

PDF STUDY GUIDE

PSAT/NMSQT

Study Guide

185+ High-Yield Terms & Concepts for the Digital PSAT/NMSQT

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The TNCC written exam is an open-book, 50-question multiple-choice exam; you must earn 80% or higher to pass, and you typically get two attempts within a set window after the course ends (commonly about 7 days -- confirm with your course director). The psychomotor portion is a skill-station evaluation (three stations, about 70% or greater to pass, with a retest allowed). That means the written test rewards knowing WHERE to look in your provider manual and knowing the systematic approach cold -- not memorizing trivia. This guide drills the high-yield concepts in the order TNCC teaches them: the initial assessment (the systematic A-E approach), then injury patterns, then special populations, then the teamwork, documentation, and test-day skills that protect your score. Work the tables section by section, do the 8-Step Open-Book Drill, run the practice scenarios aloud, and use the skill-station checklist the week of your course.

Section 1: TNCC Course & Exam Foundations (17 Concepts)

What the Trauma Nursing Core Course is, how the written exam and psychomotor stations are run, and the systematic framework you will be tested on.

#	Term	Key Facts	Strategy Tip	Example
1	TNCC Overview	The Trauma Nursing Core Course (TNCC) is a national standardized course for nurses caring for trauma patients, offered by the Emergency Nurses Association (ENA). It teaches a systematic, priority-based approach to the initial assessment and management of the injured patient.	Know what the course is for: a consistent framework to find and fix life threats in the first minutes - every written question rewards that framework.	A nurse moving to the ED takes TNCC to standardize their trauma assessment approach.
2	Provider Manual & 9th Edition	The course is built from the ENA TNCC Provider Manual (current edition at your course; the 9th edition is the widely taught edition). The written exam is OPEN BOOK - you may use the manual during the test.	Bring YOUR manual and tab it: the open-book exam tests how fast you can find the right page, not just what you remember.	Tab the initial-assessment, shock, airway, and population chapters before the exam.
3	Written Exam Format	About 50 multiple-choice questions, open book, with 80% or higher required to pass (ENA course requirement). You must answer every question - there is no wrong-answer penalty, and the clock rewards moving past hard items.	Do not sit on a hard question; flag it, answer it, and return. With open book, time spent	

searching is time not spent answering - budget
~1-1.5 minutes per question.

A 50-question exam with a 60-90 minute window: finish the first pass in 45 minutes, then use remaining time to verify flagged items.

4

Exam Attempts & Retake

Passing requires both the written exam (80%+) and the psychomotor stations (about 70%+). Students typically get two attempts at the written exam within a short window (commonly about 7 days after the course end) - confirm your exact window with the course director.

Do NOT treat attempt 1 casually: if you fail, your retake window is short, so schedule the first attempt while the course is still fresh.

A student who fails attempt 1 must fit the retake into the 7-day window or petition for an exception.

5

Psychomotor Skill Stations

The practical portion is a skill-station evaluation - in the current format, three psychomotor stations built around the systematic initial assessment (Trauma Nursing Process), with about 70% or greater to pass and one retest allowed.

Practice the sequence out loud and in order (A-B-C-D-E) so the stations feel rehearsed; graders watch your PRIORITIES, not just your skills.

At a station you must verbalize airway first, then breathing, then circulation - even before touching the manikin.

6

Verification & Renewal

Successful completion earns an ENA TNCC provider verification card, valid about 4 years (ENA 4-year provider verification). Renewal happens by retaking the course (or the renewal pathway your employer/ENA offers at the time).

Put the expiration date on your calendar the day you pass - four years feels far away until a credential audit.

A nurse passing in 2025 sets a 2029 renewal reminder.

7

The Systematic Approach

The heart of TNCC: assess and manage injuries in a fixed priority order, starting with the greatest threats to life, using the Trauma Nursing Process (TNP): assessment, diagnosis/priority identification, outcome identification, planning, implementation, and evaluation - applied in a continuous loop.

Any question asking 'what should the nurse do FIRST?' is answered by the systematic approach - the highest priority unresolved life threat wins.

For a patient with airway obstruction and a bleeding wound, airway is first, then hemorrhage control.

8

Primary vs Secondary Survey

In TNCC the assessment is continuous: an ongoing survey that starts with life threats (ABCDE) and never stops; the 'secondary survey' (head-to-toe) happens only after life threats are addressed - but you reassess constantly for changes.

On the exam, the correct answer is almost never a secondary-survey action while a primary life threat is still open.

You do not start the head-to-toe while the patient is hypoxic - oxygen/airway first.

9

Primary Survey: A-B-C-D-E

The standard sequence: A - Airway with cervical spine protection; B - Breathing and ventilation; C - Circulation with hemorrhage control; D - Disability (neurologic status); E - Exposure with environmental control.

Memorize the order as a reflex; every scenario question starts with the highest letter that is unresolved.

An unconscious driver: jaw thrust, assess breath sounds, control bleeding, check pupils, then expose and warm.

10

Team Roles & Communication

Trauma resuscitation is a team event: team leader, airway, circulator, recorder, and others. Communication is closed-loop (confirm the task was done) and graded on the skill stations.

On stations and test items, the nurse's job is often to ANTICIPATE, communicate the plan, and verify -- not do everything alone.

'Airway patent, jaw thrust in place, suction ready - who is next?' is a closed-loop, priority-first communication.

11

Mechanism of Injury (MOI)

What happened, and how much energy, predict what injuries to look for. High-risk MOIs trigger a full trauma workup even with 'normal' vital signs.

Whenever the stem describes a crash, fall, or blast, mentally list the injuries that MOI predicts - the answer usually lives there.

An unrestrained driver's chest strikes the wheel: suspect cardiac contusion, rib fractures, aortic injury.

12

Preparation & Red Flags

Before the patient arrives: know the MOI, anticipated injuries, and prepare equipment. Red flags for immediate transport: airway compromise, shock, altered mental status, paralysis.

Tie every answer back to a red flag: any question about 'priority' keys on the red-flag item, not the routine one.

A patient with a patent airway AND a widening pulse deficit: the pulse deficit is the red flag that drives the next step.

13

Airway with C-Spine Protection

In trauma, assume cervical spine injury until cleared; airway maneuvers must protect the neck (jaw thrust instead of head-tilt/chin-lift).

If an answer offers head-tilt/chin-lift in a trauma patient, eliminate it immediately.

Unconscious trauma patient: jaw thrust + cervical collar + inline stabilization, then assess breathing.

14

Breathing & Ventilation

Assess rate, depth, effort, breath sounds, oxygen saturation, and chest wall integrity. Correct problems while keeping the spine protected.

Breath-sound asymmetry + hypotension after trauma = tension pneumothorax until proven otherwise.

Absent left breath sounds, distended neck veins, shock: prepare needle decompression, then chest tube.

