeletal and soft-tissue inflammation including rheumatoid arthritis, osteoarthritis, bursitis, tendonitis, ankylosing spondylitis. (3) Primary dysmenorrhea. (4) Acute gout. (5) Juvenile rheumatoid arthritis (naproxen only). **OTC.** (1) Relief of minor aches and pains due to the common cold, headache, toothache, muscular aches, backache, minor arthritis pain, pain due to menstrual cramps. (2) Antipyretic.**ACTION/KINETICS:** Anti-inflammatory effect is likely due to inhibition of cyclo-oxygenase. Inhibition of cyclo-oxygenase results in decreased prostaglandin synthesis. Effective in reducing joint swelling, pain, and morning stiffness, as well as to increase mobility in those with inflammatory disease. Does not alter the course of the disease, however. The antipyretic action occurs by decreasing prostaglandin synthesis in the hypothalamus resulting in an increase in peripheral blood flow and heat loss, as well as promoting sweating. **Peak serum levels of naproxen:** 2–4 hr; **for sodium salt:** 1–2 hr. **$t_{1/2}$ for naproxen:** 12–15 hr; **for sodium salt:** 12–13 hr.**Onset, immediate release for analgesia:** 1–2 hr. **Duration, analgesia:** Approximately 7 hr. **Onset (both immediate and delayed release):** 30 min; **duration:** 24 hr. **Onset, anti-inflammatory effects:** Up to 2 weeks; **duration:** 2–4 weeks. Food delays the rate but not the amount of drug absorbed. 95% excreted in the urine.**SIDE EFFECTS:** Headache, dizziness, drowsiness, pruritus, skin eruptions, constipation, dyspepsia/indigestion, ecchymoses, edema, dyspnea, tinnitus.

DOSAGE: Rx: Oral Suspension; Tablets; Tablets, Controlled-Release; Tablets, Delayed-Release NAPROXEN, NAPROXEN SODIUM
Rheumatoid arthritis, osteoarthritis, ankylosing spondylitis, pain, dysmenorrhea, acute tendonitis, bursitis.

Naproxen Tablets: 250–500 mg twice a day. May increase to 1.5 grams for short periods of time. **Naproxen Suspension:** 250 mg (10 mL), 375 mg (15 mL), or 500 mg (20 mL) twice a day. **Naproxen, Delayed-Release (EC-Naprosyn):** 375–500 mg twice a day. **Naproxen Sodium:** 275–500 mg twice a day. May increase to 1.65 grams/day for limited periods. **Naproxen Sodium, Controlled-Release (Naprelan):** 750 mg or 1,000 mg once daily, not to exceed 1,500 mg/day. Do not exceed 1.25 grams naproxen (1.375 grams naproxen sodium) per day. If no improvement is seen within 2 weeks, consider an additional 2-week course of therapy.

Acute gout.

Naproxen, adults, initial: 750 mg; **then,** 250 mg q 8 hr until symptoms subside. **Naproxen Sodium, adults, initial:** 825 mg; **then,** 275 mg q 8 hr until symptoms subside. **Naproxen Sodium, Controlled-Release (Naprelan):** 1,000–1,500 mg once daily on the first day; **then,** 1,000 mg once daily until symptoms subside.

Juvenile rheumatoid arthritis.

Naproxen only: 10 mg/kg/day in two divided doses. If the suspension is used, the following dosage can be used: **13 kg (29 lb):** 2.5 mL twice a day; **25 kg (55 lb):** 5 mL twice a day; **38 kg (84 lb):** 7.5 mL twice a day.

Mild to moderate pain, primary dysmenorrhea, acute tendonitis, bursitis.

Naproxen, initial: 500 mg; **then,** 500 mg q 12 hr or 250 mg q 6–8 hr, not to exceed 1.25 grams/day. Thereafter, do not exceed 1,000 mg/day. **Naproxen Sodium, initial:** 550 mg; **then,** 550 mg q 12 hr or 275 mg q 6–8 hr, not to exceed 1.375 grams/day. Thereafter, do not exceed 1,100 mg/day. **Naproxen Sodium, Controlled-Release (Naprelan):** 1,000 mg once

daily. For a limited time, 1,500 mg/day may be used. Thereafter, do not exceed 1,000 mg/day.

DOSAGE: OTC: Capsules, Liquid Gel; Tablets

Analgesic, antipyretic.

Adults: 220 mg q 8–12 hr with a full glass of liquid. For some clients, 440 mg initially followed by 220 mg 12 hr later will provide better relief. Do not exceed 660 mg in a 24-hr period. Do not exceed 220 mg q 12 hr for geriatric clients. Not for use in children less than 12 years of age unless directed by provider.

NEED TO KNOW

1. Do not use delayed-release product for initial treatment of acute pain.
2. NSAIDs may cause an increased risk of serious CV thrombotic events, MI, and stroke, which can be fatal. This risk may increase with duration of use.
3. Naproxen is contraindicated (except for controlled-released tablets) for treatment of perioperative pain in the setting of coronary artery bypass graft surgery.
4. NSAIDs cause an increased risk of serious GI adverse events including bleeding, ulceration, and perforation of the stomach or intestines, which can be fatal. These events can occur at any time during use and without warning symptoms.
5. Higher doses and use in those at risk of developing Alzheimer's disease may increase the risk of strokes and heart attacks.
6. Do not use the OTC product for more than 10 days for pain or 3 days for fever unless prescribed.
7. Take with food and a full glass of water to decrease GI upset, in the morning and evening for optimal effects.
8. Avoid consuming more than 2 alcoholic drinks per day.
9. Report lack of response, worsening of symptoms, unusual bruising/bleeding, persistent abdominal pain, fatigue, lethargy, itching, jaundice, right upper quadrant tenderness, sore throat, fever, rash, altered vision, joint pain/swelling, or dark-

colored stools. May need periodic eye exams with prolonged therapy.

10. Desired response may take 2 to 4 weeks with naproxen and 1 to 2 days with naproxen sodium for anti-inflammatory effects.
11. Avoid alcohol, aspirin, corticosteroids, and all other OTC agents without approval.

Omeprazole (oh-MEH-prah-zohl)

OTC: Prilosec OTC.

Rx: Prilosec.

C

CLASSIFICATION(S): Proton pump inhibitor

USES: Rx. (1) Short-term treatment of active duodenal ulcer. (2) With clarithromycin to treat duodenal ulcer associated with *H. pylori*. With clarithromycin and amoxicillin in those with a 1-year history of duodenal ulcers or active duodenal ulcers to eradicate *H. pylori*. (3) Short-term (4–8 weeks) treatment of erosive esophagitis diagnosed by endoscopy. Maintain healing of erosive esophagitis. (4) Short-term (4–8 weeks) treatment of active benign gastric ulcer. (5) Long-term treatment of hypersecretory conditions (e.g., Zollinger-Ellison syndrome, multiple endocrine adenomas, systemic mastocytosis). (6) Treatment of heartburn and other symptoms associated with GERD. **OTC.** Frequent heartburn occurring 2 or more days/week. Not intended for immediate relief.

ACTION/KINETICS: Thought to be a gastric pump inhibitor in that it blocks the final step of acid production by inhibiting the H^+/K^+ ATPase system at the secretory surface of the gastric parietal cell. Both basal and stimulated acid secretions are inhibited. Serum gastrin levels are increased during the first 1 or 2 weeks of therapy and are maintained at such levels during the course of therapy.

Peak plasma levels: 0.5–3.5 hr. **Onset:** Within 1 hr. **$t_{1/2}$:** 0.5–1 hr.

Duration: Up to 72 hr (due to prolonged binding of the drug to the parietal H^+/K^+ ATPase enzyme). Metabolized in the liver and

inactive metabolites are excreted through the urine. Consider dosage adjustment in Asians.

SIDE EFFECTS: Headache, abdominal pain, diarrhea, N&V, URTI, dizziness, rash. *PANCREATITIS, LIVER NECROSIS, HEPATIC FAILURE, TOXIC EPIDERMAL NECROLYSIS, STEVENS-JOHNSON SYNDROME, ANAPHYLAXIS (Rare).*

DOSAGE: Capsules, Delayed-Release (Rx)

Active duodenal ulcer.

Adults, 20 mg/day for 4–8 weeks.

Treatment of H. pylori.

The following regimens may be used in adults: **Triple therapy:** Omeprazole, 20 mg, plus clarithromycin, 500 mg, plus amoxicillin, 1,000 mg, each given twice daily for 10 days. If an ulcer is present at the beginning of therapy, continue omeprazole, 20 mg once daily, for an additional 18 days. **Dual therapy:** Omeprazole, 40 mg once daily plus clarithromycin, 500 mg, 3 times per day for 14 days. If an ulcer is present at the beginning of therapy, continue omeprazole, 20 mg daily, for an additional 14 days. **Infants and children:** 1 mg/kg omeprazole once or twice a day in combination with amoxicillin and clarithromycin to eradicate *H. pylori*.

Erosive esophagitis.

Adults, treatment: 20 mg/day for 4–8 weeks; **maintenance of healing:** 20 mg/day. Controlled studies do not exceed 1 year.

Gastric ulcers.

Adults: 40 mg once daily for 4–8 weeks.

Pathologic hypersecretory conditions.

Adults, initial: 60 mg/day; then, dose individualized although doses up to 120 mg 3 times/day have been used. Daily doses greater than 80 mg should be divided. Continue treatment for as long as needed.

GERD without esophageal lesions.

Adults: 20 mg/day for up to 4 weeks. **Children:** For treatment

of GERD or other acid-related disorders in children 2 years and older: Give 10 mg for clients weighing less than 20 kg and 20 mg for clients weighing 20 kg or more. *NOTE:* On a per kg basis, the doses of omeprazole needed to heal erosive esophagitis are greater for children than for adults.

GERD with erosive esophagitis.

20 mg/day for 4–8 weeks. In the occasional client not responding to 8 weeks of treatment, an additional 4 weeks of therapy may help. If there is a recurrence of erosive esophagitis or GERD, an additional 4–8 week course may be considered.

DOSAGE: Tablets, Delayed-Release (OTC)

Frequent heartburn, greater than 2 or more days/week.

20 mg (1 tablet) taken with a full glass of water once daily before the first meal of the day, every day, for 14 days. **Maximum daily dose:** 20 mg. Takes 1 to 4 days for the full effect; some may get complete relief within 24 hr. The 14-day course may be repeated q 4 months.

NEED TO KNOW

1. Do not use OTC in those who have trouble or pain swallowing food, are vomiting blood, or excreting bloody or black stools.
2. Symptomatic effects with omeprazole do not preclude gastric malignancy.
3. Take capsule at least 1 hr before eating and swallow whole; do not open, chew, or crush. Antacids can be administered with omeprazole.
4. Take oral suspension on an empty stomach at least 1 hr before a meal.
5. Report any changes in urinary elimination, pain, discomfort or persistent diarrhea.
6. Do not use OTC product for more than 14 days unless directed by provider.
7. Use reliable contraception; potential risk to the fetus.

Oxycodone Hydrochloride

(ox-ee-KOH-dohn)



Rx: Capsules, Immediate-Release: OxyIR. **Solution, Concentrate:** ETH-Oxydose, OxyFAST, Roxicodone Intensol. **Solution, Oral:** Roxicodone. **Tablets, Controlled-Release:** Oxy-Contin. **Tablets, Immediate-Release:** M-oxy, Roxicodone, C-II.

CLASSIFICATION(S): Narcotic analgesic

USES: Immediate-release: Management of moderate to severe pain. **Controlled-release:** Management of moderate to severe pain when a continuous, around-the-clock analgesic is required for an extended period of time. To be used postoperatively if the client has received the drug prior to surgery or if the postoperative pain is expected to be moderate to severe and last for an extended period of time. Not for pain in the immediate postoperative period (i.e., first 12–24 hr following surgery) or if the pain is mild or not expected to persist for a long period of time.

ACTION/KINETICS: The mechanism is believed to involve decreased permeability of the cell membrane to sodium, which results in diminished transmission of pain impulses and therefore analgesia. Causes mild sedation and little or no antitussive effect. Most effective in relieving acute pain. **Onset:** 15–30 min. **Peak effect:** 60 min. **Duration, immediate-release:** 3–4 hr; **controlled-release:** 12 hr. **t_{1/2}, elimination:** 3.2 hr for immediate-release product and 4.5 hr for extended-release. Metabolized in the liver (somewhat involves CYP2D6 enzymes); excreted in the urine.

SIDE EFFECTS: Constipation, dry mouth, N&V, mild itching, drowsiness, lightheadedness, anorexia, weakness.

DOSAGE: Capsules, Immediate-Release; Solution, Concentrate; Oral Solution; Tablets, Controlled-Release; Tablets, Immediate-Release

Analgesia.

Individualize dose depending on severity of pain, client response, and client size. **Adults:** 10–30 mg q 4 hr (5 mg q 6 hr for OxyLR, oxycodone IR capsules, ETH-Oxydose, and OxyFAST) as needed. More severe pain may require 30 mg or more q 4 hr. If pain increases in severity, analgesia is not adequate, or tolerance occurs, a gradual increase in dosage may be required. **Not recommended for use in children.**

Analgesia in opioid-naive clients.

Adults, initial: 5–15 mg q 4–6 hr, as needed for pain. Titrate dose based on client response to the initial dose of IR product. To prevent recurrence of pain, use an around-the-clock regimen for those with chronic pain.

NEED TO KNOW

1. Do not use in hypercarbia, paralytic ileus, children, or during labor.
2. Oxycodone can be abused in a manner similar to other opiates, legal or illicit.
3. Oxycodone 80 mg controlled-release tablets are for use in opiate-tolerant clients only. This tablet strength may cause fatal respiratory depression when given to clients not previously exposed to opiates.
4. Taking broken, chewed, or crushed oxycodone controlled-release tablets leads to rapid release and absorption of a potentially fatal dose of oxycodone.
5. Give around-the-clock dosing with chronic pain.
6. If taking opiates prior to taking immediate-release oxycodone, factor the potency of the prior opiate into the selection of the total daily dose of oxycodone.
7. When client no longer requires therapy with immediate-release or controlled-release tablets, gradually discontinue over time to prevent development of withdrawal symptoms.

8. Oral concentrate solutions (ETH-Oxydose, OxyFAST, and Roxicodone) are highly concentrated solutions. Care must be taken in prescribing and dispensing this solution strength.
9. Take medication with food to minimize GI upset.
10. May cause constipation, N&V, dry mouth, and physical dependence (withdrawal S&S include N&V, cramps, fever, fainting and anorexia); report.
11. Avoid alcohol in any form during therapy.

Oxycodone and Acetaminophen

(ox-ee-KOH-dohn, ah-SEAT-ah-MIN-oh-fen)



Rx: Endocet, Magnacet, Percocet, Perloxx, Roxicet, Roxicet 5/500 Capsules, Roxilox, Tylox, **C-II**.

CLASSIFICATION(S): Analgesic

USES: Relief of moderate to moderately severe pain.

ACTION/KINETICS: The mechanism of oxycodone is believed to involve decreased permeability of the cell membrane to sodium, which results in diminished transmission of pain impulses and therefore analgesia. Causes mild sedation and little or no antitussive effect. Most effective in relieving acute pain. Acetaminophen may cause analgesia by inhibiting CNS prostaglandin synthesis. Does not cause any anticoagulant effect or ulceration of the GI tract. Antipyretic and analgesic effects are comparable to those of aspirin. **Oxycodone. Onset:** 15–30 min. **Peak effect:** 60 min. **Duration, immediate-release:** 3–4 hr; **controlled-release:** 12 hr. **t_{1/2}, elimination:** 3.2 hr. Metabolized in the liver (somewhat involves CYP2D6 enzymes); excreted in the urine. **Acetaminophen. Peak plasma levels:** 30–120 min. **t_{1/2}:** 45 min–3 hr. **Therapeutic serum levels (analgesia):** 5–20 mcg/mL. Metabolized in the liver and excreted in the urine as glucuronide and sulfate conjugates. However, an intermediate hydroxylated metabolite is hepatotoxic following large doses of acetaminophen.

SIDE EFFECTS: Dizziness, light-headedness, N&V, sedation, sweat-

ing, itching, dry mouth, constipation. Side effects are more common in ambulatory clients than nonambulatory clients.

DOSAGE: Caplets; Capsules; Oral Solution; Tablets

Analgesic

Adults: 5 mL of the oral solution q 6 hr or 1 caplet, capsule, or tablet q 6 hr as needed for pain. From 6 to 12 caplets, capsules, or tablets may be taken per day, depending on the strength. *NOTE:* Check strength and maximum daily dose carefully for each dosages form. Strengths include oxycodone ranging from 2.5 to 10 mg and acetaminophen from 325 mg to 650 mg.

