MEDICAL-SURGICAL NURSING II · STUDY GUIDE

Exam 5 Study Guide

This guide covers chapters 9 and 10. You will learn to sort immune disease into overreaction, underperformance and misdirected attack, give epinephrine first for anaphylaxis, read a CD4 count, and catch the infection that immunosuppression hides. Then you will build the infection picture before the first dose, match each antimicrobial to the monitoring its mechanism demands, and choose the right precautions. Work one chapter at a time. Read the "what to know" paragraphs, study the tables, then try each worked case with the steps covered. Finish each chapter with its ten self-test items. The cram sheet at the end puts the doses, numbers and precautions in one place.

WHAT THIS GUIDE COVERS

- Chapter 9 · the four hypersensitivity types, anaphylaxis and epinephrine, latex and drug reactions, secondary immunodeficiency and neutropenic fever, HIV testing, CD4 and viral load, prophylaxis and antiretroviral therapy, lupus and its antibodies, antiphospholipid syndrome, scleroderma renal crisis, Sjogren syndrome, giant cell arteritis, rheumatoid arthritis, spondyloarthritis, gout, steroids, DMARDs, biologics, JAK inhibitors and transplant rejection.
- Chapter 10 · how infection shows, the older adult, cultures and markers, neutropenic fever, beta-lactams and allergy labels, vancomycin, daptomycin, linezolid, aminoglycosides, fluoroquinolones and other classes, stewardship actions, MRSA, VRE, ESBL, CRE, Candida auris, C. difficile, precautions and device bundles, cellulitis, necrotizing fasciitis, osteomyelitis, endocarditis, tuberculosis, HIV, hepatitis and occupational exposure.

CHAPTER 9

Immune and Rheumatologic Disorders

Read it in full: **Chapter 9 in the textbook**. Practice it in the lab: **The First Sixty Seconds: Hypersensitivity and Anaphylaxis** and **Two Numbers Run HIV Care: CD4 and Viral Load**.

What to know

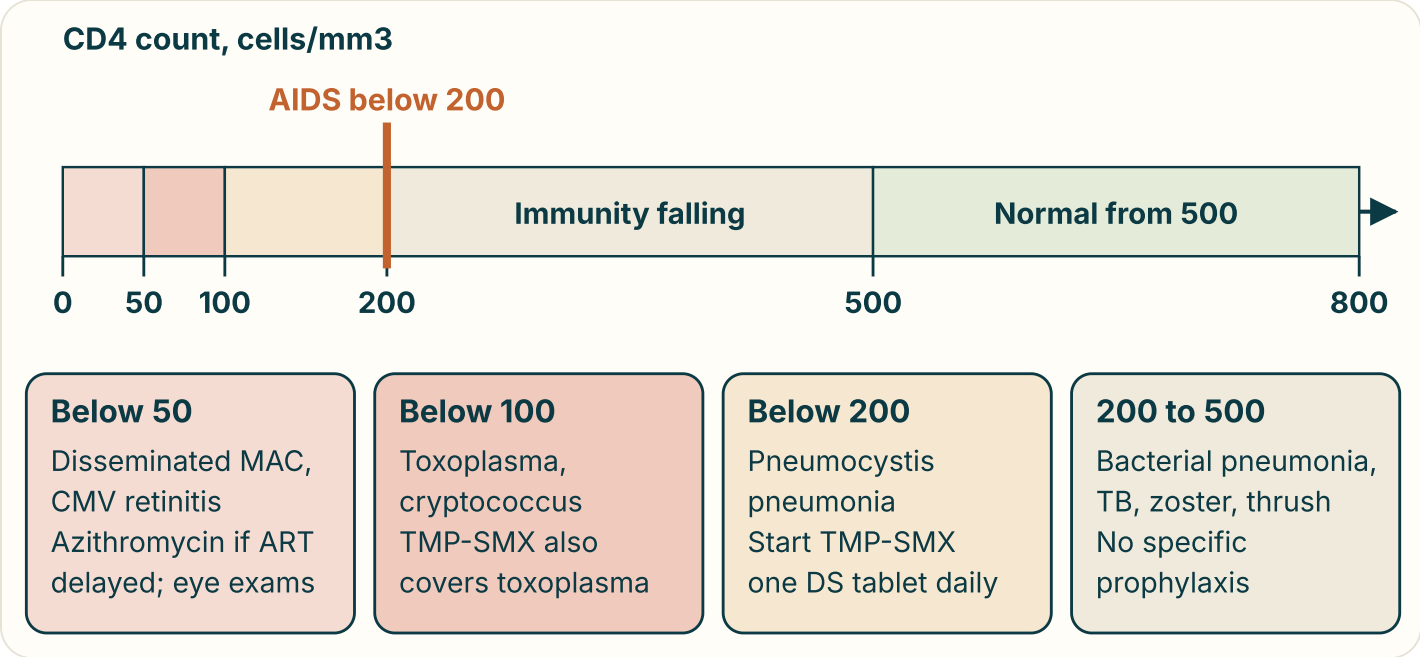
Hypersensitivity has four types. **Type I** (IgE, mast cells, seconds to 30 minutes): anaphylaxis, food and sting allergy; the second exposure is the dangerous one. **Type II** (antibody against cell surfaces): ABO transfusion reaction, HIT. **Type III** (immune complexes, complement consumed): serum sickness, lupus nephritis. **Type IV** (T cells, 24 to 72 hours): TB skin test, contact dermatitis, graft rejection, SJS. A Type IV drug reaction appears days into therapy, so teach patients to report a spreading rash or mouth blisters.

