

**CARDIOVASCULAR DRUGS**

**Antihypertensives**

Ace Inhibitors ..... 2  
 Beta Blockers ..... 2  
 Calcium Channel Blockers ..... 3  
 Vasodilators ..... 4

**Antiarrhythmic Agents**

Class III Antiarrhythmic ..... 5  
 Digitalis ..... 5

**Antihyperlipidemics**

Statins ..... 6

**Diuretics**

Loop Diuretics ..... 7  
 K+ Sparing Diuretics ..... 7  
 Thiazides ..... 8

**Anticoagulants/Antiplatelets**

Warfarin ..... 9  
 Direct-acting Oral Anticoagulants (DOACs)..... 9  
 Heparin ..... 10  
 Antiplatelet Drugs ..... 10

**CENTRAL NERVOUS SYSTEM DRUGS**

**Analgesics**

Non-Opioids ..... 11  
 NSAIDs ..... 11  
 Opioids ..... 12  
 Muscle Relaxants ..... 12

**Anxiolytics & Mood-Stabilizers**

Anxiolytics ..... 13  
 Selective Serotonin Reuptake Inhibitors (SSRIs) ... 13

**CENTRAL NERVOUS SYSTEM DRUGS (CONTINUED)**

**Other**

Antiepileptics..... 14  
 Antiparkinson ..... 14  
 Antipsychotics..... 15

**UPPER GASTROINTESTINAL SYSTEM DRUGS**

Antiemetics ..... 16  
 Proton Pump Inhibitors ..... 16  
 H2 Histamine Blockers ..... 16

**LOWER GASTROINTESTINAL SYSTEM DRUGS**

Laxatives ..... 17

**RESPIRATORY SYSTEM DRUGS**

Bronchodilators..... 18  
 Inhaled Corticosteroids..... 18

**SYSTEMIC DRUGS**

**Anti-Inflammatory Medications**

Corticosteroids ..... 19  
 Uric Acid Reducers..... 19

**Anti-Infectives**

Broad-spectrum Antibiotics..... 20  
 Antibiotics ..... 21  
 Antifungals..... 22

**Miscellaneous**

Antihistamines ..... 22  
 Electrolytes..... 23  
 Hormones..... 23

**References** ..... 24

## Cardiovascular Drugs — Antihypertensives

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ACE INHIBITORS</b>	captopril (Capoten) enalapril (Vasotec) lisinopril (Prinivil, Zestril)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>hypertension</li> <li>heart failure</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>pregnancy</li> <li>history of angioedema</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>black patients are at increased risk of angioedema</li> <li>ischemic heart disease</li> <li>renal dysfunction</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>cough</li> <li>hypotension</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>angioedema</li> <li>acute renal failure</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain BP before administering; notify provider if SBP &lt;90</li> <li>Renal/liver function</li> <li>Serum electrolytes</li> <li>Signs of angioedema of the face, lips, throat or intestines</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>These are PO medications only</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Change position slowly to prevent orthostatic hypotension</li> </ul>
<b>BETA BLOCKERS</b>	atenolol (Tenormin) metoprolol (Lopressor) propranolol (Inderal)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>hypertension</li> <li>heart failure</li> <li>angina pectoris</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>decompensated heart failure</li> <li>severe bradycardia <ul style="list-style-type: none"> <li>» 2nd or 3rd-degree heart block</li> </ul> </li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>bradycardia</li> <li>diabetes</li> <li>liver disease</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>bradycardia</li> <li>hypotension</li> <li>dizziness</li> <li>fatigue</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>bradycardia</li> <li>heart failure</li> <li>hypoglycemia</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain BP before administering; notify provider if SBP &lt;90</li> <li>Obtain HR before administering; hold typically if HR &lt;60</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>If given intravenously, patient should be on a cardiac monitor</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Change position slowly, especially with elderly, to prevent orthostatic changes</li> <li>Monitor blood glucose carefully if diabetic as beta-blockers may mask symptoms of hypoglycemia</li> <li>Do not discontinue this drug abruptly</li> </ul>

## Cardiovascular Drugs — Antihypertensives [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>CALCIUM CHANNEL BLOCKERS</b>	amlodipine (Norvasc) diltiazem (Cardizem) nifedipine (Procardia) verapamil (Calan)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>hypertension</li> <li>stable angina</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>symptomatic hypotension</li> <li>heart blocks</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>severe aortic stenosis</li> <li>hepatic impairment</li> <li>elderly patients</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>edema, especially in the feet</li> <li>abdominal pain, nausea, fatigue</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>Cardiac arrhythmias</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain BP and HR before administering; notify provider if SBP &lt;90</li> <li>Presence of peripheral edema</li> <li>Liver and kidney function</li> <li>Serum electrolytes</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Intravenous administration of drips requires additional monitoring (frequent vitals, cardiac monitoring)</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Change position slowly, especially with elderly, to prevent orthostatic changes</li> </ul>

