LUMA EDUCATIONAL APPS

NCLEX-RN Comprehensive Review Course

A premium board preparation resource for nursing graduates

2026 Edition

Seventeen high-yield chapters for Next Generation NCLEX success

lumaeducationalapps.com

Educational resource for nurses preparing for NCLEX-RN licensure

Contents

Created through Luma Educational Apps for nursing graduates who want focused, high-yield NCLEX-RN preparation with clear clinical reasoning.

Welcome

Welcome to the Luma Educational Apps NCLEX-RN Comprehensive Review Course. This course is engineered for the modern nursing graduate. It distills the Next Generation NCLEX (NGN) test plan into focused, high-yield chapters that mirror the way successful candidates actually study - clinical reasoning, prioritization, pharmacology, and the body systems organized for retention.

How This Course Is Organized

Seventeen chapters move from exam logistics through every major clinical domain. Each chapter opens with a short orientation, then layers in high-yield tables, bullet lists, and clinical reasoning pearls. Tables use a navy header for quick visual scanning. Bullets identify must-memorize lists. Headings indicate where to slow down and study deeply.

Study Plan Snapshot

Use this course as your primary content spine for a 6-8 week NCLEX-RN prep cycle. Each week, complete 1-2 clinical chapters, then reinforce with practice questions the same day. In the final 14 days, shift toward questions, rationales, and weak-area review while keeping short daily content refreshers.

- Weeks 1-2: Exam structure, prioritization/delegation, safety, and pharmacology foundations.
- Weeks 3-5: Body-system chapters (cardiovascular through endocrine), with daily mixed questions.
- Weeks 6-7: Maternal-newborn, pediatrics, mental health, musculoskeletal, and fluids/electrolytes.
- Final 7-10 days: Full-length practice sets, NGN case studies, remediation notes, and rest.

About Luma Educational Apps

Luma Educational Apps creates clinical education resources for nurses and advanced practice pathways. Visit https://lumaeducationalapps.com/ for updates, companion tools, and additional study support.

CHAPTER 01

Introduction to the NCLEX-RN

The National Council Licensure Examination for Registered Nurses (NCLEX-RN) is the standardized examination required for licensure as a registered nurse in the United States and Canada. The exam uses Computerized Adaptive Testing (CAT) to evaluate the entry-level competence of nursing graduates.

Exam Structure

The NCLEX-RN uses a Computerized Adaptive Testing (CAT) format, meaning the difficulty of each question adjusts based on your previous answers.

Candidates may receive between 85 and 150 questions. The test ends when the computer determines with 95% confidence whether the candidate is above or below the passing standard.

Maximum testing time is 5 hours, including two optional breaks.

Question formats include multiple choice, multiple response (select-all-that-apply), fill-in-the-blank, ordered response, hot spot, chart/exhibit, and Next Generation NCLEX (NGN) case studies and bowtie items.

The NCSBN Client Needs Framework

- Safe and Effective Care Environment

- Management of Care (15-21%) and Safety and Infection Control (10-16%)
- Health Promotion and Maintenance (6-12%)
- Psychosocial Integrity (6-12%)
- Physiological Integrity
- Basic Care and Comfort (6-12%), Pharmacological and Parenteral Therapies (13-19%), Reduction of Risk Potential (9-15%), and Physiological Adaptation (11-17%)

Integrated Processes

Five processes are woven throughout every category: the Nursing Process, Caring, Communication and Documentation, Teaching/Learning, and Culture and Spirituality.

Every question expects the candidate to think like an entry-level RN: prioritize, delegate appropriately, communicate therapeutically, and apply evidence-based interventions.

How to Use This Course

Each chapter introduces high-yield content followed by clinical reasoning pearls and red-flag warning signs.

Pair this course with the companion Luma Educational Apps NCLEX practice resources (250+ items) for full-spectrum review.

Aim to study 2-3 hours daily for 6-8 weeks, complete at least 75 practice questions per day in the final two weeks, and review every rationale - even on questions you answered correctly.

CHAPTER 02

Prioritization, Delegation, and Management of Care

Prioritization and delegation are the single highest-yield NCLEX skills. Every clinical question is, at its core, a prioritization question.

Frameworks for Prioritization

- Airway, Breathing, Circulation. Then Disability (neuro) and Exposure.
- Maslow's Hierarchy
- Physiologic needs before safety, safety before love/belonging, then esteem, then self-actualization.
- Nursing Process
- Assess before Diagnose before Plan before Implement before Evaluate. When in doubt, the answer is Assess.
- Acute vs. Chronic
- Acute, unstable patients take priority over chronic, stable ones.
- Unexpected vs. Expected
- An unexpected finding (sudden chest pain) outranks an expected one (post-op incisional pain).

The 5 Rights of Delegation

- Right Task
- Is it within the scope of the delegatee?
- Right Circumstance
- Is the patient stable and predictable?
- Right Person

- Skills and competence of the delegatee match the task.
- Right Direction/Communication
- Clear, concise, specific instructions.
- Right Supervision/Evaluation
- RN remains accountable for the outcome.

Scope of Practice Quick Reference

Role	Can Perform
RN	Assessment, teaching, IV push meds, blood administration, care planning, evaluation, unstable patients
LPN/LVN	Reinforce teaching, sterile dressing changes, urinary catheter insertion, enteral feedings, stable patients
UAP/CNA	Vital signs on stable patients, ADLs, bathing, ambulation, I&O, weight, positioning

Never Delegate (RN Only)

- Initial assessment of a patient
- Patient teaching and discharge instructions
- Evaluation of patient outcomes
- Administration of IV push medications and blood products
- Triage decisions

Triage Categories (Emergency Department)

Level	Description
Emergent (Red)	Life-threatening: airway compromise, active MI, severe trauma, anaphylaxis
Urgent (Yellow)	Stable but needs care within 1-2 hours: open fractures, abdominal pain, asthma without distress
Non-urgent (Green)	Can wait several hours: sprains, rashes, chronic complaints
Expectant (Black, disaster)	Injuries incompatible with life given available resources

Roommate Assignments (High-Yield)

- Do NOT place an immunocompromised patient (neutropenia, post-transplant, chemotherapy) with anyone infectious.
- Do NOT place a post-op patient with a patient who has a draining wound, MRSA, C. difficile, or active TB.
- Pediatric: place children of similar developmental age together; separate infectious from non-infectious.
- Post-partum: avoid placing mothers with infectious neonates near other newborns.

CHAPTER 03

Safety and Infection Control

Patient and staff safety is a foundational NCLEX domain. Expect questions on isolation precautions, restraints, fall prevention, medication safety, and disaster response.

Standard Precautions

Applied to ALL patients regardless of diagnosis. Includes hand hygiene, gloves for body fluid contact, gowns and eye protection when splashing is anticipated, and safe sharps handling.