Anaphylaxis is skin or mucosal signs plus breathing trouble or low blood pressure; hives are not required. The first action is **epinephrine 0.3 to 0.5 mg of 1 mg/mL IM into the anterolateral thigh**, repeated every 5 to 15 minutes. Stop the infusion, call for help, oxygen, lay the patient flat with legs raised, fluid boluses of 1 to 2 L. Antihistamines and steroids are adjuncts. If a beta-blocked patient does not respond, glucagon 1 to 5 mg IV. Observe at least 4 to 6 hours for a biphasic reaction. Vancomycin flushing from a fast infusion is not an allergy: slow to no faster than 1 g per hour.

HIV binds CD4 cells. Screen with a fourth-generation antigen/antibody test and confirm before telling anyone it is a diagnosis. Normal CD4 is about 500 to 1,600 cells/mm3; **AIDS** is a CD4 below 200 or an AIDS-defining illness. Prophylaxis follows the count: below 200, TMP-SMX for Pneumocystis; below 100, it also covers toxoplasma; below 50, think MAC and CMV. Start ART as soon as possible at any count. Test HLA-B*5701 before abacavir. Separate integrase inhibitors from antacids and cations. Undetectable equals untransmittable. Neutropenic fever (38.3 C once, or 38.0 C for an hour, with ANC below 500) needs cultures and antibiotics within an hour.

Lupus: ANA is sensitive but not specific; anti-dsDNA tracks activity; anti-Smith is most specific. In a flare, **C3 and C4 fall** because immune complexes consume them. Lupus nephritis is quiet: check the urine for protein and casts. Hydroxychloroquine for nearly everyone (no more than 5 mg/kg/day, baseline eye exam, yearly after 5 years). Fever on immunosuppression is infection until proven otherwise; culture first. **Scleroderma renal crisis** (sudden high blood pressure, rising creatinine) is treated with an ACE inhibitor; high-dose steroids raise the risk. **Giant cell arteritis**: steroids before biopsy.

Rheumatoid arthritis is symmetric small-joint disease sparing the DIP joints, with morning stiffness over 60 minutes that eases with use; anti-CCP is about 95% specific. Methotrexate is **once weekly** with daily folic acid; daily dosing kills. Check the cervical spine (C1 to C2) before intubation. **Gout**: needle-shaped negatively birefringent crystals; acute treatment is an NSAID, colchicine or a steroid; allopurinol starts low and aims for urate below 6.0 mg/dL. A single hot joint with fever is septic arthritis until tapped. Before a TNF inhibitor, screen for latent TB and hepatitis B and C; no live vaccines once immunosuppressed. Acute rejection (days to months) shows fever, graft tenderness, weight gain, low urine output and rising creatinine.



The count predicts the infection. Below 200 is AIDS and starts TMP-SMX. Antiretroviral therapy starts at any count; the viral load, not the CD4, shows whether it is working.

LOCK THESE IN

- Anaphylaxis: epinephrine 0.3 to 0.5 mg IM anterolateral thigh first; repeat every 5 to 15 min.
- Supine with legs up, oxygen, 1 to 2 L fluid; glucagon if on a beta blocker; watch 4 to 6 h.
- AIDS: CD4 below 200 or an AIDS-defining illness. TMP-SMX below 200.
- HLA-B*5701 before abacavir; never rechallenge.
- Lupus flare: anti-dsDNA up, C3 and C4 down. Urinalysis catches nephritis.
- Scleroderma renal crisis: ACE inhibitor, avoid high-dose steroids.
- Methotrexate once weekly plus folic acid; check the day of the week.
- Before biologics: latent TB and hepatitis screen; no live vaccines during therapy.

