MEDICAL-SURGICAL NURSING I · STUDY GUIDE

Exam 2 Study Guide

This guide covers chapters 3 and 4. You will follow a patient through surgery, from the drugs held before it to the airway in recovery and the complications on the unit, then learn to assess and treat pain safely and to care for patients when cure is no longer the goal. Work one chapter at a time. Read the "what to know" paragraphs, copy the tables out by hand, 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 every number and rule in one place.

WHAT THIS GUIDE COVERS

- Chapter 3 · the surgical stress response, ASA class, STOP-BANG, preop labs, holding or continuing drugs, consent, fasting and ERAS, anesthesia types, the Universal Protocol and counts, malignant hyperthermia, PACU priorities and the Aldrete score, postoperative complications and the older adult.
- Chapter 4 · the four steps of nociception, pain types, self-report and valid scales, reassessment timing, red-flag pain, multimodal analgesia, opioids and PCA, POSS and dilute naloxone, constipation, tolerance versus addiction, sickle cell and OUD, palliative care versus hospice, advance directives and end-of-life symptoms.

CHAPTER 3

Perioperative Nursing

Read it in full: **Chapter 3 in the textbook**. Practice it in the lab: **The Recovery Bay: Two Hours, One Patient at a Time** and **Postoperative Floor Rounds: Name It, Then Escalate It**.

What to know

Surgery is a controlled injury. Cytokines and nerve traffic switch on the sympathetic system and the stress hormones. Cortisol and glucagon push the glucose to 180 to 220 mg/dL even without diabetes. ADH and aldosterone hold water and sodium, so urine output is low for 24 to 48 hours; be suspicious if it lasts longer. Fluid third spaces into the wound, then returns on day two or three, which is when a frail cardiac patient can turn crackly. Surgery is also a clotting event.

Preop assessment is risk stratification. **ASA class** runs from I (healthy) to VI (brain-dead donor), with an E for emergency. A patient who can climb two flights of stairs has at least 4 METs. Elective surgery waits at least 30 days after a bare-metal stent and ideally six months after a drug-eluting stent. Screen sleep apnea with **STOP-BANG**; three or more yes answers means continuous oximetry, careful opioids and the patient's own CPAP. Albumin under 3.5 g/dL or weight loss over 10% in six months predicts dehiscence and infection.

Medication reconciliation is the highest-value nursing task in the chapter. Continue beta blockers and statins. Commonly hold ACE inhibitors and ARBs the morning of surgery, metformin the day of surgery and SGLT2 inhibitors 3 to 4 days before (euglycemic DKA). Warfarin is held about 5 days to an INR under 1.5; DOAC holds are 24 to 96 hours by drug and kidney function. GLP-1 agonists slow the stomach, so anesthesia must know the last dose. Herbals like garlic, ginkgo and fish oil are held 1 to 2 weeks.

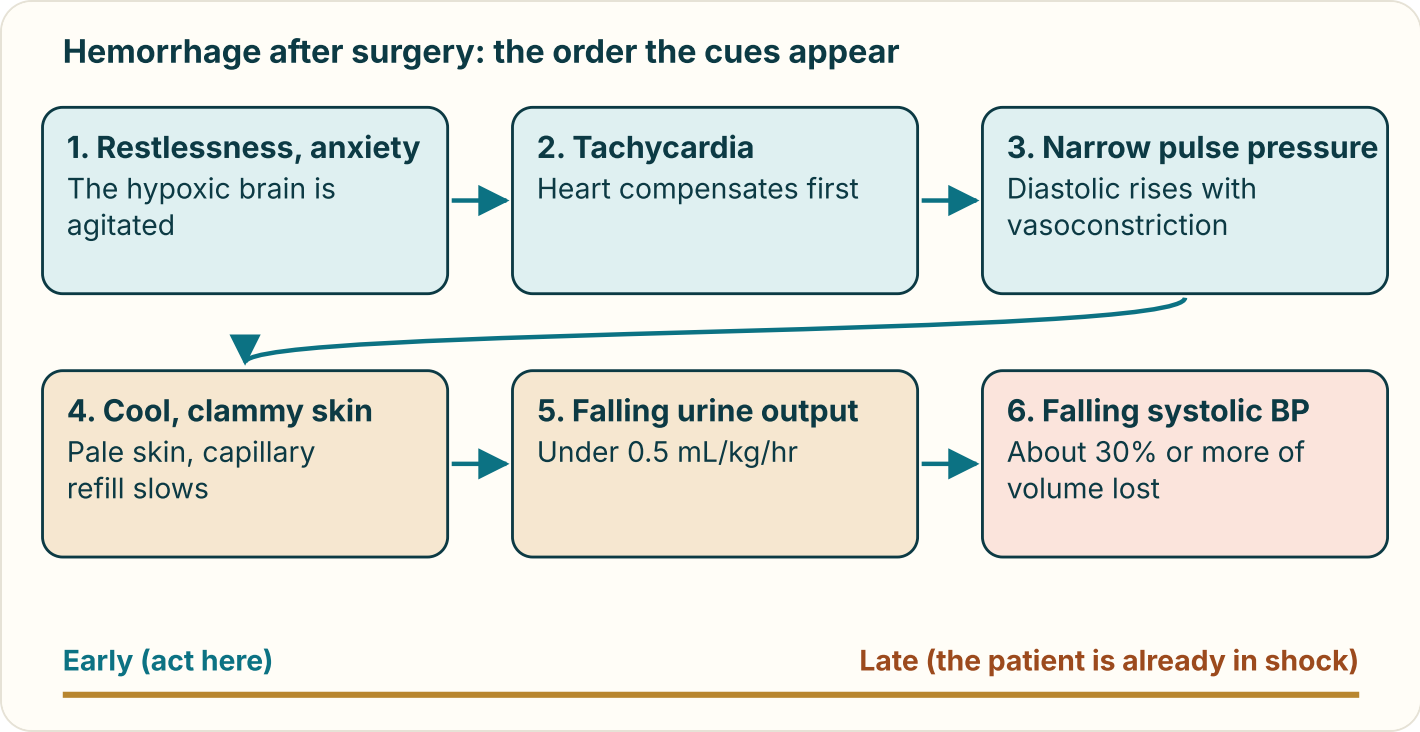
The surgeon obtains **informed consent**. The nurse witnesses that the signature is the patient's, voluntary and competent, and confirms understanding. If the patient does not understand, stop, hold the sedative, notify the surgeon and document; do not explain the operation yourself. Consent signed after midazolam is not valid. Use a qualified interpreter, never family. Fasting: clear liquids up to 2 hours before, a light meal 6 hours, a fatty meal 8 hours. Milk makes coffee not clear.

