Chapter 3 – Antimicrobials Medication Cards

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| **Antimicrobials** | | | | | |
| **Class: Penicillin**  **Prototypes:** [penicillin V](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=da74ca3c-951d-4569-b13e-d01faad1da12) (PO), [penicillin G](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=9e58122f-5c75-4905-a774-d3a4dae4ff8c) (IV), [amoxicillin](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=de8990a6-f3b6-478f-acbe-eda961b6da4b), [piperacillin/ t](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=e53ebafc-3afa-4a1e-9313-fecd1c1c5d7c)[azobactam](https://dailymed.nlm.nih.gov/dailymed/search.cfm?labeltype=all&query=PIPERACILLIN+SODIUM+AND+TAZOBACTAM+SODIUM) (combination product) | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * Check for allergies to penicillin or cephalosporins * Obtain culture, if ordered, before first dose * Take w/ full glass of water; no acidic juice * Absorbed better than most antibiotics through GI tract (GI absorption impaired by presence of food) * If high doses; monitor INR, platelets, PT * administered via IM and IV * Peak: 4-6 hr | * streptococcus * enterococcus * staphylococcus * ear infections * pneumonia * UTI * Prophylaxis pre🡪post surgery * STIs | * Hypersensitivity/ penicillin allergy * Other antibiotics = additive, inhibitory effects * NSAIDs * Oral birth control * Potassium supplements * Anticoagulants (eg Warfarin) * Drug interaction (↓ effectiveness of Pen) with tetracycline, parenteral aminoglycosides (eg neomycin) | | * GI most common: **n/v, diarrhea** * Monitor for C. didff, candidiasis and hyperkalemia * Serious: seizures, anaphylaxis, fever, wheezing * Allergies: urticaria, pruritus, angioedema * Oral (thrush or vaginal yeast infection, Black ‘hairy’ tongue (will go away when dose finished)   **SAFETY:** If an allergic reaction occurs, penicillin should be discontinued and appropriate therapy instituted. Serious anaphylactic reactions require emergency treatment with epinephrine and airway management | * Avoid caffeine, citrus, cola, juices, tomato juice = can inactivate drug * Monitor skin * Monitor bowel * Monitor labs * Pts should report: diarrhea, flu stx, peeling skin, hearing loss, breathing issues, seizures, bad smelling/ loose/bloody stools * **Regular dosing very imp bc therapeutic range is very narrow, MUST wake up pts for drug** |

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| **Antimicrobials** | | | | | |
| **Class: Cephalosporins**  **Prototypes:** 1st generation: [cephalexin](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=19307ff0-71de-477b-965d-ea243e5ede3a&audience=consumer) and [Cefazolin](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=48656c70-206d-652c-204f-62692d57616e&audience=consumer); 2nd generation: [cefprozil](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=97675251-70b8-43bc-93ea-f9ef6bb8cb68); 3rd generation: [ceftriaxone](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=4d1ad77f-2c6b-4250-82e5-ab3574444e08); 4th generation: [cefepime](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=28f1c403-ab91-405e-bf52-ad81b1c66220); 5th generation: [ceftolozane](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=70ac1d90-eff3-4f0b-9f46-5846c571b32f)  **Mechanism:** Similar to penicillins. Bactericidal and bacteriostatic. Well absorbed orally. | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * Onset: rapid * Peak: 1hr * Duration: 6-12hr * PO: Administer without regard to food; if GI distress, give with food * IV: Reconstitute drug with sterile water or normal saline; shake well until dissolved. Inject into large vein or free-flowing IV solution over 3-5 minutes * Geriatrics: may need dose adjustment d/t age-related ↓ in renal function * OB, Lactating: ½ life ↓ & blood levels lower during pregnancy | * UTI * Respiratory infections   Like penicillin:   * streptococcus * enterococcus * staphylococcus * ear infections * pneumonia * UTI * Prophylaxis pre🡪post surgery * STIs | * caution if penicillin allergy * Lactam drug hypersensitivity: Pts allergic to penicillin ↑likely to be allergic to cephalosporins * Hx of GI disease   Like penicillin:   * Other antibiotics = additive, inhibitory effects * NSAIDs * Oral birth control * K+ supplements * Drug interaction with aminoglycosides or oral anti-coagulant drugs (eg warfarin) | | * CNS: Seizures, headaches * GI: N/V, diarrhea (Diarrhea can start 45 days in) * Derm: Stevens-Johnson syndrome, rashes * Local: Pain @ IV site, Phlebitis @ IV site   **SAFETY:** If an allergic reaction occurs, antibiotic should be discontinued and appropriate therapy instituted. Serious anaphylactic reactions require emergency treatment with epinephrine and airway management | * Concurrent use of Loop diuretics and Aminoglycosides may ↑ risk of nephrotoxicity * alcohol should not be consumed until 72 hrs after stopping med. * Like penicillin: * Avoid caffeine, citrus, cola, juices, tomato juice = can inactivate drug * Monitor skin * Monitor bowel * Monitor labs * Pts should report: diarrhea, flu stx, peeling skin, hearing loss, breathing issues, seizures, bad smelling/ loose/bloody stools |