NEED TO KNOW

1. The respiratory depressant effects of oxycodone can be exaggerated in clients with head injury, other intracranial lesions, or a preexisting increase in intracranial pressure.
2. Use with caution in clients who are elderly, are debilitated, have severely impaired hepatic or renal function, are hyperthyroid, have Addison's disease, have prostatic hypertrophy, or have urethral stricture.
3. Take only as directed; may take with food to decrease GI upset.
4. Drug may cause dizziness and drowsiness; do not perform activities that require mental or physical alertness and do not change positions abruptly.
5. May cause constipation, N&V, dry mouth, rash/itching, and physical dependence (withdrawal S&S include N&V, cramps, fever, fainting, and anorexia); report.
6. Avoid alcohol and any other CNS depressants without provider approval.
7. Tolerance may occur; report loss of effectiveness.

Paroxetine Hydrochloride, Paroxetine Mesylate ■ D

(pah-ROX-eh-teen)

Rx: Paroxetine Hydrochloride: Paxil, Paxil CR.

Paroxetine Mesylate: Pexeva.

CLASSIFICATION(S): Antidepressant, selective serotonin reuptake inhibitor

USES: Hydrochloride. Immediate- and Controlled-Release:

(1) Treatment of major depressive episodes as defined in the DSM-III (immediate-release) or DSM-IV (controlled-release). (2) Panic disorder with or without agoraphobia (as defined in DSM-IV).

(3) Treatment of social anxiety disorder (social phobia) as defined in the DSM-IV. **Immediate-Release:** (1) Obsessive-compulsive disorders (as defined in DSM-IV). (2) Generalized anxiety disorder (as defined in DSM-IV); up to 24 weeks for maintenance therapy.

(3) Posttraumatic stress disorder as defined in DSM-IV. **Controlled-Release:** Premenstrual dysphoric disorder as defined in DSM-IV.

Mesylate, Immediate-Release. (1) Treatment of major depressive disorder. Periodically evaluate the long-term usefulness.

(2) Treatment of obsessive compulsive disorder as defined in DSM-III-R. (3) Panic disorder as defined in DSM-IV.

ACTION/KINETICS: Antidepressant effect likely due to inhibition of CNS neuronal uptake of serotonin and to a lesser extent norepinephrine and dopamine. Results in increased levels of serotonin in synapses. **Time to peak plasma levels:** 5.2 hr for immediate-release and 6–10 hr for controlled-release. **Peak plasma levels:** 61.7 ng/mL for immediate-release and 30 ng/mL for controlled-release.

t_{1/2}: 21 hr for immediate-release and 15–20 hr for controlled-release. **Time to reach steady state:** About 10 days for immediate-release and 14 days for controlled-release. Plasma levels are increased in impaired renal and hepatic function as well as in geriatric clients. Extensively metabolized in the liver to inactive metabolites. Approximately two-thirds of the drug is excreted through the urine and one-third is excreted in the feces.

SIDE EFFECTS: Insomnia, somnolence, nausea, dry mouth, asthenia, headache, dizziness, tremor, excessive sweating, diarrhea/loose stools, constipation, abnormal ejaculation. *SEIZURES, CONVULSIONS, POSSIBILITY OF SUICIDE ATTEMPT, RECTAL HEMORRHAGE.*

DOSAGE: Oral Suspension; Tablets, Controlled-Release; Tablets, Immediate-Release PAROXETINE HYDROCHLORIDE

Major depressive disorder.

Adults, initial, immediate-release: 20 mg/day, usually given as a single dose in the morning. Some clients not responding to the 20 mg dose may benefit from increasing the dose in 10 mg/day increments, up to a maximum of 50 mg/day. Make dose changes at intervals of at least 1 week. **Adults, initial, controlled-release:** 25 mg/day. Some clients not responding to the 25 mg dose may benefit from dose increases in 12.5 mg/day increments, up to a maximum of 62.5 mg/day. Make dose changes at intervals of at least 1 week. **Maintenance:** Several months of therapy, possibly up to 1 year. Doses average about 30 mg/day.

Panic disorders with or without agoraphobia.

Adults, initial, immediate-release: 10 mg/day usually given in the morning; may be increased by 10 mg increments each week until a dose of 40 mg/day (dose range: 10–60 mg/day) is reached. **Maximum daily dose:** 60 mg. **Adults, initial, controlled-release:** 12.5 mg/day; may be increased in 12.5 mg/day increments at intervals of at least 1 week. **Dose range:** 12.5–75 mg/day (maximum daily dose). **Maintenance:** Since panic disorder is a chronic condition; long-term therapy is appropriate for responding clients.

Social anxiety disorder.

Adults, initial, immediate-release: 20 mg/day, given as a single dose with or without food, usually in the morning. **Dose range:** 20–60 mg/day. **Adults, initial, controlled-release:** 12.5 mg/day. **Dose range:** 12.5–37.5 mg/day, Make dosage increments at intervals of at least 1 week in increments of 12.5 mg/day. **Maintenance:** Social anxiety disorder is a chronic

condition; long-term therapy is appropriate for responding clients.

Obsessive-compulsive disorders.

Adults, initial, immediate-release: 20 mg/day; **then,** increase by 10 mg increments a day in intervals of at least 1 week until a dose of 40 mg/kg (range is 20–60 mg/day) is reached. Maximum daily dose: 60 mg. **Maintenance:** OCD is a chronic condition; consider long-term therapy for responding clients.

Generalized anxiety disorder.

Adults, initial, immediate-release: 20 mg/day, given as a single dose with or without food, usually in the morning. Dose range is 20–50 mg/day. Change doses in 10 mg/day increments at intervals of 1 week or more. Doses greater than 20 mg/day do not provide additional benefit. **Maintenance:** Adjust dose to maintain the client on the lowest effective dosage; periodically reassess to determine need for continued treatment. Found to be effective for up to 24 weeks.

Posttraumatic stress disorder.

Adults, initial, immediate-release: 20 mg/day given as a single daily dose with or without food. **Dose range:** 20–50 mg/day. If needed, can increase dose by 10 mg/day at intervals of 1 week. **Maintenance:** Adjust dose to maintain the client on the lowest effective dosage; periodically reassess to determine need for continued treatment.

Premenstrual dysphoric disorder.

Adults, initial, controlled-release: 12.5 mg/day. Give either daily throughout the menstrual cycle or limit to the luteal phase of the menstrual cycle, depending on provider assessment. Both 12.5 mg/day and 25 mg/day have been shown to be effective. Make dosage changes at intervals of at least 1 week. **Maintenance:** Continue regimen for those clients responding.

Hot flashes.

Menopausal clients: 12.5 mg or 25 mg/day using the controlled-release product or 10 mg or 20 mg/day using the immediate-release product. **Breast cancer clients:** 20 mg daily or nightly.

DOSAGE: Tablets, Immediate-Release PAROXETINE MESYLATE

Major depressive disorder.

Adults, initial: 20 mg/day as a single dose, usually in the morning, with or without food. Some clients not responding to the 20 mg/day dose may benefit from dose increases, in 10 mg/day increments, up to a maximum of 50 mg/day. Make dosage changes in intervals of at least one week. **Dose range:** 20–50 mg/day. **Maintenance:** Acute episodes usually require several months or longer of therapy. Efficacy has been shown for up to 1 year with average daily doses of 30 mg.

Obsessive compulsive disorder.

Adults, initial: 20 mg/day given as a single daily dose usually in the morning. Dosage can be increased to 40 mg/day (recommended dosage) in increments of 10 mg/day made no more often than weekly. **Maintenance:** OCD is a chronic condition; long-term therapy is warranted in responding clients.

Panic disorder.

Adults, initial: 10 mg/day, up to the target dosage of 40 mg/day. Make dosage changes in 10 mg/day increments no more often than weekly. **Dose range:** 10–60 mg/day. **Maintenance:** Panic disorder is a chronic condition; long-term therapy is warranted in responding clients. Adjust dosage to maintain the client on the lowest effective dose.

NEED TO KNOW

1. Do not use during the first trimester of pregnancy.
2. Antidepressants increased the risk of suicidal thinking and behavior (suicidality) in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders.
3. Use with caution and initially at reduced dosage in elderly

clients as well as in those with impaired hepatic or renal function, with a history of mania, with a history of seizures, in clients with diseases or conditions that could affect metabolism or hemodynamic responses.

4. Allow at least 14 days between discontinuing a monoamine oxidase inhibitor and starting paroxetine or stopping paroxetine and starting an MAO inhibitor.
5. Infants exposed to paroxetine during the third trimester of pregnancy may develop complications requiring prolonged hospitalization, respiratory support, and tube feeding.
6. Periodically assess clients to determine the need for continued therapy.
7. If discontinuing therapy, decrease dose incrementally. Abrupt cessation may cause dizziness, sensory disturbances, agitation, anxiety, nausea, and sweating.
8. Administer as a single daily dose. May be given with or without food.
9. Do not engage in tasks that require mental alertness until drug effects realized. Avoid alcohol.
10. Avoid prolonged sun exposure and use protection when exposed.

Pioglitazone Hydrochloride (pie-oh-GLIT-ah-zohn)

Rx: Actos.



CLASSIFICATION(S): Antidiabetic, oral; thiazolidinedione

USES: (1) Type 2 diabetes as monotherapy as an adjunct to diet and exercise. (2) Type 2 diabetes in combination with a sulfonylurea, metformin, or insulin as an adjunct to diet and exercise.

Used when diet and exercise plus the single drug does not adequately control blood glucose.

ACTION/KINETICS: Depends on the presence of insulin to act. Decreases insulin resistance in the periphery and liver resulting in in-

creased insulin-dependent glucose disposal and decreased hepatic glucose output. It is not an insulin secretagogue. Is an agonist for peroxisome proliferator-activated receptor (PPAR) gamma, which is found in adipose tissue, skeletal muscle, and liver. Activation of these receptors modulates the transcription of a number of insulin responsive genes that control glucose and lipid metabolism. After PO, steady state serum levels are reached within 7 days. **Peak levels:** 2 hr; food slightly delays the time to peak serum levels to 3–4 hr, but does not change the extent of absorption. Metabolized by CYP2C8, CYP3A4, and CYP1A1 to both active and inactive metabolites. Unchanged drug and metabolites are excreted in the urine (15–30%) and feces. $t_{1/2}$: 3–7 hr (pioglitazone); 16–24 hr (total pioglitazone).

SIDE EFFECTS: URTI, headache, sinusitis, hypoglycemia, aggravated diabetes mellitus, tooth disorder, pharyngitis, myalgia, edema.

DOSAGE: Tablets

Type 2 diabetes as monotherapy.

Adults: 15 mg or 30 mg once daily in clients not adequately controlled with diet and exercise. Initial dose can be increased in increments up to 45 mg once daily for those who respond inadequately. Consider combination therapy for those not responding adequately to monotherapy.

Type 2 diabetes as combination therapy.

If combined with a sulfonylurea: Initiate pioglitazone at 15 or 30 mg once daily. The current sulfonylurea dose can be continued unless hypoglycemia occurs; then, reduce the sulfonylurea dose.

If combined with metformin: Initiate pioglitazone at 15 or 30 mg once daily. The current metformin dose can be continued; it is unlikely the metformin dose will have to be adjusted due to hypoglycemia.

If combined with insulin: Initiate pioglitazone at 15 or 30 mg once daily. The current insulin dose can be continued unless hypoglycemia occurs or plasma glucose levels decrease to less than 100 mg/dL; then, decrease the insulin dose by 10 to 25%.

Individualize further dosage adjustments based on glucose-lowering response.

NOTE: Daily dose of pioglitazone should not exceed 45 mg either as monotherapy or if combined with a sulfonylurea, metformin, or insulin.

NEED TO KNOW

1. Do not use in type 1 diabetes, diabetic ketoacidosis, active liver disease, with ALT levels that exceed 2.5 times ULN, in clients with NYHA Class III or IV heart failure, lactation, or in children less than 18 years of age.
2. Thiazolidinediones, including pioglitazone, cause or exacerbate CHF in some clients.
3. May cause osteoporosis.
4. It is recommended that clients be treated with pioglitazone for a period of time (3 months) adequate to evaluate changes in HbA1c unless glycemic control deteriorates.
5. Take once daily without regard to meals.
6. May cause swelling of extremities, resumption of ovulation (in premenopausal, anovulatory women), and hypoglycemia.
7. Immediately report onset of an unusually rapid increase in weight or extremity swelling, SOB, or other symptoms of heart failure.

Potassium Chloride

C

Rx: Capsules, Extended Release: Micro-K 10 Extencaps, Micro-K Extencaps. **Tablets, Extended-Release:** K-Dur 10 and 20, K-Tab, Kaon-Cl, Kaon-Cl-10, Klor-Con 8 and 10, Klor-Con M10, M15, and M20, Klotrix, Ten-K. **Injection:** Potassium Chloride for Injection Concentrate. **Oral Solution:** Cena-K 10% and 20%, Kaon-Cl 20% Liquid, Klorvess 10% Liquid, Potasalan. **Powder for Oral Solution:** Gen-K, K-Lor, K-Lyte/Cl Powder, Klor-Con Powder, Klor-Con/25 Powder, Mirco-K LS.

CLASSIFICATION(S): Electrolyte

USES: PO: (1) Treat hypokalemia due to digitalis intoxication, diabetic acidosis, diarrhea and vomiting, attacks of familial periodic paralysis, certain cases of uremia, hyperadrenalism, starvation and debilitation, and corticosteroid or diuretic therapy. (2) Hypokalemia with or without metabolic acidosis and following surgical conditions accompanied by nitrogen loss, vomiting and diarrhea, suction drainage, and increased urinary excretion of potassium. (3) Prophylaxis of potassium depletion when dietary intake is not adequate in the following conditions: Clients on digitalis and diuretics for CHF, hepatic cirrhosis with ascites, excess aldosterone with normal renal function, significant cardiac arrhythmias, potassium-losing nephropathy, and certain states accompanied by diarrhea. **NOTE:** Use potassium chloride when hypokalemia is associated with alkalosis; potassium bicarbonate, citrate, acetate, or gluconate should be used when hypokalemia is associated with acidosis. **IV:** Prophylaxis and treatment of moderate to severe potassium loss when PO therapy is not feasible.

ACTION/KINETICS: Potassium is required to maintain intracellular tonicity; for transmission of nerve impulses; contraction of cardiac, skeletal, and smooth muscle; and, maintenance of normal renal function. Potassium participates in carbohydrate utilization and protein synthesis. It is critical in regulating nerve conduction and muscle contraction, especially the heart. Potassium is readily and rapidly absorbed from the GI tract. Though a number of salts can

be used to supply the potassium cation, potassium chloride is the agent of choice since hypochloremia frequently accompanies potassium deficiency. From 80 to 90% of potassium intake is excreted by the kidney and is partially reabsorbed from the glomerular filtrate.

SIDE EFFECTS: N&V, diarrhea, flatulence, abdominal discomfort.

SYMPTOMS OF HYPERKALEMIA, CARDIAC ARREST.

NOTE: Highly individualized. Oral administration is preferred because the slow absorption from the GI tract prevents sudden, large increases in plasma potassium levels. Dosage is usually expressed as mEq/L of potassium. The chloride salts are usually administered PO.

DOSAGE: IV Infusion

Serum K less than 2.0 mEq/L.

400 mEq/day at a rate not to exceed 40 mEq/hr. Use a maximum concentration of 80 mEq/L.

Serum K more than 2.5 mEq/L.

200 mEq/day at a rate not to exceed 20 mEq/hr. Use a maximum concentration of 40 mEq/L. **Children:** Up to 3 mEq potassium/kg (or 40 mEq/m²) daily. Adjust the volume administered depending on the body size.

DOSAGE: Capsules, Extended-Release; Oral Solution; Powder for Oral Solution; Tablets, Extended-Release

Prophylaxis of hypokalemia.

16–24 mEq/day.

Potassium depletion.

Usual additive dilution of potassium chloride is 40–80 mEq/L of IV fluid. If serum K⁺ is greater than 2.5 mEq/L, the maximum infusion rate is 10 mEq/hr, the maximum concentration is 40 mEq/L and the maximum 24 hour dose is 200 mEq. If serum K⁺ is less than 2 mEq/L, the maximum infusion rate is 40 mEq/hr, the maximum concentration is 80 mEq/L, and the maximum 24 hr dose is 400 mEq.

Children: 3 mEq/kg or 40 mEq/m²/day; adjust volume of ad-

ministered fluids to body size.

NOTE: Usual dietary intake of potassium is 40–250 mEq/day. For clients with accompanying metabolic acidosis, use an alkalinizing potassium salt (potassium bicarbonate, potassium citrate, potassium acetate, or potassium gluconate).