In the OR the nurse speaks for the unconscious patient. The Universal Protocol is verification, site marking by the person doing the procedure, and a time out before incision; anyone may stop the line. Counts happen before the start, before cavity closure, at skin closure and at the end. Keep core temperature at or above 36 °C. Antibiotics finish within 60 minutes before incision (cefazolin 2 g, 3 g at 120 kg or more). Spinal anesthesia drops blood pressure and heart rate; new back pain with leg weakness in a patient with an epidural is a hematoma emergency.

Malignant hyperthermia is triggered by volatile anesthetics or succinylcholine. The earliest sign is an unexplained rising end-tidal CO_2, with tachycardia and masseter rigidity; high fever is late. Stop the trigger, give 100% oxygen, call for the MH cart, give dantrolene 2.5 mg/kg (repeat up to about 10 mg/kg), cool to about 38 °C, treat potassium and keep urine at 1 to 2 mL/kg/hr.

In the PACU the order is airway, breathing, circulation, comfort. The tongue is the usual obstruction: stimulate and do a jaw thrust or chin lift before anything else, because oxygen above an obstruction goes nowhere. Sedation comes before respiratory depression; titrate dilute naloxone. In hemorrhage, restlessness and tachycardia come first and falling systolic pressure comes last, after about 30% blood loss. Check under the patient. Phase I discharge usually needs a modified Aldrete score of 9 or more.

On the unit, prevent atelectasis with incentive spirometry ten breaths an hour and early walking. Use the fever timeline (wind, water, walking, wound, wonder drugs) to decide where to look. Pulmonary embolism is sudden: high Fowler, oxygen, stay, rapid response. Ileus resolves in stages (colon 3 to 5 days); the patient should void within 6 to 8 hours, so bladder scan first. For **evisceration**: stay, call for help, low Fowler with knees bent, cover with sterile saline-moistened gauze, NPO, never push organs back. In older adults, check saturation, glucose, blood pressure, pain and the bladder before sedating new confusion.



Vital signs lie until they do not. A young patient compensates. By the time the systolic pressure falls, about a third of the blood volume may be gone, so act on restlessness and a rising heart rate.

LOCK THESE IN

- Stress response: glucose 180 to 220, low urine output for 24 to 48 h, fluid returns day 2 to 3.
- STOP-BANG 3 or more: continuous oximetry, cautious opioids, CPAP at the bedside.
- Continue beta blockers and statins; hold ACE inhibitors (morning), metformin (day of), SGLT2 inhibitors (3 to 4 days).
- The nurse witnesses consent. No understanding: stop, hold sedation, call the surgeon.
- Fasting: clears 2 h, light meal 6 h, fatty meal 8 h.
- Malignant hyperthermia: rising end-tidal CO_2 first; dantrolene 2.5 mg/kg.
- PACU: jaw thrust before oxygen. Aldrete 9 or more to leave Phase I.
- Evisceration: low Fowler, knees bent, sterile saline gauze, NPO, call the surgeon.