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| **Antimicrobials** | | | | | |
| **Class: Carbapenems**  **Prototypes:** [imipenem](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=f41d8abd-7792-4918-1b93-bd83ea01955e) and [meropenem](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=186e8e7c-0a2a-4e48-b5f7-a036f351ca5f)  **Mechanism:** Bactericidal. Broad-spectrum for both gram-positive and gram-negative infections. | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * Onset: immediate (IV) * Peak: 5 min * Duration: 10-12 mins * ½ life: 1 hr * Geri: use cautiously | * Complex body cavity, connective tissue infections in hospitalized pts. * Bone, joint, skin, soft tissues infections * Bacterial endocarditis * Intra-abdominal infection * Pneumonia * Gynecological infection, UTI * Septicemia * Meropenem: only drug for bacterial meningitis | * **Caution Drugs**: Valporic Acid, Cyclosporine, ganciclovir, probenecid (not with Meropenem): worsen seizures, confusion * pt’s who have had **anaphylactic** rxns to beta-lactams * Impaired renal function * Pregnancy (only use if benefits outweigh risk to fetus) * Hx of renal disease * Seizure disorder | | * Similar to cephalosporins * CNS: confusion, seizures, Neurotoxicity at high concentrations * Resp: Apnea * GI: GI upset (including dysbiosis, C-diff), **N/V, diarrhea, dehydration,** electrolyte imbalance * Derm: Rash (Drug reaction w/ Eosinophilia and Systemic Systems * Superinfection | * Monitor skin * Monitor bowels * Monitor labs * Monitor CNS |

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| **Antimicrobials** | | | | | |
| **Class: Monobactams**  **Prototypes:** [aztreonam](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=c6cf7e13-a04e-47e2-9cec-44a278ee6bec&audience=consumer)  **Mechanism:** Bactericidal. Narrow-spectrum. | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * Can be administered IM, IV, or via inhalation * Peak: 60 minutes via IM * ½ life: 1.5-2 hours with normal renal function | * used primarily to treat gram-negative bacteria such as Pseudomonas aeruginosa. * Meropenem: only drug for bacterial meningitis | * Check for allergies to any beta lactams – penicillin, cephalosporins, or carbapenems * Impaired renal function | | * hematologic neutropenia * increased serum liver enzymes * GI: GI upset, **N/V, diarrhea, dehydration,** electrolyte imbalance * Skin sensitivities * Coagulation abnormalities * Superinfection | * Monitor renal and liver function * Monitor for signs of anaphylaxis during first dose * Monitor skin * Monitor bowels * Monitor labs |

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| **Antimicrobials** | | | | | |
| **Class: Sulfonamides**  **Prototypes:** Trimethoprim/Sulfamethoxazole, often referred to as “sulfa drugs”  Example: Septra, Co-trimoxazole (Bactrim)  **Mechanism:** Bacteriostatic inhibition of growth against a wide spectrum of gram-positive and gram-negative pathogens. | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * Rarely used due to resistance * Allergic reactions common * PO: 1-4hr (Peak) * IV: immediate onset | * Broad spectrum * Gram + and – * UTIs\* really good * Resp tract infections * General prophylaxis * useless in infections with ‘pus’ | * **Sulfonylureas. sulfonamine, or thiazide diuretics** * Hypersensitivity * Cyclosporin * Pregnancy/ lactating * Kid <2yr * Geriatric * Phenytoin * Warfarin * Hx kidney stones or renal disease | | * “sulfa allergy” – starts with fever  rash * photosensitivity rash * anemia * Stevens-Johnson * GI: N/V, Diarrhea, anorexia, abdo pain * CNS: Convulsions, Headache * GU: Crystalluria, Toxic nephrosis, Hyperkalemia * Pancreatitis * Bone marrow depression * folate deficiency | * take with trimethoprim for synergistic effects * Monitor skin * Monitor bowels * monitor labs * \*must take with LOTS of water * Tobutamide, tolazamide, glyburide, glipizide, chlorpropamide - ↑ Risk of hypoglycemia * Cyclosporines - ↑ Risk of nephrotoxicity |