Transmission-Based Precautions

Type	Diseases	PPE
Airborne	TB, measles, varicella, disseminated zoster, SARS, COVID-19	N95 respirator, negative-pressure room, door closed
Droplet	Influenza, pertussis, mumps, rubella, meningococcal meningitis, RSV (some institutions)	Surgical mask within 3-6 feet, private room or cohort
Contact	MRSA, VRE, C. difficile, scabies, RSV, impetigo, major wound drainage	Gown and gloves, dedicated equipment
Protective (Reverse)	Neutropenia (ANC <500), stem cell transplant	Private room, mask on visitors, no fresh flowers/raw fruit

C. difficile Caveat

Alcohol-based hand sanitizer does NOT kill C. difficile spores. ALWAYS use soap and water for hand hygiene with C. diff patients. Use bleach-based cleaners for the environment.

Restraint Use

- Restraints require a provider order within 1 hour of initiation. The order must be renewed every 4 hours for adults, every 2 hours for ages 9-17, and every 1 hour for under 9.
- Use the least restrictive device that achieves safety.
- Tie with a quick-release knot to the bed FRAME, never to a side rail.
- Assess circulation, skin integrity, and ROM every 15-30 minutes.
- Release every 2 hours for ROM, toileting, hydration, and skin care.
- Document the behavior necessitating restraint, alternatives tried, patient response, and ongoing assessments.
- All four side rails up is considered a restraint.

Fall Prevention

- Bed in lowest position, wheels locked, call light within reach.
- Non-skid footwear, adequate lighting, clear pathways.
- Assess with Morse Fall Scale or Hendrich II on admission and every shift.
- Yellow socks/wristband and bed/chair alarms for high-risk patients.
- Toilet high-risk patients every 2 hours (often the underlying cause).

Medication Safety – The Rights

Right Patient (two identifiers), Right Drug, Right Dose, Right Route, Right Time, Right Documentation, Right Reason, Right Response, and Right to Refuse.

Always check for allergies before administering ANY medication.

High-alert medications (heparin, insulin, opioids, chemo, KCl) require independent double-check by two RNs.

Disaster and Bioterrorism

- Anthrax: ciprofloxacin or doxycycline. Contact precautions are unnecessary for cutaneous form once treated.

- Smallpox: airborne + contact precautions, vaccinia vaccine.
- Botulism: antitoxin, supportive ventilation.
- Radiation exposure: remove clothing (removes ~90% of contamination), shower, potassium iodide for radioactive iodine.

RACE and PASS

RACE: Rescue patients, Activate alarm, Confine the fire (close doors), Extinguish or Evacuate.

PASS: Pull pin, Aim at base of fire, Squeeze handle, Sweep side to side.

CHAPTER 04

Pharmacology Essentials

Pharmacology is the largest single domain (13-19% of items). Focus on drug classes, prototype drugs, key adverse effects, monitoring parameters, and patient teaching.

Cardiovascular Drugs

Class / Drug	Key Teaching and Monitoring
Digoxin	Hold if apical HR <60 (adult) or <90 (infant); therapeutic level 0.5-2 ng/mL; toxicity = N/V, halos, anorexia, bradycardia; hypokalemia potentiates toxicity
ACE inhibitors (-pril)	Dry cough, hyperkalemia, angioedema, first-dose hypotension; teratogenic
ARBs (-sartan)	Similar to ACE-Is without cough; hyperkalemia risk
Beta blockers (-olol)	Hold for HR <60 or SBP <100; mask hypoglycemia in diabetics; rebound HTN if stopped abruptly
Calcium channel blockers	Constipation, peripheral edema, avoid grapefruit juice (verapamil/diltiazem)
Statins	Liver enzymes, muscle pain (rhabdomyolysis warning), avoid grapefruit
Nitroglycerin	Sublingual q5 min x3, call 911 if no relief; headache common; store in dark bottle
Warfarin	INR goal 2-3 (most), 2.5-3.5 (mechanical valve); vitamin K antidote; PT/INR monitoring; avoid dietary vitamin K fluctuations
Heparin	aPTT 1.5-2.5x control; protamine sulfate antidote; HIT a major adverse effect
Enoxaparin (Lovenox)	SC into abdomen, do not expel air bubble, no aPTT monitoring

Respiratory Drugs

Class / Drug	Key Teaching
Albuterol	Short-acting beta-2 agonist; rescue inhaler; tachycardia, tremor
Salmeterol	Long-acting; NEVER for acute attack
Ipratropium	Anticholinergic; dry mouth; rinse mouth after use
Inhaled corticosteroids (fluticasone, budesonide)	Rinse mouth to prevent thrush; use spacer; not for acute attack
Theophylline	Narrow therapeutic window (10-20 mcg/mL); avoid caffeine; toxicity = tachycardia, seizures
Montelukast	Leukotriene receptor antagonist; monitor for mood/behavior changes

Diabetes Medications

Insulin	Onset / Peak / Duration
Lispro/Aspart/Glulisine (rapid)	15 min / 1 h / 3-5 h - give with meal
Regular (short)	30-60 min / 2-3 h / 5-8 h - only IV insulin
NPH (intermediate)	1-2 h / 4-12 h / 18-24 h - cloudy
Glargine/Detemir (long)	1 h / no peak / 24 h - do not mix

Psychiatric Medications

Drug Class / Drug	Key Points
SSRIs (sertraline, fluoxetine)	2-4 wk for full effect; sexual dysfunction; serotonin syndrome; suicide risk early in therapy
Tricyclics (amitriptyline)	Anticholinergic effects; cardiotoxic in overdose; orthostatic hypotension
MAOIs (phenelzine, tranylcypromine)	Avoid tyramine foods (aged cheese, wine, cured meats) - hypertensive crisis

GI and Endocrine Drugs

Drug Class / Drug	Key Points
Lithium	Therapeutic 0.6-1.2 mEq/L; toxicity = tremor, confusion, ataxia, seizures; maintain Na and fluid intake
Haloperidol/typical antipsychotics	EPS, tardive dyskinesia, NMS (high fever, rigidity, autonomic instability)
Atypical antipsychotics (clozapine, olanzapine, risperidone)	Weight gain, metabolic syndrome; clozapine = agranulocytosis (WBC monitoring)
Benzodiazepines (-pam, -lam)	Sedation, respiratory depression, dependence; flumazenil antidote

Antibiotics - High-Yield

Class / Drug	Adverse Effects / Teaching
Penicillins/cephalosporins	Anaphylaxis, cross-sensitivity ~10%
Vancomycin	Trough 10-20 mcg/mL; nephrotoxic, ototoxic; Red Man syndrome if infused too fast (>1 g/hr)
Aminoglycosides (gentamicin, tobramycin)	Nephrotoxic, ototoxic; monitor peaks/troughs
Fluoroquinolones (-floxacin)	Tendon rupture (esp. elderly, steroid use), QT prolongation, photosensitivity
Tetracyclines	Avoid in pregnancy and children <8 (teeth staining); avoid dairy, antacids; photosensitivity
Macrolides (-mycin)	GI upset, QT prolongation, many drug interactions
Sulfonamides	Stevens-Johnson syndrome, crystalluria - push fluids
Metronidazole	NO alcohol (disulfiram reaction); metallic taste
Linezolid	MAOI properties - avoid tyramine

Pain Management and Opioids

- Opioid effects: respiratory depression (<12/min hold), constipation (give stool softener prophylactically), sedation, miosis, urinary retention, pruritus.
- Naloxone is the antidote
- be ready for withdrawal.
- PCA pump: only the patient pushes the button
- never family.
- Morphine is contraindicated in biliary colic (spasms sphincter of Oddi) and acute pancreatitis traditionally
- use fentanyl or hydromorphone.
- Meperidine (Demerol) accumulates a neurotoxic metabolite
- avoid in renal impairment and elderly.
- Acetaminophen max 4 g/day (3 g if liver disease or alcohol use).