15	Circulation & Hemorrhage Control	Evaluate skin color/temperature, pulses, capillary refill, blood pressure, and look for hidden bleeding (chest, abdomen, pelvis, long bones). Control external hemorrhage first (pressure, tourniquet for extremity).	Hypotension in trauma is hemorrhagic until proven otherwise - even an apparently 'stable' patient can be compensating.	Pale, cool, tachycardic trauma patient: IV access, warmed fluids and blood, find the bleeding source.
16	Disability (Neuro)	Assess level of consciousness, pupils, and gross motor function; identify spinal cord injury patterns. Avoid routine hyperventilation of TBI patients.	GCS and pupils are the neuro baseline every question compares against - document them exactly.	GCS 13, right pupil sluggish: keep oxygenation and BP normal, prepare CT and neurosurgery notification.
17	Exposure & Environment	Undress fully to find hidden injuries, then prevent hypothermia (warm blankets, warm fluids, warmed room). Hypothermia worsens coagulopathy and bleeding.	The 'E' answer is right when the stem emphasizes cold, wet, or hidden injuries - undress and rewarm.	A 39-year-old found in a cold garage with a femur fracture: cut off wet clothing, cover, warm fluids.

Section 2: Kinematics & Mechanism of Injury (17 Concepts)

How energy becomes injury, and what each MOI pattern predicts - a favorite source of exam scenarios.

#	Term	Key Facts	Strategy Tip	Example
1	Kinematics	The study of how motion and energy create injury. Energy = mass x velocity squared - speed is the dominant factor, so a small velocity increase massively increases injury.	Higher speed questions = expect worse, more multiple injuries; adjust your severity suspicion up.	

Doubling a vehicle's speed roughly quadruples the crash energy.

2

Blunt vs Penetrating

Blunt: energy transferred through the body surface (MVC, fall, blast) - injuries can be hidden. Penetrating: object enters the body (bullet, knife) - injuries track the wound path.

Blunt trauma answers predict 'hidden injury'; penetrating answers predict 'track the path and control bleeding'.

A fall from height looks 'okay' externally but tears the liver: blunt energy did the damage.

3

MVC Frontal Impact

Deceleration stops the body against the restraint or dash: head hits windshield, chest hits wheel, knees hit dash - leading to head/face/chest/abdominal and lower-extremity injuries.

List from the stem: unrestrained frontal = face/chest/knee injuries; restrained = belt-pattern injuries.

Unrestrained frontal crash: suspect facial fractures, sternum/rib fractures, spleen injury, patella fracture.

4

MVC Rear Impact

Rapid forward snap: neck hyperextension-hyperflexion (whiplash), possible head injury if the head hits the seatback or headrest.

Rear-end stems: cervical strain or worse - check for head strike and neuro deficits.

Rear-ended driver with neck pain and hand numbness: cervical spine evaluation and neuro checks.

5

MVC Side Impact

The occupant is closest to the impact: head/neck, chest, abdomen, pelvis on that side - plus the passenger may hit the B-pillar or window.

Side impact = crush energy near the occupant; think rib fractures, spleen/liver, pelvic injury on the struck side.

Driver struck on the driver's side: left rib fractures, splenic injury, pelvic fracture pattern.

6

7	MVC Rollover	Multiple impacts in many directions with ejection risk - the highest injury potential; injuries vary widely.	Rollover + any complaint = full trauma assessment; ejection multiplies everything.	A rolled SUV with a restrained driver still has serious chest and spine injury from multiple strikes.
	Ejection	Being thrown from the vehicle produces massive energy transfer - severe injury and very high mortality; it also rules out 'minor' injury assumptions.	Ejection is a red flag phrase in stems: treat as major trauma even if the patient 'looks fine'.	A motorcyclist thrown from the bike has multi-system injuries even with a GCS of 15.
	Restraint Patterns	Lap belts cause lower abdominal and lumbar-spine injuries; shoulder belts cause clavicle, sternum, rib injuries; improperly positioned belts add organ injuries (seatbelt syndrome).	A 'seatbelt sign' (bruising) predicts hidden abdominal and lumbar-spine injury - never dismiss it.	Bruised seatbelt pattern across the abdomen: suspect bowel, mesentery, and lumbar spine injury.
	Motorcycle Collisions	Mechanisms: direct head-on, angular (side), and ejection/laying down. Helmet use shifts the pattern from head injury to more chest/abdomen/extremity injury.	Motorcycle stems always: full trauma workup; look for the pattern helmets change (extremity over head).	A helmeted rider crashes: femur fracture and rib fractures are classic; helmet does not protect below the head.
10	Pedestrian Injuries	The classic triad: lower extremities (bumper), pelvis/abdomen (hood), head/chest (windshield/ground). Children and adults pattern differently (children are often thrown).	Pedestrian stems: examine all three zones - don't stop at the obvious visible scrape.	Adult hit by a car: tibia fracture, pelvic injury, head strike - hidden thoracic and abdominal injury too.

11	Falls	Injury depends on height, surface, and landing position. Landing on the feet: calcaneus, knees, pelvis, spine. Landing on the head/hands: wrist, elbow, head, neck.	The greater the height, the more energy - a fall from 20+ feet is major trauma even with a 'good' story.	A worker falls 15 feet landing on heels: heel fractures, knee injuries, pelvic and lumbar-spine injury.
12	Blast Injury: Primary	The pressure wave itself - mostly air-filled organs: eardrums, lungs (blast lung), bowel. The most lethal and most easily missed.	Any blast stem: eardrum rupture signals significant primary blast exposure - screen for blast lung.	A soldier near an explosion with chest pain and hemoptysis but no external wound: blast lung.
13	Blast Injury: Secondary	Fragments and debris propelled by the blast - penetrating injuries exactly like ballistic wounds.	Secondary blast answers = penetrating wound care: pressure, tourniquet, exposed wounds covered.	Shrapnel pieces strike a bystander causing multiple bleeding wounds: tourniquets and pressure dressings.
14	Blast Injury: Tertiary/Quaternary	Tertiary: victim thrown into objects (blunt pattern). Quaternary: burns, toxic inhalation, crush from collapsed structures.	Blast stems may hide multiple mechanisms - assess for blunt, penetrating, burn, and inhalation injuries together.	A victim thrown against a wall (tertiary) also has flash burns (quaternary): blunt trauma plus burn care.
15	Ballistics	Bullet energy = mass x velocity squared. High-velocity rounds create a temporary cavity that damages tissue far beyond the bullet path - exit wounds can be larger than entry wounds.	Never estimate damage from the small entry wound; the hidden cavity is the injury.	A small entry wound in the thigh with massive soft-tissue injury

inside: high-velocity temporary cavity.

16

Crush Injury

Prolonged compression crushes muscle - releasing the weight can cause reperfusion and crush syndrome (hyperkalemia, rhabdomyolysis, renal injury).

Identify crush = monitor potassium and watch for sudden dysrhythmias when the weight is removed.

A patient freed after 2 hours under debris has dark urine and peaked T waves: crush syndrome - treat hyperkalemia.

17

Penetrating: GSW vs Stab

Gunshot: unpredictable track, high energy, needs surgical exploration. Stab: predictable track along the blade path; risk depends on penetration (abdomen/chest).

GSW stems always ask for surgery consult; stab stems ask about entrance/exit and internal organ risk.

A stab wound below the nipple line: chest and upper abdominal organs are at risk - evaluate both.

Section 3: Primary Survey -- The Systematic A-E Assessment (18 Concepts)

The framework TNCC is built on: A-B-C-D-E done as a continuous loop, with the highest unresolved life threat always next.

#	Term	Key Facts	Strategy Tip	Example
1	Airway: Patent vs Compromised	Assess whether the patient can maintain their own airway: talking clearly = patent; snoring/gurgling/absent sounds = compromised.	The first branch in every scenario: can they talk? Yes = move to B. No = open the airway (with c-spine protection).	A patient who answers your question in full sentences has a patent airway - move on to breathing.
2	Airway Maneuvers	Jaw thrust with cervical spine protection is the trauma maneuver; head-tilt/chin-lift is NOT used when spinal injury is possible.		