Key terms and comparisons: hypersensitivity types

Type	Mechanism	Onset	Examples
I immediate	IgE on mast cells	Seconds to 30 min	Anaphylaxis, food and sting allergy, atopic asthma
II cytotoxic	IgG or IgM against cell surfaces	Minutes to hours	ABO transfusion reaction, ITP, HIT
III immune complex	Complexes deposit; complement consumed	Hours to weeks	Serum sickness, lupus nephritis
IV delayed	Sensitized T cells	24 to 72 h or more	TB skin test, contact dermatitis, rejection, SJS

Key terms and comparisons: RA, OA and gout

Feature	Rheumatoid arthritis	Osteoarthritis	Gout
Pattern	Symmetric small joints, spares DIP	Asymmetric, weight bearing, DIP	One joint, often first MTP
Stiffness	Over 60 min, better with use	Under 30 min, worse with use	Sudden severe pain, peaks 12 to 24 h
Systemic	Fatigue, fever, nodules	None	Low fever possible; tophi later
Tests	Anti-CCP, RF, ESR, CRP	X-ray narrowing, osteophytes	Needle-shaped negative crystals
Core treatment	Methotrexate, biologics	Exercise, weight loss, topical NSAID	NSAID, colchicine, steroid; allopurinol later

Worked cases

WORKED CASE 1 · THE SECOND DOSE

Mr. Iyer, 70 kg, is 8 minutes into his second dose of IV cefazolin. He reports throat tightness, has stridor and a pressure of 82/44. He takes metoprolol.

STEP 1 · RECOGNIZE

Skin or mucosa plus airway plus low pressure after a likely allergen: anaphylaxis.

STEP 2 · STOP AND GIVE THE DRUG

Stop the infusion. Epinephrine 0.3 to 0.5 mg of 1 mg/mL IM into the anterolateral thigh now.

STEP 3 · SUPPORT

Call for help, high-flow oxygen, supine with legs up (unless breathing worsens), 1 to 2 L crystalloid bolus.

STEP 4 · IF REFRACTORY

Still hypotensive after repeat doses on a beta blocker: expect glucagon 1 to 5 mg IV over 5 minutes; have suction ready for vomiting.

STEP 5 · THEN ADJUNCTS

Diphenhydramine, famotidine, albuterol, methylprednisolone; observe 4 to 6 hours or more for a biphasic reaction.

WORKED CASE 2 · READING THE CD4

Ms. Calloway is newly diagnosed with HIV. CD4 is 165 cells/mm3; viral load 82,000 copies/mL. She asks when to start treatment.

STEP 1 · STAGE

A CD4 below 200 meets the definition of AIDS, and that label stays even if the count recovers.

STEP 2 · PROPHYLAX

Below 200: TMP-SMX one double-strength tablet daily for Pneumocystis.

STEP 3 · TREAT

ART as soon as possible, ideally the same day, at any CD4 count.

STEP 4 · TEACH

Near-perfect adherence; separate integrase inhibitors from antacids; undetectable equals untransmittable.

STEP 5 · WATCH

Weeks after starting, new fever or swelling may be IRIS, not failure.

WORKED CASE 3 · FLARE OR INFECTION

Mrs. Navarro has lupus on mycophenolate and prednisone. She has fever, malaise and a fast pulse. Labs: C3 and C4 normal, CRP markedly high, ESR high. A second patient, Ms. Lake, has rising anti-dsDNA, low C3 and C4, new leg edema and 3+ proteinuria.

STEP 1 · READ MRS. NAVARRO

Normal complement with a very high CRP tilts toward infection. Cultures first; do not add steroid until infection is ruled out.

STEP 2 · READ MS. LAKE

Rising anti-dsDNA with falling complement and proteinuria: active flare with nephritis.

STEP 3 · ACT FOR MS. LAKE

Notify for urinalysis with microscopy, urine protein-to-creatinine ratio, renal function, likely biopsy; daily weight, blood pressure, intake and output.

RULE

Fever on immunosuppression is infection until proven otherwise.