Critical Antidotes to Memorize

Drug/Toxin	Antidote
Acetaminophen	N-acetylcysteine
Opioids	Naloxone
Benzodiazepines	Flumazenil
Heparin	Protamine sulfate
Warfarin	Vitamin K, FFP, PCC
Iron	Deferoxamine
Lead	Succimer, EDTA
Magnesium	Calcium gluconate
Digoxin	Digoxin immune Fab (Digibind)
Beta blocker / CCB	Glucagon, calcium
Cyanide	Hydroxocobalamin, sodium thiosulfate
Methanol/Ethylene glycol	Fomepizole, ethanol
Organophosphates	Atropine, pralidoxime
TPA / thrombolytics	Aminocaproic acid

CHAPTER 05

Cardiovascular Nursing

Cardiac content appears frequently. Master MI, heart failure, dysrhythmias, hypertension, and valve disorders.

Acute Coronary Syndrome (MI)

Classic MI presentation: substernal crushing chest pain >20 minutes, unrelieved by rest or nitroglycerin, radiating to jaw or left arm, with diaphoresis, dyspnea, nausea.

Women, elderly, and diabetics may present atypically: fatigue, indigestion, jaw pain, shortness of breath without chest pain.

Initial workup: 12-lead ECG within 10 minutes, troponin (rises in 3-6 h, peaks 12-24 h, stays elevated 10-14 days), CK-MB.

MONA-B: Morphine, Oxygen (if SaO2 <90%), Nitroglycerin, Aspirin (chew 162-325 mg), Beta-blocker.

STEMI: PCI within 90 minutes (door-to-balloon) or thrombolytics within 30 minutes (door-to-needle) if PCI unavailable.

Post-PCI: monitor groin site for bleeding/hematoma, distal pulses, keep leg straight 4-6 h, hydrate to clear contrast.

Heart Failure

- Left-sided = pulmonary symptoms: dyspnea, orthopnea, paroxysmal nocturnal dyspnea, crackles, pink frothy sputum, S3 gallop.
- Right-sided = systemic congestion: JVD, peripheral edema, hepatomegaly, ascites, weight gain.
- BNP >100 pg/mL suggests HF (>400 strongly suggestive).
- Treatment mnemonic LMNOP for acute pulmonary edema: Lasix, Morphine, Nitrates, Oxygen, Position (high Fowler's).
- Daily weights same time, same scale, same clothing
- gain of 2-3 lb in 24 h or 5 lb in a week is reportable.
- Sodium restriction <2 g/day; fluid restriction often 1.5-2 L/day.

Dysrhythmias

Atrial fibrillation: irregularly irregular, no P waves, risk of mural thrombus and embolic stroke; anticoagulate (warfarin or DOAC) and rate control (beta-blocker, CCB, digoxin).

Ventricular tachycardia with pulse: amiodarone, synchronized cardioversion if unstable.

Pulseless VT/VF: defibrillate (unsynchronized), CPR, epinephrine q3-5 min, amiodarone.

Asystole and PEA: CPR, epinephrine - NOT shockable.

Symptomatic bradycardia: atropine 1 mg IV, transcutaneous pacing.

SVT: vagal maneuvers, adenosine 6 mg rapid IV push followed by 20 mL saline flush.

Hypertension

Stage 1: 130-139/80-89; Stage 2: >=140/90; Hypertensive crisis >=180/120.

Lifestyle: DASH diet, sodium <1500 mg, weight loss, aerobic exercise 150 min/week, limit alcohol, no tobacco.

First-line meds: thiazide diuretics, ACE-I/ARB, CCB, beta-blocker.

Hypertensive emergency = end-organ damage; lower MAP no more than 20-25% in first hour to avoid stroke.

Peripheral Vascular Disease

Arterial (PAD): intermittent claudication, pale, cool, hairless extremities, weak pulses, pain at rest worse with elevation. Dangle legs, do NOT elevate.

Venous (DVT, CVI): warm, edematous, brown/brawny skin, ulcers near medial malleolus. Elevate legs, compression stockings.

DVT signs: unilateral calf swelling, warmth, redness, possibly positive Homan's (not reliable). Anticoagulate; bedrest is no longer routinely recommended.

CHAPTER 06

Respiratory Nursing

Master oxygenation, COPD, asthma, pneumonia, TB, chest tubes, and respiratory failure. Airway always wins in prioritization.

Oxygen Delivery

Device	Flow / FiO2
Nasal cannula	1-6 L/min, 24-44% FiO2
Simple mask	5-10 L/min, 40-60%
Venturi mask	precise FiO2 24-50%, best for COPD
Non-rebreather	10-15 L/min, 60-100%
BiPAP / CPAP	Non-invasive positive pressure
Mechanical ventilation	Intubation required

COPD

Chronic bronchitis (blue bloater): productive cough, cyanosis, edema, hypoxemia, polycythemia.

Emphysema (pink puffer): barrel chest, pursed-lip breathing, accessory muscle use, weight loss.

Maintain SaO2 88-92% - high oxygen can blunt hypoxic drive.

Pursed-lip and diaphragmatic breathing, energy conservation, smoking cessation, pneumococcal and influenza vaccines.

Acute exacerbation: bronchodilators, corticosteroids, antibiotics if infection suspected.

Asthma

Triggers: allergens, exercise, cold air, infections, NSAIDs, beta-blockers.

Status asthmaticus: severe, life-threatening; absent wheezing is OMINOUS (no air movement).

Peak flow: green zone >80% of personal best, yellow 50-80% (use rescue meds), red <50% (emergency).

Pneumonia

Classic: fever, productive cough (rust-colored = Strep pneumo, currant jelly = Klebsiella, green = Pseudomonas), pleuritic chest pain, crackles, dullness to percussion.

CURB-65 assesses severity. Treat empirically while awaiting cultures.

Prevent: pneumococcal vaccine, influenza vaccine, smoking cessation, hand hygiene, HOB elevated 30-45° to prevent aspiration.

Tuberculosis

PPD: induration >=5 mm in immunocompromised, >=10 mm in high-risk, >=15 mm in low-risk = positive.

Active TB confirmed by chest x-ray and sputum AFB x3.

RIPE therapy: Rifampin (red/orange body fluids, oral contraceptive failure), Isoniazid (peripheral neuropathy - give B6, hepatotoxic), Pyrazinamide (hyperuricemia, hepatotoxic), Ethambutol (optic neuritis - color vision changes).

Considered non-contagious after 3 consecutive negative AFB sputum smears and clinical improvement.