NEED TO KNOW

1. Do not use in severe renal function impairment with azotemia or oliguria, postoperatively before urine flow has been reestablished, or early postoperative oliguria except during GI drainage.
2. Do not use in Crush syndrome, Addison's disease, hyperkalemia from any cause, anuria, heat cramps, acute dehydration, severe hemolytic reactions, adynamia episodica hereditaria, clients receiving potassium-sparing diuretics or aldosterone-inhibiting drugs, renal failure and conditions in which potassium retention is present.
3. Geriatric clients are at greater risk of developing hyperkalemia due to age-related changes in renal function.
4. Potassium loss is often accompanied by an obligatory loss of chloride resulting in hypochloremic metabolic alkalosis; thus, the underlying cause of the potassium loss should be treated.
5. Give PO doses 2–4 times per day. Correct hypokalemia slowly over a period of 3–7 days to minimize risk of hyperkalemia.
6. Do not administer potassium IV undiluted. Usual method is to administer by slow IV infusion in dextrose solution at a concentration of 40–80 mEq/L and at a rate not to exceed 10–20 mEq/hr.
7. IV administration can cause fluid or solute overloading resulting in dilution of serum electrolyte levels, overhydration, congested states, or pulmonary edema.
8. Check site of administration frequently for pain and redness because drug is extremely irritating.
9. In critical clients, KCl may be given slow IV in a solution of saline (unless contraindicated) since dextrose may lower serum potassium levels by producing an intracellular shift.

10. Dilute or dissolve PO liquids, in 3–8 oz of cold water, fruit or vegetable juice, or other suitable liquid and drink slowly. Chill to improve taste. Take all products with plenty of water.
11. If GI upset occurs, products can be taken after meals or with food with a full glass of water.
12. Do not use salt substitutes concomitantly with potassium preparations.

Pravastatin Sodium
(prah-vah-STAH-tin)
Rx: Pravachol.

X

CLASSIFICATION(S): Antihyperlipidemic, HMG-CoA reductase inhibitor

USES: (1) Adjunct to diet for reducing elevated total and LDL cholesterol and triglyceride levels in clients with primary hypercholesterolemia (type IIa and IIb) and mixed dyslipidemia when the response to a diet with restricted saturated fat and cholesterol has not been effective. Treat elevated serum triglyceride levels (Fredrickson Type IV) and primary dysbetalipoproteinemia (Fredrickson Type III). Reduction of apolipoprotein B serum levels. (2) Reduce the risk of recurrent MI in those with previous MI and normal cholesterol levels; reduce risk of undergoing myocardial revascularization procedures; reduce risk of stroke or TIA. (3) Reduce risk of MI in hypercholesterolemia without evidence of coronary heart disease; reduce risk of CV mortality with no increase in death from noncardiovascular causes. (4) Slow the progression of coronary atherosclerosis and reduce risk of acute coronary events in hypercholesterolemia with clinically evident CAD, including prior MI. (5) Adjunct to diet and lifestyle modification to treat heterozygous familial hypercholesterolemia in children and adolescents 8 years of age and older if after an adequate trial of diet the following are present: LDL-C remains 190 mg/dL or greater or LDL-C remains 160 mg/dL and there is a positive family histo-

ry of premature CV disease or 2 or more other cardiovascular disease factors are present.

ACTION/KINETICS: Competitively inhibits HMG-CoA reductase; this enzyme catalyzes the early rate-limiting step in the synthesis of cholesterol. Thus, cholesterol synthesis is inhibited/decreased. Decreases total cholesterol, triglycerides, LDL, and VLDL and increases HDL. Drug increases survival in heart transplant recipients. Rapidly absorbed from the GI tract. **Peak plasma levels:** 1–1.5 hr. Significant first-pass extraction and metabolism in the liver, which is the site of action of the drug; thus, plasma levels may not correlate well with lipid-lowering effectiveness. **t_{1/2}, elimination:** 77 hr (including metabolites). Metabolized in the liver; excreted in the urine (about 20%) and feces (70%). Potential accumulation of drug with renal or hepatic insufficiency.

SIDE EFFECTS: Localized pain, N&V, diarrhea, abdominal cramps/pain, constipation, flatulence, fatigue, flu syndrome, common cold, rhinitis, rash/pruritus, cardiac chest pain, dizziness, headache. *PERIVASCULAR HEMORRHAGE, FULMINANT HEPATIC NECROSIS, HEPATOMA, ANGIOEDEMA, HEMOLYTIC ANEMIA, TOXIC EPIDERMAL NECROLYSIS, STEVENS-JOHNSON SYNDROME.*

DOSAGE: Tablets

Antihyperlipidemic.

Adults, initial: 40 mg once daily (at any time of the day) with or without food. A dose of 80 mg/day can be used if the 40 mg dose does not achieve desired results. Use a starting dose of 10 mg/day at bedtime in renal/hepatic dysfunction, in those taking concomitant immunosuppressants, and in the elderly (maximum maintenance dose for these clients is 20 mg/day). **Children, 8–13 years of age (inclusive):** 20 mg once daily. Doses greater than 20 mg have not been studied in this population. **Adolescents, 14–18 years of age, initial:** 40 mg once daily. Doses greater than 40 mg have not been studied in this population.

NEED TO KNOW

1. Do not use to treat hypercholesterolemia due to hyperalphaproteinemia.
2. Use with caution in clients with a history of liver disease or renal insufficiency.
3. In clients taking immunosuppressants (e.g., cyclosporine), begin pravastatin therapy at 10 mg/day at bedtime and titrate to higher doses with caution. Usual maximum dose is 20 mg/day.
4. Drug may be taken without regard to meals.
5. The lipid-lowering effects are enhanced when combined with a bile-acid binding resin. When given with a bile-acid binding resin (e.g., cholestyramine, colestipol), give pravastatin either 1 hr or more before or 4 or more hours after the resin.
6. The maximum effect is seen within 4 weeks during which time periodic lipid determinations should be undertaken.
7. Report unexplained muscle pain, tenderness, or weakness, especially if accompanied by malaise or fever.
8. Report severe GI upset, unusual bruising/bleeding, vision changes, dark urine, or light colored stools.
9. Avoid prolonged or excessive exposure to direct or artificial sunlight.

Prednisone
(PRED-nih-sohn)

C

Rx: Oral Solution: Prednisone Intensol Concentrate.**Tablets:** Sterapred, Sterapred DS.**CLASSIFICATION(S):** Glucocorticoid**USES:** When used for anti-inflammatory or immunosuppressant therapy, the corticosteroid should possess minimal mineralocorticoid activity. Therapy with glucocorticoids is not curative and in

many situations should be considered as adjunctive rather than primary therapy.

ACTION/KINETICS: The anti-inflammatory effect is due to inhibition of prostaglandin synthesis. The drug also inhibits accumulation of macrophages and leukocytes at sites of inflammation and inhibits phagocytosis and lysosomal enzyme release. Three to five times as potent as cortisone or hydrocortisone. May cause moderate fluid retention. Metabolized in the liver to prednisolone, the active form.

SIDE EFFECTS: Insomnia, N&V, GI upset, fatigue, dizziness, muscle weakness, increased hunger/thirst, joint pain, decreased diabetic control.

DOSAGE: Oral Solution; Tablets

Replacement.

Children: 0.1–0.15 mg/kg/day.

Acute, severe conditions.

Initial: 5–60 mg/day in four equally divided doses after meals and at bedtime. Decrease gradually by 5–10 mg q 4–5 days to establish minimum maintenance dosage (5–10 mg) or discontinue altogether until symptoms recur.

COPD.

30–60 mg/day for 1–2 weeks; then taper.

Multiple sclerosis.

Initial: 200 mg per day for 1 week; **then,** 80 mg every other day for 1 month.

Ophthalmopathy due to Graves' disease.

60 mg/day; **then,** taper to 20 mg/day.

Duchenne's muscular dystrophy.

0.75–1.5 mg/kg/day (used to improve strength).

NEED TO KNOW

1. Decrease or discontinue dosage gradually when the drug has been given for more than a few days.
2. Alternate day therapy can be considered to minimize undesirable side effects, including pituitary-adrenal suppression.

3. Take in the morning to prevent insomnia and with food to decrease GI upset.
4. Do not stop abruptly with long-term therapy. Take as directed and wean as directed.
5. Report any S&S of adrenal insufficiency (N&V, confusion, appetite loss, low BP, fever, muscle pain, dizziness, faintness) or loss of effectiveness.
6. With long-term therapy may experience cataracts, glaucoma, eye infections, bone weakening which may lead to osteoporosis, elevation in BP, diabetes, salt and water retention, and increased potassium loss. Consume adequate calcium and vitamin D supplements.

Pregabalin
(pre-GAB-a-lin)
Rx: Lyrica, C-V.

C

CLASSIFICATION(S): Anticonvulsant, miscellaneous

USES: (1) Management of neuropathic pain associated with diabetic peripheral neuropathy. (2) Adjunctive therapy for adults with partial-onset seizures. (3) Management of postherpetic neuralgia. (4) Management of fibromyalgia.

ACTION/KINETICS: Binds with high affinity to the α_2 -delta site (subunit of voltage-gated calcium channels) in CNS tissues. Binding may be involved in pregabalin's antinociceptive and antiseizure effects. Well absorbed after PO use; rate of absorption is decreased when given with food. **Peak plasma levels:** 1.5 hr.

Steady state: 24–48 hr. Excreted mainly in the urine unchanged.

t_{1/2}: About 6.3 hr.

SIDE EFFECTS: Dizziness, somnolence, dry mouth, peripheral edema, asthenia, ataxia, abnormal gait, confusion, headache, blurred vision, diplopia, flu syndrome, infection, pain, amnesia, incoordination, speech disorder, abnormal thinking, tremor, twitching, con-

stipation, weight gain. *GI HEMORRHAGE, PANCREATITIS, RECTAL HEMORRHAGE, ALLERGIC REACTION.*

DOSAGE: Capsules

Neuropathic pain associated with diabetic peripheral neuropathy.

Adults, initial: 50 mg 3 times per day; may be increased to 300 mg/day within 1 week based on efficacy and tolerability.

Maximum dose: 100 mg 3 times per day provided clients have a C_{CR} of at least 60 mL/min.

Partial-onset seizures.

Adults, initial: 75 mg twice a day or 50 mg 3 times per day. Based on individual client response and tolerability, may be increased to a maximum dose of 600 mg/day in 2 or 3 divided doses.

Postherpetic neuralgia.

Adults, initial: 75 mg twice a day or 50 mg 3 times per day in those with a C_{CR} of at least 60 mL/min. Based on efficacy and tolerability, dose may be increased in 1 week to 75–150 mg twice a day or 50–100 mg 3 times per day. **Maximum daily dose:** 300 mg/day. Clients whose pain is not relieved following 2–4 weeks of treatment with 300 mg/day and who are able to tolerate pregabalin, may be given up to 300 mg twice a day or 200 mg 3 times per day (i.e., total of 600 mg/day).

Fibromyalgia.

Adults, initial: 75 mg two times a day; may increase to 150 mg two times a day (300 mg/day) within 1 week. **Maximum dose:** 225 mg two times a day (450 mg/day). Doses greater than 450 mg/day offered no additional benefit and side effects were increased.

NEED TO KNOW

1. Withdraw the drug gradually in those with seizure disorders to minimize the potential of increased seizure frequency or symptoms such as insomnia, nausea, headache, and diarrhea.
2. Discontinue if myopathy is diagnosed or suspected or if markedly elevated creatine kinase levels occur.

3. There is an increased risk of suicidal behavior and ideation.
4. Adjust dosage, as follows, in clients with impaired renal function:
 - For a C_{CR} between 30 to 60 mL/min, give 75 to 300 mg/day in 2 or 3 divided doses.
 - For a C_{CR} between 15 to 30 mL/min, give 25–150 mg/day in a single daily dose or 2 divided doses.
 - For a C_{CR} less than 15 mL/min, give 25–75 mg/day in a single daily dose.
5. A dosage decrease may be needed in those who have age-related compromised renal function.
6. When discontinuing, taper gradually over a minimum of 1 week.
7. May take with or without food as directed.
8. Do not perform activities that require mental alertness until drug effects realized; may cause dizziness, blurred vision, and sleepiness.
9. Report any unexplained muscle pain, weakness, or tenderness especially if accompanied by fever or increased tiredness.
10. Avoid alcohol and CNS depressants as these may potentiate sedation and impairment of motor skills.
11. Practice reliable contraception.
12. With diabetes, special attention to skin integrity should be maintained.

Promethazine Hydrochloride

(proh-METH-ah-zeen)

Rx: Phenadoz, Phenergen, Promethegan.



CLASSIFICATION(S): Antihistamine, first generation, phenothiazine

USES: PO, Rectal. (1) Perennial and seasonal allergic rhinitis; vasomotor rhinitis. (2) Allergic conjunctivitis due to inhalant allergens and foods. (3) Mild, uncomplicated allergic skin manifestations of

urticaria and angioedema. (4) Relief of allergic reactions to blood or plasma. (5) Dermatographism. (6) Adjunct to epinephrine and other measures to treat anaphylactic reactions after acute symptoms have been controlled. (7) Preoperative, postoperative, or obstetric sedation. (8) Prevention and control of N&V associated with certain types of anesthesia and surgery. (9) Adjunct to meperidine or other analgesics to control postoperative pain. (10) Sedation in both children and adults. (11) Relief of apprehension and production of light sleep from which the client can be easily aroused. (12) Active and prophylactic treatment of motion sickness. (13) Antiemetic in postoperative clients. **Parenteral.** (1) Adjunct to control postoperative pain. (2) Prevention and control of N&V associated with certain types of anesthesia and surgery and in postoperative clients. (3) Type I hypersensitivity reactions, including perennial and seasonal allergic rhinitis; vasomotor rhinitis; allergic conjunctivitis due to inhalant allergens and foods; mild, uncomplicated allergic skin reactions of urticaria and angioedema; amelioration of allergic reactions due to blood or plasma; dermatographism; adjunctive anaphylactic therapy. (4) Preoperative, postoperative, or obstetric sedation. (5) Relief of apprehension and production of light sleep. Use parenteral therapy when PO therapy is impossible or contraindicated.

ACTION/KINETICS: Antiemetic effects are likely due to inhibition of the CTZ. Effective in vertigo by its central anticholinergic effect which inhibits the vestibular apparatus and the integrative vomiting center as well as the CTZ. May cause severe drowsiness. Significant anticholinergic and antiemetic effects. **Onset, PO, IM, PR:** 20 min; **IV:** 3–5 min. **Duration, antihistaminic:** 6–12 hr; **sedative:** 2–8 hr. Slowly eliminated through urine and feces.

SIDE EFFECTS: Drowsiness, dizziness, confusion, blurred vision, dry mouth, tinnitus, N&V, photosensitivity. *SEIZURES, AGRANULOCYTOSIS, RESPIRATORY DEPRESSION, APNEA, NEUROLEPTIC MALIGNANT SYNDROME.*

DOSAGE: Suppositories; Syrup; Tablets

Allergies.

Adults and children over 2 years of age: 25 mg at bedtime

(usual dose); 12.5 mg before meals and at bedtime may be given, if needed. Single 25 mg doses at bedtime or 6.25–12.5 mg taken 3 times per day will usually suffice. Adjust dose to the smallest amount needed to relieve symptoms. If given rectally, resume PO administration as soon as possible if continued therapy is needed.

Sedation.

Adults: 25–50 mg at bedtime. **Children, over 2 years of age:** 12.5–25 mg at bedtime. *NOTE:* If used for preoperative sedation, give the night before surgery to relieve apprehension and to produce quiet sleep.

Antiemetic.

Adults: 25 mg (usual dose); doses of 12.5–25 mg may be repeated q 4–6 hr as needed for prophylaxis or treatment of active N&V. **Children, over 2 years of age:** 25 mg or 0.5 mg/lb (usual dose); doses of 12.5–25 mg may be repeated q 4–6 hr as needed for prophylaxis and treatment of active N&V. Adjust dose to the age, weight, and severity of the condition of the client. Limit use to prolonged vomiting of known etiology.

Motion sickness.

Adults: 25 mg twice a day (usual dose); take first dose 30–60 min before anticipated travel. Repeat 8–12 hr later if needed. On successive travel days, take 25 mg on rising and again before the evening meal. **Children, over 2 years of age:** 12.5–25 mg twice a day.

Pre- and postoperative use.