Insert an oral/nasal airway only if needed and tolerated.

On any trauma stem, an answer with 'head-tilt' is wrong: eliminate it instantly.

Unconscious trauma patient: jaw thrust + inline stabilization; if gag is absent insert an oropharyngeal airway.

3

Airway Adjuncts & Suction

Suction clears blood, vomit, or debris; an oropharyngeal airway (OPA) is used in unconscious patients without a gag reflex; a nasopharyngeal airway (NPA) when a gag is present or jaw is clenched.

Match the airway to the patient state: no gag = OPA; gag/trismus = NPA.

A semiconscious patient with blood in the mouth: suction first, then NPA if they can't protect the airway.

4

Definitive Airway

Indications: inability to protect the airway, apnea, severe maxillofacial injury, or impending airway loss (burn swelling, expanding neck hematoma). Rapid-sequence intubation is the standard approach with drugs.

'Definitive airway' is the right answer when the stem warns of swelling, bleeding, or no gag - don't wait for desaturation.

Facial burns with hoarseness and stridor: prepare for early intubation before swelling closes the airway.

5

Cricothyrotomy

A surgical airway for 'cannot intubate, cannot ventilate' situations - the last-resort definitive airway when the trachea cannot be secured above.

Remember it as the answer to the truly failed-airway scenario - know the steps conceptually.

After failed intubation and failed bag-mask ventilation in a crushed-face patient: surgical cricothyrotomy.

6

Breathing: Assessment

Look, listen, feel: rate, depth, effort (retractions, accessory muscles), breath sounds, chest expansion, tracheal position,

oxygen saturation and end-tidal CO₂.

Any asymmetry, deviation, or quietness is a chest injury until ruled out - name it out loud in the scenario.

Decreased left breath sounds + hyperresonance after a blow to the chest: tension pneumothorax.

7

Oxygenation vs Ventilation

Oxygenation = getting O₂ to the blood (SpO₂). Ventilation = moving air in/out (CO₂ clearance via EtCO₂). Confusing them misses problems: a patient can be oxygenated but not ventilated.

EtCO₂ answers = ventilation (CO₂); SpO₂ answers = oxygenation. Match the problem to the monitor.

A sedated trauma patient with SpO₂ 98% but rising EtCO₂: ventilatory problem - support ventilation.

8

Bag-Mask Ventilation

Two-person bag-mask with a seal and airway adjunct is preferred; deliver adequate tidal volume and rate without over-inflating; watch gastric distention.

On stations, say 'two-person bag-mask, seal, adjunct in, watching chest rise and EtCO₂'.

Apneic patient: jaw thrust, OPA, two-person BMV with chest rise visible and EtCO₂ waveform present.

9

Pulse Oximetry & Capnography

SpO₂ tracks oxygenation; waveform capnography (EtCO₂) tracks ventilation and confirms tube placement and perfusion. A falling EtCO₂ may mean falling cardiac output.

Rising EtCO₂ with falling SpO₂ = ventilation problem; falling EtCO₂ + falling BP = perfusion problem.

After intubation, an absent EtCO₂ waveform with good chest rise: confirm tube placement with direct visualization.

10

Circulation: Assessment

Skin (warm/pink vs cool/mottled), pulses (quality, rate, symmetry), capillary refill (prolonged >2s in shock), blood pressure, urine output, and level of consciousness (perfusion to the brain).

Cool, pale, tachycardic, and anxious = compensated shock even with a 'normal'

blood pressure - the pressure is the last thing to fall.

A patient with HR 115, weak radial pulse, and confusion after trauma: shocked - act on it, don't wait for hypotension.

11

External Hemorrhage Control

Direct pressure first; for severe extremity bleeding a tourniquet; wound packing with hemostatic dressings for junctional wounds; then reassess.

Tourniquet answers win for mangled extremities; pressure/packing win for junctional (groin, neck, axilla) wounds.

A below-knee amputation bleeding profusely: apply a tourniquet high and tight, note the time, reassess.

12

Tourniquet Use

Commercial tourniquets high and tight on the extremity; when is it used: life-threatening extremity hemorrhage when direct pressure fails or is impractical. Loosen only in controlled settings.

In a shock scenario the tourniquet is applied early and left in place until surgical control; note the application time.

A field tourniquet is applied at 19:00 and the patient goes to the OR - the time is documented for reperfusion planning.

13

Shock Index

Pulse divided by systolic blood pressure (HR/SBP). >0.9 suggests significant hypovolemia; a 'normal' pressure with a high heart rate makes the index abnormal.

Use it to catch compensating shock: HR 120 / SBP 100 = 1.2 - that patient is not stable.

HR 110, SBP 110: shock index 1.0 - trending abnormal despite a 'fine' blood pressure - escalate.

14

Pelvic Binder

Applied for suspected pelvic fracture with hemorrhage - wraps the pelvis to reduce volume and stabilize the ring; do NOT repeatedly open and close it.

Pelvic pain + hypotension in trauma = pelvic binder now; log-roll precautions.

A pedestrian hit by a car, tender pelvis, BP falling: apply a pelvic binder, avoid repeat opening.

15

Disability Assessment

Quick neuro: AVPU or GCS, pupils (size, equality, reactivity), gross motor movement of extremities, and glucose check if altered.

Always consider glucose and oxygenation as causes of altered mental status in any trauma question.

A confused trauma patient with pale skin: check airway, oxygenation, blood glucose, then neuro status.

16

Exposure & Hypothermia Prevention

Fully expose to find injuries, then immediately cover with warm blankets; use warm IV fluids and a warm room; hypothermia drives coagulopathy and death.

Any stem mentioning cold, wet, or long scene time: hypothermia prevention is a correct intervention.

A soaked patient in a cold ED: remove wet clothing, cover, warm fluids - before the secondary survey.

17

Ongoing Reassessment

The survey never stops: continuously repeat A-B-C-D-E, especially after every intervention and with any change - injuries evolve.

The right 'next action' after an intervention is often 'reassess' - questions reward checking the effect of what you just did.

After needle decompression, the next step is repeat assessment of breath sounds and vital signs.

18

Don't Delay Transfer

For critical patients, life-threatening injuries are found and managed during the primary survey - transfer to definitive care (trauma center) is not delayed for the full head-to-toe.

In exam stems, 'transfer to a trauma center' is often the correct disposition once life threats are controlled.

A hypotensive patient with a tension pneumothorax: decompress, then expedite transfer - do not complete the full survey first.

Section 4: Airway, Breathing & Chest Injury (17 Concepts)

Airway management in trauma plus the thoracic injuries that kill in the first minutes.