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| **Antimicrobials** | | | | | |
| **Class: Fluoroquinolones**  **Prototypes:** [levofloxacin](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=4438fed2-7ef5-488f-baa8-39bc65768d1d&audience=consumer), [ciprofloxacin](https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=3e9a6174-962b-400e-8ca7-4a6c32c60a5d)  **Mechanism:** Bactericidal. Works by inhibiting the bacterial DNA replication | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * Very potent * Broad-spectrum: Mostly Gram –, some Gram+ * Useful against Gram+ bacteria that are resistant to penicillins (use when other less toxic antibiotics have failed) * Can take w/food and plenty of fluid, except dairy   PO:   * Onset: rapid * Peak: 1-2 hr * Duration:12 hr * Administer 2 hours before or after meals, antacid, or iron   PO-Extended Release:   * Onset: rapid * Peak: 1-4 hr * Duration: 24hr   IV:   * Onset: rapid * Peak: end of infusion * Duration: 12 hr * Infuse 500 mg or less over 60 minutes and doses of 750 mg over 90 minutes   Dosage adjustment if renal or hepatic impairment | * Complicated UTI * Resp tract infection * Skin, GI, bone, joint infection * STI * UTIs | * renal impairment * known/suspected CNS disorder * concurrent use of corticosteroids (suppresses immune system) * Anticoagulants * Bronchodilators * tizandine * Cardiac dysrhythmias * Don’t use in conjunction w/ theophylline (asthmatics) | | * CNS: anxiety, depression, dizziness, insomnia, nervousness, fever somnolence, headache, restlessness, seizures, elevated ICP * Rash * GI: n/v, diarrhea, abdo pain, dyspepsia, C. Diff/ dysbiosis, crystaluria * Hepatic: ALT, AST * Increased, Hepatotoxicity * QT prolongation * anaphylaxis/allergy to drugs of same class | * Reduce caffeine if excessive cardiac, CNS stimulation * Maintain hydration to eliminate * Drink >2L H20/day * Blood tests for liver fxn * Antacid or meds containing Ca2+, Mg2+, Zn2+, Al3+, Fe3+ (cations = positive ion) should not be taken within 4hr or 2hr after (will slow absorption) * Discontinue immediately if tendonitis, tendon rupture, peripheral neuropathy, CNS effects, or muscle weakness in patients with Myasthenia Gravis * Monitor for: GI upset, Hypersensitivity, Photosensitivity, Hypoglycemia, C-diff |

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| **Antimicrobials** | | | | | |
| **Class: Macrolides**  **Prototypes:** erythromycin, azithromycin  **Mechanism:** Bacteriostatic – work by inhibiting RNA protein synthesis and suppressing reproduction of the bacteria. | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * alternative to B-lactam if pt allergic * inhibits translocation of proteins (binding to ribosome 50S = cell death) * \*effective against species that reproduce inside host cells (listeria, Neisseria, campylobacter) instead of just ones in bloodstream/interstitial spaces * PO: Reconstitute suspension with water. Can be given with or without food. Take with food if GI upset occurs * IV: Reconstitute and shake until well dissolved. Dilute as instructed. Infuse a 500-mg dose of azithromycin IV over 1 hour or longer. Never give as a bolus or IM injection * May prolong QT interval segment. Monitor for dysrhythmias | * upper, lower respiratory tract infections * skin infections * soft tissue infections * STIs: syphilis, gonorrhea, chlamydia * lyme disease * strep | * competes with other drugs for liver metabolism bc \*highly protein bound * decreased efficiency of oral birth control * pregnancy * geriatric | | * Erythromycin: GI irritation = increase motility * \*GI * GI disturbances * Hypersensitivity * Skin rashes | * monitor skin * monitor bowels * monitor labs, esp liver enzymes * good category if pt allergic to penicillin |