Hold or continue before surgery

Drug class	Plan	Reason
Beta blockers, statins	Continue, including the morning dose	Rebound tachycardia and ischemia; plaque stability
ACE inhibitors, ARBs	Commonly held the morning of surgery	Refractory intraoperative hypotension
Warfarin	Hold about 5 days; INR under 1.5	Effect takes days to clear
DOACs	Hold 24 to 96 h by drug, bleeding risk and CrCl	Dabigatran is the most renally cleared
Clopidogrel, prasugrel, ticagrelor	Hold 5 to 7 days, with cardiology input if stented	Stent thrombosis if stopped too soon
Metformin	Hold the day of surgery	Lactic acidosis if kidney perfusion falls
SGLT2 inhibitors	Hold 3 to 4 days	Euglycemic DKA
Insulin	Basal reduced to about 50 to 80%; hold mealtime insulin while NPO	Correction insulin keeps glucose 140 to 180
Chronic steroids	Continue; stress dose may be ordered	Adrenal crisis and hypotension
Garlic, ginkgo, ginseng, fish oil, vitamin E	Hold 1 to 2 weeks	Platelet inhibition

Modified Aldrete score

Component	2 points	1 point	0 points
Activity	Moves 4 extremities	Moves 2	Moves none
Respiration	Deep breaths, coughs freely	Dyspnea or shallow	Apneic
Circulation	BP within 20% of preop	Within 20 to 49%	50% or more off
Consciousness	Fully awake	Rousable on calling	Not responding
SpO_2	Over 92% on room air	Needs O_2 to stay over 90%	Under 90% even with O_2

Postoperative fever timeline

Day	W	Look for
0 to 2	Wind	Inflammatory response, atelectasis, early pneumonia
3 to 5	Water	Urinary infection, often from a catheter
4 to 6	Walking	DVT and pulmonary embolism
5 to 7	Wound	Surgical site infection
7 and later	Wonder drugs	Drug fever, line infection, C. difficile, abscess

Worked cases

WORKED CASE 1 · A CONSENT THAT IS NOT READY

Mrs. Hollis, 74, is to have a hip repair. As you witness her signature she says, “My son told me to sign. I am not sure what they are doing.” Midazolam is ordered on call to the OR.

STEP 1 · RECOGNIZE THE CUE

She does not understand the procedure. Consent requires understanding, voluntariness and competence.

STEP 2 · ACT

Stop. Do not witness the signature, and hold the midazolam, because a consent signed after sedation is not valid.

STEP 3 · ESCALATE

Notify the surgeon, who is responsible for explaining the procedure, risks, alternatives and refusal. Document what she said and what you did.

SCOPE CHECK

Do not explain the surgery yourself. That does not fix the consent and is outside the nurse's role.

WORKED CASE 2 · MALIGNANT HYPERTHERMIA BY THE NUMBERS

Mr. Hartigan, 84 kg, is under sevoflurane. His end-tidal CO_2 keeps rising despite more ventilation, his heart rate is 128 and his jaw is rigid. Temperature is 37.8 °C.

STEP 1 · NAME IT

Rising end-tidal CO_2, tachycardia and masseter rigidity are the early signs. The temperature is not high yet because fever is late.

STEP 2 · STOP THE TRIGGER

Stop the volatile agent and succinylcholine; ventilate with 100% oxygen at high flow; call for the MH cart and help.

STEP 3 · DOSE DANTROLENE

2.5 mg/kg x 84 kg = **210 mg** IV push, repeated as needed toward a usual maximum of about 10 mg/kg (840 mg).

STEP 4 · SUPPORT

Cool with cold saline and ice packs and stop cooling near 38 °C. Treat high potassium. Keep urine output 1 to 2 mL/kg/hr. Monitor in ICU for at least 24 hours for recrudescence.

WORKED CASE 3 · SCORING A PACU PATIENT

Ms. Ford moves all four limbs, breathes shallowly, has a BP of 96/60 (preop 128/80), opens her eyes only when called, and needs 2 L of oxygen to keep her SpO_2 at 93%.

STEP 1 · ACTIVITY AND RESPIRATION

Moves four limbs: 2. Shallow breathing: 1.

STEP 2 · CIRCULATION

Change = (128 minus 96) ÷ 128 = 25%, which falls in the 20 to 49% band: 1. Within 20% would mean a systolic of at least 102.4, and 96 is below that.

STEP 3 · CONSCIOUSNESS AND SATURATION

Rousable on calling: 1. Needs oxygen to stay over 90%: 1.

STEP 4 · ADD

2 + 1 + 1 + 1 + 1 = **6**, well under 9. She stays in Phase I.

WHAT TO DO

Encourage deep breaths, check the airway, look for bleeding behind the low pressure, and rescore.

WORKED CASE 4 · EVISCERATION ON DAY SIX

On post-op day six after a laparotomy, Mr. Vance coughs and says something gave way. You see bowel through the incision.

STEP 1 · STAY AND CALL

Stay with him and call for help. Do not leave to get supplies yourself.

STEP 2 · POSITION

Low Fowler with knees bent to take tension off the abdomen.