Adults: 50 mg preoperatively given with an appropriately reduced dose of narcotic or barbiturate and the required amount of an atropine-like drug. Give 25–50 mg for postoperative sedation and adjunctive use with analgesics. **Children, over 2 years of age:** 0.5 mg/lb (1.2 mg/kg) preoperatively in combination with an appropriately reduced dose of narcotic or barbiturate and the appropriate dose of an atropine-like drug. Give 12.5–25 mg for postoperative sedation and adjunctive use.

tive use with analgesics. To produce quiet sleep and to relieve apprehension, give 12.5–25 mg the night before surgery.

DOSAGE: IM (Preferred); IV

Hypersensitivity reactions, Type I.

Adults: 25 mg; may repeat dose within 2 hr, if needed. Resume PO therapy as soon as possible. **Children, 2 years of age and older:** Do not exceed one-half the adult dose.

Sedation.

Adults: 25–50 mg at bedtime for nighttime sedation. Doses of 50 mg provide sedation and relieve apprehension during early stages of labor. When labor is definitely established, may give 25–75 mg (usual is 50 mg) IM or IV, with an appropriately reduced dose of any desired narcotic. If needed, promethazine with a reduced dose of analgesic may be repeated once or twice at 4-hr intervals, not to exceed 100 mg/24 hr for clients in labor. **Children, 2–12 years of age:** Do not exceed one-half the adult dose.

Antiemetic.

Adults: 12.5–25 mg; may repeat q 4 hr as needed. If used postoperatively, reduce dose of concomitant analgesics or barbiturate accordingly. **Children, 2–12 years of age:** Do not exceed one-half the adult dose. Do not use when etiology of vomiting is unknown.

Pre- and postoperative use.

Adults: 25–50 mg in combination with an appropriately reduced dose of analgesics, hypnotics, and atropine-like drugs. **Children, 2–12 years of age:** 0.5 mg/lb (1.2 mg/kg) in combination with appropriately reduced doses of narcotic or barbiturate and atropine-like drugs.

NEED TO KNOW

1. Do not use in comatose clients, CNS depression due to drugs (including barbituates, general anesthetics, tranquilizers, alcohol, narcotics), previous phenothiazine idiosyncrasy or hypersensitivity, acutely ill or dehydrated children (due to greater susceptibility to dystonias).

2. Do not use to treat uncomplicated vomiting in children or use in children whose signs and symptoms may suggest Reye's syndrome or other hepatic diseases.
3. Do not use to treat lower respiratory tract symptoms, including asthma.
4. Do not use promethazine in children younger than 2 years of age because of the potential for fatal respiratory depression.
5. Use in children may cause paradoxical hyperexcitability and nightmares.
6. Geriatric clients are more likely to experience confusion, dizziness, hypotension, and sedation.
7. If given correctly, IV doses are well tolerated; however IV use is associated with increased risks. Do not exceed a concentration of 25 mg/mL at a rate of greater than 25 mg/min.
8. May take with food or milk to decrease GI upset.
9. When used to prevent motion sickness, take 30–60 min before travel. On successive travel days, take on rising and again before the evening meal.
10. Do not consume alcohol.
11. Avoid prolonged sun exposure; may cause photosensitivity reaction.
12. Report any involuntary muscle movements, palpitations, high fever, muscle rigidity, altered mental status (e.g., confusion, disorientation), excessive dizziness/drowsiness, sore throat, unusual bruising/bleeding, or yellowing of the skin or eyes.

Propoxyphene Napsylate and Acetaminophen

(pro-**POX**-ih-feen **NAP**-syl-ate, ah-**SEAT**-ah-**MIN**-oh-fen)

Rx: Darvocet A500, Darvocet-N 100, Darvocet-N 50, Propacet 100, Trycet, **C-IV**.

CLASSIFICATION(S): Narcotic and nonnarcotic analgesic combination

USES: Relief of mild to moderate pain, either when pain is present alone or when accompanied by fever.

ACTION/KINETICS: Propoxyphene is a centrally-acting narcotic analgesic related to methadone. The potency of propoxyphene is from two-thirds to equal that of codeine. Acetaminophen may cause analgesia by inhibiting CNS prostaglandin synthesis; however, due to minimal effects on peripheral prostaglandin synthesis, acetaminophen has no anti-inflammatory or uricosuric effects. Decreases fever by (1) a hypothalamic effect leading to sweating and vasodilation and (2) inhibits the effect of pyrogens on the hypothalamic heat-regulating centers. The combination of propoxyphene and acetaminophen produces greater analgesia than either drug administered alone. **Propoxyphene. Peak plasma levels:** 2–2.5 hr. Metabolized in the liver to norpropoxyphene which has significantly less CNS depressant effect than propoxyphene. **t_{1/2}, propoxyphene:** 6–12 hr; **t_{1/2}, norpropoxyphene:** 30–36 hr. **Acetaminophen. Peak plasma levels:** 30–120 min. **t_{1/2}:** 2–3 hr. **Therapeutic serum levels** (analgesia): 5–20 mcg/mL. Metabolized in the liver and excreted in the urine as glucuronide and sulfate conjugates. However, an intermediate hydroxylated metabolite is hepatotoxic following large doses of acetaminophen.

SIDE EFFECTS: Drowsiness, dizziness, N&V, sedation. **HEPATIC NECROSIS.**

DOSAGE: Tablets

Mild-to-moderate pain with or without fever.

Adults, usual: 100 mg propoxyphene napsylate and 650 mg

acetaminophen q 4 hr, not to exceed 600 mg propoxyphene per day.

NEED TO KNOW

1. Do not use in those who are suicidal or addiction-prone.
2. Propoxyphene products in excessive doses, either alone or in combination with other CNS depressants, including alcohol, are a major cause of drug-related deaths. Fatalities within the first hour of overdose are not uncommon.
3. Clients should be cautioned about the concomitant use of propoxyphene products and alcohol because of potentially serious CNS-addictive effects of these agents.
4. Many of the propoxyphene-related deaths have occurred in clients with previous histories of emotional disturbances or suicidal ideation or attempts, as well as histories of misuse of tranquilizers, alcohol, and other CNS-active drugs.
5. Propoxyphene, when taken in higher-than-recommended doses over long periods can produce psychological dependence and, less frequently, physical dependence and tolerance.
6. Consideration should be given to reducing the dose of propoxyphene in geriatric clients and in those with renal or hepatic impairment.
7. Do not perform activities that require mental alertness until drug effects realized; may cause dizziness or drowsiness.
8. Avoid alcohol and CNS depressants during therapy.

Quetiapine Fumarate

(kweh-TYE-ah-peen)

Rx: Seroquel, Seroquel XR.



CLASSIFICATION(S): Antipsychotic

USES: (1) Treatment of schizophrenia. (2) Treatment of acute manic episodes associated with bipolar I disorder either as monotherapy or adjunct therapy with divalproex or lithium. (3) Treatment of depressive episodes associated with bipolar disorder.

ACTION/KINETICS: May act as an antagonist at dopamine D₂ and serotonin 5HT₂ receptors. Side effects may be due to antagonism of other receptors (e.g., histamine H₁, dopamine D₁, adrenergic alpha₁ and alpha₂, serotonin 5HT_{1A}). Rapidly absorbed. **Peak plasma levels:** 1.5 hr. Metabolized by liver by CYP3A4 and sulfoxidation and oxidation and excreted through urine (about 73%) and feces (about 20%). **t_{1/2}, terminal:** About 6 hr.

SIDE EFFECTS: Headache, drowsiness/somnolence, dizziness, hypotension, tachycardia, constipation, dry mouth, dyspepsia. **SUDDEN CARDIAC DEATH AND TORSADES DE POINTES, NEUROLEPTIC MALIGNANT SYNDROME AND SEIZURES.**

DOSAGE: Tablets, Extended-Release; Tablets, Immediate-Release

Schizophrenia.

Immediate-Release. Initial: 25 mg 2 times per day, with increases of 25 to 50 mg 2–3 times per day on the second and third day, as tolerated. Target dose range, by fourth day, is 300 to 400 mg divided into 2 or 3 doses. Further dosage adjustments can occur at intervals of two or more days. The antipsychotic dose range is 150 to 750 mg/day. If dosage adjustments are needed, increments/decrements of 25–50 mg twice daily are recommended. **Extended-Release. Initial:** 300 mg/day given once a day, preferably in the evening. Titrate within a dose range of 400–800 mg/day, depending on client response and tolerance. Dose increases can be made at intervals of 1 day and in increments of 300 mg/day.

Bipolar disorder.

Use immediate-release only. When used as either monotherapy or adjunct therapy (with lithium or divalproex), begin quetiapine with a total of 100 mg/day on day 1 (given in 2 doses); increase to 400 mg/day on day 4 in increments of up to 100 mg/day in 2–3 divided doses daily. Further dosage adjustments, up to 800 mg/day by day 6, should be in increments of no more than 200 mg/day. The majority of clients respond at doses between 400 and 800 mg/day. The safety of doses above 800 mg/day has not been evaluated.

Depressive episodes.

Use immediate-release only. **Adults, Day 1:** 50 mg; **Day 2:** 100 mg; **Day 3:** 200 mg; **Day 4:** 300 mg. Those receiving 600 mg increased from 300 to 400 mg on day 5 and to 600 mg on day 8 (week 1). No additional benefit was observed at doses of 600 mg.

NEED TO KNOW

1. Elderly clients with dementia-related psychosis treated with atypical antipsychotic drugs are at an increased risk of death compared with placebo.
2. Antidepressants increased the risk of suicidal thinking and behavior (suicidality) in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders.
3. Use with caution in liver disease, in those at risk for aspiration pneumonia, and in those with history of seizures or conditions that lower seizure threshold (e.g., Alzheimer's).
4. There is an increased risk of hyperglycemia and diabetes associated with quetiapine.
5. Use with caution in geriatric clients, as the drug may be excreted more slowly in this population (rate of death due to CV events or infections is higher in clients with dementia).
6. Start clients with impaired hepatic function on 25 mg/day. In-

- crease the dose daily by 25–50 mg/day to an effective dosage, depending on the clinical response and client tolerability.
7. Consider a slower rate of titration and a lower target dose in elderly, debilitated clients, or in those who have a predisposition to hypotensive reactions.
 8. The period of overlapping antipsychotic drugs should be minimized.
 9. May take regular tabs with or without food. Total daily dose is divided and given two or three times a day unless using the extended-release tablets.
 10. Do not perform activities that require mental alertness until after titration period and until drug effects realized; may impair judgement and motor skills, and cause sleepiness. Change positions slowly to prevent low BP effects.
 11. Report any evidence of tardive dyskinesia (involuntary movements) and extrapyramidal symptoms (tremors, jerking movements).
 12. Report any altered mental status, high fever, irregular or fast pulse, muscle rigidity, rash, seizures, or increased sweating.

Ranitidine Hydrochloride

(rah-NIH-tih-deen)

B

OTC: Zantac 150 Maximum Strength Acid Reducer, Zantac 75 Acid Reducer.

Rx: Zantac, Zantac EFFERdose.

CLASSIFICATION(S): Histamine H₂ receptor blocking drug

USES: **Rx:** (1) Short-term (4–8 weeks) and maintenance treatment of duodenal ulcer. (2) Pathologic hypersecretory conditions such as Zollinger-Ellison syndrome and systemic mastocytosis. (3) Short-term treatment of active, benign gastric ulcers and maintenance treatment after healing of the acute ulcer. (4) Treatment of GERD. (5) Treatment of endoscopically diagnosed erosive esophagitis and for maintenance of healing of erosive esophagitis. (6) IV in some hospitalized clients with pathological hypersecreto-

ry conditions or intractable duodenal ulcers, or as an alternative to PO doses for short-term use in those who are unable to take PO medication. **Investigational: PO or IM/IV.** As part of a multidrug regimen to eradicate *Helicobacter pylori* in the treatment of peptic ulcer; perioperatively to suppress gastric acid secretion, prevent stress ulcers, and prevent aspiration pneumonitis; in combination with H₁ histamine antagonists to treat certain types of urticaria; and, as prophylaxis to reduce the incidence of NSAID-induced duodenal ulcers. **IV.** Prevent paclitaxel hypersensitivity; reduce the incidence of GI hemorrhage associated with stress-related ulcers.

OTC: (1) Relief of heartburn associated with acid indigestion and sour stomach. (2) Prophylaxis of heartburn associated with acid indigestion and sour stomach due to certain foods and beverages.

ACTION/KINETICS: Competitively inhibits gastric acid secretion by blocking the effect of histamine on histamine H₂ receptors. Both daytime and nocturnal basal gastric acid secretion, as well as food- and pentagastrin-stimulated gastric acid are inhibited. Food increases the bioavailability. **Peak effect, PO:** 2–3 hr; **IM; IV:** 15 min. **t_{1/2}:** 2.5–3 hr. **Duration, nocturnal:** 13 hr; **basal:** 4 hr. **Serum level to inhibit 50% stimulated gastric acid secretion:** 36–94 ng/mL. From 30% to 35% of a PO dose and from 68% to 79% of an IV dose excreted unchanged in urine.

SIDE EFFECTS: Headache, abdominal pain, constipation, diarrhea, N&V. **CARDIAC ARREST, AGRANULOCYTOSIS, AUTOIMMUNE HEMOLYTIC OR APLASTIC ANEMIA, BRONCHOSPASM, ANAPHYLAXIS.**

DOSAGE: Capsules; Oral Solution; Syrup; Tablets; Tablets, Effervescent

Duodenal ulcer, short-term.

Adults: 150 mg twice a day or 300 mg after the evening meal or at bedtime. A dose of 100 mg twice daily is as effective as the 150 mg dose in inhibiting gastric acid secretion. **Maintenance:** 150 mg at bedtime. **Children:** 2–4 mg/kg/day given twice a day, up to a maximum of 300 mg/day. For mainte-

nance in children, 2–4 mg/kg once daily, up to a maximum of 150 mg/day.

Pathologic hypersecretory conditions.

Adults: 150 mg twice a day (up to 6 grams/day has been used in severe cases). **Children:** 5–10 mg/kg/day, usually in 2 divided doses.

Benign gastric ulcer.

Adults: 150 mg twice a day for active ulcer. **Maintenance:** 150 mg at bedtime. **Children:** 2–4 mg/kg/day given twice a day, up to a maximum of 300 mg/day. For maintenance in children, 2–4 mg/kg once daily, up to a maximum of 150 mg/day.

Gastroesophageal reflux disease.

Adults: 150 mg twice a day. **Children:** 5–10 mg/kg/day, usually given as 2 divided doses.

Erosive esophagitis.

Adults: 150 mg 4 times per day.

Maintenance of healing of erosive esophagitis.

Adults: 150 mg twice a day. **Maintenance:** 150 mg twice a day. **Children:** 5–10 mg/kg/day, usually in 2 divided doses.

DOSAGE: IM; IV

Treatment and maintenance for duodenal ulcer, hypersecretory conditions, gastroesophageal reflux.

Adults, IM: 50 mg q 6–8 hr. **Intermittent IV bolus:** 50 mg q 6–8 hr (dilute 50 mg in 0.9% NaCl or other compatible IV solution to a concentration no greater than 2.5 mg/mL [20 mL]). Inject at a rate no greater than 4 mL/min (5 minutes). **Intermittent IV infusion:** 50 mg q 6–8 hr. Dilute 50 mg in 5% dextrose injection or other compatible IV solution to a concentration no greater than 0.5 mg/mL (100 mL) and infuse at a rate no greater than 5–7 mL/min (15–20 min) or use 50 mL of 1 mg/mL premixed solution and infuse over 15–20 min. Do not exceed 400 mg/day. **Continuous IV infusion:** Add the injection to 5% dextrose injection or other compatible IV solution. Give at a rate of 6.25 mg/hr (e.g., 150 mg ranitidine injection

in 250 mL of 5% dextrose injection at 10.7 mL/hr).

Children, IV: 2–4 mg/kg/day in divided doses q 6–8 hr, up to a maximum of 50 mg q 6–8 hr.

Zollinger-Ellison clients.

Continuous IV infusion: Dilute ranitidine in 5% dextrose injection or other compatible IV solution to a concentration no greater than 2.5 mg/mL with an initial infusion rate of 1 mg/kg/hr. If after 4 hr the client shows a gastric acid output of greater than 10 mEq/hr or if symptoms appear, increase the dose by 0.5 mg/kg/hr increments and measure the acid output. Doses up to 2.5 mg/kg/hr may be necessary.

DOSAGE: OTC: Tablets

Treat heartburn.

Treatment: 75 mg or 150 mg with a glass of water. **Maintenance:** Use up to 2 times per day (up to 2 tablets in 24 hr).

Prevent heartburn.

75 mg or 150 mg with a glass of water 30–60 min before eating food or drinking beverages that cause heartburn.