#	Term	Key Facts	Strategy Tip	Example
1	Rapid Sequence Intubation (RSI)	Sedative + paralytic given quickly to intubate with minimal delay; induction and paralysis carry risk (hypotension, hypoxia) so preparation matters.	RSI answer is right when the airway is endangered and time is short - prepare suction, backup, and post-intubation verification.	A patient with a crushed larynx and stridor: RSI or surgical airway now, not later.
2	Endotracheal Tube Confirmation	Verify with waveform capnography (gold standard), bilateral breath sounds, chest rise, and auscultation over the epigastrium (no gurgling); colorimetric devices are backup.	Every intubation question ends with confirm - wrong answers skip verification.	After intubation: EtCO2 waveform present, bilateral breath sounds, no epigastric gurgle - secured.
3	Cuffed ETT & Sizing	Cuffed tubes are standard; correct size and cuff pressure prevent air leak and tracheal injury.	Sizing questions reward approximate sizes by age (adult ~7.5-8.0) - you do not need to memorize tables for the exam.	An adult female is intubated with a 7.5 cuffed tube and the cuff inflated to the minimal seal pressure.
4	Tension Pneumothorax	One-way valve air leak: air enters the pleural space and cannot escape, collapsing the lung and shifting the mediastinum - hypotension, absent breath sounds, tracheal deviation (late).	This is a TIME-CRITICAL clinical diagnosis - treat on exam evidence alone, do not wait for imaging.	Absent left breath sounds + distended neck veins + hypotension after trauma: needle decompression now.

5

Needle Decompression

Large-bore needle/catheter into the 2nd intercostal space midclavicular line (or 5th intercostal anterior axillary line per current guidance) to convert the tension to a simple pneumothorax; a chest tube follows.

Know both sites; answers that 'wait for X-ray' in tension are wrong.

After needle decompression, breath sounds improve but the tube thoracostomy is placed to fully evacuate.

6

Open Pneumothorax

A penetrating chest wall wound lets air in through the defect ('sucking chest wound'). Cover with a 3-sided occlusive dressing to let air out, not a fully sealed one.

'Three-sided dressing' is the classic correct answer; a fully taped dressing can create a tension pneumothorax.

A stab wound to the chest bubbles with each breath: apply a 3-sided occlusive dressing, then chest tube.

7

Flail Chest

Two or more adjacent ribs broken in two or more places produce a free-floating segment; the lung is contused underneath - treat pain and ventilate, not 'splint the paradox' alone.

Flail chest answer = pain control, oxygenation/ventilation support, and watch for pulmonary contusion - not just strapping.

A driver with 5 broken ribs in a segment and severe chest pain: analgesia + oxygen, prepare for CPAP/ventilation.

8

Hemothorax

Blood in the pleural space from lung or vessel injury - dullness, decreased breath sounds, possible shock; treat with tube thoracostomy and consider autotransfusion; massive hemothorax = immediate decompression.

Hypotension + flat neck veins (not distended) + dull chest = hemothorax, not tension - the two are distinguished by neck veins and trachea.

A stab wound with dull left chest and falling BP but flat neck veins: chest tube + blood conservation.

9

Massive Hemothorax

Rapid blood loss into the chest (often >1500 mL) causing shock - needs rapid evacuation and blood return/autotransfusion and surgery.

Initial drainage of 1500 mL or continued bleeding = OR, not 'observe'.

After chest tube, 1600 mL of blood drains immediately: prepare for operative intervention.

10

Cardiac Tamponade

Blood fills the pericardial sac, compressing the heart: Beck's triad (hypotension, muffled heart sounds, distended neck veins), pulsus paradoxus. Treat by pericardiocentesis/operative window.

Distended neck veins + hypotension + muffled heart sounds = tamponade; a penetrating wound to the mediastinum is the classic setup.

A stab wound to the left chest with distended neck veins and falling BP: prepare pericardiocentesis.

11

Myocardial Contusion

Blunt chest trauma bruises the heart - dysrhythmias (especially in the first 24-48 hours), chest pain, ST changes; watch and monitor rather than 'fix'.

Treatment answer = continuous ECG monitoring and observation, not thrombolytics or invasive management.

A steering-wheel chest strike with new premature beats: monitor ECG, observe for dysrhythmia.

12

Aortic Injury

Deceleration tears the aorta (usually at the isthmus) - often fatal; survivors show a widened mediastinum on chest X-ray. High suspicion from rapid deceleration MOIs.

'Widened mediastinum on CXR after deceleration' = aortic injury workup and trauma surgery - not discharge.

A 60 mph head-on crash with a widened mediastinum: CT angiography and vascular surgery consult.

13

Pulmonary Contusion

Bruised lung tissue from blast/shockwave or rib energy; hypoxia may worsen over 24-48 hours even with a normal initial X-ray.

Contusion answers = oxygen + close monitoring for delayed worsening; never 'discharge home'.

A blast-exposed patient with mild hypoxia and normal CXR: admit, monitor, oxygen as needed.

14

Tracheobronchial Injury

Air leak into the tissues: subcutaneous emphysema, pneumomediastinum, large persistent air leak after tube placement.

Subcutaneous crepitus on the neck/chest + air leak = airway/bronchial injury suspicion.

A patient with crackling chest wall and a persistent air leak after chest tube: bronchoscopy for tracheobronchial injury.

15

Diaphragmatic Injury

Blunt or penetrating blows can tear the diaphragm; abdominal contents herniate into the chest - more common on the LEFT (liver shields the right).

A 'stomach bubble above the diaphragm' on CXR after trauma is diaphragmatic rupture until proven otherwise.

A thoracoabdominal stab wound with bowel sounds heard in the chest: diaphragmatic injury - OR.

16

Rib Fractures

Pain, splinting, atelectasis risk; upper ribs (1-2) imply high energy; lower ribs (8-12) risk liver/spleen injury; elderly patients get hypoxic fast.

Rib fracture stems = pain control + incentive spirometry + screen the organs under the broken ribs.

Fractured ribs 9-11 on the left: also screen for splenic injury.

17

Airway Disruption:
Maxillofacial

Midface trauma can obstruct the airway with blood, teeth, or loose bone; a definitive airway is often needed early.

Any facial trauma with bleeding into the airway: suction + protect the airway - answers about 'waiting' are wrong.

A facial-crush patient with blood pooling in the oropharynx: suction, jaw thrust, prepare intubation.

Section 5: Shock, Hemorrhage Control & Resuscitation (18 Concepts)

Recognizing shock classes, stopping the bleeding, and resuscitating the trauma patient - the highest-yield clinical content.

#	Term	Key Facts	Strategy Tip	Example
1	Shock: Definition	Inadequate tissue perfusion and oxygenation - cells do not get what they need. In trauma, the overwhelming cause is hemorrhage; shock is a clinical diagnosis, not a number.	Do not wait for a low blood pressure: tachycardic + pale + anxious + weak pulses = shock now.	HR 118, pale, anxious, capillary refill 4s, BP 100/70: that patient is in shock - the BP is still compensating.
2	Classes of Hemorrhagic Shock	Classified by blood loss: I (<15%, ~750 mL, minimal change), II (15-30%, ~750-1500 mL, tachycardia/early), III (30-40%, ~1500-2000 mL, hypotension, worsening), IV (>40%, >2000 mL, profound collapse).	Higher class = faster action: class III-IV answers demand blood products and immediate surgery, not 'watch'.	A patient with HR 130, BP 85/60, pale and confused after a thigh wound: class III - blood and OR now.
3	Compensated vs Decompensated	Compensated: HR and vascular tone rise to keep BP 'normal' - the patient looks anxious, cool, tachycardic. Decompensated: BP finally falls - the machine is failing.	A 'normal' BP in shock = compensated, NOT stable; the exam wants you to act on compensation.	Pale, cool, HR 122, BP 100/78: compensated shock - intervene before decompensation.
4	Cardiogenic Shock	Pump failure: heart cannot move blood - from cardiac contusion or tamponade. Treat the cause (drain the tamponade, support contractility).	Cardiogenic answers follow a chest injury (contusion, tamponade) - treat the mechanical cause.	After blunt chest trauma with tamponade physiology: pericardiocentesis, not just more

fluids.