Cardiovascular Drugs — Antihypertensives continued >

## Cardiovascular Drugs — Antihypertensives [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>VASO-DILATORS</b>	hydralazine (Apresoline) isosorbide (Imdur) nitroglycerine (Minitran, Nitrostat, Nitrotab)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>hypertension</li> <li>angina pectoris</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>coronary artery disease</li> <li>mitral valve disease</li> <li>cardiomyopathies</li> <li>nitroglycerin should not be used for patients with increased intracranial pressure</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>valve disease</li> <li>history of stroke</li> <li>renal disease</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>diarrhea, loss of appetite, nausea, vomiting</li> <li>headache</li> <li>dizziness</li> <li>hypotension</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>hypotension</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain BP and HR before administering; notify provider if SBP &lt;90</li> <li>Presence/resolution of chest pain</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Nitrate patches must be taken off at night and reapplied in the morning — do not leave on overnight</li> <li>Intravenous nitroglycerin — use vented, low-sorb tubing</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Dangerously low blood pressure can result if patients are taking nitroglycerin or other nitrates with erectile dysfunction medications</li> <li>Tolerance to nitroglycerin may develop with excessive use</li> <li>Do not discontinue these medications suddenly</li> <li>Avoid alcohol (may increase risk of hypotension)</li> <li>Treat headaches with aspirin or acetaminophen</li> </ul>

## Cardiovascular Drugs — Antiarrhythmic Agents

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>CLASS III ANTI-ARRHYTHMIC</b>	amiodarone (Cordarone) dofetilide (Tikosyn) sotalol (Betapace)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>ventricular arrhythmias</li> <li>atrial fibrillation</li> <li>atrial flutter</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>heart blocks</li> <li>long QT syndrome</li> <li>severe bradycardia</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>elderly patients</li> <li>bradycardia</li> <li>hypotension</li> <li>thyroid abnormalities</li> <li>hepatic failure</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>dizziness</li> <li>lightheadedness</li> <li>fatigue</li> <li>bradycardia</li> <li>hypotension</li> <li>shortness of breath</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>severe bradycardia</li> <li>prolonged QT interval</li> <li>heart block</li> <li>pulmonary fibrosis/toxicity</li> <li>hypo- or hyper-thyroidism</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain heart rate before administering; notify provider if HR &lt;60</li> <li>QT interval</li> <li>Signs of pulmonary toxicity (crackles, decreased lung sounds, pleuritic chest pain)</li> <li>Signs of neurotoxicity (ataxia, muscle weakness, tingling, tremors)</li> <li>Signs of thyroid dysfunction (hypo: lethargy, weight gain, edema; hyper: tachycardia, weight loss, nervousness)</li> <li>Liver and thyroid labs</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Patients receiving IV antiarrhythmic medications should be on a cardiac monitor</li> <li>Use low-sorb filter tubing with amiodarone</li> <li>Obtain EKG after each dose of PO dofetilide for the first five doses</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Do not discontinue medication abruptly</li> <li>Notify provider if taking any new medications, due to numerous drug interactions</li> </ul>
<b>DIGITALIS</b>	digoxin (Lanoxin)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>atrial fibrillation</li> <li>heart failure</li> <li>ventricular rate control</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>ventricular fibrillation</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>elderly patients</li> <li>renal impairment</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>fatigue</li> <li>bradycardia</li> <li>anorexia, nausea, vomiting</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>cardiac arrhythmias</li> <li>digoxin toxicity</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess apical pulse for a full minute before giving; hold for HR &lt;60</li> <li>Electrolytes</li> <li>Serum digoxin levels</li> <li>Renal function</li> <li>Signs of toxicity (abdominal pain, confusion, weakness, anorexia, nausea and vomiting, bradycardia, visual changes — blurred vision, green/yellow color disturbances)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Parental administration is rarely used</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Report symptoms of digoxin toxicity</li> <li>This medication can increase the risk for falls</li> </ul>

## Cardiovascular Drugs — Antihyperlipidemics

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>STATINS</b>	atorvastatin (Lipitor) lovastatin (Mevacor) rosuvastatin (Crestor) simvastatin (Zocor)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>hyperlipidemia</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>acute liver disease</li> <li>pregnancy</li> <li>breastfeeding</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>elderly patients</li> <li>renal failure</li> <li>liver failure</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>diarrhea, abdominal pain, constipation</li> <li>muscle or joint pain</li> <li>nasopharyngitis</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>rhabdomyolysis</li> <li>hepatotoxicity</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Lipid panel</li> <li>Liver function</li> <li>Serum creatine kinase</li> <li>Presence of muscle pain</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Simvastatin should be taken in the evening</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Avoid alcohol while taking this medication</li> <li>Immediately report unexplained muscle pain, tenderness, or weakness</li> <li>Consult provider before starting new medications, due to numerous drug interactions</li> </ul>

## Cardiovascular Drugs — Diuretics

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>LOOP DIURETICS</b>	furosemide (Lasix) budesonide (Bumex) torsemide (Demadex)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>edema associated with heart failure, renal failure, and cirrhosis of the liver</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>anuria</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>electrolyte imbalances</li> <li>renal failure</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>electrolyte imbalances</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>hypotension</li> <li>severe electrolyte imbalances may result in cardiac arrhythmias</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain BP before administering; notify provider if BP &lt;90</li> <li>Potassium is the electrolyte that is most quickly depleted — assess for signs of hypokalemia (weakness, fatigue, increased PVCs on cardiac monitor)</li> <li>Serum potassium, sodium, and magnesium levels</li> <li>Urine output and kidney function (creatinine, BUN, GFR)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Rapid administration of IV doses can result in ototoxicity</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Change position slowly, especially with elderly, to prevent orthostatic changes</li> <li>This drug will cause increased urine output</li> </ul>
<b>K+ SPARING DIURETICS</b>	spironolactone (Aldactone)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>edema associated with liver failure, heart failure, or hypertension</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>Addison disease</li> <li>hyperkalemia</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>renal failure</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>gynecomastia</li> <li>diarrhea, nausea, vomiting</li> <li>somnolence</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>electrolyte imbalances, (especially hyperkalemia)</li> <li>hepatotoxicity</li> <li>nephrotoxicity</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain BP before administering; notify provider if BP &lt;90</li> <li>Monitor urine output and reduction in edema</li> <li>Serum potassium levels</li> <li>Renal function</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Avoid use of potassium supplements</li> <li>Use PPE when handling tablets or crushing pills</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Avoid high potassium foods, including salt substitutes</li> <li>Take this medication consistently with food</li> <li>This drug will cause increased urine output</li> </ul>