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| **Antimicrobials** | | | | | |
| **Class: Aminoglycosides**  **Prototypes:** streptomycin, gentamicin  **Mechanism:** Bacteriocidal | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * very potent * never PO: poor absorption * given w/B-lactams, vanco for synergy * Gram –, some Gram + * Exact mechanism not fully known, similar to tetracyclines * Resistance can be overcome if used with penicillin or vancomycin * Routes: IM, IV, topical * inactivated by lactams (penicillins & cephalospirins) when coadmin to pts with renal insufficiency | * Serious Gram+ infections * GI, GU * Endocarditis * Resp infections | * Preg/nursing: congenital deafness * Allergy * Renal impairment * Loop diuretics * Oral anticoagulants | | * Ototoxicity (more common with pts taking furosemide) * Nephrotoxicity * Drug toxicity * 8th cranial nerve damage = dizziness, nystagmus, vertigo, ataxia, tinnitus, roaring in ears, hearing impairment * GI upset * Rash * Risk for severe neurotoxic reactions, especially with renal impairment. Can result in respiratory paralysis if given soon after anesthesia or muscle relaxant * Can cause harm to fetus and breastfed infants | * SEs most likely if pt: has hx of renal impairment, is dehydrated, getting high dosage, prolonged therapy, using other ototoxic drugs * Renal assessment: proteinuria, BUN, creatinine * Neuro assessment * Hearing can come back after drug tx * Report diarrhea immediately |

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| **Antimicrobials** | | | | | |
| **Class: Tetracyclines**  **Prototypes:** tetracycline  **Mechanism:** Bacteriocidal. Broad-spectrum for both gram-positive and gram-negative | | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement | | |
| **Administration** | **Indications** | **Contraindications** | | **Side Effects** | **Nursing Considerations** |
| * used in renal impairment as an alt to B-lactams * ½ life: 12-24hrs * Effectiveness is reduced when drug is given with milk or other dairy products, antacids, or iron products * For best drug absorption, give drug with a full glass of water on an empty stomach at least 1 hour before or 2 hours after meals * Give drug at least 1 hour before bedtime to prevent esophageal irritation or ulceration * Use caution with renal or hepatic impairment * Avoid using in children younger than age 8 because drug may cause permanent discoloration of teeth, enamel defects, and bone growth retardation * Avoid in pregnancy due to toxic effects on the developing fetus (often related to retardation of skeletal development and teeth) | * Acne * Chlamydia * Pneumonia * UTI * Skin infection * Cholera * Mycoplasma | * Preg/nursing * Kinds<8yrs * Calcium, iron * Anticoagulants * Bactericidal antibiotics * Oral contraceptives | | * Teeth discoloration in fetus, breastfed babies, kids * Pregnancy: affects fetus skeletal development * Photosensitivity * GI: diarrhea, N/V, dysphagia, C-diff, Oral candidiasis * GU: Yeast infection, red urine * CNS: intra-cranial hypertension * Intracranial hypertension: Monitor for headache, blurred vision, diplopia, and vision loss * Decreased effectiveness of oral contraceptives | * 1 hr before meal OR 2 hr after meal * at least 4 hr after antacids * not to be taken w, food ESP dairy * ↓effectiveness of birth control and Penicillin G |

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| **Antimicrobials** | | | | |
| **Class: Antivirals**  **Subclass: Antiherpes**  **Prototypes:** acyclovir  **Mechanism:** Cause termination of the DNA chain during viral replication | | **Therapeutic Effects:**   * Discuss importance of medication compliance * Monitor for significant fatigue | | |
| **Administration** | **Indications** | | **Side Effects** | **Therapeutic Effects and Nursing Considerations** |
| * Check for allergies * Route: PO, IV, or topical; do not give IM or subcutaneously (subq) * Give with food if GI distress * IV: Give IV infusion over at least 1 hour to prevent renal tubular damage * Use cautiously if renal impairment, neurological problems, or dehydration * Start therapy as early as possible after signs or symptoms occur * Encourage fluid intake * Avoid sexual contact while lesions present | * Acyclovir (Zovirax) and its derivatives are frequently used for the treatment of herpes and varicella virus infections, including genital herpes, chickenpox, shingles, Epstein-Barr virus infections, and cytomegalovirus infections. | | * GI distress * Monitor renal function in long-term use, especially if renal impairment * Lowers seizure threshold | * Drug is not a cure for herpes but improves signs and symptoms of herpes lesions if started early * Can be used long term for prevention of outbreaks |