5

Obstructive Shock

Blood cannot leave the heart: tension pneumothorax, cardiac tamponade - 'the plumbing is pinched'.

Obstructive shock answers = decompress (needle/chest tube) or drain (pericardiocentesis) - fast.

Tension pneumothorax causing obstructive shock: needle decompression restores flow.

6

Distributive Shock

Massive vasodilation: neurogenic (spinal cord injury: hypotension + bradycardia + warm dry skin), septic, anaphylactic.

Neurogenic shock = hypotension + BRADYCARDIA + warm skin; it is the shock that looks 'warm'.

A patient with a cervical spine injury, BP 85/50, HR 52, warm skin: neurogenic shock - not hemorrhage.

7

Neurogenic vs Hemorrhagic Shock

Neurogenic: warm/dry skin, bradycardia, hypotension, often with a spinal injury.
Hemorrhagic: cool/clammy, tachycardia, hypotension.

Skin temperature and heart rate separate the two - read the stem for both.

Warm, bradycardic, hypotensive + spinal injury = neurogenic; cool, tachycardic = hemorrhagic.

8

Damage Control Resuscitation

The modern trauma resuscitation: stop hemorrhage early, limit crystalloid, give blood products early in balanced ratios (1:1:1), prevent hypothermia and coagulopathy.

'Damage control' answers = blood products early + surgery fast + minimal crystalloid.

A class III hemorrhage: transfuse RBC/plasma/platelets in ratio, warm the patient, go to the OR.

9

Massive Transfusion Protocol

A pre-made package of blood, plasma, and platelets delivered quickly for exsanguinating hemorrhage - the goal is

replacing what is lost in balance.

MTP answer is right for class III-IV hemorrhage or suspected >40% blood loss - activate early.

A penetrating torso wound with refractory hypotension: activate MTP alongside immediate surgery.

10

Tranexamic Acid (TXA)

An antifibrinolytic given early (within 3 hours) to reduce bleeding in major trauma; its benefit is time-limited.

TXA = early (<3h) + major trauma + bleeding; later administration is not the answer.

A patient with ongoing hemorrhage 90 minutes after injury: TXA per protocol plus definitive control.

11

Permissive Hypotension

Keeping blood pressure 'a little low' (e.g., SBP ~90) until surgical control, to avoid blowing clots and diluting blood; NOT for TBI patients, who need higher pressure to perfuse the brain.

TBI changes the rule: TBI + shock = maintain higher BP to perfuse the brain; the exam expects this split.

An isolated femur bleed: permissive hypotension until the OR. A TBI + bleeding: keep BP up, blood products.

12

Fluids: Crystalloid

Warmed isotonic crystalloid (balanced solution) is used as a bridge; large volumes dilute clotting factors and worsen coagulopathy - minimize.

Answers that 'run large volumes of saline' are wrong in modern trauma; blood is the answer for major loss.

A patient needing ongoing resuscitation: switch from crystalloid to blood products early.

13

Hypothermia & Coagulopathy

The lethal triad: hypothermia, acidosis, coagulopathy - each worsens the others and drives exsanguination.

Every shock answer should include warming: warm fluids, blankets, warm room.

A cold, acidotic, bleeding patient: warm everything, correct acidosis, give clotting support.

14	Acidosis & Resuscitation	Tissue hypoperfusion produces lactic acidosis; the base deficit/lactate tracks the severity of shock and the response to resuscitation.	Trending lactate/base deficit down = resuscitation working - questions reward monitoring trends.	A patient's lactate falls from 6 to 3 after resuscitation: therapy is working - continue.
15	Junctional Hemorrhage	Bleeding at the junction of the torso and limbs (groin, axilla, neck) where a tourniquet won't work: wound packing with hemostatic dressing + direct pressure.	Junctional wounds = pack + pressure; a tourniquet is the wrong tool there.	A deep groin wound bleeding heavily: pack the wound with hemostatic gauze and hold firm pressure.
16	REBOA (Concept)	Resuscitative endovascular balloon occlusion of the aorta - a temporary aortic occlusion device for exsanguinating subdiaphragmatic hemorrhage as a bridge to surgery.	Know it as a temporizing 'clamp the aorta from inside' resource - you do not need mechanics.	A patient exsanguinating from a pelvic fracture: REBOA or pelvic packing buys time to the OR.
17	Response to Resuscitation	Evaluate whether the patient responds (BP improves and stays), transiently responds, or does not respond - each drives the next decision (more blood, OR/angio, etc.).	'Non-responder' answers = ongoing hidden bleeding and immediate operative control.	A non-responder after 2 units of blood: direct to the OR for hemorrhage control.
18	Pain, Anxiety & Shock Progression	Uncontrolled pain and anxiety increase oxygen demand and worsen shock physiology; treat pain (carefully) while stabilizing.	Analgesia is legitimately part of resuscitation (ketamine has a role when BP is fragile) - titrate to effect.	

An agitated patient with severe pain and borderline BP: small titrated doses of ketamine while transfusing.

Section 6: Traumatic Brain & Spinal Cord Injury (17 Concepts)

The neuro priorities: prevent secondary injury, protect the spine, and recognize the injury patterns that change management.

#	Term	Key Facts	Strategy Tip	Example
1	Primary vs Secondary Brain Injury	Primary: damage at the moment of impact (not reversible). Secondary: damage that develops afterward from hypoxia, hypotension, swelling, and seizures - this is what you can prevent.	Every TBI answer reduces secondary injury: oxygen, BP, glucose, temperature, no needless hyperventilation.	Avoid hypoxia and hypotension from the field forward - each episode worsens the brain injury.
2	GCS: Eyes	4 = opens spontaneously, 3 = to voice, 2 = to pain, 1 = none.	Rattle off all three parts when the stem gives neuro findings - the total matters most.	A patient opens eyes to voice (3), localizes pain (5), and is confused (4): GCS 12.
3	GCS: Verbal	5 = oriented, 4 = confused, 3 = inappropriate words, 2 = incomprehensible sounds, 1 = none.	Confused but talking = 4; the stem often makes you count a subtotal.	The patient looks at you and answers with wrong words (3): lower the verbal score.
4	GCS: Motor	6 = obeys commands, 5 = localizes pain, 4 = withdraws, 3 = flexor (decorticate), 2 = extensor (decerebrate), 1 = none.	Motor is the heaviest-weighted part; asymmetric limb movement flags a focal deficit.	Right side obeys; left side withdraws only: motor 4 on the left - focal process.

5

GCS: Intubation & Scoring Limits

After intubation, the verbal component cannot be scored; the documented GCS should note the limitation (e.g., 'GCS 9T').

Any post-intubation GCS question is answered with the T notation, not a fake number.

'GCS 9T (intubated), pupils equal and reactive': that is the correct documented form.

6

Pupils

Pupil size, equality, and reactivity track the brainstem; a fixed and dilated pupil suggests herniation on that side - a surgical emergency.

New anisocoria in a TBI patient = imminent herniation - neurosurgery and hyperosmolar therapy, fast.

A patient with a left subdural and a blown left pupil: elevate the head, hyperosmolar therapy, prepare OR.