TRAPS PEOPLE FALL INTO

- **Giving diphenhydramine first for anaphylaxis.** Antihistamines do not open the airway or raise pressure. Epinephrine IM first.
- **Sitting a hypotensive anaphylactic patient upright.** Sudden upright posture can empty the heart. Supine with legs raised.
- **Charting vancomycin flushing as an allergy.** It is a rate reaction. Slow the infusion.
- **Accepting "methotrexate 15 mg daily."** Methotrexate is weekly for arthritis. Hold and clarify.
- **Calling a hot, febrile joint "just his gout."** Septic arthritis until the joint is tapped.

Chapter 9 self-test · ten items

1. Twelve minutes into a cefazolin infusion, a patient has lip swelling, wheezing and a falling blood pressure. After stopping the drug, what is first?

A. Diphenhydramine 50 mg IV over two minutes
B. Epinephrine 0.3 mg subcutaneously in the arm
C. Epinephrine 0.3 mg IM into the outer thigh
D. Methylprednisolone 125 mg IV as a bolus

C. Epinephrine 0.3 mg IM into the outer thigh IM epinephrine in the anterolateral thigh is the first and only drug that reverses the shock.

2. A patient on metoprolol stays hypotensive after repeated epinephrine. Which drug should the nurse anticipate?

A. Atropine IV
B. Adenosine IV
C. Naloxone IV
D. Glucagon IV

D. Glucagon IV Glucagon raises heart rate and contractility through a non-adrenergic pathway.

3. Which reaction is a Type IV hypersensitivity?

A. Induration 48 hours after a tuberculin skin test
B. Joint pain from immune complexes after serum
C. Hives within minutes of eating peanuts
D. Hemolysis after an ABO mismatched transfusion

A. Induration 48 hours after a tuberculin skin test Type IV is T-cell mediated and delayed 24 to 72 hours.

4. A patient with HIV has a CD4 count of 180 cells/mm3. Which prophylaxis is expected?

A. Azithromycin for disseminated MAC
B. TMP-SMX for Pneumocystis pneumonia
C. Isoniazid for latent tuberculosis
D. Fluconazole for oral candidiasis

B. TMP-SMX for Pneumocystis pneumonia Below 200, TMP-SMX prevents Pneumocystis. Azithromycin is for counts below 50.

5. Which test must be done before a patient starts abacavir?

A. HLA-B*15:02
B. HLA-B*5801
C. HLA-B27 type
D. HLA-B*5701

D. HLA-B*5701 A positive HLA-B*5701 predicts a possibly fatal hypersensitivity reaction.

6. Which lab pattern suggests an active lupus flare?

A. Rising anti-dsDNA with falling C3 and C4
B. A normal anti-dsDNA with a very high CRP
C. Rising C3 and C4 with a falling ANA titer
D. A positive anti-CCP with a high uric acid

A. Rising anti-dsDNA with falling C3 and C4 Immune complexes consume complement in a flare; anti-dsDNA tracks activity.

7. A patient with diffuse scleroderma has new severe hypertension and a rising creatinine. Which drug is expected?

A. An NSAID for the joint inflammation
B. High-dose IV methylprednisolone
C. An ACE inhibitor such as captopril
D. A loop diuretic such as furosemide

C. An ACE inhibitor such as captopril Scleroderma renal crisis is treated with an ACE inhibitor; high-dose steroids increase risk.

8. Which history best fits rheumatoid arthritis?

A. A red, hot big toe that woke the patient up last night
B. Two hours of stiffness in both hands that eases with use
C. Ten minutes of knee stiffness that gets worse by evening
D. Low back pain that improves with rest and lying flat

B. Two hours of stiffness in both hands that eases with use RA is symmetric with prolonged morning stiffness that improves with activity.

9. What must be done before the first dose of a TNF inhibitor?

A. Start allopurinol to lower the urate level
B. Give a live zoster vaccine on the same day
C. Screen for latent TB and hepatitis B and C
D. Check HLA-B*5701 to rule out drug allergy

C. Screen for latent TB and hepatitis B and C TNF inhibitors reactivate TB and hepatitis B. Live vaccines are avoided once therapy starts.

10. Three weeks after a kidney transplant, a patient has fever, graft tenderness, weight gain and less urine. What is likely?

A. Hyperacute rejection
B. Acute rejection
C. Chronic rejection
D. Expected recovery

B. Acute rejection Acute T-cell rejection occurs days to months after transplant and is reversible if caught early.

Infectious Disease and Antimicrobial Stewardship

Read it in full: **Chapter 10 in the textbook**. Practice it in the lab: **The Infection Workup Bench** and **The Mechanism Names the Monitoring**.