NEED TO KNOW

1. Do not use in cirrhosis of the liver, impaired renal or hepatic function.
2. Use with caution during lactation, in the elderly, and in clients with decreased hepatic or renal function.
3. If the C_{CR} is less than 50 mL/min, give 50 mg PO q 24 hr or 50 mg parenterally q 18–24 hr. Parenteral dosing may be increased to q 12 hr or further with caution.
4. Give antacids concomitantly for gastric pain although they may interfere with ranitidine absorption.
5. About one-half of clients may heal completely within 2 weeks; thus, endoscopy may show no need for further treatment.
6. The premixed injection does not require dilution; give by slow IV drip over 15–20 min. Do not introduce additives into the solution.

7. Take as directed with or immediately following meals.
8. For EFFERdose tablets and granules, dissolve each dose in 6–8 oz of water before drinking.
9. Avoid alcohol, aspirin-containing products, and beverages that contain caffeine (tea, cola, coffee); these increase stomach acid. Avoid things that may aggravate symptoms, i.e., alcohol, aspirin, NSAIDs, caffeine, chocolate, and black pepper. Avoid herbals such as garlic, ginseng, ginkgo, or vitamin E with ulcer.
10. Do not smoke; interferes with healing and drug's effectiveness.

Rosuvastatin Calcium

(roe-SUE-vuh-stah-tin)

X

Rx: Crestor.

CLASSIFICATION(S): Antihyperlipidemic, HMG-CoA reductase inhibitor

USES: (1) As an adjunct to diet to reduce elevated total cholesterol, LDL-C, APO B, non-high-density HDL-C, and triglyceride levels, and to increased HDL-C in primary hyperlipidemia and mixed dyslipidemia. (2) Reduce LDL-C, total cholesterol, and APO B in homozygous familial hypercholesterolemia as an adjunct to other lipid-lowering treatments (e.g., LDL apheresis) or if such treatments are not available. (3) Adjunct to diet in adults with hypertriglyceridemia. (4) Adjunctive therapy to diet to slow the progression of atherosclerosis in adults as part of the regimen to lower total cholesterol and LDL-C to target levels.

ACTION/KINETICS: Competitively inhibits HMG-CoA reductase; this enzyme catalyzes the early rate-limiting step in the synthesis of cholesterol. Thus, cholesterol synthesis is inhibited/decreased. Reduces total cholesterol, LDL-C, APO B, and non-HDL-C in clients with homozygous and heterozygous familial hypercholesterolemia, nonfamilial forms of hypercholesterolemia, and mixed dyslipidemia. Also, reduces triglycerides and increases HDL-C. **Peak**

plasma levels: 3–5 hr. About 10% metabolized by CYP2C9 to N-desmethyl rosuvastatin which has some activity. Excreted primarily (90%) in the feces. **t_{1/2}, elimination:** About 19 hr. Severe renal or hepatic insufficiency significantly increases plasma levels.

SIDE EFFECTS: Myalgia, constipation, asthenia, abdominal pain, N&V, headache, diarrhea, dyspepsia, back pain, flu syndrome, UTI.

DOSAGE: Tablets

Hyperlipidemia, mixed dyslipidemia, hypertriglyceridemia, atherosclerosis.

Individualize therapy. **Initial:** 10 mg once daily (use 5 mg once daily for those requiring less aggressive LDL-C reductions or who have predisposing factors for myopathy). For clients with marked hypercholesterolemia (LDL-C greater than 190 mg/dL) and aggressive lipid targets, consider a 20-mg starting dose. After initiation and/or upon titration, analyze lipid levels within 2 to 4 weeks; adjust dosage accordingly. Reserve the 40-mg dose for those who have not achieved goal LDL-C at 20 mg.

Homozygous familial hypercholesterolemia.

Initial: 20 mg once daily. **Dose range:** 5–40 mg; **maximum recommended dose:** 40 mg daily. Use rosuvastatin as an adjunct to other lipid-lowering treatments (e.g., LDL apheresis) or if other treatments are not available.

NEED TO KNOW

1. Do not use in clients with active liver disease or with unexplained persistent elevations of serum transaminases.
2. Use with caution in clients who consume substantial amounts of alcohol and/or have a history of liver disease. Use with caution in those 65 years and older, in hypothyroidism, and renal insufficiency (all predispose clients to myopathy).
3. Temporarily withhold rosuvastatin in clients with an acute, serious condition suggestive of myopathy or predisposing to the development of renal failure secondary to rhabdomyolysis (e.g., sepsis, hypotension, major surgery, trauma, uncontrolled

seizures, severe metabolic, endocrine, and electrolyte disorders).

4. For clients with severe renal impairment (C_{CR} less than 30 mL/min/1.73 m² not on hemodialysis), use an initial dose of 5 mg once daily; dosage should not exceed 10 mg once daily.
5. Due to the possibility of myopathy and rhabdomyolysis, reserve 40 mg dose for clients who have not achieved their LDL cholesterol goal with the 20-mg regimen.
6. In clients taking cyclosporine, limit the rosuvastatin dose to 5 mg once daily.
7. In clients taking a combination of lopinavir and ritonavir, limit the dose of rosuvastatin to 10 mg once daily.
8. The effect of rosuvastatin on LDL-C and total cholesterol may be enhanced if used with a bile acid binding resin such as gemfibrozil. If gemfibrozil is used with rosuvastatin, limit the dose of rosuvastatin to 10 mg once daily.
9. In Asian clients, initiate therapy with 5 mg once daily.
10. Take once daily with or without food as directed. Do not use antacid for 2 hr after consuming drug.

Sertraline Hydrochloride

(SIR-trah-leen)

Rx: Zoloft.



CLASSIFICATION(S): Antidepressant, selective serotonin reuptake inhibitor

USES: (1) Major depressive disorder as defined in the DSM-III. (2) Obsessive-compulsive disorders in adults and children as defined in DSM-III-R. (3) Panic disorder, with or without agoraphobia, as defined in DSM-IV. (4) Long-term use for posttraumatic stress disorder in men and women as defined in the DSM-III-R. (5) Premenstrual dysphoric disorder as defined in the DSM-III-R/IV. (6) Acute and chronic treatment of social anxiety disorder (social phobia) as defined in the DSM-IV.

ACTION/KINETICS: Antidepressant effect likely due to inhibition

of CNS neuronal uptake of serotonin and to a lesser extent norepinephrine and dopamine. Results in increased levels of serotonin in synapses. Steady-state plasma levels are usually reached after 1 week of once-daily dosing but increased to 2–3 weeks in older clients. May cause slight sedation. **Time to peak plasma levels:** 4.5–8.4 hr. **Peak plasma levels:** 20–55 ng/mL. **Time to reach steady state:** 7 days. **Terminal elimination $t_{1/2}$:** 1–4 days (including active metabolite). Washout period is 7 days. Food decreases the time to reach peak plasma levels. Undergoes significant first-pass metabolism. Excreted through the urine (40–45%) and feces (40–45%). Metabolized to N-desmethylsertraline, which has minimal antidepressant activity.

SIDE EFFECTS: Nausea, diarrhea/loose stools, headache, insomnia, somnolence, rash, dry mouth, dizziness, anorexia, abnormal ejaculation. **SEIZURES, SUICIDAL IDEATION OR ATTEMPT.**

DOSAGE: Solution, Oral Concentrate; Tablets

Major depressive disorder.

Adults, initial: 50 mg once daily either in the morning or evening. Clients not responding to a 50 mg dose may benefit from doses ranging from 50–200 mg/day (average: 70 mg/day). Generally several months or longer of sustained therapy is required.

Obsessive-compulsive disorder (OCD).

Adults: 50 mg once daily either in the morning or evening; up to 200 mg/day may be required in some. **Children, 6 to 12 years of age, initial:** 25 mg once a day; **adolescents, 13 to 17 years of age, initial:** 50 mg once a day. **Dose range, children 6 to 17 years of age:** 25–200 mg/day. Those not responding may require doses up to a maximum of 200 mg/day. OCD requires several months or longer of sustained drug therapy. Periodically assess to determine the need for continued therapy.

Panic disorder.

Adults, initial: 25 mg/day for the first week; **then,** increase the dose to 50 mg once daily. Up to 200 mg/day have been used. Panic disorder requires several months or longer of sustained drug therapy. Periodically assess to determine the need for continued therapy.

Post-traumatic stress syndrome.

Adults, initial: 25 mg once daily. After 1 week, increase dose to 50 mg once daily. **Dose range:** 50–200 mg/day. Posttraumatic stress disorder requires several months or longer of sustained drug therapy. Periodically assess to determine the need for continued therapy.

Premenstrual dysphoric disorder.

Adults, initial: 50 mg/day either daily throughout the menstrual cycle or limited to the luteal phase, depending on provider assessment. Those not responding at the 50 mg/day dose may benefit from dose increases, at 50 mg increments per menstrual cycle, up to 150 mg/day when dosing daily throughout the menstrual cycle or 100 mg/day when dosing during the luteal phase. If a 100 mg/day dose has been established with luteal phase dosing, use a 50 mg/day titration step for 3 days at the beginning of each luteal phase dosing period. **Dose range:** 50–150 mg/day. Efficacy has not been determined for more than 3 menstrual cycles. However, longer periods of treatment are reasonable.

Social anxiety disorder.

Adults, initial: 25 mg once daily. After 1 week, increase to 50 mg once daily. **Dose range:** 50–200 mg/day. Social anxiety disorder requires several months or longer of sustained drug therapy. Periodically assess to determine the need for continued therapy.

NEED TO KNOW

1. Do not use with MAO inhibitors due to increased risk of QT prolongation.
2. Antidepressants increased the risk of suicidal thinking and be-

havior (suicidality) in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders.

3. Use with caution in hepatic or renal dysfunction, and with seizure disorders.
4. Neonates exposed to sertraline late in the third trimester have developed serious complications requiring prolonged hospitalization, respiratory support, and tube feeding; when treating pregnant women with sertraline during the third trimester, carefully consider the potential risks and benefits.
5. Due to the long elimination $t_{1/2}$, do not increase dosage at intervals of less than 1 week.
6. Beneficial effects may not be observed for 2–4 weeks after starting.
7. At least 14 days should elapse between discontinuing an MAO inhibitor and starting sertraline therapy. Also, allow at least 14 days after discontinuing sertraline and starting an MAO inhibitor.
8. When discontinuing sertraline, a gradual reduction in dose rather than abrupt cessation is recommended whenever possible.
9. Take once daily in the morning or evening. May take with/without food and in the evening if sedation is noted.
10. Do not perform activities that require mental and physical alertness until drug effects are realized.
11. Report any suicidal thoughts/behavior, aggression, anxiety, agitation, panic attacks, insomnia, hostility, impulsivity. Risk of suicide is tantamount in a depressive phase; may take 2–4 weeks to work.

Sildenafil Citrate

(sill-DEN-ah-fill)

Rx: Revatio, Viagra.

B

CLASSIFICATION(S): Drug for erectile dysfunction; drug for pulmonary arterial hypertension

USES: (1) **Viagra:** Erectile dysfunction. Has no effect in the absence of sexual stimulation. (2) **Revatio:** Pulmonary arterial hypertension (World Health Organization Group 1) to improve ability to exercise.

ACTION/KINETICS: Nitric oxide activates the enzyme guanylate cyclase, which causes increased levels of guanosine monophosphate (cGMP) and subsequently smooth muscle relaxation in the corpus cavernosum allowing inflow of blood. Sildenafil enhances effect of nitric oxide by inhibiting phosphodiesterase type 5 which is responsible for degradation of cGMP in the corpus cavernosum. When sexual stimulation causes local release of nitric oxide, inhibition of phosphodiesterase type 5 by sildenafil causes increased levels of cGMP in the corpus cavernosum and thus smooth muscle relaxation and inflow of blood resulting in an erection. Drug has no effect in absence of sexual stimulation. Absorption is decreased when taken with high-fat meal. Increased plasma levels will occur in clients older than 65 years (40% increase in AUC), hepatic impairment (e.g., cirrhosis, 80% increase), severe renal impairment (C_{CR} under 30 mL/min, 100% increase), and concomitant use of potent cytochrome CYP 3A4 inhibitors; in these clients, start with a 25 mg dose. T_{max} : 0.5–2 hr. **Onset:** About 30 min. **Duration:** 4 or more hr. Metabolized in liver by CYP3A4 (major) and CYP2C9 (minor). Is converted to active metabolite (N-desmethyl sildenafil). $t_{1/2}$, **sildenafil and metabolite:** 4 hr. Excreted mainly in feces (80%) with about 13% excreted in urine. Reduced clearance is seen in geriatric clients.

SIDE EFFECTS: Headache, flushing, dyspepsia, nasal congestion, hypotension, UTI, abnormal vision, diarrhea, dizziness, rash. *MI, SUD-DEN CARDIAC DEATH, VENTRICULAR ARRHYTHMIA, CVA, SUBARACHNOID AND INTRA-*

CEREBRAL HEMORRHAGE, PULMONARY HEMORRHAGE, CARDIAC ARREST, HEART FAILURE, CARDIOMYOPATHY.

NOTE: Death has occurred in some clients following use of the drug.

DOSAGE: Tablets

Treat erectile dysfunction.

Viagra: For most clients, 50 mg no more than once daily, as needed, about 1 hr before sexual activity. Take anywhere from 0.5 hr to 4 hr before sexual activity. Depending on tolerance and effectiveness, dose may be increased to maximum of 100 mg or decreased to 25 mg. The maximum recommended dosing frequency is once daily.

Pulmonary arterial hypertension.

Revatio: 20 mg 3 times per day. Take doses about 4–6 hr apart with or without food. Doses higher than 20 mg 3 times per day are not recommended.

NEED TO KNOW

1. Do not use with organic nitrates (potentiate hypotensive effects) in any form or with other treatments for erectile dysfunction.
2. Use with caution in clients with anatomical deformation of penis, in those with predisposition to priapism (e.g., sickle cell anemia, multiple myeloma, leukemia), in bleeding disorders or active peptic ulceration, and in those with genetic disorders of retinal phosphodiesterases.
3. Drug is potentially hazardous in those with acute coronary ischemia but not on nitrates; have CHF, borderline low BP, or borderline low volume status; are on complicated antihypertensive therapy with several drugs; are taking erythromycin or cimetidine; or have impaired hepatic or renal function.
4. Consider starting dose of 25 mg in the following situations associated with higher plasma levels of sildenafil: Over 65 years of age, mild hepatic impairment (Child-Pugh score of 5 or 6),

severe renal impairment (C_{CR} less than 30 mL/min), and concomitant use of cytochrome CYP3A4 inhibitors (including erythromycin, itraconazole, ketoconazole, and saquinavir).

5. Do not exceed a maximum single dose of 25 mg sildenafil in a 48 hr period with concomitant use of protease inhibitors (e.g., ritonavir) for HIV disease.
6. Do not take 50 or 100 mg of sildenafil within 4 hr of alpha-blocker administration. A 25 mg dose may be taken at any time.
7. Take only as directed on an empty stomach 1–3 hr prior to intercourse; high-fat meal may slow drug absorption. May split drug if dose is adequate. May take with food if GI upset.
8. May experience headache, flushing, upset stomach, stuffy nose, dizziness (from drop in BP), drowsiness, or abnormal vision (especially blue/green color discrimination); report any unusual, persistent, or bothersome effects including chest pain, dizziness, prolonged/painful erections (over 4 hr), or sudden loss of vision in one or both eyes.

Simvastatin (sim-vah-STAH-tin)

Rx: Zocor.

X

CLASSIFICATION(S): Antihyperlipidemic, HMG-CoA reductase inhibitor

USES: (1) Reduce elevated total cholesterol, LDL-C, APO B, and triglyceride levels and increase HDL-C in primary hypercholesterolemia (heterozygous familial and nonfamilial) and mixed dyslipidemia (Frederickson types IIa and IIb). (2) Treat hypertriglyceridemia (Frederickson type IV hyperlipidemia). (3) Treat primary dysbetalipoproteinemia (Frederickson type III hyperlipidemia). (4) As an adjunct to other lipid-lowering treatments (e.g., LDL apheresis) to reduce total cholesterol and LDL-C in homozygous familial hypercholesterolemia. (5) As an adjunct to diet to reduce total and LDL cholesterol and APO B levels in adolescent boys and girls who

are at least 1 year postmenarche, 10–17 years of age, with heterozygous familial hypercholesterolemia. Given if after an adequate trial of diet therapy, LDL cholesterol remains 190 mg/dL or greater or LDL cholesterol remains 160 mg/dL or greater and there is a positive family history of premature CV disease or 2 or more other CV disease risk factors are present in the adolescent client. The minimum goal is to achieve a mean LDL-C of less than 130 mg/dL. (5) In those with a high risk of coronary events due to existing coronary heart disease, diabetes, peripheral vessel disease, or a history of stroke or other cerebrovascular disease, simvastatin is given to reduce the risk of total mortality by reducing coronary heart disease deaths; reduce the risk of nonfatal MI and stroke; and reduce the need for coronary and noncoronary revascularization procedures. *NOTE:* Simvastatin reduces risks of fatal and nonfatal heart attacks and strokes, as well as reduces the need for bypass surgery and angioplasty.