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| **Antimicrobials** | | | | |
| **Class: Antivirals**  **Subclass: Anti-Influenza Agent**  **Prototypes:** oseltamivir  **Mechanism:** Prevents release of virus from infected cells | | **Therapeutic Effects:**   * Discuss importance of medication compliance * Monitor for significant fatigue | | |
| **Administration** | **Indications** | | **Side Effects** | **Therapeutic Effects and Nursing Considerations** |
| * Check for allergies * Route: PO * Must be given within 48 hours of onset of symptoms * Administer with food to avoid GI distress * Does not replace need for annual influenza vaccination | * Tamiflu (oseltamivir) is used to target the influenza virus by blocking the release of the virus from the infected cells. | | * GI distress * Serious skin/ hypersensitivity reactions; discontinue immediately * Monitor for neuropsychiatric symptoms * Use cautiously in patients with renal failure, chronic cardiac or respiratory diseases, or any medical condition that may require imminent hospitalization | * Reduce duration of flu symptoms * Monitor for symptoms of flu |

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| **Antimicrobials** | | | | |
| **Class: Antivirals**  **Subclass: Anti-Hepatitis Agents**  **Prototypes:** adefovir | | **Therapeutic Effects:**   * Discuss importance of medication compliance | | |
| **Administration** | **Indications** | | **Side Effects** | **Therapeutic Effects and Nursing Considerations** |
| * Route: PO * Prolonged therapy (>1 year or indefinitely) based on patient status * Offer HIV testing; may promote resistance to antiretrovirals in patients with chronic HBV infection who also have unrecognized or untreated HIV infection * Do not stop taking medication unless directed. Monitor hepatic function several months after stopping therapy | * Tamiflu (oseltamivir) is used to target the influenza virus by blocking the release of the virus from the infected cells. | | * Severe acute exacerbations of Hepatitis B * Nephrotoxicity * Lactic acidosis * Severe hepatomegally | * Maintain or improve liver function when active disease is present |

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| **Antimicrobials** | | | | |
| **Class: Antivirals**  **Subclass: Antiretrovirals**  **Prototypes:** lamivudine- zidovudine | | **Therapeutic Effects:**   * Discuss importance of medication compliance * Monitor for fatigue | | |
| **Administration** | **Indications** | | **Side Effects** | **Therapeutic Effects and Nursing Considerations** |
| * Lamivudine used to treat HIV-1 infection contains a higher dose of the active ingredient than the lamivudine used to treat chronic HBV infection. Patients with HIV-1 infection should receive only dosing forms appropriate for HIV-1 treatment * Use cautiously in patients with renal impairment * Inform patient that drug doesn't cure HIV infection, that opportunistic infections and other complications of HIV infection may still occur, and that transmission of HIV to others through sexual contact or blood contamination is still possible. Taking these medications, along with practicing safer sex and making other lifestyle changes, may decrease the risk of transmitting (spreading) the HIV or hepatitis B virus to other people * Teach symptoms of pancreatitis | * Antiretrovirals are used for the treatment of illnesses like HIV. | | * Lactic acidosis * Severe hepatomegaly * Stop treatment immediately if pancreatititis | * Decreases chance of developing acquired immunodeficiency syndrome (AIDS) and HIV-related illnesses such as serious infections or cancer |