Cardiovascular Drugs — Diuretics continued >

## Cardiovascular Drugs — Diuretics [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>THIAZIDES</b>	chlorothiazide (Diuril) chlorthalidone (Thalitone) hydrochlorothiazide (HCTZ, Microzide) metolazone (Zaroxolyn)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>edema</li> <li>hypertension</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>anuria</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>renal failure</li> <li>liver failure</li> <li>if taking lithium</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>photosensitivity</li> <li>hyperglycemia</li> <li>diarrhea, loss of appetite, nausea, vomiting</li> <li>dizziness</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>electrolyte imbalances</li> <li>hepatotoxicity</li> <li>renal failure</li> <li>pulmonary edema</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Obtain BP before administering; notify provider if SBP &lt;90</li> <li>I&amp;O and/or daily weight</li> <li>Presence/resolution of edema</li> <li>Serum electrolytes</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Thiazides interact with many other medications</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Notify provider before beginning any new drug or supplement</li> <li>This drug will cause increased urine output</li> </ul>

## Cardiovascular Drugs — Anticoagulants/Antiplatelets

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>WARFARIN</b>	warfarin (Coumadin)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>prevention of blood clots for patients with atrial fibrillation</li> <li>pulmonary embolism</li> <li>venous thromboembolism</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hemorrhage</li> <li>recent or potential surgery or other procedure with potential for bleeding</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>vitamin K deficiency</li> <li>diabetes</li> <li>elderly patients</li> <li>renal impairment</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>minor bleeding or prolonged bleeding time</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>GI bleeding</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess for signs of bleeding before administering this medication</li> <li>Most recent INR (therapeutic range is most often 2-3)</li> <li>Signs of bleeding (black, tarry, or maroon stool, bruising, hematuria, bleeding gums)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Use proper procedures for handling potentially hazardous drugs</li> <li>If giving via feeding tube, pause the tube feeding as directed by pharmacy</li> <li>This medication is typically given in the evenings so that INR can be drawn and dose adjustments can be made before the next dose</li> <li>Vitamin K is the reversal agent for warfarin</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Immediately report signs of bleeding</li> <li>Immediately report any falls, especially if a fall results in hitting the head</li> <li>Avoid large amounts of foods containing Vitamin K (such as leafy greens)</li> </ul>
<b>DIRECT-ACTING ORAL ANTI-COAGULANTS (DOACs)</b>	apixaban (Eliquis) dabigatran (Pradaxa) rivaroxaban (Xarelto)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>prevention of thrombus formation</li> <li>DVT</li> <li>pulmonary embolism</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>active bleeding</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>before procedures that may cause bleeding</li> <li>hepatic failure</li> <li>ESRD</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>minor bleeding or prolonged bleeding time</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>GI bleeding</li> <li>intracranial bleeding</li> <li>hematuria</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess for signs of bleeding before administering this medication</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>May be taken with or without food</li> <li>Medication may be crushed and administered in a puree or via a feeding tube</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Notify providers that you are taking this medication, especially if invasive procedures are ordered</li> <li>Do not discontinue this medication abruptly</li> <li>There are multiple significant drug interactions for DOACs; consult with provider before starting new medications</li> <li>Report signs/symptoms of bleeding</li> </ul>

## Cardiovascular Drugs — Anticoagulants/Antiplatelets [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>HEPARIN</b>	heparin enoxaparin (Lovenox)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>atrial fibrillation</li> <li>DIC</li> <li>Venous thromboembolism prophylaxis or treatment</li> <li>Venous catheter occlusion</li> <li>warfarin bridging</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>severe thrombocytopenia</li> <li>uncontrolled active bleeding</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>severe hypertension</li> <li>history of thrombocytopenia</li> <li>hepatic disease</li> <li>major surgery</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>thrombocytopenia</li> <li>increased liver amino-transferase level</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>heparin-induced thrombocytopenia (HIT)</li> <li>anemia</li> <li>thrombocytopenia</li> <li><b>bleeding</b></li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess for signs of bleeding before administering this medication</li> <li>Heparin aPTT or AntiXa labs for dose titration for patients on GTTs</li> <li>Platelets</li> <li>INR (if bridging to warfarin)</li> <li>Hgb and hematocrit</li> <li>Liver function</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Heparin can be administered intravenously or subcutaneously (never orally)</li> <li>Enoxaparin is administered subcutaneously — avoid the umbilicus area</li> <li>Do not remove air bubble from prefilled enoxaparin syringes</li> <li>Heparin lock flush should not be used for anticoagulation</li> <li>Protamine sulfate is the reversal agent for heparin</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Rotate injection sites</li> <li>Report signs of bleeding or thrombocytopenia</li> </ul>
<b>ANTI-PLATELET DRUGS</b>	aspirin (Bayer) clopidogrel (Plavix) prasugrel (Effient) ticagrelor (Brilinta)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>acute MI</li> <li>CVA</li> <li>Prevention of thrombosis after PCI</li> <li>PAD</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>active bleeding</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>patients taking PPIs</li> <li>before major surgery</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>rash</li> <li>diarrhea</li> <li>minor bleeding</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>Agranulocytosis</li> <li>GI bleeding</li> <li>Intracranial hemorrhage</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess for signs of bleeding before administering this medication</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>May be taken with or without food</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Report signs/symptoms of bleeding</li> <li>Inform providers about use of drug prior to procedures that may cause bleeding</li> <li>Do not discontinue abruptly</li> <li>Do not take with NSAIDs or aspirin, due to increased risk for bleeding</li> </ul>