What to know

Cytokines from infection cause fever, local redness and swelling, and push the marrow to release band forms (a **left shift**; bands above about 10%). A low white count in an ill patient is worse than a high one. Tachypnea is the earliest, most ignored sign. In older adults fever may be absent: a single oral reading above 37.8 C, repeated readings above 37.2 C, or a rise of 1.1 C over baseline counts, and new confusion or a fall may be the only sign. But confusion plus a positive urine culture without urinary symptoms is **not** a UTI; do not treat asymptomatic bacteriuria.

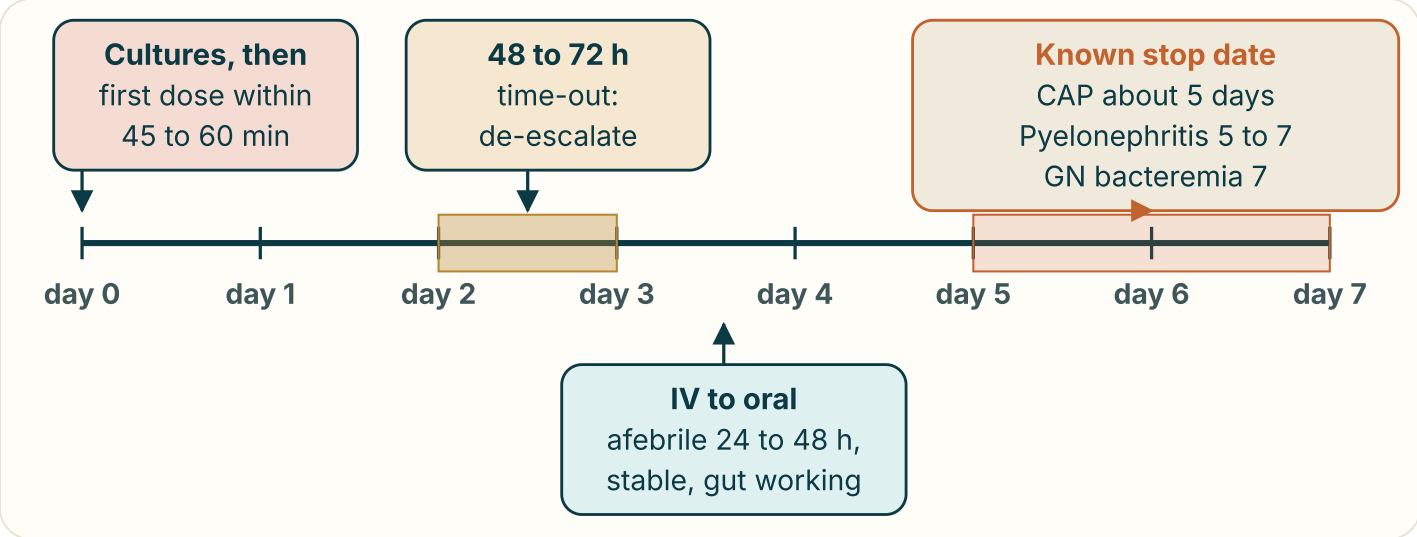
Get cultures before antibiotics: **two sets from two sites**, 8 to 10 mL per bottle, chlorhexidine scrub with dry time; never from the drainage bag; C. difficile tests only on unformed stool. But never let cultures delay the first dose beyond about 45 to 60 minutes in sepsis. Know the markers: WBC 4,500 to 11,000; ANC = WBC x (segs + bands)/100, below 500 severe; lactate above 2 is hypoperfusion, above 4 high risk; procalcitonin helps justify stopping. **Source control beats drug choice**: drain the abscess, debride, pull the line.

The mechanism names the monitoring. **Beta-lactams** kill by time above the MIC: give on time; cefepime can cause confusion and seizures in kidney failure. Most penicillin "allergy" labels are wrong; take a real history. **Vancomycin**: AUC 400 to 600 or trough 15 to 20 for serious MRSA, creatinine, infuse no faster than 1 g/h; oral vancomycin treats C. difficile. **Daptomycin** is never for pneumonia; check CK weekly. **Linezolid**: weekly CBC, serotonin syndrome with SSRIs. **Aminoglycosides**: creatinine, hearing and balance. **Fluoroquinolones**: tendon rupture, QT, separate from cations by 2 h before or 6 h after. **Metronidazole**: no alcohol for 3 days after.