STEP 3 · COVER

Cover the bowel with sterile gauze moistened with sterile normal saline and keep it moist. Do not push it back.

STEP 4 · PREPARE

Keep him NPO, take vital signs and watch for shock, notify the surgeon and prepare for the OR.

STEP 5 · PREVENTION

Splinting, antiemetics and stool softeners lower the pressure that tears a wound in days 5 to 10.

TRAPS PEOPLE FALL INTO

- **Giving oxygen before opening the airway.** In snoring or see-saw breathing, the tongue is blocking. Jaw thrust or chin lift comes first.
- **Waiting for fever to call malignant hyperthermia.** A rising end-tidal CO_2 is the early sign; high fever is late.
- **Explaining the surgery to fix a consent.** The surgeon explains. The nurse stops and notifies.
- **Reading normal BP as no bleeding.** Healthy patients compensate. Restlessness, tachycardia and a narrow pulse pressure come first.
- **Sedating restlessness in recovery.** Restlessness is hypoxia or hemorrhage until proven otherwise.
- **Elevating a limb with compartment syndrome.** Keep it at heart level, loosen the cast, no ice, call now.
- **Straight cathing before scanning.** Use the bladder scanner first; it is non-invasive and answers the question.
- **NPO after midnight for everyone.** Clears are allowed up to 2 hours before for most elective patients.

Chapter 3 self-test · ten items

1. Which preop drug is usually continued, including the morning dose?

A. Lisinopril
B. Metformin
C. Empagliflozin
D. Metoprolol

D. Metoprolol Beta blockers are continued because stopping them causes rebound tachycardia and ischemia.

2. Why is an SGLT2 inhibitor held 3 to 4 days before surgery?

A. Risk of severe bleeding
B. Risk of euglycemic DKA
C. Risk of rebound angina
D. Risk of lactic acidosis

B. Risk of euglycemic DKA SGLT2 inhibitors can cause ketoacidosis with a near-normal glucose, which is easy to miss.

3. A patient’s STOP-BANG score is 5. Which plan fits?

A. Routine vital signs every 8 hours
B. A continuous opioid basal rate
C. Continuous oximetry and own CPAP
D. Flat supine positioning at night

C. Continuous oximetry and own CPAP Three or more yes answers means higher risk: oximetry, cautious opioids, CPAP and the head of the bed up.

4. A patient drank black coffee at 0600. What is the earliest elective induction time?

A. 0800
B. 0700
C. 1200
D. 1400

A. 0800 Black coffee is a clear liquid, allowed up to 2 hours before induction.

5. What is the earliest sign of malignant hyperthermia?

A. Temperature of 40 °C
B. Cola-colored urine
C. Rising end-tidal CO_2
D. Low blood pressure

C. Rising end-tidal CO_2 Metabolic signs come first. Fever and myoglobinuria are late.

6. A PACU patient snores and shows see-saw chest motion. What is the first action?

A. Increase the oxygen
B. Perform a jaw thrust
C. Give dilute naloxone
D. Call the anesthetist

B. Perform a jaw thrust The tongue is obstructing. Open the airway physically before adding oxygen.

7. On post-op day one a patient is restless with a HR of 118 and BP 124/92 (was 120/70). What should the nurse suspect?

A. Hidden bleeding
B. Pain needing an opioid
C. Emergence delirium
D. Anxiety about surgery

A. Hidden bleeding Restlessness, tachycardia and a narrowing pulse pressure are early hemorrhage. Check the dressing and under the patient.

8. On post-op day five a patient has a fever and cloudy urine from a catheter. Which W fits?

A. Wind
B. Walking
C. Wound
D. Water

D. Water Days 3 to 5 point to urinary infection, often catheter related.

9. A patient has not voided 8 hours after surgery and has suprapubic fullness. What first?

A. Scan the bladder
B. Insert a Foley
C. Restrict fluids
D. Give a diuretic

A. Scan the bladder A bladder scan is non-invasive and tells you the volume before you catheterize.

10. Which task may the RN delegate to a UAP after surgery?

A. Teaching spirometry for the first time
B. Coaching spirometry already taught
C. Evaluating the patient's lung sounds
D. Witnessing a surgical consent form

B. Coaching spirometry already taught A UAP may remind a patient who was already taught. Teaching, assessment and witnessing consent stay with the RN.

CHAPTER 4

Pain, Comfort and Palliative Care

Read it in full: **Chapter 4 in the textbook**. Practice it in the lab: **Sedation Watch: The Night Shift That Goes Wrong** and **The Multimodal Analgesia Bench**.

What to know

Pain is a four-step relay. **Transduction** at the nerve ending (NSAIDs and local anesthetics act here), **transmission** along fast A-delta and slow C fibers to the dorsal horn (opioids act here and in the brain), **perception** in the cortex and limbic system (distraction, imagery and company act here), and **modulation**, the descending brake (duloxetine and nortriptyline strengthen it). Multimodal analgesia hits several steps with small doses.