## Central Nervous System Drugs — Analgesics

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>NON-OPIOIDS</b>	acetaminophen (Tylenol)	<p>Used to treat:</p> <ul style="list-style-type: none"> <li>▪ pain</li> <li>▪ fever</li> </ul> <hr/> <p>Contraindications:</p> <ul style="list-style-type: none"> <li>▪ severe hepatic disease</li> </ul> <p>Use with caution:</p> <ul style="list-style-type: none"> <li>▪ ETOH abuse</li> <li>▪ severe renal impairment</li> </ul>	<p>Most common side effects:</p> <ul style="list-style-type: none"> <li>▪ nausea, vomiting</li> <li>▪ constipation</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>▪ Liver failure</li> <li>▪ Stevens-Johnson syndrome</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>▪ Presence and resolution of pain</li> <li>▪ Presence and resolution of fever</li> <li>▪ Liver function</li> <li>▪ Monitor for acetaminophen toxicity</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>▪ Most often given PO</li> <li>▪ Maximum daily dose is 4000 mg from all sources; be aware of other medications that may contain acetaminophen</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>▪ Many non-prescription drugs contain acetaminophen</li> <li>▪ Do not drink alcohol while taking this drug</li> </ul>
<b>NSAIDs</b>	celecoxib (Celebrex) ibuprofen (Advil, Motrin) indomethacin (Indocin) ketorolac (Toradol) naproxen (Alleve)	<p>Used to treat:</p> <ul style="list-style-type: none"> <li>▪ pain</li> <li>▪ fever</li> <li>▪ inflammation</li> </ul> <hr/> <p>Contraindications:</p> <ul style="list-style-type: none"> <li>▪ history of adverse reaction</li> <li>▪ CABG surgery</li> <li>▪ weeks 20-30 of pregnancy</li> </ul> <p>Use with caution:</p> <ul style="list-style-type: none"> <li>▪ older adults</li> <li>▪ severe heart failure</li> <li>▪ when taking other drugs that increase risk of GI effects</li> <li>▪ hepatic dysfunction</li> <li>▪ renal dysfunction</li> </ul>	<p>Most common side effects:</p> <ul style="list-style-type: none"> <li>▪ headache</li> <li>▪ constipation</li> <li>▪ nausea, vomiting</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>▪ GI bleeding</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>▪ Presence and resolution of pain</li> <li>▪ Presence and resolution of fever</li> <li>▪ Liver function</li> <li>▪ Renal function</li> <li>▪ Signs of bleeding — may increase bleeding time</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>▪ Give PO NSAIDs with food to reduce risk of GI bleed</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>▪ Do not take with other NSAIDs (including aspirin)</li> <li>▪ Do not drink alcohol or smoke while taking this medication</li> </ul>

Central Nervous System Drugs — Analgesics continued >

## Central Nervous System Drugs — Analgesics [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>OPIOIDS</b>	<p>codeine</p> <p>fentanyl</p> <p>hydromorphone (dilaudid)</p> <p>morphine (MS Contin, Roxanol)</p> <p>oxycodone (Oxycontin)</p> <p><b>Combination drugs:</b></p> <p>codeine/acetaminophen (Tylenol #3)</p> <p>hydrocodone/acetaminophen (Vicodin, Norco)</p> <p>oxycodone/acetaminophen (Percocet)</p>	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>acute pain</li> <li>chronic pain</li> <li>air hunger/shortness of breath</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>respiratory depression</li> <li>known or suspected GI obstruction</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>older adults</li> <li>hepatic dysfunction</li> <li>renal dysfunction</li> <li>impaired consciousness</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>confusion</li> <li>sedation</li> <li>hypotension</li> <li>constipation</li> <li>nausea</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>Respiratory depression</li> <li>Orthostatic hypotension</li> <li>Drug dependence/ drug withdrawal syndromes</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess BP, HR, RR, and LOC closely before and after giving</li> <li>Pain or sedation level</li> <li>Bowel function</li> <li>Signs/symptoms of respiratory depression or sedation</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Give the lowest dose in a range to avoid complications</li> <li>Stool softeners and laxatives are often prescribed and given with opioid drugs</li> <li>Opioids are controlled substances and require a witness if a portion of the dose is not given</li> <li>Understand the route of administration — can be given via IV, IM, subq, sublingual, PO, transdermal</li> <li>Understand the peak for the medication and route of administration</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>High potential for misuse; however, opioids are typically not addictive when used as directed for acute pain</li> <li>Chronic use of opioids can result in drug tolerance, which can result in higher doses needed to achieve adequate pain relief</li> <li>Do not discontinue abruptly</li> </ul>
<b>MUSCLE RELAXANTS</b>	<p>cyclobenzaprine (Flexaril)</p> <p>methocarbamol (Robaxin)</p>	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>muscle spasm</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>arrhythmias</li> <li>when using MAOIs</li> <li>CHF</li> <li>heart blocks</li> <li>hyperthyroidism</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>elderly patients</li> <li>hepatic dysfunction</li> <li>history of urinary retention</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>dizziness</li> <li>fatigue</li> <li>somnolence</li> <li>dry mouth</li> <li>constipation</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>Cardiac dysrhythmias</li> <li>Liver impairment</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Presence and reduction of pain, muscle stiffness</li> <li>Monitor for increased risk of sedation and weakness for elderly patients</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Give extended-release capsules at approximately the same time each day</li> <li>Administer cautiously for patients receiving other sedating medications</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Muscle relaxants are intended for short-term use</li> </ul>