Chest Tubes

- Drainage chamber: report >100 mL/hr of bloody drainage to provider.
- Water-seal chamber: gentle tidaling with respirations is expected; continuous bubbling indicates an air leak.
- Suction control chamber: gentle continuous bubbling is correct.
- Keep collection unit below chest level. Never clamp routinely
- risk of tension pneumothorax.
- If tube dislodges from patient: cover with sterile occlusive dressing taped on 3 sides (flutter valve).
- If tube disconnects from drainage: submerge end in sterile water/saline.

ARDS

Acute, refractory hypoxemia (PaO2/FiO2 <300), bilateral infiltrates, not explained by HF.

Treatment: low tidal volume ventilation (6 mL/kg), PEEP, prone positioning, conservative fluid management.

CHAPTER 07

Neurological Nursing

Includes stroke, increased ICP, seizures, spinal cord injury, head trauma, and degenerative diseases.

Increased Intracranial Pressure (ICP)

Normal ICP 5-15 mm Hg.

Cushing's triad (LATE sign): hypertension with widening pulse pressure, bradycardia, irregular respirations.

Early signs: decreased LOC (earliest and most sensitive), headache, vomiting, pupillary changes.

Position HOB 30°, head midline, avoid hip flexion and Valsalva, limit suctioning.

Mannitol (osmotic diuretic), hypertonic saline, hyperventilation cautiously (decreases CO2 vasoconstriction).

Avoid hypotonic IVF - can worsen cerebral edema.

Stroke (CVA)

Ischemic (87%) vs Hemorrhagic (13%).

FAST: Face drooping, Arm weakness, Speech difficulty, Time to call 911.

tPA window: within 3-4.5 hours of symptom onset for ischemic stroke; rule out hemorrhage first with non-contrast CT.

Left-brain stroke: right-sided weakness, aphasia (expressive Broca's or receptive Wernicke's), slow cautious behavior.

Right-brain stroke: left-sided weakness, spatial-perceptual deficits, impulsive behavior, unilateral neglect, denial.

Aspiration risk: swallow evaluation BEFORE oral intake; NPO until cleared.

Seizures

Status epilepticus: continuous seizure activity >5 minutes or recurrent seizures without recovery - medical emergency.

Treatment: lorazepam or diazepam IV first-line, then phenytoin/fosphenytoin loading dose.

Phenytoin: therapeutic 10-20 mcg/mL; gingival hyperplasia, ataxia, hirsutism, narrow therapeutic window; only saline-compatible IV; never give IM.

During seizure: protect from injury, side-lying, do NOT restrain, do NOT place anything in mouth, time it, suction available.

Post-ictal: maintain airway, reorient, document.

Spinal Cord Injury

Spinal shock: immediate loss of reflexes, flaccid paralysis below injury, lasting days to weeks.

Neurogenic shock: T6 or higher injury - bradycardia, hypotension, warm dry skin from loss of sympathetic tone.

Autonomic dysreflexia (T6 or higher, after spinal shock resolves): sudden severe HTN, pounding headache, bradycardia, flushing above injury, pallor below. CAUSE: noxious stimulus, usually full bladder or fecal impaction. ACTION: sit patient up immediately, identify and remove cause, antihypertensive if needed.

Meningitis

Classic: fever, headache, nuchal rigidity, photophobia, positive Kernig's and Brudzinski's signs.

Bacterial meningitis (meningococcal): DROPLET precautions, prophylaxis for close contacts.

LP findings - bacterial: cloudy, WBC (neutrophils), protein, glucose. Viral: clear, WBC (lymphocytes), mildly protein, normal glucose.

Parkinson's Disease

TRAP: Tremor at rest, Rigidity, Akinesia/bradykinesia, Postural instability. Mask-like face, shuffling gait, pill-rolling.

Levodopa-carbidopa: avoid high-protein meals with dose (competes for absorption), avoid pyridoxine (B6) megadoses, on-off phenomenon.

Fall prevention, swallow evaluation, voice/PT/OT, small frequent meals.

Myasthenia Gravis vs. Guillain-Barré

Myasthenia: descending muscle weakness worsening with activity, ptosis, diplopia. Tensilon test diagnostic. Treat with pyridostigmine; cholinergic crisis vs myasthenic crisis differentiation with Tensilon.

Guillain-Barré: ascending paralysis after viral illness, areflexia. Monitor respiratory function (VC, NIF); plasmapheresis or IVIG; supportive care.

CHAPTER 08

Gastrointestinal Nursing

Common topics: GI bleed, IBD, cirrhosis, pancreatitis, bowel obstruction, ostomies, nutrition.

GI Bleed

Upper GI bleed: hematemesis, melena, coffee-ground emesis. Causes: peptic ulcer, varices, gastritis, Mallory-Weiss tear.

Lower GI bleed: hematochezia, bright red blood per rectum. Causes: diverticulosis, hemorrhoids, cancer, IBD.

Resuscitation: 2 large-bore IVs, IVF, type and crossmatch, NPO, NG tube/lavage if indicated, PPI, endoscopy.

Esophageal varices: octreotide, vasopressin, banding/sclerotherapy, Sengstaken-Blakemore tube as last resort.

Peptic Ulcer Disease

Gastric ulcer: pain worsens with food. Duodenal ulcer: pain relieved by food, returns 2-3 h later.

H. pylori is the most common cause. Treat with triple therapy: PPI + clarithromycin + amoxicillin (or metronidazole).

Avoid NSAIDs, alcohol, smoking, caffeine.

Perforation: sudden severe abdominal pain, rigid board-like abdomen, rebound tenderness - surgical emergency.

Inflammatory Bowel Disease

Feature	Crohn's	Ulcerative Colitis
Location	Mouth to anus, skip lesions, transmural	Colon only, continuous, mucosal
Diarrhea	Non-bloody usually	Bloody, mucus
Fistulas/strictures	Common	Rare
Cancer risk	Increased	Significantly increased
Surgery curative?	No (recurs)	Yes (colectomy)

Cirrhosis

Complications: portal hypertension, esophageal varices, ascites, hepatic encephalopathy, hepatorenal syndrome, coagulopathy, jaundice.

Lactulose for hepatic encephalopathy - goal 2-3 soft stools/day; lowers ammonia.

Low-sodium diet, fluid restriction for ascites, paracentesis if respiratory compromise.

Avoid acetaminophen >2 g/day, all alcohol, sedatives.

Pancreatitis

Causes: gallstones, alcohol (the two leading), trauma, drugs, hypertriglyceridemia.

Cullen's sign (periumbilical bruising), Grey-Turner sign (flank bruising) - hemorrhagic pancreatitis.

Labs: amylase and lipase markedly elevated (lipase more specific).

Treatment: NPO, IV fluids, pain control (hydromorphone or fentanyl), NG suction if vomiting, monitor for hypocalcemia (Chvostek's, Trousseau's).

Bowel Obstruction

Small bowel: high-pitched tinkling bowel sounds initially, then absent; vomiting prominent.

Large bowel: gradual onset, distention prominent, less vomiting.

Treat: NPO, NG decompression, IVF, electrolyte replacement, surgery if mechanical/strangulated.

Ostomies

Ileostomy: liquid, enzyme-rich output, FROM small intestine; risk of dehydration and skin breakdown.

Colostomy: more formed stool depending on location.

Healthy stoma: beefy red, moist. Concerning: pale, dusky, black (ischemia).