7

Epidural Hematoma

Bleeding between the skull and the dura, classically from a torn middle meningeal artery after a temporal blow - the 'lucid interval' followed by rapid deterioration.

A lucid interval then a fast drop = epidural hematoma until proven otherwise - it is a surgical emergency.

A hockey player struck in the temple, talks, then deteriorates: epidural hematoma - CT and OR.

8

Subdural Hematoma

Bleeding between the dura and the brain, from bridging veins - the 'big bleed of the elderly and anticoagulated'; often slower, with a depressed level of consciousness.

Subdural stems pair with falls + anticoagulants in the elderly; risk rises with brain atrophy.

A ground-level fall with warfarin, now drowsy: subdural hematoma - stat CT and reversal.

9

Subarachnoid & Contusion

Blood over the brain surface (SAH) and bruised brain tissue (contusions) - both worsen with anticoagulation and delayed secondary injury.

Contusion answers = prevent secondary injury and watch for worsening edema.

A diffuse contusion with a falling GCS: maintain oxygenation and BP, neurosurgery ready.

10

Diffuse Axonal Injury

Widespread shearing of axons from rotational forces - abrupt prolonged coma without a mass lesion on CT.

DAI = deep coma with a 'normal' CT after high-energy trauma - the diagnosis is clinical.

An unrestrained crash victim in deep coma with a clear CT: suspected diffuse axonal injury.

11

Penetrating Brain Injury

GSW to the head has high mortality; casualties may deteriorate from hemorrhage and swelling; surgical options depend on the injury.

Penetrating TBI answers = aggressive resuscitation + neurosurgery evaluation, and document what is found.

A GSW to the head with a GCS of 5: secure airway, maintain perfusion, neurosurgery consult.

12

Herniation Syndromes

Rising pressure pushes brain tissue down: Cushing's triad (rising BP, falling HR, irregular breathing), pupil changes, posturing.

Cushing's triad = herniation = emergency intervention now, not 'observe'.

BP rising, HR falling, one pupil dilated: herniation - hyperosmolar therapy and surgery.

13

Hyperventilation: When NOT to

Routine hyperventilation drops CO₂, constricts cerebral vessels, and worsens ischemia - it is NOT routine for TBI. It is a temporary measure only for acute herniation.

'Hyperventilate routinely' is a wrong answer; reserve it for the specific herniation scenario.

A stable TBI patient with normal CO₂: ventilate to normal PaCO₂ - do not hyperventilate.

14

Cerebral Perfusion Pressure (CPP)

CPP = MAP - ICP. Keep MAP high enough (avoid hypotension) and ICP controlled to maintain brain perfusion; head-of-bed elevation and sedation help ICP.

Any 'keep the blood pressure up in TBI' answer is right: hypotension is the enemy.

A TBI patient with MAP 65: raise the MAP toward the target - the brain needs the pressure.

15	Skull Fractures	Linear (common), depressed (may need surgery), and basilar (raccoon eyes, Battle sign, CSF leak - clear drainage or halo sign).	Basilar fracture clues are external: raccoon eyes, Battle sign, CSF from nose/ear.	Bloody drainage that separates into a ring on gauze (halo sign): CSF leak - basilar skull fracture.
16	Spinal Cord Injury & Neurogenic Shock	Injury to the cord can cause neurogenic shock (hypotension + bradycardia + warm skin below the level). Protect the spine throughout.	Hypotension + bradycardia + spinal injury = neurogenic shock - vasopressors, not just fluids.	Cervical cord injury with BP 84/52 and HR 50: neurogenic shock - fluids plus vasopressor support.
17	Spinal Motion Restriction	Full spinal immobilization (c-collar, backboard use per current guidance, log-roll) protects an unstable spine; minimize time on hard boards (pressure injury risk).	Modern answers favor 'motion restriction' with early removal from hard surfaces - know the rationale.	After a log roll, the patient is moved off the board onto a firm padded surface promptly.

Section 7: Thoracic Injury Patterns (15 Concepts)

The chest injuries that matter most to TNCC, with the keys that separate each pattern.

#	Term	Key Facts	Strategy Tip	Example
1	The 'Deadly Dozen' (Concept)	TNCC groups chest injuries into an immediately life-threatening set (e.g., airway obstruction, tension pneumothorax, massive hemothorax, flail chest, tamponade) and a potentially life-threatening set.	If a stem features a chest injury, name which 'deadly' group it belongs to - management follows.	Tension pneumothorax is immediately life-threatening; a simple pneumothorax is not yet.

2

Simple Pneumothorax

Air in the pleural space without major pressure shift - decreased breath sounds, possible chest pain; may worsen to tension.

A simple pneumothorax still needs a chest tube; watch for progression to tension.

After a rib fracture, CXR shows an apical pneumothorax: tube thoracostomy and reassess.

3

Tension Pneumothorax Recap

One-way valve: hypotension, distended neck veins, absent breath sounds, possible tracheal deviation (late).

The exam wants needle decompression BEFORE imaging in an unstable patient.

Hypotension + absent breath sounds after blunt trauma: decompress, then X-ray.

4

Hemothorax Recap

Blood in the pleural space: dullness, decreased sounds, shock with FLAT neck veins.

Distinguish from tension by the neck veins: flat = hemothorax; distended = tension/tamponade.

A stab wound with dullness and falling BP but flat neck veins - tube thoracostomy.

5

Flail Chest Recap

Free-floating rib segment with underlying pulmonary contusion: treat pain, support ventilation, monitor for hypoxia.

Analgesia + oxygenation/ventilation beat 'splinting' answers.

Multiple rib fractures with a paradoxical segment: regional analgesia + CPAP as needed.

6

Traumatic Asphyxia

Severe chest crush: upper-body venous congestion - facial/neck petechiae, subconjunctival hemorrhage, cyanosis of the head and neck but not below.

The appearance is unmistakable; manage as a crush/thoracic triad problem (lungs, heart, brain).

A patient crushed between objects with a red-purple face and bloodshot eyes: traumatic asphyxia - full trauma workup.

7

Commotio Cordis

A precise blow to the chest during a vulnerable heart cycle triggers ventricular

fibrillation - the classic scenario is a baseball to the chest.

Immediate CPR + defibrillator is the answer - rhythm, not surgery.

A young athlete collapses after a chest ball strike: start CPR and defibrillate for VF.

8

Sternum & Ribs

Sternal fracture implies high-energy force and risk of cardiac contusion; rib fractures risk the organs beneath.

Any sternal fracture stem = screening for cardiac contusion.

A sternal fracture from the steering wheel: ECG monitoring for contusion.

9

Esophageal Injury

Rare but serious (often penetrating or after severe force): mediastinal air, blood from the NG tube, sepsis risk.

Consider when unexplained mediastinal air follows penetrating chest trauma.

A penetrating chest wound with mediastinal air and fever: rule out esophageal injury.

10

Tracheobronchial Recap

Large air leak, subcutaneous emphysema, hemoptysis; bronchoscopy finds it.

Persistent air leak after a well-placed chest tube = bronchial injury.

A chest tube with continuous bubbling that never stops: bronchoscopy evaluation.

11

Fat Embolism

Long-bone fractures release marrow fat: hypoxia, confusion, petechial rash (chest, axillae, conjunctiva) 1-3 days after injury.

Classic triad (respiratory, neuro, petechiae) days after a femur fracture = fat embolism.