## Central Nervous System Drugs — Anxiolytics & Mood-Stabilizers

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ANXIOLYTICS</b>	alprazolam (Xanax) clonazepam (Klonopin) diazepam (Valium) lorazepam (Ativan)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>anxiety</li> <li>premedication for procedures</li> <li>status epilepticus</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>acute narrow-angle glaucoma</li> <li>respiratory insufficiency</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>patients receiving other CNS depressants</li> <li>elderly patients</li> <li>hepatic failure</li> <li>renal failure</li> <li>debilitated patients</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>dizziness</li> <li>drowsiness</li> <li>lethargy</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>delirium</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Level of consciousness, sedation</li> <li>Presence or resolution of anxiety</li> <li>Resolution of seizure if being used to control status epilepticus</li> <li>Respiratory status</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Use caution when administering opioids or other sedating medications</li> <li>Give the lowest ordered dose that is effective</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>This drug has the potential for misuse</li> <li>Do not discontinue abruptly</li> <li>Avoid alcohol and other CNS depressants</li> </ul>
<b>SELECTIVE SEROTONIN REUPTAKE INHIBITORS (SSRIs)</b>	citalopram (Celexa) escitalopram (Lexapro) fluoxetine (Prozac) paroxetine (Paxil) sertraline (Zoloft)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>major depressive disorder</li> <li>panic disorders</li> <li>PTSD</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>MOAIs</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>seizure disorders</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>constipation</li> <li>diarrhea</li> <li>indigestion</li> <li>nausea</li> <li>dizziness</li> <li>headache</li> <li>insomnia</li> <li>reduced libido</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>suicidal thoughts</li> <li>serotonin syndrome</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Mood and affect</li> <li>Serum sodium levels</li> <li>Increased risk of suicidal tendencies</li> <li>Weight gain</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Most medications can be given with or without food</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>It may take several weeks for the therapeutic effect to be noticeable</li> <li>Alcohol use is not recommended</li> <li>Report to provider any worsening depression or suicidal ideation</li> <li>Avoid sudden discontinuation of drug</li> </ul>

## Central Nervous System Drugs — Other

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ANTI-EPILEPTICS</b>	carbamazepine (Tegretol) gabapentin (Neurontin) levetiracetam (Keppra) phenytoin (Dilantin)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>seizures</li> <li>neuropathic pain (gabapentin)</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>depends on the specific drug</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>pregnancy</li> </ul>	<p><i>Note: not all anti-epileptics have the same adverse effects</i></p> <p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>drowsiness</li> <li>ataxia</li> <li>weakness</li> <li>GI disturbance</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>hypotension</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Presence or reduction of seizure activity</li> <li>Serum drug levels</li> <li>Pain reduction (for gabapentin)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Use PPE for drugs with special handling precautions</li> <li>Some medications may interact with tube feedings</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Do not discontinue abruptly (risk for seizure)</li> <li>Avoid antacids due to risk for decreased absorption</li> <li>Avoid alcohol due to risk of changes in drug serum levels</li> </ul>
<b>ANTI-PARKINSON</b>	carbidopa (Lodosyn) carbidopa/levodopa (Sinemet)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>Parkinson's disease</li> <li>Parkinsonism</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>narrow-angle glaucoma</li> <li>history of melanoma</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>severe cardiovascular disease</li> <li>endocrine disease</li> <li>hepatic disease</li> <li>renal disease</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>vitamin B6 deficiency</li> <li>nausea</li> <li>confusion</li> <li>dizziness</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>melanoma</li> <li>dyskinesia</li> <li>depression</li> <li>hallucinations</li> <li>suicidal thoughts</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Presence or improvement of Parkinson's effects (rigidity, tremors, shuffling gait, drooling)</li> <li>Liver/kidney labs</li> <li>For adverse reactions during the dosage adjustment period</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Can give with food to minimize GI upset</li> <li>Administer consistently at scheduled times if divided doses</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Medication may wear off at the end of the dosing interval</li> <li>The oral form may discolor saliva, sweat or urine to dark red, brown, or black</li> <li>High-fat/high-protein/high-calorie meals may delay absorption</li> <li>Avoid sudden discontinuation of drug</li> </ul>

Central Nervous System Drugs — Other continued >

## Central Nervous System Drugs — Other [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ANTI-PSYCHOTICS</b>	haloperidol (Haldol) olanzapine (Zyprexa) quetiapine (Seroquel) risperidone (Risperdal)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>agitation</li> <li>restlessness</li> <li>hallucinations</li> <li>bipolar disorder</li> <li>schizophrenia</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>depends on the specific drug</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>elderly patients</li> <li>prolonged QT interval</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>constipation</li> <li>dry mouth</li> <li>blurred vision</li> <li>Extrapyramidal side effects</li> <li>increased serum cholesterol</li> <li>increased liver enzymes</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>suicidal thoughts and behaviors</li> <li>prolonged QT interval</li> <li>drug-induced leukopenia or neutropenia</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess mood and mental status</li> <li>Monitor for a decrease in agitation or restlessness if given as a PRN</li> <li>Presence of extrapyramidal side effects</li> <li>Presence of dystonic reactions</li> <li>Worsening of suicidal thoughts or behaviors</li> <li>QT interval</li> <li>Cholesterol/liver labs</li> <li>CBC</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Give with food to minimize GI irritation</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Use caution when rising from a sitting or lying down position to reduce the risk of orthostatic hypotension</li> <li>Report signs of tardive dyskinesia</li> <li>Do not discontinue drug abruptly</li> <li>Avoid alcohol while taking this drug</li> </ul>