Empty pouch when 1/3 to 1/2 full. Cut wafer 1/8 inch larger than stoma.

Enteral Nutrition

Verify tube placement by x-ray initially, then aspirate gastric contents (pH <5.5) and measure external length before each feeding.

HOB elevated 30-45° during and 30-60 min after feeding to prevent aspiration.

Check residual per facility policy (often hold if >250-500 mL).

Flush with 30 mL water before/after meds and feedings; do not crush enteric-coated or sustained-release meds.

CHAPTER 09

Renal and Genitourinary Nursing

Cover AKI, CKD, dialysis, fluid and electrolyte balance, BPH, UTI, and stones.

Acute Kidney Injury

Prerenal (hypovolemia, HF, shock) - BUN:Cr >20:1.

Intrarenal (ATN, nephrotoxic drugs, glomerulonephritis) - BUN:Cr ~10:1, urine sediment + casts.

Postrenal (obstruction - BPH, stones, tumor) - bladder distension, hydronephrosis.

Phases: initiation oliguric (<400 mL/day, hyperkalemia risk) diuretic (massive output, watch for hypovolemia) recovery.

Chronic Kidney Disease

Stages by GFR; ESRD when GFR <15.

Manifestations: anemia (decreased erythropoietin - give epoetin), bone disease (vit D, Ca, phos - phosphate binders WITH meals), uremia, fluid overload, hyperkalemia, metabolic acidosis.

Diet: restrict protein, sodium, potassium, phosphorus, fluid.

Avoid NSAIDs, contrast dye, aminoglycosides.

Dialysis

Hemodialysis: AV fistula or graft - listen for bruit, feel for thrill, no BP/IV/labs in that arm. Avoid heavy lifting on AV access side.

Hold dialyzable medications until after dialysis (most water-soluble drugs).

Peritoneal dialysis: cloudy effluent = peritonitis (most common complication). Warm dialysate to body temp, maintain sterile technique.

Monitor for disequilibrium syndrome (HA, N/V, confusion) - rapid removal of urea/solutes.

Electrolyte Imbalances

Electrolyte	Hypo Signs	Hyper Signs
Sodium (135-145)	Confusion, seizures, headache	Thirst, dry mucosa, restlessness
Potassium (3.5-5.0)	Muscle weakness, U waves, ileus	Peaked T waves, dysrhythmias, paralysis
Calcium (8.6-10.2)	Tetany, Chvostek/Trousseau, prolonged QT	Bone pain, stones, fatigue, shortened QT
Magnesium (1.3-2.1)	Tetany, hyperreflexia, torsades	Decreased reflexes, respiratory depression
Phosphorus (2.5-4.5)	Bone pain, weakness	Often with low calcium (inverse)

Hyperkalemia Treatment Mnemonic

C-BIG-K-DROP: Calcium gluconate (cardiac protection), Bicarbonate, Insulin + glucose (push K into cells), Beta agonist (albuterol), Kayexalate or patiromer (removal), Diuretics (loop), Dialysis.

Benign Prostatic Hyperplasia

Symptoms: weak stream, hesitancy, frequency, nocturia, incomplete emptying.

Alpha-blockers (-osin, e.g., tamsulosin): relax smooth muscle; orthostatic hypotension warning.

5-alpha reductase inhibitors (finasteride): shrink prostate, can take 6 months for full effect.

Post-TURP: continuous bladder irrigation, watch for hemorrhage, clots; pink lemonade urine OK, ketchup is NOT.

Renal Calculi

Severe colicky flank pain radiating to groin, hematuria, N/V.

Strain ALL urine.

Hydration 3 L/day, pain control, alpha-blockers to aid passage, lithotripsy if needed.

Diet depends on stone type: calcium oxalate (limit oxalate - spinach, chocolate, tea), uric acid (limit purine - organ meats), struvite (treat UTI).

CHAPTER 10

Endocrine Nursing

Focus on diabetes, thyroid, adrenal, and pituitary disorders.

Diabetes Mellitus

Type 1: autoimmune destruction of beta cells, requires insulin, prone to DKA.

Type 2: insulin resistance, often managed with oral meds and lifestyle initially.

Diagnostic: fasting glucose >=126 x2, random >=200 with symptoms, A1C >=6.5%, OGTT >=200.

Target A1C generally <7% for most adults.

Sick day rules: never skip insulin, check glucose q2-4h, ketones if T1DM, hydrate, contact provider if N/V.

Hypoglycemia vs Hyperglycemia

Feature	Hypoglycemia (<70)	Hyperglycemia
Onset	Rapid	Gradual
Skin	Cool, clammy, diaphoretic	Warm, dry, flushed
Mental	Anxious, confused, irritable	Lethargic, fruity breath
Treatment	15 g rapid carb (juice, glucose tabs), recheck in 15 min	Insulin, fluids, identify cause

DKA vs HHS

DKA (T1DM): glucose 300-800, pH <7.3, ketones positive, anion gap, Kussmaul respirations, fruity breath.

HHS (T2DM): glucose >600, profound dehydration, NO ketones (or minimal), severe hyperosmolarity, mental status changes.

Treatment: aggressive isotonic fluids first, regular insulin IV infusion (NOT bolus initially in DKA), monitor potassium closely (insulin drives K into cells - replace K when K <5.0), add dextrose when glucose ~200.

Thyroid Disorders

Hyperthyroidism (Graves): weight loss, heat intolerance, tachycardia, exophthalmos, tremor, increased appetite, fine hair. Treat with methimazole/PTU, beta-blocker for symptoms, radioactive iodine, thyroidectomy.

Thyroid storm: high fever, severe tachycardia, agitation - emergency.

Hypothyroidism (Hashimoto): weight gain, cold intolerance, bradycardia, constipation, fatigue, dry skin. Treat with levothyroxine on empty stomach, lifelong.

Myxedema coma: severe hypothyroidism with hypothermia, bradycardia, hypoventilation - emergency.

Post-thyroidectomy: watch for hemorrhage, airway obstruction, hypocalcemia (parathyroid injury - tetany, Chvostek/Trousseau), thyroid storm. Keep tracheostomy tray and calcium gluconate at bedside.

Adrenal Disorders

Cushing's (excess cortisol): moon face, buffalo hump, truncal obesity, thin extremities, striae, hyperglycemia, hypertension, osteoporosis, immunosuppression.

Addison's (cortisol deficiency): bronze skin, hypotension, hyperkalemia, hyponatremia, hypoglycemia, fatigue. Lifelong steroid replacement; never abruptly stop steroids; stress dose for surgery/illness.

Addisonian crisis: profound hypotension, shock, electrolyte derangement - IV hydrocortisone + fluids + dextrose immediately.

Pheochromocytoma: episodic severe HTN, headache, sweating, palpitations. Alpha-block BEFORE beta-block.

Pituitary

SIADH: water retention, dilutional hyponatremia, concentrated urine, no edema. Fluid restrict, hypertonic saline cautiously, tolvaptan.

Diabetes insipidus: massive dilute urine, hypernatremia, intense thirst. Desmopressin (DDAVP), free access to water.