Nociceptive pain comes from tissue damage: somatic pain is well localized, visceral pain is vague, referred and comes with nausea and sweating. Neuropathic pain burns, shoots and shocks, with allodynia and hyperalgesia; it responds poorly to opioids and well to gabapentinoids, SNRIs, tricyclics and lidocaine patches. Nociplastic pain (fibromyalgia, IBS) comes from altered central processing; opioids generally do not help. Chronic pain lacks the sympathetic signs, so **normal vital signs never rule out pain**.

The patient's self-report is the standard. Ask for a functional goal ("what number lets you cough and walk?"). Use the NRS for alert adults, faces scales for children over three or language

barriers, FLACC for young or nonverbal patients, CPOT (over 2 is significant) or BPS for intubated patients, and PAINAD for advanced dementia (2 or more warrants an analgesic trial). Keep the same tool across shifts. Reassess 15 to 30 minutes after IV opioid and 60 minutes after an oral dose.

Some pain is a diagnosis, not a dose. Pain out of proportion and worse on passive stretch in a casted limb is compartment syndrome: keep the limb at heart level, no ice, loosen the cast, call now. New back pain with leg weakness in a patient with an epidural is a hematoma. Sudden chest pain, a rigid abdomen or a cold pulseless leg needs assessment before analgesia.

Start with scheduled non-opioids; they cut opioid needs by 30 to 50%. Acetaminophen maximum is 4 g a day, 2 to 3 g in older adults, alcohol use or liver disease; count every combination product. NSAIDs cause GI bleeding, block platelets and injure kidneys (the triple whammy with an ACE inhibitor and a diuretic); avoid them at CrCl under 30. Ketorolac is limited to five days. Celecoxib spares platelets and the stomach but keeps the kidney and heart risks.

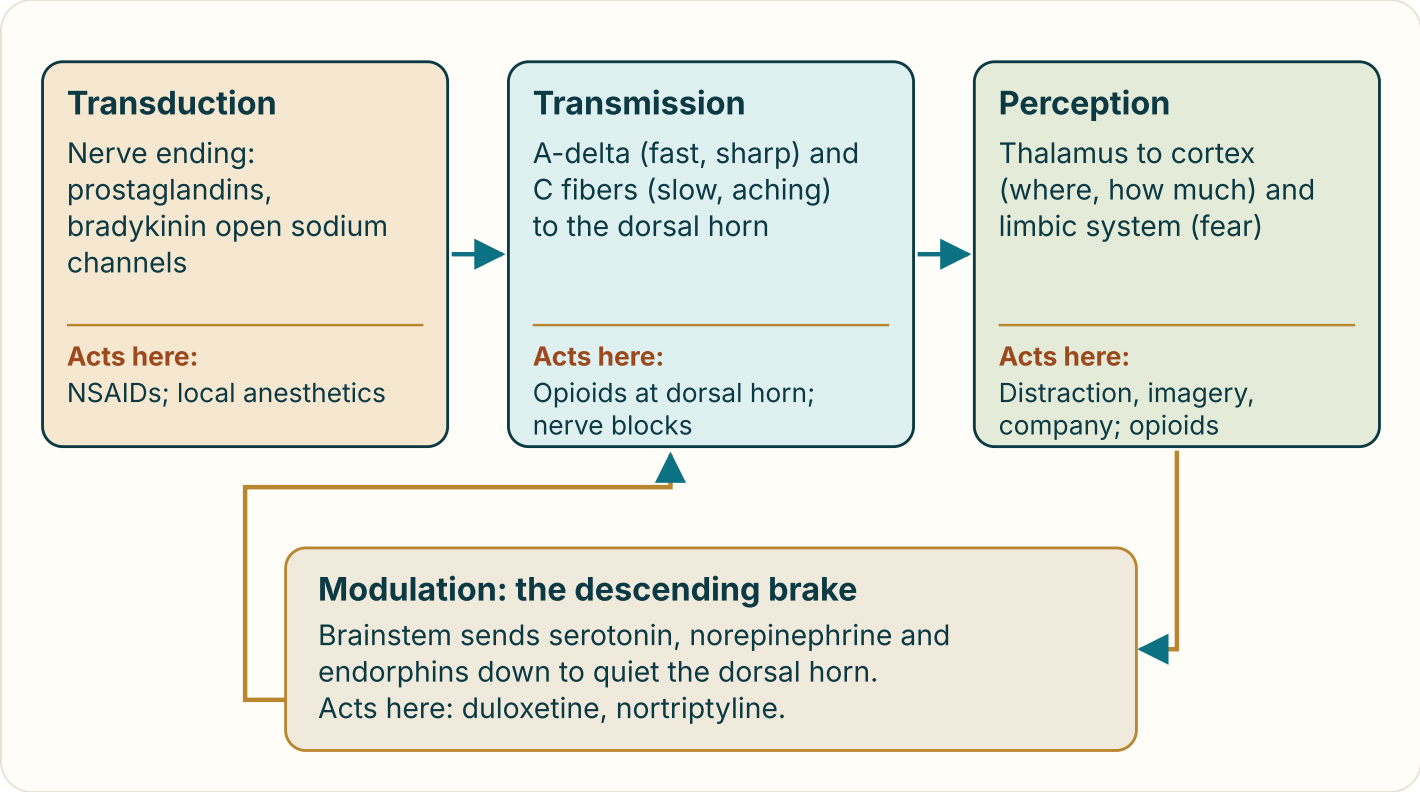
Pure mu agonists have no ceiling; side effects set the limit. Avoid morphine at CrCl under 30; hydromorphone is preferred in renal impairment but is high-error. The fentanyl patch is for opioid-tolerant chronic pain only, and heat speeds absorption. Codeine and tramadol depend on CYP2D6. Avoid meperidine. When rotating opioids, reduce the calculated dose by 25 to 50%. Only the patient presses the PCA button.