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| **Antimicrobials** | | | | | |
| **Class: Antifungals** | | | **Therapeutic Effects:**   * Discuss importance of medication compliance * Monitor response of the affected area | | |
| **Prototype** | **Administration** | **Indications** | | **Side Effects** | **Therapeutic Effects and Nursing Considerations** |
| Clotrimazole | * Topical cream: apply liberally twice daily to affected area | * fungal skin infections * athlete's foot (tinea pedis) * jock itch (tinea cruris), or * ringworm | | * topical-skin irritation * rash | * improve symptoms of fungal infection |
| Flucanazole | * Route: PO/IV * Single or multiple doses * Caution if liver dysfunction * Potential for fetal harm | * yeast infections | | * hepatotoxicity | * improve symptoms of yeast infection |
| Terbinafine | * Cream or aerosol * Wash affected area with soap and water and allow to dry completely before applying | * most commonly used topically for the treatment of dermatophytic skin infections | | * hepatotoxicity | * Improve symptoms of athlete's foot (tinea pedis), jock itch (tinea cruris), or ringworm |
| Nystatin | * PO: If order is "'swish and swallow," instruct client to hold medication in mouth for several minutes before swallowing * Topical cream/powder: apply liberally twice daily | * typically used as a topical treatment for yeast infections of the skin, mouth, and vagina, but may also be used for intestinal fungal infections | |  | * Improve symptoms of yeast infection of skin |
| Amphotericin B | * Route: IV * Reconstitute and dilute as directed on packaging * Administer slowly over several hours initially and monitor VS every 30 minutes; may require premedication * Therapy may take several months * Alert: Different amphotericin B preparations aren't interchangeable * Caution if renal impairment * Safety Warning: Don't use to treat noninvasive forms of fungal disease in client with normal neutrophil counts | * for systemic fungal infections like aspergillosis, cryptococcal meningitis, histoplasmosis, blastomycosis, and candidiasis | | * nephrotoxicity * hypokalemia * may be ototoxic. | * Improvement of systemic fungal infection * Monitor fluid intake and output; report change in urine appearance or volume * Monitor BUN and creatinine levels two or three times weekly. Kidney damage may be reversible if drug is stopped at first sign of renal dysfunction * Hydrate client before infusion to reduce risk of nephrotoxicity * liver function tests once or twice weekly * Monitor potassium level closely and report signs of hypokalemia * Report evidence of hearing loss, tinnitus, vertigo, or unsteady gait |

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| **Antimicrobials** | | | | |
| **Class: Antimalarials**  **Prototypes:** chloroquine | | **Therapeutic Effects:**   * Discuss importance of medication compliance * monitor for side effects | | |
| **Administration** | **Indications** | | **Side Effects** | **Therapeutic Effects and Nursing Considerations** |
| * Contraindicated in clients hypersensitive to drug and in those with retinal or visual field changes * Use cautiously in clients with severe GI, neurologic, or blood disorders; hepatic disease or alcoholism; or G6PD deficiency or psoriasis * Take with food to prevent GI upset * In severe or resistant cases, artesunate IV may be prescribed | * Treatment of malaria | | * Changes in vision * Changes in hearing * Monitor renal function closely * Monitor client for overdose, which can quickly lead to toxic symptoms: headache, drowsiness, visual disturbances, nausea and vomiting, cardiovascular collapse, shock, and convulsions | * Prevention of malaria or improvement of an acute attack of malaria * For malaria prevention, the CDC recommends that clients take drug for 4 weeks after leaving the area |

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| **Antimicrobials** | | | | |
| **Class: Miscellaneous Antibacterials: Glycopeptides**  **Prototypes:** Vancomycin | | **Therapeutic Effects:**   * Monitor for systemic signs of infection:   + WBC   + Temperature   + Culture results * Monitor site of infection for improvement * Monitor and report trough levels for targeted dosing | | |
| **Administration** | **Indications** | | **Side Effects** | **Nursing Considerations** |
| * IV only (except for C. diff, PO) * SE can be minimized if infusion rate is slowed * Dosage adjustment is required for renal impairment * Monitor trough levels * IV should be administered in a diluted solution over a period of 60 minutes or more to avoid rapid-infusion-related reactions | * Generally only used for serious staphylococcal infections * Effective against Gram + * MRSA * VRE * C-diff * Bone infection * Blood infection | | * Nausea * Ototoxicity * Nephrotoxicity * Neutropenia * Blood disorders * “Red man syndrome” [not harmful] Flushing, redness, itchiness upper trunk, face, head, neck | * Contraindicated in:   + Neuromuscular blockers   + Hearing problem   + Kidney dysfxn   + Neonates   + Geriatrics * maintain hydration * monitor urine output * v low dose = no effect, high = toxic |