CHAPTER 11

Hematology and Oncology

Anemias, sickle cell, leukemia/lymphoma, thrombocytopenia, neutropenia, oncology emergencies, and chemotherapy precautions.

Anemia

Iron deficiency: microcytic hypochromic. Take iron on empty stomach with vitamin C; expect dark stools; liquid through straw (stains teeth); avoid milk/antacids within 1 hour.

Pernicious/B12 deficiency: macrocytic, neuro symptoms. Lifelong B12 IM or intranasal if intrinsic factor deficiency.

Folate deficiency: macrocytic without neuro symptoms. Common in alcoholism, pregnancy.

Aplastic anemia: pancytopenia. Bleeding, infection, fatigue risk.

Sickle Cell Disease

Vaso-occlusive crisis: severe pain, often joints/back/chest. Treat with hydration, oxygen, opioids (often PCA), warmth (NOT cold - vasoconstricts).

Triggers: dehydration, infection, hypoxia, stress, cold, high altitude.

Acute chest syndrome: chest pain, fever, hypoxia, new infiltrate - life-threatening, treat aggressively.

Hydroxyurea reduces frequency of crises.

Leukemia and Neutropenia

ANC <500 = severe neutropenia; <1500 = mild-moderate.

Neutropenic precautions: private room, no fresh flowers/plants/raw fruits or vegetables, no rectal temps/suppositories, no live vaccines, strict hand hygiene, mask on visitors.

Febrile neutropenia (T >=100.4°F): emergency, blood cultures and broad-spectrum antibiotics within 1 hour.

Thrombocytopenia

Platelets <50,000: bleeding precautions - soft toothbrush, electric razor, no IM injections, no rectal anything, fall precautions.

Platelets <20,000: spontaneous bleeding risk; transfuse.

HIT: paradoxical thrombosis with falling platelets on heparin - stop heparin, use argatroban or bivalirudin.

Chemotherapy Precautions

Wear PPE (gown, double gloves, mask, eye protection) when handling chemo or body fluids for 48 hours after administration.

Use double-flush toilet after patient void.

Extravasation: stop infusion, leave catheter, aspirate residual drug, follow antidote protocol per drug.

Tumor lysis syndrome: hyperkalemia, hyperphosphatemia, hypocalcemia, hyperuricemia, AKI. Prevent with hydration, allopurinol, rasburicase.

Oncologic Emergencies

Spinal cord compression: back pain, weakness, sensory loss, bowel/bladder dysfunction. Immediate steroids, radiation.

Superior vena cava syndrome: facial edema, JVD, dyspnea. Elevate HOB, oxygen, radiation/chemo.

Hypercalcemia of malignancy: confusion, polyuria, constipation. Hydrate aggressively, bisphosphonates, calcitonin.

Blood Transfusion

Verify with two RNs: patient ID, blood type, expiration, ABO/Rh compatibility.

Start slowly (2 mL/min for first 15 min); stay with patient.

VS before, 15 min in, then per policy.

Use only NS as compatible IV fluid (Y-tubing).

Complete within 4 hours.

Reactions: STOP transfusion, keep IV line open with NS using new tubing, notify provider and blood bank, send remaining blood + tubing + post-transfusion samples back to lab.

Hemolytic (most serious): chills, flank/back pain, hematuria, hypotension.

Febrile non-hemolytic: most common; fever, chills.

Allergic: hives, itching - antihistamine.

Anaphylactic: rare, severe - epinephrine.

TRALI: respiratory distress within 6 hours.

TACO: fluid overload.

CHAPTER 12

Maternal-Newborn Nursing

Antepartum, intrapartum, postpartum, neonatal care, and high-risk obstetrics.

Antepartum

Naegele's rule: LMP first day - 3 months + 7 days + 1 year = EDD.

Presumptive (subjective): amenorrhea, nausea, fatigue, breast changes.

Probable (objective): positive pregnancy test, Goodell, Chadwick, Hegar signs, Braxton-Hicks.

Positive: fetal heart tones, fetal movement felt by examiner, ultrasound visualization.

Weight gain: 25-35 lb if normal BMI; 28-40 if underweight; 15-25 if overweight.

Avoid: alcohol, smoking, raw fish, deli meats (Listeria), cat litter (toxoplasmosis), excess vitamin A.

Iron + folic acid 0.4-0.8 mg daily (4 mg if prior NTD pregnancy).

Danger Signs in Pregnancy

- Severe headache, blurred vision, epigastric pain (preeclampsia)
- Sudden gush of fluid (PROM)
- Vaginal bleeding (placenta previa, abruption)
- Persistent vomiting (hyperemesis)
- Decreased fetal movement
- Painful urination, fever, chills (UTI/pyelo)
- Calf pain, swelling (DVT)

Preeclampsia / Eclampsia

Preeclampsia: BP >=140/90 after 20 weeks + proteinuria or end-organ damage.

Severe features: BP >=160/110, thrombocytopenia, impaired liver, renal insufficiency, pulmonary edema, cerebral/visual symptoms.

HELLP: Hemolysis, Elevated Liver enzymes, Low Platelets.

Fetal Heart Rate Patterns (VEAL CHOP)

Variable decel Cord compression reposition, amnioinfusion

Early decel Head compression benign, no intervention

Acceleration OK reassuring

Late decel Placental insufficiency REPOSITION, O2, stop oxytocin, IV bolus, notify provider

Normal baseline 110-160. Moderate variability 6-25 bpm is reassuring.

Stages of Labor

Stage 1: onset to full dilation (10 cm). Latent 0-6 cm, active 6-10 cm.

Stage 2: full dilation to birth.

Stage 3: birth to placenta delivery (usually <30 min).

Stage 4: first 1-2 hours postpartum - recovery.

Postpartum Assessment (BUBBLE-HE)

Breasts, Uterus (firm, midline, at umbilicus then 1 fingerbreadth/day below), Bladder, Bowel, Lochia (rubra 1-3d serosa 4-10d alba up to 6 wk), Episiotomy/perineum/incision, Homans/Hemorrhoids, Emotional.

Postpartum hemorrhage: >500 mL vaginal, >1000 mL cesarean. Most common cause: UTERINE ATONY. First action: fundal massage. Then oxytocin, methylergonovine (NOT if HTN), carboprost (NOT if asthma), misoprostol.

Newborn Assessment

APGAR at 1 and 5 minutes: HR, Respiratory effort, Muscle tone, Reflex, Color. Each 0-2; 7-10 normal.

Vital signs: HR 110-160, RR 30-60, T 97.7-99.5°F axillary.

Vitamin K IM to prevent hemorrhagic disease.

Erythromycin ointment to eyes for gonorrhea/chlamydia prophylaxis.

Hepatitis B vaccine.

Cord care: keep dry, clean; falls off in 1-2 weeks.

Circumcision: yellow exudate is normal, do not remove.

Physiologic jaundice: after 24 hours, peaks day 3-5. Pathologic: within 24 hours (always abnormal).

CHAPTER 13

Pediatric Nursing

Developmental milestones, immunizations, common conditions, child safety.