Sedation comes before respiratory depression. Score the POSS with every dose: S, 1 and 2 are acceptable; at 3, hold the opioid, cut the next dose 25 to 50% and notify; at 4, stop the opioid, stay, give oxygen and dilute naloxone and call rapid response. Dilute 0.4 mg in 9 mL saline (0.04 mg/mL) and give 0.5 to 1 mL every 1 to 2 minutes to breathing and arousal, not full alertness. Naloxone wears off before most opioids, so expect re-sedation. Oxygen can hide hypoventilation. Opioid plus benzodiazepine is the most lethal pairing.

Tolerance to constipation never develops, so start senna with the first dose. Itching is usually a side effect, not an allergy. Tolerance and physical dependence are expected and are not addiction. Patients in sickle cell crisis should get a first parenteral opioid within 30 to 60 minutes and

reassessment every 15 to 30 minutes. Patients on buprenorphine or methadone keep their maintenance dose and get added analgesia.

Palliative care relieves suffering at any stage, alongside cure. **Hospice** is for a prognosis of six months or less, certified by two physicians. A POLST is a portable medical order; a DNR covers CPR only and never means do not treat. For dyspnea, give a low-dose opioid and a fan to the face; oxygen helps only if hypoxemic. Match antiemetics to mechanism. For secretions, reposition, reduce fluids and suction only the mouth. Mouth care relieves thirst better than an IV.



Four steps, four targets. Multimodal analgesia hits several steps with small doses instead of one step with a large dose.

LOCK THESE IN

- Four steps: transduction, transmission, perception, modulation.
- Neuropathic: burning, shooting, allodynia; gabapentinoid, SNRI, TCA, lidocaine patch.
- Normal vital signs never rule out pain. Self-report is the standard.
- Reassess 15 to 30 min after IV opioid, 60 min after oral.
- Acetaminophen 4 g/day maximum; 2 to 3 g in older adults and liver disease.
- POSS 3: hold and notify. POSS 4: stop, stay, oxygen, dilute naloxone, rapid response.
- Naloxone 0.4 mg in 9 mL = 0.04 mg/mL; give 0.5 to 1 mL every 1 to 2 min.
- Hospice: prognosis six months or less. DNR means no CPR, not no care.

Pain scales

Tool	Population	Range	Act at
NRS	Alert adults	0 to 10	Mild 1 to 3, moderate 4 to 6, severe 7 to 10
Faces (FPS-R, Wong-Baker)	Children over 3, literacy or language barrier	0 to 10	Same bands as NRS
FLACC	2 months to 7 years; nonverbal	0 to 10	4 or more is moderate
CPOT	Critically ill, intubated or sedated	0 to 8	Greater than 2
BPS	Intubated, sedated adults	3 to 12	Greater than 5
PAINAD	Advanced dementia	0 to 10	2 or more: analgesic trial

Opioids to know (approximate equianalgesic doses)

Opioid	Dose	Notes
Morphine	10 mg IV = 30 mg PO	Avoid if CrCl under 30; histamine release
Hydromorphone	1.5 mg IV = 7.5 mg PO	Preferred in renal impairment; read the concentration twice
Fentanyl	100 mcg IV	Fast, short, renal safe; patch only for tolerant chronic pain
Oxycodone	20 mg PO	Often combined with acetaminophen
Hydrocodone	30 mg PO	Combination products; count the acetaminophen
Codeine	200 mg PO	CYP2D6 prodrug; not under age 12 or after tonsillectomy

POSS sedation scale

Level	Description	Action
S	Sleep, easy to arouse	Acceptable; may give dose
1	Awake and alert	Acceptable
2	Slightly drowsy, easily aroused	Acceptable; monitor closely
3	Frequently drowsy, drifts off mid-sentence	Hold opioid, cut next dose 25 to 50%, notify, monitor continuously
4	Somnolent, minimal response	Stop opioid, stay, oxygen, dilute naloxone, rapid response

Worked cases

WORKED CASE 1 · COUNTING THE ACETAMINOPHEN

Mr. Pike, 78, has acetaminophen 650 mg every 6 hours scheduled. He also has oxycodone/acetaminophen 5/325, two tablets every 6 hours as needed, and took it three times today.