## Upper Gastrointestinal System Drugs

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ANTIEMETICS</b>	ondansetron (Zofran) prochlorperazine (Compazine) promethazine (Phenergan)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>nausea/vomiting</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>patients taking apomorphine</li> <li>Prochlorperazine is contraindicated for children</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>prolonged QT</li> <li>electrolyte abnormalities</li> <li>prochlorperazine should be used cautiously with elderly patients</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>constipation</li> <li>diarrhea</li> <li>headache</li> <li>fatigue</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>prolonged QT interval</li> <li>torsades de pointes</li> <li>serotonin syndromes</li> <li>tardive dyskinesia (prochlorperazine)</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Presence and resolution of nausea/vomiting</li> <li>Monitor for prolonged QT</li> <li>Monitor for extrapyramidal side effects (prochlorperazine)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Be sure hands are dry when handling oral disintegrating tablets (ondansetron)</li> <li>Liquid not required for the oral soluble film (ondansetron)</li> <li>Select the form of the drug that is most appropriate for the patient's level of nausea (for example, a patient with severe nausea may not be able to tolerate an oral tablet)</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Do not chew or swallow the oral film form of ondansetron</li> </ul>
<b>PROTON PUMP INHIBITORS</b>	omeprazole (Prilosec) pantoprazole (Protonix)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>acid reflux</li> <li>duodenal ulcers</li> <li>erosive esophagitis</li> <li>gastric ulcers</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>when used with rilpivirine</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>elderly patients</li> <li>vitamin B12 deficiency</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>abdominal pain</li> <li>constipation</li> <li>diarrhea</li> <li>nausea</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>hypomagnesemia</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Resolution of acid reflux symptoms</li> <li>Serum magnesium levels</li> <li>Serum vitamin B12</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Administer 30 minutes before meals for best effect</li> <li>Omeprazole capsules may be opened and sprinkled with 1 tbsp of puree — do not crush or chew</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Taking this medication for longer than a year can increase the risk of some adverse effects</li> </ul>
<b>H2 HISTAMINE BLOCKERS</b>	cimetidine (Tagamet) famotidine (Pepcid) ranitidine (Zantac)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>indigestion</li> <li>acid reflux</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hypersensitivity</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>elderly patients</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>abdominal pain</li> <li>constipation</li> <li>diarrhea</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>arrhythmias</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Resolution of GI symptoms</li> <li>CBC assessment needed</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Administer 30 to 60 minutes before meals</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Monitor for side effects</li> <li>Notify provider before starting new medications, as H2 histamine blockers can interact with many drugs</li> </ul>

## Lower Gastrointestinal System Drugs

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>LAXATIVES</b>	bisacodyl (Dulcolax) docusate (Colace) lactulose polyethylene glycol (Miralax) sennosides (Sennokot)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>constipation</li> <li>bowel preparation for GI procedure</li> <li>neurogenic bowel</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>bowel obstruction</li> <li>appendicitis</li> <li>gastroenteritis</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>extended use</li> <li>inflammatory bowel disease</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>abdominal cramps</li> <li>diarrhea</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>electrolyte imbalances</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess for abdominal distention, tenderness, and presence of bowel sounds</li> <li>Assess color, consistency, and amount of last stool</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Hold for loose stools</li> <li>Understand route of administration for these medications (may be PO, enema, or a suppository)</li> <li>Administer oral preparations with a full glass of water</li> <li>Avoid milk products or antacids within 1 hour of bisacodyl</li> <li>When mixed with some form of thickened water, polyethylene glycol will become a thin liquid</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Do not use for more than one week unless directed by provider</li> <li>Report rectal bleeding</li> <li>Bowel movement should occur within 15 to 60 minutes after a suppository, up to 12-24 hours after PO forms</li> </ul>

## Respiratory System Drugs

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>BRONCHO-DILATORS</b>	<p><b>Short-acting:</b> albuterol sulfate (Proventil, Ventolin) ipratropium bromide (Atrovent) levalbuterol (Xopenex) tiotropium (Spiriva) albuterol/ipratropium bromide (Duoneb)</p> <p><b>Long-acting:</b> formoterol (Foradil) salmeterol (Serevent)</p>	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>asthma</li> <li>COPD</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hypersensitivity</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>cardiovascular disorders</li> <li>hyperthyroidism</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>tachycardia</li> <li>nervousness</li> <li>restlessness</li> <li>palpitations</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>paradoxical bronchospasm</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Respiratory status</li> <li>Pulse, BP</li> <li>Amount, color, and character of sputum</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Inhaled medications are typically given with metered-dose inhalers (MDI) or nebulized</li> <li>Use a spacer for individuals who have difficulty coordinating inhalation from an MDI</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Report to provider if needing to increase the frequency for symptom relief</li> <li>Use proper technique for inhaler</li> </ul>
<b>INHALED CORTICOSTEROIDS</b>	<p>beclomethasone (QVAR) budesonide (Pulmicort) fluticasone (Flovent) mometasone (Asmanex)</p> <p><b>Combination Drugs:</b> budesonide/formoterol (Symbicort)</p>	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>asthma</li> <li>COPD</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>status asthmaticus or other acute episodes of asthma</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>hypertension</li> <li>diabetes mellitus</li> <li>hepatic insufficiency</li> <li>renal insufficiency</li> <li>pregnancy</li> <li>untreated infection</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>oral candidiasis (thrush)</li> <li>throat/nasal irritation</li> <li>hoarseness</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>osteoporosis</li> <li>glaucoma</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Respiratory status</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Not a rescue medication — will not treat an acute bronchospasm</li> <li>Prime inhaler before initial use only</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Rinse mouth with water after inhaling the drug to prevent oral thrush</li> <li>This medication may cause increased glucose levels</li> </ul>