Erikson's Stages

Age	Stage
Infant (0-1)	Trust vs Mistrust
Toddler (1-3)	Autonomy vs Shame/Doubt
Preschool (3-6)	Initiative vs Guilt
School (6-12)	Industry vs Inferiority
Adolescent (12-18)	Identity vs Role Confusion
Young adult	Intimacy vs Isolation
Middle adult	Generativity vs Stagnation
Older adult	Integrity vs Despair

Developmental Milestones

2 months: social smile, lifts head.

4 months: rolls front to back, laughs.

6 months: sits with support, rolls both ways, transfers objects.

9 months: pincer grasp, crawls, stranger anxiety.

12 months: walks, 1-3 words, drinks from cup, birth weight tripled.

18 months: walks up stairs, 10+ words.

2 years: 2-word sentences, runs, jumps, half of adult height.

3 years: tricycle, copies circle, full sentences.

4 years: hops on one foot, draws person with 3 parts.

5 years: skips, ties shoes, prints name.

Immunization Schedule (US)

Birth: HepB.

2, 4, 6 months: DTaP, Hib, IPV, PCV, RV, HepB.

12-15 months: MMR, varicella, HepA, Hib, PCV booster.

4-6 years: DTaP, IPV, MMR, varicella boosters.

11-12 years: Tdap, HPV (2-dose if <15), MenACWY.

Annual influenza >=6 months.

Live vaccines (MMR, varicella, rotavirus): contraindicated in immunocompromised and pregnancy.

Respiratory Conditions

RSV/Bronchiolitis: contact + droplet precautions, suction, hydration, hypoxia common. Palivizumab for prevention in high-risk.

Croup (laryngotracheobronchitis): barky cough, stridor; cool mist, racemic epinephrine, dexamethasone.

Epiglottitis: 4 D's - Drooling, Dysphagia, Dysphonia, Distress; tripod position. DO NOT examine throat. Prepare for emergency intubation. Hib vaccine has decreased incidence dramatically.

Cystic fibrosis: chest physiotherapy, pancreatic enzymes WITH meals, high-calorie/high-protein diet, fat-soluble vitamins ADEK.

Cardiac

Tetralogy of Fallot: 4 defects - VSD, pulmonary stenosis, overriding aorta, RV hypertrophy. 'Tet spells' - knee-chest position to increase systemic vascular resistance.

Kawasaki: fever >=5 days, conjunctivitis, strawberry tongue, rash, lymphadenopathy, hand/foot swelling and peeling. Coronary artery aneurysm risk - IVIG and high-dose aspirin (one of the rare peds indications for ASA).

GI/GU

Pyloric stenosis: projectile vomiting at 2-8 weeks, olive-shaped mass, hungry after vomiting. Pyloromyotomy.

Intussusception: currant jelly stools, sausage-shaped mass, intermittent severe pain. Air or hydrostatic enema.

Hirschsprung's: no meconium in first 48 h, ribbon-like stools.

Nephrotic syndrome: massive proteinuria, hypoalbuminemia, edema, hyperlipidemia. Steroids, low-salt diet.

Common Childhood Disorders

Otitis media: pulling at ear, fever, irritability. Pull pinna down and back to give drops if <3 years.

Sickle cell crisis: see hematology chapter.

Leukemia (ALL most common pediatric cancer): pallor, fatigue, bruising, bone pain, fever, infections.

Reye's syndrome: AVOID aspirin in children with viral illness.

Child Safety

Car seat: rear-facing until at least age 2 (preferably longer per AAP), forward-facing with harness to ~4-7 years, booster until 4'9" (~8-12 years), back seat until age 13.

Choking: small objects, hot dogs, grapes, popcorn - avoid <4 years.

Drowning: leading injury death in 1-4 year olds. Constant supervision near any water.

Burns: water heater <=120°F.

Lead poisoning: screen at 12 and 24 months in high-risk areas.

CHAPTER 14

Mental Health Nursing

Therapeutic communication, anxiety, depression, suicide assessment, psychosis, substance use, and milieu management.

Therapeutic Communication

Use: open-ended questions, reflection, clarification, silence, focusing, summarizing, validating feelings.

Avoid: 'why' questions, false reassurance, giving advice, agreeing/disagreeing, changing subject, asking for explanations.

Test-taking pearl: choose the response that focuses on the patient's feelings, is open-ended, and remains nonjudgmental.

Defense Mechanisms

Mechanism	Example
Denial	'I don't have a drinking problem' (despite obvious consequences)
Projection	Blaming others for own faults
Regression	Reverting to earlier behaviors under stress
Rationalization	Justifying unacceptable behavior with logic
Sublimation	Channeling drives into socially acceptable activities
Displacement	Redirecting emotions to safer target
Reaction formation	Behaving opposite to true feelings
Identification	Modeling self after admired person

Anxiety Levels

Mild: heightened awareness, learning enhanced.

Moderate: narrowed perception, can still problem-solve with help.

Severe: focus on details, cannot problem-solve, physical symptoms.

Panic: disorganized, distorted perception, may need PRN benzo. Stay with patient, use short simple statements, low stimulation.

Depression and Suicide

Always ask directly: 'Are you thinking of killing yourself?'

Assess risk: plan, means, lethality, prior attempts, support, intent.

Highest risk period: when depression is beginning to lift (energy returns to act on suicidal thoughts).

Constant observation (1:1) for high-risk patients. Remove all means.

Antidepressants: 2-4 weeks for effect; monitor closely for increased suicide risk early in therapy.

Bipolar Disorder

Mania: pressured speech, flight of ideas, grandiosity, decreased need for sleep, hypersexuality, spending sprees, irritability.

Intervention: low-stimulation environment, finger foods, limit setting, lithium or anticonvulsant + atypical antipsychotic.

Schizophrenia

Positive symptoms: hallucinations, delusions, disorganized speech/behavior.

Negative symptoms: flat affect, alogia, avolition, anhedonia, social withdrawal.

Antipsychotics: first-gen (haloperidol) - high EPS. Second-gen (risperidone, olanzapine, quetiapine) - metabolic effects.

EPS: acute dystonia (give benztropine or diphenhydramine), akathisia (restlessness), pseudoparkinsonism, tardive dyskinesia (often irreversible).

Neuroleptic Malignant Syndrome: high fever, lead-pipe rigidity, altered mental status, autonomic instability - STOP antipsychotic, supportive care, dantrolene, bromocriptine.

Substance Use

Alcohol withdrawal: starts 6-24 h after last drink. Tremor, anxiety, autonomic instability. Seizures 12-48 h. Delirium tremens (DTs) 48-72 h - life-threatening. Treat with benzodiazepines (CIWA protocol), thiamine BEFORE glucose (prevent Wernicke), folate, multivitamin.

Opioid withdrawal: not life-threatening but very uncomfortable. Yawning, lacrimation, runny nose, dilated pupils, piloerection, diarrhea, abdominal cramps. Methadone or buprenorphine, clonidine for autonomic.

Stimulant withdrawal: 'crash' - depression, fatigue, increased appetite, sleep changes.

Eating Disorders

Anorexia: severe restriction, distorted body image, BMI <17, amenorrhea. Monitor for refeeding syndrome (hypophosphatemia, hypokalemia, hypomagnesemia, fluid overload) - refeed slowly.