ACTION/KINETICS: Competitively inhibits HMG-CoA reductase; this enzyme catalyzes the early rate-limiting step in the synthesis of cholesterol. Thus, cholesterol synthesis is inhibited/decreased. Decreases cholesterol, triglycerides, VLDL, LDL, and increases HDL. Does not reduce basal plasma cortisol or testosterone levels or impair renal reserve. **Peak therapeutic response:** 4–6 weeks. Approximately 85% absorbed; significant first-pass effect with less than 5% of a PO dose reaching the general circulation. $t_{1/2}$: 3 hr. Metabolites excreted in the feces (60%) and urine (13%). Increased levels seen in those with hepatic and severe renal insufficiency.

SIDE EFFECTS: Headache, abdominal pain/cramps, constipation, URTI, flatulence, diarrhea, asthenia, N&V, dyspepsia, myalgia, rash/pruritus. *RHABDOMYOLYSIS, PANCREATITIS, FULMINANT HEPATIC NECROSIS, HEPATOMA, ANGIOEDEMA, ANAPHYLAXIS, HEMOLYTIC ANEMIA, TOXIC EPIDERMAL NECROLYSIS, ERYTHEMA MULTIFORME (INCLUDING STEVENS-JOHNSON SYNDROME).*

DOSAGE: Tablets

Hyperlipidemia, coronary heart disease.

Adults, initially: 20–40 mg once daily in the evening; **mainte-**

nance: 5–80 mg/day as a single dose in the evening. Consider a starting dose of 10 mg/day for clients with LDL greater than 190 mg/dL. Consider a starting dose of 40 mg as an alternative for those who require a reduction of more than 45% in their LDL cholesterol (most often those with CAD).

Homozygous familial hypercholesterolemia.

Adults: 40 mg/day in the evening or 80 mg/day in 3 divided doses of 20 mg, 20 mg, and an evening dose of 40 mg. Use as an adjunct to other lipid-lowering treatments (e.g., LDL apheresis) or if such treatments are unavailable.

Adolescents 10–17 years of age with heterozygous familial hypercholesterolemia.

Initial: 10 mg once a day in the evening. **Dose range:** 10–40 mg/day (maximum). Individualize dose. Adjust at intervals of 4 weeks or more.

Prevention of coronary events.

Initial: 20–40 mg once a day in the evening. The recommended initial dose is 40 mg/day for those at high risk for a coronary heart disease event caused by existing coronary heart disease, diabetes, peripheral vessel disease, history of stroke, or other CV disease.

NEED TO KNOW

1. Do not use if client is pregnant, planning to become pregnant, or breastfeeding.
2. Use with caution in clients who have a history of liver disease/ consume large quantities of alcohol or with drugs that affect steroid levels or activity.
3. Consider a starting dose of 5 mg/day in those with LDL less than 190 mg/dL.
4. For geriatric clients, the starting dose should be 5 mg/day with maximum LDL reductions seen with 20 mg or less daily.
5. May give without regard to meals.
6. In clients taking cyclosporine or danazol together with simvastatin, begin therapy with 5 mg/day of simvastatin; do not exceed 10 mg/day simvastatin.

7. In clients taking amiodarone or verapamil together with simvastatin, the dose of simvastatin should not exceed 20 mg/day.
8. In clients with severely impaired renal function, start at 5 mg/day simvastatin; monitor closely.
9. Take once or twice daily as directed. More preferable in evening.
10. A low-cholesterol diet must be followed during drug therapy.
11. Report any S&S of infections, unexplained muscle pain, tenderness/weakness (especially if accompanied by fever or malaise), surgery, trauma, yellowing of skin or eyes.

Tamsulosin Hydrochloride

(tam-SOO-loh-sin)

B

Rx: Flomax.

CLASSIFICATION(S): Alpha-adrenergic blocking drug

USES: Signs and symptoms of BPH. Rule out prostatic carcinoma before using tamsulosin.

ACTION/KINETICS: Blockade of α_1 -receptors (probably α_{1A}) in the prostate results in relaxation of smooth muscles in the bladder neck and prostate; thus, urine flow rate is improved and there is a decrease in symptoms of BPH. Food interferes with the rate of absorption. $t_{1/2}$, **elimination:** 5–7 hr. Extensively metabolized in liver; excreted through urine and feces.

SIDE EFFECTS: Headache, dizziness, pharyngitis/rhinitis, abnormal ejaculation, shoulder/neck/back/extremity pain, asthenia, diarrhea, chest pain.

DOSAGE: Capsules

Benign prostatic hypertrophy.

Adult males: 0.4 mg once daily given about 30 min after same meal each day. If, after 2 to 4 weeks, clients have not responded, dose can be increased to 0.8 mg daily.

NEED TO KNOW

1. Do not use to treat hypertension, with other alpha-adrenergic blocking agents, or in women or children.
2. Use with caution with concurrent administration of warfarin.
3. If dose is discontinued or interrupted for several days after either the 0.4 mg or 0.8 mg dose, start therapy again with 0.4 mg dose.
4. May take 30 minutes after the same meal each day to decrease GI upset.
5. May cause dizziness, drowsiness, and syncope. Change positions slowly to prevent sudden drop in BP.
6. Stop fluid intake at least 4 hr before bedtime. Report if urinary S&S do not improve or worsen.

Tramadol Hydrochloride (TRAM-ah-dol)

C

Rx: Ultram, Ultram ER.

CLASSIFICATION(S): Analgesic, centrally-acting

USES: Immediate-Release: Management of moderate to moderately severe pain in adults. **Extended-Release:** Moderate to moderately severe chronic pain in adults who require around-the-clock pain therapy for an extended period of time.

ACTION/KINETICS: Two complimentary mechanisms may be applicable: It may bind to mu-opioid receptors and inhibit reuptake of norepinephrine and serotonin. The analgesic effect is only partially antagonized by the antagonist naloxone. Causes significantly less respiratory depression than morphine. In contrast to morphine, tramadol does not cause release of histamine. Produces dependence of the mu-opioid type (i.e., like codeine or dextropropoxyphene); however, there is little evidence of abuse. Tolerance occurs but is relatively mild; the withdrawal syndrome is not as severe as with other opiates. Rapidly absorbed after PO administration. Food does not affect the rate or extent of absorption. **Onset:** 1 hr. **Peak effect:** 2–3 hr. **Peak plasma levels:** 2 hr. **Duration:** 2 hr

for tramadol and 3 hr for the M1 active metabolite. $t_{1/2}$, **plasma:** 6.3 hr for tramadol and 7.4 hr for the M1 active metabolite. Extensively metabolized in the liver by CYP2D6 and CYP3A4. Excreted in the urine, with about 30% excreted unchanged and 60% as metabolites. The M-metabolite is active.

SIDE EFFECTS: Dizziness, headache, CNS stimulation, ataxia, sedation/somnolence, vertigo, itching/pruritus, constipation, nausea.

SEIZURES, LIVER FAILURE, STEVENS-JOHNSON SYNDROME, TOXIC EPIDERMAL NECROLYSIS, SUICIDAL TENDENCY, ANAPHYLAXIS.

DOSAGE: Tablets, Immediate-Release

Management of pain.

Individualize dose based on lowest effective dose. **Adults, 17 years of age and older, those requiring rapid onset of analgesia:** 50–100 mg q 4–6 hr, as needed, but not to exceed 400 mg/day. **Moderate to moderately severe chronic pain, initial:** 25 mg/day in the morning and titrate in 25 mg increments as separate doses q 3 days to reach 100 mg/day (25 mg four times a day). Thereafter, increase the total daily dose by 50 mg as tolerated q 3 days to reach 200 mg/day (50 mg 4 times a day). After titration, give 50–100 mg q 4–6 hr as needed for pain relief, not to exceed 400 mg/day. For clients over 75 years of age, the recommended dose is no more than 300 mg/day in divided doses. In impaired renal function with a C_{CR} less than 30 mL/min, the dosing interval should be increased to 12 hr, with a maximum daily dose of 200 mg. The recommended dose for clients with cirrhosis is 50 mg q 12 hr. Dialysis clients can receive their regular dose on the day of dialysis.

DOSAGE: Tablets, Extended-Release

Long-term around-the-clock management of pain in adults.

Clients not currently on tramadol immediate-release products. Adults, 18 years of age and older, initial: 100 mg once daily; titrate up as needed in 100 mg increments q 5 days. Maximum dose: 300 mg/day. **Clients currently on tramadol**

immediate-release products. Adults, 18 years of age and older: Calculate the 24-hour tramadol immediate-release dose to the next lowest 100 mg increment. The dose may subsequently be individualized according to client need. Because there is limited flexibility of dose selection with the extended-release product, some clients maintained on the immediate-release product may not be able to convert to the extended-release form. **Maximum daily dose of extended-release products:** 300 mg. Administer with great caution to clients 65 years of age and older. Do not use the dosage form in clients with a C_{CR} less than 30 mL/min or in severely impaired hepatic function.

NEED TO KNOW

1. Do not use in clients with past or present addiction or opiate dependence or in those with a prior history of allergy to codeine or opiates.
2. Do not use for obstetric preoperative medication or for post-delivery analgesia in nursing mothers.
3. Use with great caution in those taking MAO inhibitors, as tramadol inhibits norepinephrine and serotonin uptake.
4. Use with caution in increased intracranial pressure or head injury, in epilepsy, or in clients with an increased risk for seizures, including head trauma, metabolic disorders, alcohol or drug withdrawal, use of certain drugs (e.g., SSRIs, tricyclic compounds, cyclobenzaprine, promethazine), and CNS infections.
5. Tramadol may complicate the assessment of acute abdominal conditions.
6. May be taken without regard to meals.
7. Do not perform activities that require mental alertness; drug may cause drowsiness and impair mental or physical performance. Alcohol may intensify drug effects.
8. Avoid alcohol and CNS depressants.

Trazodone Hydrochloride
(TRAYZ-oh-dohn)

CLASSIFICATION(S): Antidepressant, miscellaneous

USES: Depression with or without accompanying anxiety.

ACTION/KINETICS: May inhibit serotonin uptake by brain cells, therefore increasing serotonin concentrations in the synapse. May also cause changes in binding of serotonin to receptors. Causes moderate sedative and orthostatic hypotensive effects and slight anticholinergic effects. Well absorbed. **Peak plasma levels:** 1 hr (empty stomach) or 2 hr (when taken with food). **t_{1/2}, initial:** 3–6 hr; **final:** 5–9 hr. **Effective plasma levels:** 800–1,600 ng/mL. **Time to reach steady state:** 3–7 days. Three-fourths of those with a therapeutic effect respond by the end of the second week of therapy. Metabolized in liver and excreted through both the urine and feces.

SIDE EFFECTS: Drowsiness, dizziness/lightheadedness, nervousness, dry mouth, headache, insomnia, headache, hypotension, N&V, blurred vision.

DOSAGE: Tablets*Depression.*

Adults and adolescents, initial: 150 mg/day in divided doses; **then,** increase by 50 mg/day every 3–4 days to maximum of 400 mg/day in divided doses (outpatients). Inpatients may require up to, but not exceeding, 600 mg/day in divided doses. **Maintenance:** Use lowest effective dose. Therapy may be required for several months. **Geriatric clients:** 75 mg/day in divided doses; dose can then be increased, as needed and tolerated, at 3 to 4 day intervals.

Aggressive behavior.

Trazodone, 50 mg twice a day, with tryptophan, 500 mg twice a day. Dosage adjustments may be required to reach a therapeutic response or if side effects develop.

Panic disorder or agoraphobia with panic attacks.

300 mg/day.

Insomnia.

25–75 mg, often with a selective serotonin reuptake inhibitor.

Alcoholism.

50–100 mg/day.

NEED TO KNOW

1. Do not use during the initial recovery period following MI or concurrently with electroshock therapy.
2. Antidepressants increased the risk of suicidal thinking and behavior (suicidality) in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders.
3. Geriatric clients are more prone to the sedative and hypotensive effects.
4. Take with food to enhance absorption and minimize dizziness and/or lightheadedness. Take major portion of dose at bedtime to reduce daytime side effects.
5. Avoid alcohol and CNS depressants.
6. Report any chest pain, SOB, confusion, convulsions, impotence, prolonged or inappropriate penile erections.
7. May take 2–4 weeks for full drug effects to be realized. Report any evidence of suicidal thoughts or ideas.

Triamterene and Hydrochlorothiazide
(try-AM-teh-reen, hy-droh-kloh-roh-THIGH-ah-zyd)

Rx: Dyazide, Maxzide, Maxzide-25 MG.

C

CLASSIFICATION(S): Antihypertensive, combination drug

USES: Hypertension or edema in clients who manifest hypokalemia on hydrochlorothiazide alone. In clients requiring a diuretic and in whom hypokalemia cannot be risked (i.e., clients with cardiac arrhythmias or those taking digitalis). Usually not the first line

of therapy, except for clients in whom hypokalemia should be avoided.

ACTION/KINETICS: Triamterene acts directly on the distal tubule to promote the excretion of sodium, bicarbonate, chloride, and fluid. It increases urinary pH. Hydrochlorothiazide promotes the excretion of sodium and chloride, and thus water by the distal renal tubule. Also increases excretion of potassium and to a lesser extent bicarbonate. The antihypertensive effect is thought to be due to direct dilation of the arterioles, as well as to a reduction in the total fluid volume of the body and altered sodium balance.

Triamterene. Onset: 2–4 hr. **Peak effect:** 6–8 hr. **Duration:** 7–9 hr. $t_{1/2}$: 3 hr. Metabolized to hydroxytriamterene sulfate, which is also active. About 20% is excreted unchanged through the urine.

Hydrochlorothiazide. Onset: 2 hr. **Peak effect:** 4–6 hr. **Duration:** 6–12 hr. $t_{1/2}$: 5.6–14.8 hr. Hydrochlorothiazide is not metabolized but is eliminated rapidly by the kidney.

SIDE EFFECTS: N&V, headache, anorexia, GI upset, diarrhea, flatulence, dizziness, photosensitivity.

DOSAGE: Capsules

Hypertension or edema.

Adults: Triamterene/hydrochlorothiazide: 37.5 mg/25 mg, 1–2 capsules, or tablets given once daily with monitoring of serum potassium and clinical effect. Triamterene/hydrochlorothiazide: 50 mg/25 mg 1–2 capsules twice a day after meals. Some clients may be controlled using 1 capsule every day or every other day. No more than 4 capsules should be taken daily.

DOSAGE: Tablets

Hypertension or edema.

Adults: Triamterene/hydrochlorothiazide: 37.5 mg/25 mg 1–2 tablets/day (determined by individual titration with the components). Or, triamterene/hydrochlorothiazide: 75 mg/50 mg 1 tablet daily.

NEED TO KNOW

1. Do not use in clients receiving other potassium-sparing drugs such as amiloride and spironolactone.
2. Do not use in anuria, acute or chronic renal insufficiency, significant renal impairment, preexisting elevated serum potassium.
3. Geriatric clients may be more sensitive to the hypotensive and electrolyte effects of this combination; also, age-related decreases in renal function may require a decrease in dosage.
4. Take in the A.M. with food to minimize GI upset/nausea.
5. Persistent headaches, drowsiness, vomiting, restlessness, mental wandering, lethargy, and foul breath may be signs of uremia; report.
6. Avoid potassium supplements, salt substitutes that contain potassium, and foods high in potassium; drug is potassium-sparing.
7. Avoid direct sunlight for prolonged periods; may cause a photosensitivity reaction.

Trimethoprim and Sulfamethoxazole (try-METH-oh-prim, sul-fah-meh-THOX-ah-zohl)

C

Rx: Bactrim, Bactrim DS, Bactrim Pediatric, Cotrim, Cotrim DS, Cotrim Pediatric, Septra, Septra DS, Sulfatrim.