STEP 1 · ADD THE SCHEDULED DOSE

650 x 4 = 2,600 mg.

STEP 2 · ADD THE COMBINATION PRODUCT

325 x 2 tablets x 3 doses = 1,950 mg.

STEP 3 · TOTAL

2,600 + 1,950 = **4,550 mg**.

STEP 4 · COMPARE

That is over the 4 g adult ceiling, and he is 78, so his ceiling should be lower still, 2 to 3 g. Hold further acetaminophen and contact the prescriber.

CHECK IT

With only one combination dose the total would be 2,600 + 650 = 3,250 mg, still above a 3 g limit for an older adult.

WORKED CASE 2 · DILUTE NALOXONE

Ms. Lowe, opioid-naive, is POSS 4 with a respiratory rate of 6 after IV hydromorphone.

STEP 1 · ACT FIRST

Stop the opioid, stay with her, stimulate, apply oxygen and call rapid response.

STEP 2 · MIX

0.4 mg naloxone (1 mL) plus 9 mL saline = 10 mL. Concentration = 0.4 ÷ 10 = **0.04 mg/mL**.

STEP 3 · GIVE

0.5 to 1 mL (0.02 to 0.04 mg) IV every 1 to 2 minutes, titrated to breathing and arousal.

WHY DILUTE

A full 0.4 mg ampoule in a patient on therapeutic opioids can cause severe pain, vomiting, hypertension and pulmonary edema.

SAFETY

Naloxone lasts 30 to 90 minutes, shorter than most opioids. Monitor continuously for re-sedation.

WORKED CASE 3 · ROTATING AN OPIOID

Mr. Ahn has used 24 mg of IV morphine in 24 hours. The team switches to IV hydromorphone. Use the book’s table: morphine 10 mg IV = hydromorphone 1.5 mg IV.

STEP 1 · SET THE RATIO

1.5 ÷ 10 = 0.15 mg hydromorphone per mg morphine.

STEP 2 · CONVERT

24 x 0.15 = **3.6 mg** IV hydromorphone per 24 hours.

STEP 3 · REDUCE FOR CROSS-TOLERANCE

Cut 25 to 50%: 3.6 x 0.75 = 2.7 mg and 3.6 x 0.5 = 1.8 mg. Start in the 1.8 to 2.7 mg range and titrate.

SAFETY

Round down, never up, and verify high-alert doses with a second nurse.

WORKED CASE 4 · A PAIN CALL THAT IS A DIAGNOSIS

Mr. Ortiz, 34, is post-op day one after a tibial repair with a cast. His pain is 10 of 10 after two opioid doses and jumps when you stretch his toes. His toes are pale.

STEP 1 · RECOGNIZE

Pain out of proportion and worse with passive stretch is compartment syndrome until proven otherwise.

STEP 2 · ACT

Keep the leg at heart level (not above), no ice, loosen or bivalve the cast per protocol, keep him NPO.

STEP 3 · CALL

SBAR to the surgeon now, naming the concern. Pulselessness is a late sign, so a pulse is not reassurance.

WHY NOT MORE OPIOID

More medication would hide the warning sign of a limb-threatening emergency.

TRAPS PEOPLE FALL INTO

- **Doubting pain because vital signs are normal.** Chronic pain loses the sympathetic signs.
- **Escalating opioids for burning pain.** Neuropathic pain needs a different drug class, not a bigger dose.
- **Watching only the respiratory rate.** Sedation comes first. Score the POSS every time.
- **Pushing a full ampoule of naloxone.** Dilute and titrate in a patient on therapeutic opioids.
- **Forgetting hidden acetaminophen.** Combination products and home cold remedies add up.
- **Labeling itching as an allergy.** It is a predictable side effect, not a true allergy.
- **Calling clock-watching addiction.** It often means the pain is undertreated.
- **Thinking DNR means stop treatment.** It limits CPR only. Antibiotics, oxygen and comfort continue unless declined.