Bulimia: binge-purge cycle. Look for parotid swelling, dental erosion, Russell's sign (knuckle calluses),

Abuse Assessment

Mandatory reporting of suspected child or vulnerable adult abuse.

Cycle of violence: tension acute honeymoon.

Bruises in various stages of healing, injuries inconsistent with history, delay seeking treatment are red flags.

Provide safety plan, resources, and document objectively. Do not pressure to leave - most dangerous time.

CHAPTER 15

Musculoskeletal and Integumentary Nursing

Fractures, traction, casts, joint surgery, burns, pressure injuries, and skin disorders.

Fractures

Six P's of compartment syndrome: Pain (out of proportion, with passive stretch), Pallor, Pulselessness (LATE), Paresthesia, Paralysis, Poikilothermia. Treatment: fasciotomy.

Fat embolism (long bone or pelvic fracture, 24-72 h after): petechiae on chest/axilla, hypoxia, mental status change, fever. Supportive care.

Cast care: elevate above heart for 24-48 h, ice, neurovascular checks q1-2 h initially, do not insert objects, keep dry.

Traction

Skin traction (Buck's, Russell's): never remove weights without order.

Skeletal traction: pin care per protocol, weights hang freely off floor, body in alignment.

Pin site infection: redness, drainage, fever - culture and notify provider.

Hip Replacement (THA)

Posterior approach precautions (more common): NO flexion >90°, NO adduction (don't cross legs), NO internal rotation. Abduction pillow, elevated toilet seat, no low chairs, no bending to put on shoes.

Anterior approach: fewer restrictions but no hyperextension.

Watch for DVT/PE, infection, dislocation (sudden severe pain, shortening, internal/external rotation).

Knee Replacement

CPM machine if ordered; early ambulation, ice, elevate, quad sets, ankle pumps.

Amputation

Stump care: elevate first 24 hr to reduce edema (then keep flat to prevent hip flexion contractures), compression wrap, prone position several times daily.

Phantom limb pain is real - treat with gabapentin, calcitonin, mirror therapy, TENS.

Burns

Rule of Nines (adult): head 9%, each arm 9%, each leg 18%, anterior trunk 18%, posterior trunk 18%, perineum 1%.

Parkland formula: 4 mL x kg x %TBSA LR over 24 hr; half in first 8 hr from time of burn, remaining half over next 16 hr.

Monitor adequacy of resuscitation by urine output 0.5 mL/kg/hr adults, 1 mL/kg/hr children.

Airway: facial burns, singed nasal hair, hoarseness, soot in sputum, carbonaceous sputum - early intubation.

Tetanus prophylaxis. Silver sulfadiazine for topical care (do not use on face, sulfa allergy).

Curling's ulcer (stress ulcer) risk - PPI prophylaxis.

Pressure Injuries

Stage 1: non-blanchable erythema, intact skin.

Stage 2: partial-thickness, blister or shallow open ulcer.

Stage 3: full-thickness with visible subcutaneous fat.

Stage 4: full-thickness with exposed bone, tendon, or muscle.

Unstageable: covered by slough or eschar.

Deep tissue injury: purple/maroon intact skin or blood-filled blister.

Reposition every 2 hours, off-load heels, manage incontinence, Braden Scale assessment, adequate nutrition (protein, vitamin C, zinc).

CHAPTER 16

Fluid, Electrolyte, and Acid-Base Balance

Master IV fluids, dehydration, fluid overload, and ABG interpretation.

IV Fluid Types

Fluid	Tonicity	Use
0.9% NS	Isotonic	Resuscitation, blood compatible, DKA, with packed RBCs
Lactated Ringer's	Isotonic	Trauma, burns, surgery - avoid in liver failure
D5W	Isotonic in bag, hypotonic in body	Free water, dilution; never with blood
0.45% NS	Hypotonic	Cellular dehydration, DKA after initial resuscitation
3% NS	Hypertonic	Severe hyponatremia, ICP - ICU only, central line, slow
D5NS, D5LR	Hypertonic	Maintenance with caloric support

Dehydration vs Overload

Parameter	Dehydration	Overload
Weight	Decreased	Increased
BP	Decreased, orthostatic	Increased
HR	Increased	Increased
Skin	Poor turgor, dry mucosa	Edema, JVD
Urine	Concentrated, decreased	Initially increased
Lung sounds	Clear	Crackles
BUN/Hct	Increased	Decreased (dilution)

ABG Interpretation (Tic-Tac-Toe)

Normal values: pH 7.35-7.45, PaCO2 35-45, HCO3 22-26.

Step 1: pH < 7.35 = acidosis; > 7.45 = alkalosis.

Step 2: PaCO2 abnormal in opposite direction of pH = respiratory. HCO3 abnormal in same direction as pH = metabolic.

Step 3: Compensation - if the other value is also abnormal in the compensating direction, the body is compensating.

Common Acid-Base Causes

Respiratory acidosis: hypoventilation - COPD, opioids, sedation, neuromuscular disease.

Respiratory alkalosis: hyperventilation - anxiety, pain, pulmonary embolism, salicylate (early).

Metabolic acidosis: DKA, lactic acidosis, renal failure, diarrhea, salicylate (late).

Metabolic alkalosis: vomiting, NG suction, diuretics, antacid abuse, hypokalemia.

CHAPTER 17

Test-Taking Strategies and Final Tips

How to think like an NCLEX item writer and avoid common traps.

Top Strategies

- When in doubt, ASSESS first (unless the answer requires immediate life-saving action).
- Choose the answer that protects airway, breathing, circulation in that order.
- Do not delegate assessment, teaching, evaluation, or unstable patients.
- Select the LEAST invasive intervention that achieves the goal.
- Trust standard precautions and evidence-based practice
- not 'what we did at my clinical site'.
- Read the question stem twice. Identify exactly what is being asked: priority, first, best, most likely, except, contraindicated.
- Eliminate absolutes (always, never, all, none)
- usually wrong.
- Eliminate two opposite answers when both cannot be correct.
- On select-all-that-apply: evaluate each option as true/false independently.

NGN-Specific Tips

Read the case study scenario carefully - note vital signs, labs, medications, and timeline.

Use clinical judgment model: recognize cues, analyze cues, prioritize hypotheses, generate solutions, take action, evaluate outcomes.

Bowtie and trend items reward systematic ABC + Maslow thinking.

The Day Before and Day Of

Get adequate sleep (7-9 hours).

Eat a protein-rich breakfast.

Arrive early with required ID.

Use breaks. Pace yourself - do not panic at 85 or 150.

If you finish at any number between 85-150, you are not done early or late; you are done when the computer has enough data.

Trust your preparation - including this Luma Educational Apps course.

Final Words from Luma Educational Apps

You have invested years of education and clinical practice to reach this moment. The NCLEX is a measurement of safe entry-level practice - it is not a measurement of your worth as a nurse. Prepare deliberately, rest well, and walk into the exam with the confidence that you have done the work. The

profession needs you. Good luck from the Luma Educational Apps team.

- Luma Educational Apps

Go forward with confidence.

Luma Educational Apps

Clinical education resources for nurses, board prep, and advanced practice pathways.
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