CLASSIFICATION(S): Antibiotic, combination

USES: PO, Parenteral: (1) UTIs due to *Escherichia coli*, *Klebsiella*, *Enterobacter*, *Pseudomonas mirabilis* and *vulgaris*, and *Morganella morganii*. (2) Enteritis due to *Shigella flexneri* or *S. sonnei*. (3) *Pneumocystis carinii* pneumonitis in children and adults. **PO:** (1) Acute otitis media in children due to *Haemophilus influenzae* or *Streptococcus pneumoniae*. (2) Traveler's diarrhea in adults due to *E. coli*. (3) Prophylaxis of *P. carinii* pneumonia in immunocompromised clients (including those with AIDS). (4) Acute exacerbations of chronic bronchitis in adults due to *H. influenzae* or *S. pneu-*

moniae. **Investigational:** Cholera, salmonella, nocardiosis, prophylaxis of recurrent UTIs in women, prophylaxis of neutropenic clients with *P. carinii* infections or leukemia clients to decrease incidence of gram-negative rod bacteremia. Treatment of acute and chronic prostatitis. Decrease chance of urinary and blood bacterial infections in renal transplant clients.

ACTION/KINETICS: Sulfamethoxazole inhibits bacterial synthesis of dihydrofolic acid by competing with para-aminobenzoic acid. Trimethoprim blocks the production of tetrahydrofolic acid by inhibiting the enzyme dihydrofolate reductase. Thus, this combination blocks two consecutive steps in the bacterial biosynthesis of essential nucleic acids and proteins. The combination is rapidly and completely absorbed after PO use. **Peak plasma levels, after PO:** 1–4 hr; **after IV:** 1–1.5 hr. Urine concentrations are considerably higher than serum levels. **Sulfamethoxazole, $t_{1/2}$, after PO:** 10–12 hr; **after IV:** 11.3 hr. **Trimethoprim, $t_{1/2}$, after PO:** 8–11 hr; **after IV:** 12.8 hr. $t_{1/2}$'s are increased significantly in those with severely impaired renal function. Sulfamethoxazole is metabolized to inactive compounds whereas trimethoprim is metabolized only to a small extent. Both are excreted through the kidneys.

SIDE EFFECTS: N&V, anorexia, rash, urticaria. **HEPATIC NECROSIS, PANCREATITIS, SEIZURES, AGRANULOCYTOSIS, APLASTIC ANEMIA, STEVENS-JOHNSON SYNDROME.**

DOSAGE: Double-Strength (DS) Tablets; Oral Suspension; Tablets

UTIs, shigellosis, bronchitis, acute otitis media.

Adults: 1 DS tablet (sulfamethoxazole, 800 mg, and trimethoprim, 160 mg per tablet), 2 tablets (sulfamethoxazole, 400 mg, and trimethoprim, 80 mg per tablet), or 4 teaspoonfuls (sulfamethoxazole, 200 mg, and trimethoprim, 40 mg/5 mL) of suspension q 12 hr for 10–14 days. **Children:** Total daily dose of 8 mg/kg trimethoprim and 40 mg/kg sulfamethoxazole divided equally and given q 12 hr for 10–14 days. (**NOTE:** For shigellosis, give adult or children's dose for 5 days.) For clients

with impaired renal function the following dosage is recommended: C_{CR} of 15–30 mL/min: One-half the usual regimen and for C_{CR} less than 15 mL/min: Use is not recommended.

Chancroid.

1 DS tablet twice a day for at least 7 days (alternate therapy: 4 DS tablets in a single dose).

Pharyngeal gonococcal infection due to penicillinase-producing Neisseria gonorrhoeae.

720 mg trimethoprim and 3,600 mg sulfamethoxazole once daily for 5 days.

Prophylaxis of P. carinii pneumonia.

Adults: 160 mg trimethoprim and 800 mg sulfamethoxazole q 24 hr. **Children:** 150 mg/m² of trimethoprim and 750 mg/m² sulfamethoxazole daily in equally divided doses twice a day on three consecutive days per week. Do not exceed a total daily dose of 320 mg trimethoprim and 1,600 mg sulfamethoxazole.

Treatment of P. carinii pneumonia.

Adults and children: Total daily dose of 15–20 mg/kg trimethoprim and 100 mg/kg sulfamethoxazole divided equally and given q 6 hr for 14–21 days.

Prophylaxis of P. carinii pneumonia in immunocompromised clients.

1 DS tablet daily

Traveler's diarrhea.

Adults: 1 DS tablet q 12 hr for 5 days.

Prostatitis, acute bacterial.

1 DS tablet twice a day until client is afebrile for 48 hr; treatment may be required for up to 30 days.

Prostatitis, chronic bacterial.

1 DS tablet twice a day for 4–6 weeks.

DOSAGE: IV

UTIs, shigellosis, acute otitis media.

Adults and children: 8–10 mg/kg/day (based on trimethoprim) in two to four divided doses q 6, 8, or 12 hr for up to 14

days for severe UTIs or 5 days for shigellosis. *NOTE:* Injection contains sulfamethoxazole, 80 mg, and trimethoprim 16 mg/mL.

Treatment of P. carinii pneumonia.

Adults and children: 15–20 mg/kg/day (based on trimethoprim) in 3–4 divided doses q 6–8 hr for up to 14 days.

NEED TO KNOW

1. Do not use in impaired liver or kidney function and in clients with possible folate deficiency.
2. AIDS clients may not tolerate or respond to this product.
3. Take with a full glass of water as directed.
4. Report any symptoms of persistent fever, inflammation/swelling of veins/lymph glands, N&V, rash, joint pain/swelling, mental disturbances or lack of response.
5. Consume 2.5–3 L of fluids/day to prevent crystalluria and dehydration.
6. May experience dizziness, use caution with activities that require mental alertness.
7. Avoid prolonged sun exposure.

Valsartan
(val-SAR-tan)
Rx: Diovan.

■ (First Two Trimesters) **C**
(Second and Third Trimesters) **D**

CLASSIFICATION(S): Antihypertensive, angiotensin II receptor blocker

USES: (1) Alone or in combination with other antihypertensives to treat hypertension in adults and children, 6–16 years of age. (2) Heart failure (NYHA class II to IV). (3) In clinically stable clients with left ventricular failure or left ventricular dysfunction following an MI; used to reduce CV mortality.

ACTION/KINETICS: Selectively blocks the binding of angiotensin II to the AT₁ receptor in vascular smooth muscle, resulting in a decrease in BP. Angiotensin II is a pressor agent causing vasoconstriction, stimulation of the synthesis and release of aldosterone, cardiac stimulation, and renal reabsorption of sodium. Also reduces left ventricular hypertrophy. About 25% bioavailable. Food decreases absorption. **Peak plasma levels:** 2–4 hr. **t_{1/2}:** 6 hr. Eliminated mostly unchanged in feces (83%) and urine (about 13%).

SIDE EFFECTS: Dizziness, anxiety, nervousness, abdominal pain, viral infection.

DOSAGE: Tablets

Hypertension.

Adults, initial: 80 or 160 mg once daily as monotherapy in clients who are not volume depleted. A higher dose may be used in those requiring greater reductions. **Dose range:** 80–320 mg once daily. If additional antihypertensive effect is needed, dose may be increased to 160 mg or 320 mg once daily or diuretic may be added (has greater effect when valsartan dose increases beyond 80 mg). **Children, 6–16 years of age, initial:** 1.3 mg/kg once daily, up to 40 mg total. Adjust dosage according to BP response. Doses higher than 2.7 mg/kg (up to 160 mg) once daily have not been studied in this age group.

Heart failure.

Adults, initial: 40 mg twice a day. Increase dose to 80 and 160 mg twice a day as tolerated. **Maximum daily dose:** 320 mg in divided doses. Consider dose reduction of concomitant diuretics. Concomitant use with both an ACE inhibitor and beta-blocker is not recommended.

Postmyocardial infarction.

Initial: 20 mg twice daily (may be started as early as 12 hr after an MI). Dose may be titrated upward within 7 days to 40 mg twice daily, with subsequent titrations to a target maintenance dose of 160 mg twice daily, as tolerated. May be given with other postmyocardial infarction treatment, including aspirin, beta-blockers, thrombolytics, and statins.

NEED TO KNOW

1. When used in pregnancy during the second and third trimesters, drugs that act directly on the renin-angiotensin system can cause injury and even death to the developing fetus.
2. May increase the death rate in clients also taking beta blockers and ACE inhibitors for CHF.
3. Give on an empty stomach.
4. Antihypertensive effect is usually seen within 2 weeks with maximum reduction after 4 weeks.
5. Change positions slowly and avoid dehydration to prevent sudden drop in BP and dizziness.
6. May experience headaches, coughing, diarrhea, nausea, and joint aches; report if persistent.

Valsartan and Hydrochlorothiazide (First Trimesters) **D**
(val-SAR-tan, hy-droh-klor-oh- (Second and Third Trimesters) **D**
THIGH-ah-zyd)
Rx: Diovan HCT.

CLASSIFICATION(S): Antihypertensive combination drug
USES: Treatment of hypertension. Not indicated for initial therapy.
ACTION/KINETICS: Valsartan selectively blocks the binding of angiotensin II to the AT₁ receptor in vascular smooth muscle, resulting in a decrease in BP. Angiotensin II is a pressor agent causing vasoconstriction, stimulation of the synthesis of and release of aldosterone, cardiac stimulation, and renal reabsorption of sodium. Also reduces left ventricular hypertrophy. Hydrochlorothiazide promotes the excretion of sodium and chloride, and thus water, by the distal renal tubule. Also increases excretion of potassium and to a lesser extent bicarbonate. The antihypertensive activity is thought to be due to direct dilation of the arterioles, as well as to a reduction in the total fluid volume of the body and altered sodium balance. **Valsartan.** Food decreases absorption. **Peak plasma levels:** 2–4 hr. **t_{1/2}:** 6 hr. Eliminated mostly unchanged in feces (83%) and urine (about 13%). **Hydrochlorothiazide. Onset:** 2 hr. **Peak effect:** 4–6 hr. **Duration:** 6–12 hr. **t_{1/2}:** 5.6–14.8 hr. Hydrochlorothiazide is not metabolized but is eliminated rapidly by the kidney.
SIDE EFFECTS: Nasopharyngitis, headache, dizziness, orthostatic hypotension, hypokalemia.

DOSAGE: Tablets

Hypertension.

Adults: Clients whose BP is not controlled using valsartan alone can be switched to Diovan HCT (80/12.5 mg, 160/12.5 mg, or 320/12.5 mg) once daily (Amount of valsartan is listed first.) If BP remains uncontrolled after 3–4 weeks, increase the dose of valsartan or both components. Clients whose BP is inadequately controlled by hydrochlorothiazide, 25 mg daily or is controlled but experiences hypokalemia, may be switched to

Diovan HCT (80/12.5 mg or 160/12.5 mg) once daily. If BP remains uncontrolled after 3–4 weeks, the dose may be increased up to a maximum of 320/25 mg. The maximal antihypertensive effect is reached in about 4 weeks after beginning therapy.

NEED TO KNOW

1. Do not use in those with anuria or hypersensitivity to other sulfonamide-derived drugs.
2. When used in pregnancy during the second and third trimesters, drugs that act directly on the renin-angiotensin system can cause injury and even death to the developing fetus. When pregnancy is detected, Diovan HCT should be discontinued as soon as possible.
3. Use with caution in those with impaired hepatic (including biliary obstructive disorders), or renal function or progressive liver disease (minor alterations of fluid and electrolyte balance may precipitate hepatic coma).
4. May increase the death rate in clients also taking beta blockers and ACE inhibitors for CHF.
5. Diovan HCT can be given to clients with impaired renal function as long as the C_{CR} is greater than 30 mL/min.
6. May take with or without food at the same time each day.
7. May experience dizziness. Change positions slowly to prevent sudden drop in BP (postural hypotension).
8. Report any unusual effects, changes in voiding patterns, swelling of the face, lips, or tongue, or lack of desired response. May experience headaches, coughing, diarrhea, nausea, and joint aches; report if persistent.
9. Avoid prolonged sun or UV exposure; may cause sensitivity reaction.

Venlafaxine Hydrochloride

(ven-lah-FAX-een)

Rx: Effexor, Effexor XR.



CLASSIFICATION(S): Antidepressant, miscellaneous

USES: (1) Major depressive disorder. (2) Treatment of generalized anxiety disorder, as defined in DSM-IV. Use extended-release capsules only. (3) Treatment of social anxiety disorder (social phobia), as defined in DSM-IV. Use extended-release capsules only. (4) Adults with panic disorder, with or without agoraphobia as defined in DSM-IV. Use extended-release capsules only.

ACTION/KINETICS: A potent inhibitor of the uptake of neuronal serotonin and norepinephrine in the CNS and a weak inhibitor of the uptake of dopamine. Has no anticholinergic, sedative, or orthostatic hypotensive effects. Metabolized in the liver by CYP2D6 and CYP3A4. Plasma levels of venlafaxine were higher in CYP2D6 poor metabolizers than extensive metabolizers. The major metabolite—O-desmethylvenlafaxine (ODV)—is active. The drug and metabolite are eliminated through the kidneys. $t_{1/2}$, **venlafaxine:** 5 hr; $t_{1/2}$, **ODV:** 11 hr. **Time to reach steady state:** 3–4 days. The half-life of the drug and metabolite are increased in clients with impaired liver or renal function. Food has no effect on the absorption of venlafaxine.

SIDE EFFECTS: Nausea, headache, somnolence, dizziness, insomnia, nervousness, anxiety, constipation, asthenia, dry mouth, abnormal ejaculation/orgasm, sweating. **SEIZURES, SUICIDE ATTEMPTS/IDEATION, SEROTONIN SYNDROME: DEATH, RECTAL HEMORRHAGE, UTERINE HEMORRHAGE, VAGINAL HEMORRHAGE.**

DOSAGE: Tablets, Immediate-Release

Major depressive disorder.

Adults, initial: 75 mg/day given in two or three divided doses. Depending on the response, the dose can be increased to 150–225 mg/day in divided doses. Make dosage increments up to 75 mg/day at intervals of 4 or more days. Severely depressed clients may require 375 mg/day in divided doses.

Maintenance: Periodically assess client to determine the need for maintenance treatment and the appropriate dose.

DOSAGE: Capsules, Extended-Release

Major depressive disorder.

Adults, initial: 75 mg as a single dose once daily in the morning or evening at about the same time each day. For some clients it may be desirable to start at 37.5 mg/day for 4–7 days to allow adjustment to the drug before increasing to 75 mg/day. Dose can be increased by up to 75 mg no more often than every 4 days, to a maximum of 225 mg/day.

Generalized/social anxiety disorder.

Initial, usual: 75 mg/day as a single dose; if necessary, the dose may be increased to 225 mg/day. Increase in increments of up to 75 mg/day at intervals of not less than 4 days. To avoid overstimulation, some may need to start with 37.5 mg/day. Take on a daily basis not on an as-needed basis.

Maintenance: Periodically reassess the need for continuing the medication.

Panic disorder.

Initial, usual: 37.5 mg per day for 7 days, followed by doses of 75 mg per day and subsequent weekly dose increases of 75 mg per day to a maximum dose of 225 mg per day.

Hot flushes in otherwise healthy postmenopausal women.
75 mg/day.

NEED TO KNOW

1. Do not use with an MAO inhibitor or within 14 days of discontinuation of an MAO inhibitor.
2. Antidepressants increased the risk of suicidal thinking and behavior (suicidality) in short-term studies in children, adolescents, and young adults with major depressive disorder and other psychiatric disorders.
3. Use with caution with impaired hepatic (e.g., cirrhosis) or renal (GFR = 10–70 mL/min) function, in clients with a history of

mania, and in those with diseases or conditions that could affect the hemodynamic responses or metabolism.

4. Clinical worsening and suicide risk is possible in both adults and children with major depressive disorder.
5. Infants exposed to venlafaxine during the third trimester of pregnancy may develop complications requiring prolonged hospitalization, respiratory support, and tube feeding; carefully consider the potential risks and benefits of treatment and consider tapering the medication in the third trimester.
6. Take with food.
7. Reduce dose by at least 50% in those with severe hepatic impairment; further dose reduction may be needed. Reduce dose by 50% with moderate hepatic impairment and by 25–50% with mild to moderate renal impairment.
8. When discontinuing after 1 week or more of therapy, taper dose to minimize risk of withdrawal syndrome. If drug has been taken for 6 weeks or more, taper dose gradually over a 2-week period.
9. Abrupt discontinuation or dose reduction of venlafaxine (at various doses) may be associated with the appearance of new symptoms (frequency increased with increased dose level and with longer duration of treatment). Symptoms include agitation, anorexia, anxiety, confusion, impaired coordination, diarrhea, dizziness, dry mouth, dysphoric mood, fasciculation, fatigue, headaches, hypomania, insomnia, nausea, nervousness, nightmares, sensory disturbances (including shock-like electrical sensations), somnolence, sweating, tremor, vertigo, and vomiting.
10. Do not perform activities that require mental alertness until drug effects realized; may cause dizziness or drowsiness. Avoid alcohol and any unprescribed or OTC preparations.
11. Due to the possibility of suicide, high-risk clients should be observed closely during initial therapy.
12. May take several weeks to notice any improvement in symptoms.