A femur-fracture patient becomes acutely confused and hypoxic with a petechial rash: fat embolism syndrome.

12

Pulmonary Contusion Management

Oxygen, monitoring, judicious fluids - fluid overload worsens the contused lung.

Fluid boluses in a lung-contusion patient are wrong; balanced fluids only.

A blast survivor with a contused lung and borderline BP: limited fluids + blood if needed, not liters of saline.

13	Chest Tube Basics	Placed for pneumo/hemothorax; connect to a water-seal/collection system; verify placement with CXR; monitor output and air leak.	Chest-tube answers reward safe placement, verification, and monitoring output trends.	After tube placement, CXR confirms position and the collection chamber is tracked hourly.
14	Autotransfusion	Blood drained from the chest can be returned to the patient in major hemothorax - saves banked blood.	Auto-transfusion is the right answer for a massive hemothorax with shock.	A patient loses 1400 mL into the chest: autotransfuse that blood while MTP runs.
15	Priority: Beyond the Chest	Chest injury with unstable vitals = decompression/tube and OR; chest injury with stable vitals = imaging and monitoring. Stability decides the speed.	'Stable' vs 'unstable' is the fork in every chest scenario - read the vital signs in the stem.	A stable patient with a small pneumothorax: chest tube and observation; unstable: immediate decompression.

Section 8: Abdominal, Pelvic & Genitourinary Injury (15 Concepts)

Hidden bleeding is the theme: solid organs, hollow organs, and the pelvis.

#	Term	Key Facts	Strategy Tip	Example
1	Abdominal Injury: Hidden Bleeding	The abdomen can hide liters of blood; external signs are unreliable. Hypotension + abdominal tenderness = bleeding until proven otherwise.	Never call an abdomen 'fine' in shock - tenderness + shock = laparotomy/FAST.	A patient with a tender abdomen and falling BP after blunt trauma: internal hemorrhage - OR.
2	Solid vs Hollow Organ Injury			

Solid organs (liver, spleen, kidneys) bleed.
Hollow organs (bowel, stomach) leak and infect. Both can coexist.

Bleeding answers = solid organ; peritonitis answers = hollow organ.

A seatbelt-sign patient with guarding days after? No - peritonitis is hollow-organ; bleeding is solid.

3

Spleen Injury

The most commonly injured solid organ in blunt trauma; left upper quadrant pain, Kehr's sign (left shoulder pain from diaphragmatic irritation).

Left upper quadrant + left shoulder pain + shock = splenic injury.

A side-impact crash patient with left shoulder tip pain and hypotension: splenic rupture - OR/angio.

4

Liver Injury

The largest solid organ, right upper quadrant; blunt or penetrating; can bleed massively.

Right upper quadrant tenderness + shock = liver injury workup.

A steering-wheel strike with right-upper-quadrant pain and falling BP: liver injury - control bleeding.

5

Hollow Viscus Injury

Blunt or penetrating; peritonitis develops as contents leak - tenderness, guarding, rigidity, and later fever.

Guarding/rigidity after trauma = hollow-organ injury until proven otherwise.

A patient with diffuse rigidity and absent bowel sounds after a seatbelt injury: laparotomy for bowel injury.

6

FAST Exam

Focused Assessment with Sonography for Trauma: looks for free fluid (blood) in the pericardium and four abdominal views. Bedside, fast, repeatable.

FAST answers = rapid detection of free fluid; a negative FAST does NOT rule out injury.

A hypotensive blunt-trauma patient with a positive FAST: to the OR - no extra scans.

7

Retroperitoneal Injury

The retroperitoneum (behind the peritoneum) hides injury - bowel, pancreas, kidneys, aorta; blood pools there silently (seatbelt, back blows).

Retroperitoneal bleeding is 'silent' - unexplained shock with a soft abdomen points here.

A back-impact patient in shock with a soft abdomen: retroperitoneal hemorrhage - CT/angio.

8

Pelvic Fracture & Hemorrhage

The pelvis is a big cancellous bone that bleeds heavily; a tender/compressed pelvis in shock = pelvic binder now.

Pelvic binder answers come before CTs for an unstable pelvis.

A crushed-pelvis scenario with falling BP: binder + blood + angio/packing, not observation.

9

Pelvic Fracture Patterns

Open-book (symphysis opens), lateral compression, vertical shear - each has characteristic forces and bleeding profiles.

You do not need the alphabet of patterns - know that instability = binder + hemorrhage control.

A side-impact passenger with a laterally compressed pelvis: binder, blood, pelvic imaging.

10

Genitourinary Injury

Blood at the meatus, scrotal bruising, pelvic fracture, or inability to void = GU injury suspicion - do NOT insert a catheter until the urethra is cleared.

'Blood at the meatus = no catheter until cleared' is a classic rule the exam loves.

A pelvic-fracture patient with blood at the meatus: hold the catheter; retrograde urethrogram first.

11

Kidney & Bladder Injury

Kidneys sit retroperitoneally (blunt blows); a full bladder can rupture with a blow - gross hematuria flags both.

Gross hematuria after trauma = GU imaging (CT cystogram/CT with contrast) before instrumenting.

A patient with a pelvic fracture and gross blood in urine: imaging of the bladder and urethra.

12	Evisceration	Bowel protruding through an open abdominal wound - cover with sterile saline-moistened dressings; do NOT push it back in.	'Never reduce an evisceration' is the rule the exam tests.	A stab wound with bowel visible: cover with moist sterile dressings and prepare for surgery.
13	Impalement	A penetrating object still in place - stabilize the object, do not remove it; removal can cause exsanguination.	Fixed impalement = leave in place, stabilize, transport to the OR for controlled removal.	A rebar impalement of the thigh: stabilize the rebar, transport with it in place.
14	Traumatic Abdominal Wall	Seatbelt bruising (seatbelt sign), flank bruising (Grey Turner), or periumbilical bruising (Cullen) signal deep injury.	Any bruising pattern named in the stem = serious internal injury, not a cosmetic finding.	Grey Turner sign after a seatbelt impact: internal abdominal injury - work it up.
15	Serial Exams	Abdominal exams change - repeat them and trend vital signs; an initially 'soft' abdomen can develop rigidity.	'Reassess the abdomen' is frequently the correct next action in abdominal scenarios.	A patient's abdomen goes from soft to rigid over 20 minutes: hollow-organ injury - escalate.

Section 9: Musculoskeletal, Burns & Environmental Injury (17 Concepts)

Long-bone hemorrhage, compartment risk, burns, and the environmental extremes.

#	Term	Key Facts	Strategy Tip	Example
1	Long-Bone Fractures	Femur and pelvic fractures bleed significantly; each femur fracture can hide 1-2 units of blood loss; splint early and reassess neurovascular status.	Suspect hidden blood loss behind every femur fracture in a shock scenario.	A femur fracture in a pale,

tachycardic patient: splint AND look for the blood loss driving the shock.

2

Open Fractures

Bone breaks the skin - the wound is contaminated and can bleed; cover with sterile saline-moistened dressing, splint, and prepare antibiotics/tetanus per protocol.

Open fracture answers = sterile cover + splint + tetanus/antibiotic timing.

A fractured tibia protruding through the skin: cover the wound, splint, tetanus history check.

3

Splinting

Immobilize the joint above and below the fracture; assess pulses, motor, and sensation BEFORE and AFTER splinting.

'Neurovascular check before and after' is the splinting answer the exam expects.