## Systemic Drugs — Anti-Inflammatory Medications

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>CORTICO-STEROIDS</b>	cortisone (Cortone) dexamethasone (Decadron) hydrocortisone (Cortef) methylprednisolone (Solu-Medrol) prednisone (Deltasone) prednisone (Solumedrol)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>allergic reactions</li> <li>adrenal insufficiency</li> <li>dermatologic conditions</li> <li>rheumatic conditions</li> <li>inflammatory processes or diseases</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>serious infection</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>hypertension</li> <li>diabetes mellitus</li> <li>hepatic insufficiency</li> <li>renal insufficiency</li> <li>pregnancy</li> <li>untreated infection</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>depression</li> <li>hypertension</li> <li>GI disturbances</li> <li>bruising</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>hyperglycemia</li> <li>fluid and electrolyte imbalances</li> <li>adrenal insufficiency</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Blood glucose levels</li> <li>Serum potassium and sodium levels</li> <li>WBC</li> <li>Signs of adrenal insufficiency (hypotension, weight loss, weakness, nausea/vomiting, confusion, peripheral edema)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Give oral medications with meals to avoid GI irritation</li> <li>These drugs have many interactions</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Do not discontinue abruptly</li> </ul>
<b>URIC ACID REDUCERS</b>	allopurinol (Alloprim) colchicine	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>gout</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hypersensitivity</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>hepatic insufficiency</li> <li>renal insufficiency</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>rash</li> <li>GI disturbances</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>hepatic failure</li> <li>renal failure</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Serum uric acid levels</li> <li>Liver function</li> <li>Renal function</li> <li>Joint swelling/joint pain</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Administer after a meal to reduce gastric irritation</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Increase fluid during therapy to reduce the risk of kidney stones</li> </ul>

## Systemic Drugs — Anti-Infectives

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<p><b>BROAD-SPECTRUM ANTIBIOTICS</b></p> <p><i>Note: broad-spectrum antibiotics are not considered a pharmacologic class</i></p>	<p>ceftriaxone (Rocephin)                      clindamycin (Cleocin)                      meropenem (Merrem IV)                      piperacillin-tazobactam (Zosyn)                      vancomycin (Vancocin)</p>	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>bacterial infections where the infectious agent has not been identified</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hypersensitivity</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>hepatic impairment</li> <li>renal impairment</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>diarrhea, nausea, vomiting</li> <li>photosensitivity</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>rash</li> <li>hives</li> <li>anaphylaxis</li> <li><i>C. difficile</i> colitis</li> <li>nephrotoxicity</li> <li>ototoxicity</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Signs/symptoms of worsening infection</li> <li>CBC</li> <li>Renal function</li> <li>Liver function</li> <li>Bleeding (some antibiotics can interact with anticoagulants)</li> <li>Signs of antibiotic-associated diarrhea</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Obtain blood and specimen cultures before administering the first dose</li> <li>Most broad-spectrum antibiotics are administered intravenously or intramuscularly</li> <li>Drug may need to be reconstituted before administration</li> <li>Check for compatibility with fluids or other medications if given intravenously</li> <li>Vancomycin is a vesicant — monitor IV site frequently; do not give through a midline catheter</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Do not take antidiarrheal while on this medication unless directed by healthcare provider</li> <li>Antibiotics may decrease the effectiveness of birth control — use backup contraception while taking</li> </ul>

Systemic Drugs — Anti-Infectives continued >

## Systemic Drugs — Anti-Infectives [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ANTIBIOTICS</b>	<p><b>Cephalosporins:</b> cephalexin (Keflex) cefuroxime (Ceftin) ceftriaxone cefepime</p> <p><b>Penicillins:</b> amoxicillin (Amoxil) ampicillin (Polycillin) penicillin G combination drugs (Augmentin, Unasyn, Zosyn)</p> <p><b>Sulfonamides:</b> sulfamethoxazole/trimethoprim (Bactrim) sulfadiazine sulfasalazine (Azulfidine)</p> <p><b>Tetracyclines:</b> doxycycline (Doxy) tetracycline (Tetracycl)</p> <p><b>Carbapenems:</b> ertapenem (Invanz) meropenem (Merrem IV)</p> <p><b>Aminoglycosides:</b> gentamycin streptomycin tobramycin</p> <p><b>Macrolides:</b> azithromycin (Zithromax) erythromycin</p> <p><b>Lincosamides:</b> clindamycin lincomycin</p> <p><b>Fluoroquinolones:</b> ciprofloxacin (Cipro) levofloxacin (Levaquin)</p>	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>bacterial infections where the infectious agent has not been identified</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hypersensitivity</li> <li>sulfonamides are contraindicated in children under 2</li> <li>tetracyclines are contraindicated for children under 9</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>renal impairment</li> <li>hepatic impairment</li> <li>pregnancy</li> <li>for patients receiving other nephrotoxic drugs (additive effect)</li> <li>neuromuscular disease</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>diarrhea, nausea, vomiting</li> <li>photosensitivity</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>rash</li> <li>hives</li> <li>anaphylaxis</li> <li><i>C. difficile</i> colitis</li> <li>nephrotoxicity</li> <li>ototoxicity</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Signs/symptoms of worsening infection</li> <li>CBC</li> <li>Renal function</li> <li>Liver function</li> <li>Bleeding (some antibiotics can interact with anticoagulants)</li> <li>Signs of antibiotic-associated diarrhea</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>If indicated, obtain blood and specimen cultures before administering the first dose</li> <li>Antibiotics can be administered in many forms — PO, IV, IM, or topically</li> <li>Unless contraindicated, oral medications are generally better tolerated with food</li> <li>Antacids can decrease absorption — do not give together</li> <li>Do not give tetracyclines with dairy products</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Do not take antidiarrheal while on this medication unless directed by healthcare provider</li> <li>Antibiotics may decrease the effectiveness of birth control — use backup contraception while taking</li> <li>Take oral antibiotics with a full glass of water</li> <li>Some drugs may interact with alcohol — avoid it during antibiotic therapy</li> </ul>