Warfarin Sodium (WAR-far-in)



Rx: Coumadin, Jantoven.

CLASSIFICATION(S): Anticoagulant, coumarin derivative

USES: PO or IV. 1) Prophylaxis and treatment of venous thrombosis and its extension. (2) Prophylaxis and treatment of the thromboembolic complications associated with atrial fibrillation and/or cardiac valve replacement. (3) Prophylaxis and treatment of pulmonary embolism. (4) Reduce the risk of death, recurrent MI, and thromboembolic events such as stroke or systemic embolization after MI.

ACTION/KINETICS: Interferes with synthesis of vitamin K–dependent clotting factors resulting in depletion of clotting factors II, VII, IX, and X and the anticoagulant proteins C and S. Has no direct effect on an established thrombus although therapy may prevent further extension of a formed clot as well as secondary thromboembolic problems. Food affects the rate (but not the extent) of absorption. **Peak concentrations:** 4 hr. The anticoagulant effect usually occurs within 24 hr after drug administration but peak anticoagulant effect may be delayed 3–4 days. **Duration, after single dose:** 2–5 days. **t_{1/2}:** 1–2.5 days. Metabolized in the liver by CYP–450 enzymes (including 2C9, 2C19, 2C8, 2C18, 1A2, and 3A4); inactive metabolites are excreted through the urine and feces. **t_{1/2}, terminal:** 1 week but the effective half–life ranges from 20–60 hr.

SIDE EFFECTS: Bleeding/hemorrhage.

DOSAGE: IV; Tablets

All uses.

Individualize based on PT/INR response. An INR of more than 4 probably does not provide additional therapeutic benefit in most clients and is associated with a higher risk of bleeding.

Adults, initial: 2–5 mg per day; **then,** adjust dose based on

prothrombin or INR determinations. A lower dose should be used in geriatric or debilitated clients or clients with genetic variations in CYP2C9 and VKORC1 enzymes. Dosage has not been established for children. **Maintenance:** 2–10 mg per day for most clients. Determine individual dose by PT response. Lower maintenance doses are recommended for elderly and/or debilitated clients and in those with a potential to show greater than expected PT/INR response to warfarin.

NEED TO KNOW

1. Do not use in pregnancy, hemorrhagic tendencies, or blood dyscrasias; recent or contemplated surgery of the CNS, eye, or traumatic surgery resulting in large open surfaces; bleeding tendencies associated with active ulceration or overt bleeding of the GI, GU, or respiratory tracts; CV hemorrhage; aneurysms—cerebral, dissecting aorta; pericarditis and pericardial effusions, or bacterial endocarditis; threatened abortion, eclampsia and preeclampsia; inadequate laboratory facilities; unsupervised clients with senility, alcoholism, or psychosis or other lack of client cooperation; spinal puncture and other diagnostic or therapeutic procedures with potential for uncontrollable bleeding; major regional, lumbar block anesthesia, malignant hypertension; known hypersensitivity to warfarin or to any component of the product.
2. Warfarin can cause major or fatal bleeding. Bleeding is more likely to occur during the starting period and with a higher dose (resulting in a higher INR).
3. Those at high risk of bleeding may benefit from more frequent INR monitoring, careful dose adjustment to desired INR, and a shorter duration of therapy.
4. Anticoagulant use in the following clients leads to increased risk: Trauma, infection, renal insufficiency, sprue, vitamin K deficiency, severe to moderate hypertension, polycythemia vera, severe allergic disorders, vasculitis, indwelling catheters, severe diabetes, anaphylactic disorders, surgery or trauma resulting in large exposed raw surfaces.
5. Warfarin is responsible for more adverse drug interactions

than any other group. Clients on anticoagulant therapy must be monitored carefully each time a drug is added or withdrawn. Monitoring usually involves determination of PT or INR.

6. Doubling the daily dose to make up for the missed dose is not appropriate.
7. Do not change brands; may be differences in bioavailability.
8. The anticoagulant effect of warfarin is delayed. Thus, heparin is preferred initially for rapid anticoagulation.
9. Clients who require reversal of the anticoagulant effect of warfarin for an urgent procedure should be given low dose vitamin K, 2.5 to 5 mg IV or PO.
10. Give as slow bolus over 1–2 min into peripheral vein. Do not give IM.
11. Take oral warfarin as prescribed and at the same time each day. Avoid eating large amounts of grapefruit or drinking grapefruit or cranberry juice.
12. Report immediately unusual bruising/bleeding, dark brown or blood-tinged body secretions, injury or trauma, dizziness, abdominal pain or swelling, back pain, severe headaches, and joint swelling and pain.
13. Check prior to taking any OTC drugs that have anticoagulant-type effects such as salicylates, NSAIDS, steroids, vitamin K, mineral preparations from health food stores, vitamins, herbal teas, herbals, alcohol.
14. Elderly are more prone to developing bleeding complications.

Zolpidem Tartrate (ZOL-pih-dem)

(Immediate-Release) **B**

(Extended-Release) **C**

Rx: Ambien, Ambien CR, Tovalt ODT, **C-IV.**

CLASSIFICATION(S): Sedative-hypnotic, nonbenzodiazepine

USES: Immediate-Release Tablets: Short-term treatment of insomnia (7–10 days of use). Re-evaluate if hypnotics are to be taken

for more than 2–3 weeks. **Extended-Release/Orally Disintegrating Tablets:** Treatment of insomnia characterized by difficulties with sleep onset and/or sleep maintenance.

ACTION/KINETICS: May act by subunit modulation of the GABA receptor chloride channel macromolecular complex resulting in sedative, anticonvulsant, anxiolytic, and myorelaxant properties. Specifically, it binds to the omega-1 receptor preferentially. No evidence of residual next-day effects or rebound insomnia at usual doses; little evidence for memory impairment. Rapidly absorbed from the GI tract. **$t_{1/2}$, elimination, immediate-release:** About 2.5 hr (increased in geriatric clients and those with impaired hepatic function). **$t_{1/2}$ elimination, orally disintegrating:** 3.5 hr (nighttime dosing). **$t_{1/2}$, elimination, extended-release:** 2.8 hr. Food decreases the bioavailability of zolpidem. Metabolized in the liver; inactive metabolites are excreted primarily through the urine.

SIDE EFFECTS: Immediate-Release/Oral Disintegrating: Dizziness, drowsiness, drugged feeling, headache, nausea, diarrhea, dyspepsia, myalgia, URTI. **Extended-Release:** Headache, somnolence, dizziness, nausea, diarrhea, nasopharyngitis.

DOSAGE: Tablets, Immediate-Release; Tablets, Orally Disintegrating

Hypnotic.

Adults, individualized, usual: 10 mg just before bedtime. In the elderly or in hepatic insufficiency, use an initial dose of 5 mg.

DOSAGE: Tablets, Extended-Release

Hypnotic.

Individualize dose. **Adults:** 12.5 mg just before bedtime. For elderly or debilitated clients, give 6.25 mg just before bedtime.

NEED TO KNOW

1. Use with caution and at reduced dosage in clients with impaired hepatic function, in compromised respiratory function,

- in those with impaired renal function, and in clients with S&S of depression.
2. Impaired motor or cognitive performance after repeated use or unusual sensitivity to hypnotic drugs may be noted in geriatric or debilitated clients.
 3. Limit therapy to 7–10 days.
 4. Take only as directed, whole, on an empty stomach with a full glass of water just before going to bed. For faster sleep onset, do not administer with or immediately after a meal.
 5. Do not take zolpidem unless planning to get 7 to 8 hr of sleep before being active again; less than 7 to 8 hr of sleep may result in daytime drowsiness, amnesia, or memory problems.
 6. Do not perform any activities that require mental or physical alertness until drug effects realized. Evaluate response the following day to ensure that no residual effects are present.
 7. Avoid alcohol, caffeine, sodas, chocolate after 4 p.m.
 8. Those with depression are at a higher risk for suicide or intentional overdose.
 9. May be habit forming.
 10. Sleep may be disturbed for 1–2 nights following discontinuation of zolpidem therapy. If medication discontinued after 2 or more weeks of nightly use, will need to be slowly withdrawn.

APPENDIX 1

Pregnancy Categories: FDA Assigned

The U.S. Food and Drug Administration's use-in-pregnancy rating system weighs the degree to which available information has ruled out risk to the fetus against the drug's potential benefit to the patient. The ratings, and their interpretation, are as follows:

Category	Interpretation
A	CONTROLLED STUDIES SHOW NO RISK. Adequate, well-controlled studies in pregnant women have failed to demonstrate a risk to the fetus in any trimester of pregnancy.
B	NO EVIDENCE OF RISK IN HUMANS. Either animal studies show risk but human findings do not, or if no adequate human studies have been done, animal findings are negative.
C	RISK CANNOT BE RULED OUT. Human studies are lacking, and animal studies are either positive for fetal risk or lacking. However, potential benefits may justify the potential risks.
D	POSITIVE EVIDENCE OF RISK. Investigational or post-marketing data show risk to the fetus. However, potential benefits may outweigh the potential risks. If needed in a life-threatening situation or serious disease, the drug may be acceptable if safer drugs cannot be used or are ineffective.
X	CONTRAINDICATED IN PREGNANCY. Studies in animals or humans, or investigational or post-marketing reports, have demonstrated positive evidence of fetal abnormalities or risk which clearly outweigh any possible benefit to the patient.

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Boldface = generic drug name

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Phenergan (Promethazine Hydrochloride)	190	Promethegan (Promethazine Hydrochloride)	190
Pioglitazone Hydrochloride (Actos)	178	Propacet 100 (Propoxyphene Napsylate/Acetaminophen)	195
Plavix (Clopidogrel Bisulfate)	63	Propoxyphene Napsylate and Acetaminophen (Darvocet A 500, Darvocet-N 50, Darvocet-N 100, Propacet 100, Trycet)	195
Potasalan (Potassium Salts)	181	Proquin XR (Ciprofloxacin Hydrochloride)	51
Potassium Chloride (K-Lease)	181	Proventil (Albuterol)	7
Potassium Chloride for Injection Concentrate (Potassium Salts)	181	Proventil HFA (Albuterol)	7
Pravachol (Pravastatin Sodium)	184	Prozac (Fluoxetine Hydrochloride)	99
Pravastatin Sodium (Pravachol)	184	Prozac Pulvules (Fluoxetine Hydrochloride)	99
Prednisone (Prednisone Intensol Concentrate, Sterapred, Sterapred DS)	186	Prozac Weekly (Fluoxetine Hydrochloride)	99
Prednisone Intensol Concentrate (Prednisone)	186	Q-Pap (Acetaminophen)	1
Pregabalin (Lyrica)	188	Quetiapine Fumarate (Seroquel, Seroquel XR)	197
Premarin (Estrogens Conjugated)	87	Quick Melts Children's Non-Aspirin (Acetaminophen)	1
Premarin Intravenous (Estrogens Conjugated)	87	Quixin (Levofloxacin)	130
Premarin Vaginal Cream (Estrogens Conjugated)	87	Ranitidine Hydrochloride (Zantac)	199
Prevacid (Lansoprazole)	127	Revatio (Sildenafil Citrate)	209
Prevacid IV (Lansoprazole)	127		
Prilosec (Omeprazole)	167		

Riomet (Metformin Hydrochloride) ...	150	Tamsulosin Hydrochloride (Flomax) ..	214
Rosuvastatin Calcium (Crestor)	203	Ten-K (Potassium Salts)	181
Roxicet (Oxycodone and Acetaminophen)	172	Tenormin (Atenolol)	33
Roxicet 5/500 Capsules (Oxycodone and Acetaminophen)	172	T-Gesic (Hydrocodone Bitartrate and Acetaminophen)	117
Roxicodone (Oxycodone Hydrochloride)	170	Thyro-Tabs (Levothyroxine Sodium) ..	134
Roxicodone Intensol (Oxycodone Hydrochloride)	170	Tirosint (Levothyroxine Sodium)	134
Roxilox (Oxycodone and Acetaminophen)	172	Toprol XL (Metoprolol)	156
Sarafem Pulvules (Fluoxetine Hydrochloride)	99	Tovait ODT (Zolpidem Tartrate)	234
Sepra (Trimethoprim and Sulfamethoxazole)	221	Tramadol Hydrochloride (Ultram, Ultram ER)	215
Sepra DS (Trimethoprim and Sulfamethoxazole)	221	Trazodone Hydrochloride	218
Seroquel (Quetiapine Fumarate)	197	Triaminic Allerchews (Loratidine)	141
Seroquel XR (Quetiapine Fumarate) ..	197	Triamterene and Hydrochlorothiazide (Dyazide, Maxzide, Maxzide-25 MG)	219
Sertraline Hydrochloride (Zoloft)	205	Tri-Buffered Bufferin Caplets and Tablets (Aspirin)	29
Silapap (Acetaminophen)	1	Tricor (Fenofibrate)	94
Sildenafil Citrate (Revatio, Viagra)	209	Triglide (Fenofibrate)	94
Simvastatin (Zocor)	211	Trimethoprim and Sulfamethoxazole (Bactrim, Bactrim DS, Bactrim Pediatric, Cotrim, Cotrim DS, Cotrim Pediatric, Septra, Septra DS, Sulfatrim)	221
Singular (Montelukast Sodium)	161	Trimox (Amoxicillin)	21
Solu-Medrol (Methylprednisolone) ...	154	Trycet (Propoxyphene Napsylate/ Acetaminophen)	195
Soma (Carisoprodol)	41	Tylenol (Acetaminophen)	1
Stagesic (Hydrocodone Bitartrate and Acetaminophen)	117	Tylenol with Codeine (Acetaminophen/Codeine Phosphate)	6
Sterapred (Prednisone)	186	Tylox (Oxycodone and Acetaminophen)	172
Sterapred DS (Prednisone)	186	Ultram (Tramadol Hydrochloride)	215
St. Joseph Adult Chewable Aspirin (Aspirin)	29	Ultram ER (Tramadol Hydrochloride) ..	215
Sulfatrim (Trimethoprim and Sulfamethoxazole)	221		
Synthroid (Levothyroxine Sodium) ...	134		

UN-Aspirin (Acetaminophen)	1	Xodol (Hydrocodone Bitartrate and Acetaminophen)	117
Unithroid (Levothyroxine Sodium)	134	Zantac (Ranitidine Hydrochloride)	199
Valium (Diazepam)	66	Zantac 75 Acid Reducer (Ranitidine Hydrochloride)	199
Valorin (Acetaminophen)	1	Zantac 150 Maximum Strength Acid Reducer (Ranitidine Hydrochloride)	199
Valsartan (Diovan)	225	Zantac EFFERdose (Ranitidine Hydrochloride)	199
Valsartan and Hydrochlorothiazide (Diovan HCT)	227	Zestoretic (Lisinopril/ Hydrochlorothiazide)	139
Various generic products (Ibuprofen)	121	Zestril (Lisinopril)	137
Vasotec (Enalapril Maleate)	79	Zetia (Ezetimibe)	90
Venlafaxine Hydrochloride (Effexor, Effexor XR)	229	Zithromax (Azithromycin)	37
Ventolin (Albuterol)	7	Zmax (Azithromycin)	37
Ventolin HFA (Albuterol)	7	Zocor (Simvastatin)	211
Veramyst (Fluticasone)	103	Zoloft (Sertraline Hydrochloride)	205
Viagra (Sildenafil Citrate)	209	Zolpidem Tartrate (Ambien, Ambien CR, Tovalt ODT)	234
Vibramycin (Doxycycline)	71	ZORprin (Aspirin)	29
Vibra-Tabs (Doxycycline)	71	Zydone (Hydrocodone Bitartrate and Acetaminophen)	117
Vicodin (Hydrocodone Bitartrate and Acetaminophen)	117	Zyloprim (Allopurinol)	13
Vicodin ES (Hydrocodone Bitartrate and Acetaminophen)	117	Zyrtec Allergy (Cetirizine Hydrochloride)	50
Vicodin HP (Hydrocodone Bitartrate and Acetaminophen)	117	Zyrtec Children's Allergy (Cetirizine Hydrochloride)	50
Vopac (Acetaminophen/Codeine Phosphate)	6	Zyrtec Children's Hives Relief (Cetirizine Hydrochloride)	50
VoSpire ER (Albuterol)	7	Zyrtec Hives Relief (Cetirizine Hydrochloride)	50
Vytorin 10/10, 10/20, 10/40, or 10/80 (Ezetimibe/Simvastatin)	92		
Warfarin Sodium (Coumadin, Jantoven)	232		
Xanax (Alprazolam)	16		
Xanax XR (Alprazolam)	16		