Chapter 4 self-test · ten items

1. Which drug acts mainly at transduction?

A. Ibuprofen
B. Duloxetine
C. Morphine
D. Guided imagery

A. Ibuprofen NSAIDs block prostaglandin synthesis at the nerve ending.

2. A patient describes burning, electric foot pain and a bedsheet that hurts. Which drug fits best?

A. Oxycodone
B. Gabapentin
C. Ketorolac
D. Codeine

B. Gabapentin Burning pain with allodynia is neuropathic and responds to gabapentinoids.

3. Which tool fits an intubated, sedated adult?

A. PAINAD
B. Wong-Baker
C. CPOT
D. NRS

C. CPOT CPOT is validated for critically ill adults who cannot self-report.

4. When should the nurse reassess after an IV opioid?

A. 60 minutes
B. 2 hours
C. Next scheduled dose
D. 15 to 30 minutes

D. 15 to 30 minutes IV onset is 5 to 10 minutes with a peak at 15 to 30.

5. A patient on IV hydromorphone drifts off mid-sentence. What POSS level is this, and what is done?

A. POSS 2; give the dose
B. POSS 3; hold and notify
C. POSS 1; no change needed
D. POSS 4; full ampoule naloxone

B. POSS 3; hold and notify POSS 3 is unacceptable: hold the opioid, reduce the next dose and notify.

6. Which side effect of opioids does not lessen with tolerance?

A. Nausea
B. Sedation
C. Constipation
D. Respiratory depression

C. Constipation Tolerance never develops to constipation, so start a laxative with the first dose.

7. Which patient should not receive morphine?

A. CrCl of 25 mL/min
B. Post-op knee repair
C. Sickle cell crisis
D. Cancer bone pain

A. CrCl of 25 mL/min Morphine metabolites build up when creatinine clearance is under 30.

8. A family member presses the PCA button while the patient sleeps. What should the nurse teach?

A. Press it every 10 minutes
B. Press it when pain is high
C. Ask the nurse before pressing
D. Only the patient presses it

D. Only the patient presses it PCA by proxy defeats the safety design and can cause fatal respiratory depression.

9. Which describes hospice eligibility?

A. Any stage of serious illness
B. Only after a DNR order has been signed
C. Prognosis of six months or less
D. Only in an inpatient unit

C. Prognosis of six months or less Hospice requires a prognosis of six months or less certified by two physicians.

10. A dying patient with normal oxygen saturation is short of breath. What is first-line?

A. High-flow oxygen by mask
B. Low-dose opioid and a fan
C. Deep tracheal suctioning
D. IV fluid bolus

B. Low-dose opioid and a fan Low-dose opioids reduce air hunger; a fan helps as much as oxygen in normoxic patients.

ONE PAGE

Cram sheet

Everything from chapters 3 and 4 in one place. Cover the right column and see if you can rebuild each row.

Numbers to know

Item	Value	Note
Post-op glucose	180 to 220 mg/dL possible; target 140 to 180	Stress hormones cause insulin resistance
Stents	Bare-metal 30 days; drug-eluting ideally 6 months	Before elective surgery
Fasting	Clears 2 h; breast milk 4 h; light meal 6 h; fatty meal 8 h	Full stomach rules override the clock
Antibiotic timing	Within 60 min before incision	Vancomycin and fluoroquinolones within 120 min
Normothermia	Core at or above 36 °C	Hypothermia roughly triples infection risk
Dantrolene	2.5 mg/kg, up to about 10 mg/kg	Stop cooling near 38 °C
Aldrete	9 or more to leave Phase I	Five items, 0 to 2 each
Urine output	At least 0.5 mL/kg/hr	Void within 6 to 8 h after surgery
Ketorolac	15 to 30 mg IV every 6 h; 15 mg if over 65, under 50 kg or renal	Five days total
Acetaminophen	4 g/day; 2 to 3 g in older adults, alcohol, liver disease	Count combination products
Reassess	15 to 30 min after IV; 60 min after oral	30 to 60 min after a non-drug measure
Naloxone	0.04 mg/mL; 0.5 to 1 mL every 1 to 2 min	Lasts 30 to 90 min
Breakthrough dose	10 to 20% of the 24 h total	End-of-life scheduled dosing
Hospice	Prognosis of 6 months or less	Two physicians certify

Key terms and comparisons

Term	Meaning
Witness vs obtain consent	The nurse witnesses signature, voluntariness and competence; the surgeon obtains consent
Ileus vs obstruction	Absent or hypoactive sounds and no flatus; high-pitched sounds and colicky pain early
Dehiscence vs evisceration	Wound layers separate; organs protrude (an emergency)
Nociceptive vs neuropathic	Tissue damage, aching or cramping; nerve damage, burning or shooting
Tolerance vs dependence vs OUD	Needing more; withdrawal on stopping; compulsive use despite harm
Palliative vs hospice	Any stage with cure; prognosis 6 months or less, comfort focus
Living will vs POLST	Patient-made document; clinician-signed portable medical order

Rules that are not equations

Topic	The rule
PACU priority	Airway, breathing, circulation, comfort. Jaw thrust before oxygen.
Hemorrhage order	Restlessness, tachycardia, narrow pulse pressure, cool skin, low urine, then falling systolic.
Malignant hyperthermia	Stop trigger, 100% O_2, dantrolene, cool, treat K, ICU 24 h.
Compartment syndrome	Heart level, no ice, loosen cast, call now.
Evisceration	Stay, low Fowler with knees bent, sterile saline gauze, NPO, surgeon.
Opioid safety	Sedation before respiratory depression; oxygen can mask hypoventilation.
Delegation	UAP may reposition, apply ordered heat or cold and report; RN assesses and evaluates.
Older adult	Check SpO_2, glucose, BP, pain and bladder before sedating confusion.

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