## Systemic Drugs — Anti-Infectives [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ANTI-FUNGALS</b>	clotrimazole (Lotrimin) fluconazole (Diflucan) miconazole (Monistat) nystatin	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>• fungal infections of the skin, systemic fungal infections</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>• most systemic antifungals are contraindicated during pregnancy</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>• hepatic impairment</li> <li>• renal dysfunction</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>• headache</li> <li>• rash</li> <li>• GI disturbances</li> <li>• abdominal, joint, or muscle pain</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>• hepatic toxicity</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>• Signs/symptoms of worsening infection</li> <li>• Renal function</li> <li>• Hepatic function</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>• Systemic antifungals interact with many drugs</li> <li>• Understand the route of administration</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>• Complete the full course of therapy</li> <li>• Avoid intercourse while being treated for vaginal yeast infection</li> </ul>

## Systemic Drugs — Miscellaneous

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ANTI-HISTAMINES</b>	diphenhydramine (Benadryl)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>• allergic reactions</li> <li>• insomnia</li> <li>• motion sickness</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>• newborns</li> <li>• nursing mothers</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>• elderly patients</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>• drowsiness</li> <li>• dry mouth</li> <li>• dizziness</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>• anaphylaxis</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>• Signs/symptoms of worsening allergic reaction</li> <li>• Improvement of symptoms</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>• May be administered intravenously, intramuscularly, topically, or orally</li> <li>• Do not push IV Benadryl fast — no more than 25 mg per minute</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>• Young children may experience paradoxical excitement</li> <li>• Avoid occlusive dressings directly on skin where topical cream has been applied</li> <li>• Avoid alcohol or other CNS depressants</li> </ul>

Systemic Drugs — Miscellaneous continued >

## Systemic Drugs — Miscellaneous [CONTINUED]

Class	Generic Name (Brand Name)	Indications	Adverse Effects	Nursing Considerations
<b>ELECTROLYTES</b>	magnesium sulfate potassium chloride (K-Dur) potassium phosphate (K-Phos) or sodium phosphate (Na-Phos)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>electrolyte imbalances (hypomagnesemia, hypokalemia, hypophosphatemia)</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hypermagnesemia, hyperkalemia, hyperphosphatemia</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>abdominal pain</li> <li>nausea, vomiting</li> <li>diarrhea</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>cardiac arrhythmias</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Serum electrolytes</li> <li>Worsening signs of hypokalemia (weakness, fatigue, increased PVCs on cardiac monitor)</li> <li>Signs of hyperkalemia (bradycardia, fatigue, muscle weakness, confusion, peaked T-waves on cardiac monitor)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Administer PO potassium with meals</li> <li>Do not crush extended-release tablets</li> <li>IV potassium can be mixed with lidocaine by the pharmacy to reduce vascular irritation</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Avoid potassium-containing salt substitutes and potassium-sparing diuretics</li> </ul>
<b>HORMONES</b>	levothyroxine (Synthroid)	<p><b>Used to treat:</b></p> <ul style="list-style-type: none"> <li>hypothyroidism</li> </ul> <hr/> <p><b>Contraindications:</b></p> <ul style="list-style-type: none"> <li>hyperthyroidism</li> </ul> <p><b>Use with caution:</b></p> <ul style="list-style-type: none"> <li>cardiovascular disease</li> <li>adrenal insufficiency</li> <li>diabetes</li> <li>pernicious anemia</li> </ul>	<p><b>Most common side effects:</b></p> <ul style="list-style-type: none"> <li>palpitations</li> <li>diarrhea</li> <li>anxiety</li> </ul> <p><b>Severe adverse effects:</b></p> <ul style="list-style-type: none"> <li>hyperthyroidism — typically only when given in large doses</li> </ul>	<p><b>Assess/Monitor</b></p> <ul style="list-style-type: none"> <li>Assess apical pulse and BP prior to giving periodically</li> <li>Thyroid function tests (T3-T4-TSH)</li> </ul> <p><b>Administration</b></p> <ul style="list-style-type: none"> <li>Give on an empty stomach in the morning (at least one hour before a meal and other medications)</li> <li>Hold enteral feedings for one hour before and after giving medication</li> <li>Do not give within four hours of antacids, iron, or calcium supplements</li> </ul> <p><b>Patient Education</b></p> <ul style="list-style-type: none"> <li>Symptom improvement may not be noticeable for several weeks</li> <li>Do not discontinue the drug abruptly</li> </ul>