Stewardship at the bedside: cultures first, doses on time, real allergy histories, a 48 to 72 hour time-out to **de-escalate**, IV to oral once stable, and a known stop date. Organisms: MRSA (vancomycin, daptomycin, linezolid), VRE (linezolid, daptomycin), ESBL (carbapenem), CRE (newer agents). **C. difficile**: oral vancomycin or fidaxomicin for 10 days; contact precautions; **soap and water**, since alcohol does not kill spores; bleach cleaning; a stop in diarrhea with a

distended quiet abdomen is toxic megacolon. Precautions: contact (MRSA, VRE, C. diff), droplet (influenza, meningococcus), airborne with N95 and negative pressure (TB, measles, varicella, disseminated zoster).

Necrotizing fasciitis: pain out of proportion; surgery now plus clindamycin. **Osteomyelitis**: MRI and bone biopsy, 4 to 6 weeks of therapy, debridement. **Endocarditis**: fever plus a new murmur; three sets of cultures; watch for emboli (new neuro deficit, flank pain, cold limb) and heart failure. **Tuberculosis**: airborne isolation on suspicion; off isolation only after clinical improvement and three negative sputum smears 8 to 24 hours apart. RIPE for 6 months: rifampin (orange fluids, weakens contraceptives), isoniazid (B6 for neuropathy), pyrazinamide (uric acid), ethambutol (vision checks). TB skin test cutoffs are 5, 10 and 15 mm by risk. Needlestick: wash, report at once; HIV PEP within 72 hours for 28 days.



Narrowest drug, shortest time. Every step on the line is a bedside nursing prompt: cultures first, dose on time, ask for the time-out, ask for the oral switch, and know the stop date.

LOCK THESE IN

- Two sets of blood cultures, two sites, before antibiotics; never delay the dose past 45 to 60 min in sepsis.
- Neutropenic fever: cultures and an antipseudomonal beta-lactam within 60 minutes.
- Do not treat asymptomatic bacteriuria (except pregnancy and before urologic procedures).
- Vancomycin no faster than 1 g/h; flushing is a rate reaction, not an allergy. Daptomycin never for pneumonia.
- Linezolid: weekly CBC; serotonin syndrome with SSRIs. Aminoglycosides: creatinine and hearing.
- C. difficile: soap and water, bleach, contact precautions; diarrhea stopping with a distended belly is toxic megacolon.
- Airborne (N95, negative pressure): TB, measles, varicella, disseminated zoster.
- RIPE: rifampin orange fluids and contraceptive failure; isoniazid with B6; ethambutol vision checks.

Key terms and comparisons: the mechanism names the monitoring

Class (example)	Mechanism	Monitor and teach
Beta-lactams (pip-tazo, cefepime)	Cell wall	Give on time; cefepime neurotoxicity in renal failure; allergy history
Glycopeptide (vancomycin)	Cell wall precursors	AUC or trough, creatinine; no faster than 1 g/h
Lipopeptide (daptomycin)	Membrane	Weekly CK; never for pneumonia
Oxazolidinone (linezolid)	50S ribosome	Weekly CBC; serotonin syndrome with SSRIs
Aminoglycoside (gentamicin)	30S ribosome	Levels, creatinine, hearing and balance
Fluoroquinolone (levofloxacin)	DNA gyrase	Tendons, QT, neuropathy, C. diff; separate from cations
Macrolide (azithromycin, clarithromycin)	50S ribosome	QT; clarithromycin and erythromycin inhibit CYP3A4
Sulfonamide (TMP-SMX)	Folate synthesis	Potassium, creatinine, CBC; warfarin interaction
Nitroimidazole (metronidazole)	DNA damage	No alcohol during and 3 days after

Key terms and comparisons: precautions

Type	Gear and room	Examples
Standard	Hand hygiene; gloves for anything wet; PPE for splash	Every patient
Contact	Gown and gloves; dedicated equipment	MRSA, VRE, ESBL, CRE, C. difficile (soap and water), scabies
Droplet	Surgical mask; patient masked for transport	Influenza, pertussis, meningococcus, mumps
Airborne	Fit-tested N95 or PAPR; negative-pressure room, door closed	TB, measles, varicella, disseminated zoster

Worked cases

WORKED CASE 1 · IS THIS NEUTROPENIC FEVER

Mr. Pham, on chemotherapy, has an oral temperature of 38.4 C. WBC 2,400/mm3 with 15% segs and 5% bands. He looks well and his chest film is clear.

STEP 1 · COMPUTE THE ANC

2,400 x (15 + 5)/100 = 480 cells/mm3, below 500: severe neutropenia.

STEP 2 · APPLY THE RULE

A single 38.3 C or higher with ANC below 500 is neutropenic fever, an emergency even if he looks well.

STEP 3 · ACT

Two sets of blood cultures, then cefepime, piperacillin-tazobactam or meropenem within 60 minutes. Do not wait for a source.

STEP 4 · PROTECT

No rectal temperatures, suppositories or enemas; strict hand hygiene.

WORKED CASE 2 · THE ANTIBIOTIC TIME-OUT

Mrs. Ibarra has been on vancomycin plus piperacillin-tazobactam for pyelonephritis for 60 hours. Cultures grew E. coli sensitive to ceftriaxone. She has been afebrile 36 hours, is eating and stable.

STEP 1 · DE-ESCALATE

Prompt the team: narrow to the targeted agent and stop vancomycin. Vancomycin plus pip-tazo raises kidney injury risk.

STEP 2 · SWITCH THE ROUTE

Afebrile 24 to 48 hours, stable, working gut: ask about an oral agent.

STEP 3 · KNOW THE STOP DATE

Uncomplicated pyelonephritis usually runs 5 to 7 days.

RULE

Narrowest drug, shortest time, fewest devices.

WORKED CASE 3 · THE DIARRHEA THAT STOPS

Four patients: (A) day 3 cellulitis, redness receding; (B) new C. difficile, diarrhea stopped this morning, abdomen distended, tympanic and quiet; (C) osteomyelitis waiting for a PICC; (D) TB on RIPE day 10 in isolation.

STEP 1 · FIND THE DANGER

B: diarrhea stopping with distension and absent bowel sounds suggests ileus and toxic megacolon, which can perforate.

STEP 2 · ACT

See B first, notify the provider now, expect imaging and surgical review.

STEP 3 · ORDER THE REST

A, C and D are stable and can follow.

RULE

In C. difficile, quiet is not better.

TRAPS PEOPLE FALL INTO

- **Treating a positive urine culture in a confused older adult without symptoms.** Look for the real cause: dehydration, a new drug, hypoxia, pain, constipation.
- **Swabbing slough for a wound culture.** Swabs of surface slough grow colonizers. Culture cleansed viable tissue or pus.
- **Using alcohol rub after a C. difficile room.** Spores need soap, water and friction.
- **Ordering daptomycin for MRSA pneumonia.** Surfactant inactivates it. Vancomycin or linezolid.
- **Lifting TB isolation after the first negative smear.** Three negative smears 8 to 24 hours apart plus clinical improvement.

Chapter 10 self-test · ten items

1. A septic patient's antibiotic arrives before the phlebotomist. What should the nurse do?

A. Wait for the phlebotomist before giving anything
B. Hang the antibiotic and skip the cultures today
C. Draw one culture set from the existing IV line
D. Draw the cultures now, then hang the antibiotic

D. Draw the cultures now, then hang the antibiotic Cultures first when possible, without delaying the dose beyond 45 to 60 minutes. Two sets from two sites.

2. A patient has WBC 3,000/mm3 with 10% segs and 2% bands. What is the ANC?

A. 360 cells/mm3
B. 36 cells/mm3
C. 3,600 cells/mm3
D. 1,200 cells/mm3

A. 360 cells/mm3 3,000 x (10 + 2)/100 = 360, which is severe neutropenia.

3. A patient reports a "penicillin allergy" that was a stomach ache in childhood. What is the best documentation?

A. An allergy to all beta-lactam antibiotics
B. A severe penicillin allergy with no details
C. The exact reaction, noted as an intolerance
D. No allergy, with the history left out

C. The exact reaction, noted as an intolerance GI upset is an intolerance. Accurate wording lets the patient receive first-line beta-lactams.

4. Thirty minutes into vancomycin, a patient has face and neck flushing and itching with normal breathing and pressure. What is best?

A. List vancomycin as a severe allergy in the chart
B. Slow the infusion and expect an antihistamine
C. Speed the infusion to finish it more quickly
D. Give IM epinephrine and stop the drug forever

B. Slow the infusion and expect an antihistamine This is an infusion-rate reaction. Infuse at least 60 minutes per gram.

5. A patient on linezolid also takes sertraline and becomes agitated with clonus and fever. What is likely?

A. Serotonin syndrome
B. Neuroleptic syndrome
C. Disulfiram reaction
D. Red man syndrome

A. Serotonin syndrome Linezolid is a weak MAO inhibitor; combined with an SSRI it can cause serotonin syndrome.

6. Which hand hygiene is correct after caring for a patient with C. difficile?

A. Alcohol rub, then gloves on
B. Antiseptic wipe on the hands
C. Soap and water with friction
D. Alcohol rub for 20 seconds

C. Soap and water with friction Alcohol does not kill spores.

7. A patient has suspected active pulmonary tuberculosis. Which precautions are needed?

A. Contact, with a gown and gloves for any touch
B. Airborne, with an N95 and a negative-pressure room
C. Standard only, until a sputum smear returns
D. Droplet, with a surgical mask within one meter

B. Airborne, with an N95 and a negative-pressure room TB spreads by droplet nuclei; isolate on suspicion.

8. Which teaching belongs with rifampin?

A. Take vitamin B6 every day to prevent numb feet
B. Expect joint pain from a rising uric acid level
C. Have your color vision checked every single month
D. Body fluids turn orange and birth control pills may fail

D. Body fluids turn orange and birth control pills may fail Rifampin colors fluids and induces enzymes. B6 goes with isoniazid; vision checks with ethambutol.

9. In week two of IV therapy for mitral endocarditis, a patient suddenly slurs speech and cannot move one arm. What is likely?

A. Worsening heart failure from the valve
B. An embolus from the valve to the brain
C. A side effect of the IV antibiotic dose
D. A seizure from fever in the evening

B. An embolus from the valve to the brain Vegetation fragments embolize; treat as a stroke and note the time of onset.

10. Right after a hollow-needle stick while caring for a patient living with HIV, what should the nurse do first?

A. Squeeze the wound hard to bleed it out
B. Soak the finger in bleach for a minute
C. Wash the site with soap and water right away
D. Finish the shift, then report the injury

C. Wash the site with soap and water right away Wash at once, then report immediately; HIV PEP starts within 72 hours, ideally within 2.

ONE PAGE

Cram sheet

One page of doses, numbers and precautions for both chapters. Cover the right column and say each rule out loud.

Immune and rheumatologic

Item	Rule or value
Anaphylaxis	Epi 0.3 to 0.5 mg (1 mg/mL) IM thigh every 5 to 15 min; child 0.01 mg/kg, max 0.3 mg
Adjuncts	Fluids 1 to 2 L, diphenhydramine 25 to 50 mg, famotidine 20 mg, methylpred 125 mg, glucagon 1 to 5 mg if beta blocked
Observe	4 to 6 h at least; biphasic 1 to 8 h (up to 72 h)
HIV	CD4 normal 500 to 1,600; AIDS below 200; VL goal under 20 to 50 copies/mL
Prophylaxis	Below 200 TMP-SMX; below 100 toxo cover; below 50 MAC, CMV eye exams
Neutropenic fever	38.3 C once or 38.0 C for 1 h with ANC below 500; antibiotics within 1 h
Lupus	ANA screen; anti-dsDNA activity; anti-Smith specific; C3, C4 fall in flare
Hydroxychloroquine	5 mg/kg/day or less; baseline eye exam; yearly after 5 years
GCA	ESR often above 50; prednisone 40 to 60 mg; IV methylpred 500 to 1,000 mg if vision threatened
Methotrexate	7.5 to 25 mg once weekly; folic acid 1 mg daily; CBC, LFTs, creatinine
Gout	Urate solubility about 6.8; colchicine 1.2 mg then 0.6 mg; allopurinol to urate below 6.0

Infection and stewardship

Item	Rule or value
Older adult fever	Above 37.8 C once, above 37.2 C repeated, or 1.1 C over baseline
Markers	WBC 4,500 to 11,000; bands under 5%; lactate under 2.0; procalcitonin under 0.25 low
ANC	WBC x (segs + bands)/100; below 500 severe
Vancomycin	AUC 400 to 600; trough 15 to 20 before 4th dose; 1 g/h max
Separations	Fluoroquinolone 2 h before or 6 h after cations
C. difficile	Oral vanc 125 mg QID x 10 days or fidaxomicin 200 mg BID x 10 days
Durations	CAP 5 days; uncomplicated gram-negative bacteremia 7; pyelonephritis 5 to 7
TST cutoffs	5 mm HIV, contacts, immunosuppressed; 10 mm high-risk groups; 15 mm no risk
TB isolation off	Improving plus 3 negative smears 8 to 24 h apart
Needlestick risk	HBV up to 30%, HCV about 1.8%, HIV about 0.3%; PEP within 72 h for 28 days

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