Before and after applying a splint to a forearm fracture: radial pulse, capillary refill, finger movement.

4

Compartment Syndrome

Bleeding/swelling inside a fascial compartment raises pressure and kills tissue: pain out of proportion, pain on passive stretch, tight compartments; pulses are a LATE sign.

Pain on passive stretch + out-of-proportion pain = compartment syndrome; pulses can still be present.

A tibia fracture with worsening pain on toe movement and a tense leg, pulses present: compartment syndrome - fasciotomy.

5

Rhabdomyolysis / Crush

Crushed muscle releases myoglobin and potassium: dark urine, hyperkalemia, renal injury; watch for dysrhythmias as the crush is released.

Crush release = potassium spike risk - monitor and treat, plus aggressive fluids carefully.

After lifting a beam off a limb, the patient's ECG shows peaked T waves: hyperkalemia from crush - treat.

6

7	Traumatic Amputation	Severe extremity loss: control bleeding with a tourniquet, preserve the part (clean, wrap, cool - not frozen, not direct ice), prioritize the patient over the part.	Preserve the part correctly: moist saline gauze, sealed bag, on ice - never touching ice directly.	A hand is severed: dress the stump with a tourniquet, wrap the hand in moist gauze in a bag on ice.
	Amputation: Care of the Part	Rinse with saline, wrap moist, place in a sealed bag, float that bag in ice water; label with the time; send with the patient.	A freezer or dry ice is wrong - the part should never freeze.	The severed digit is placed in a sealed bag, then that bag into ice water - correct.
8	Thermal Burn: Depth	Superficial (red, painful), partial-thickness (blisters, very painful), full-thickness (waxy/charred, loss of sensation to pinprick).	Depth answers follow appearance + pain: no pain on a charred wound = full thickness.	A painless, leathery, charred burn over the forearm: full-thickness - will need grafting.
9	Burn Size: Rule of Nines	Adult percentages: head/arm 9 each, anterior/posterior trunk 18 each, leg 18 each, perineum 1. For small areas, the patient's palm ~1%.	Calculate the burn % from the stem; partial + full thickness counts; superficial usually does not.	Both arms (18%) + anterior trunk (18%) = 36% TBSA in an adult.
10	Burn Resuscitation	The Parkland formula (4 mL x kg x %TBSA over 24h, half in the first 8 hours) guides crystalloid; titrate to urine output (~0.5 mL/kg/hr adults, 1 mL/kg/hr children).	Formula answers = Parkland 4 mL/kg/% and half in the first 8 hours; urine output is the target.	A 70 kg patient with 40% TBSA: 4 x 70 x 40 = 11,200 mL over 24h, half in the first 8 hours.

11

Inhalation Injury

Smoke, soot in the airway, singed nasal hair, facial burns, hoarseness, carbonaceous sputum - the airway can swell and close.

Inhalation injury = early airway control; the airway closes over hours.

A fire victim with singed eyebrows and hoarse voice: prepare for early intubation.

12

Carbon Monoxide Poisoning

CO binds hemoglobin tightly: cherry-red skin is rare; headache, confusion, 'flu-like' after a fire; pulse oximetry can read falsely normal. Treat with 100% O₂.

CO answers = 100% high-flow oxygen and treat the symptoms; don't trust the SpO₂ number.

A smoke-exposed patient with confusion and a 'normal' SpO₂: start 100% oxygen - CO poisoning.

13

Cyanide Poisoning

Fire smoke releases cyanide: severe acidosis, altered mentation, seizures despite oxygenation; treated with an antidote kit when suspected.

Severe acidosis + refractory altered mental status after smoke = cyanide until proven otherwise.

A fire victim with profound lactic acidosis that won't improve with oxygen: cyanide antidote.

14

Electrical Burns

Current enters/exits (often small wounds) but damages deep tissue along its path - dysrhythmias, myoglobinuria, hidden muscle injury.

Tiny entry wounds + big systemic effects = electrical - monitor for dysrhythmia and rhabdo.

A worker shocked by a line with small hand burns: ECG monitoring and rhabdo screening, not 'small burn' care.

15

Chemical Burns

Remove the chemical with large-volume irrigation (dry powder brushed off first); water for most exposures; alkali burns keep damaging - irrigate long.

'Irrigate copiously and remove contaminated clothing' is the standard answer.

A splash of drain cleaner on the arm: brush off the powder,

irrigate with copious water for 20+ minutes.

16

Hypothermia

Core temperature $\leq 35^{\circ}\text{C}$: bleeding worsens, dysrhythmias, shivering stops; rewarm slowly with warmed fluids/blankets and avoid rough handling (V-fib risk).

Hypothermia answers = gentle handling + active rewarming + warmed fluids.

A 33C trauma patient is moved roughly and develops V-fib: handle gently, rewarm, prepare CPR.

17

Frostbite & Cold Injury

Freezing of tissue: rewarm in warm water, give analgesia, do not rub or thaw-refreeze; expect dark blisters later.

'Warm water rewarming, no rubbing, no refreezing' is the tested rule.

A hiker's frostbitten fingers: immerse in $37\text{--}39^{\circ}\text{C}$ water with analgesia, no friction, protect from refreeze.

Section 10: Special Populations -- Pediatric, Geriatric, Pregnancy (17 Concepts)

Same systematic approach, different physiology: children, older adults, and pregnant patients change the priorities.

#	Term	Key Facts	Strategy Tip	Example
1	Pediatric Anatomy: Head	Children's heads are large relative to their bodies; they land head-first, and the brain is more fragile - head injury is the leading pediatric trauma cause.	Pediatric falls/crashes: check the head first and protect the cervical spine (immature anatomy).	A toddler falls from a changing table: head strike risk plus cervical-spine protection.
2	Pediatric Physiology	Children compensate longer and then crash fast; a falling blood pressure is a LATE sign. Smaller blood volumes mean small losses matter.	Tachycardia is the earliest sign; bradycardia in a child = impending arrest until proven otherwise.	A child with HR 160 and pale skin

after trauma: decompensating,
act now - not 'vitals look ok'.

3

Pediatric Airway Differences

Narrower airways, larger tongue, shorter trachea: small amounts of swelling close the airway quickly; the larynx is higher (cricoid is the narrowest point).

Pediatric airway answers reward early recognition and early airway support - children desaturate fast.

A child with stridor after a fall: prepare early airway support before swelling worsens.

4

Weight-Based Resuscitation

Pediatric drug doses, fluids, and equipment are weight-based; use a length-based tape (Broselow) when weight is unknown.

'Length-based tape for weight' is the correct dosing answer.

A shocked child's weight is unknown: use the length-based tape to estimate doses and sizes.

5

Pediatric Normal Vitals (Approx)

HR/SBP vary by age (e.g., infant HR 100-160, BP rising with age); know the basic trends: younger = faster heart rate, lower BP.

Match the stem's age to the expected range - a 'low for age' HR or BP signals trouble.

A 2-year-old with HR 70 and BP 70/40: bradycardic and hypotensive for age - decompensating.

6

Pediatric Injury Patterns

Falls and MVCs produce different patterns: head/spine first, single-organ injuries from smaller force, and the 'toddler femur' (low-energy).

Recognize that focal low-energy injuries in children still hide head and neck problems.

A 3-year-old hit by a car at low speed: thigh and head injuries - full pediatric assessment.

7

Child Abuse: Recognition

Injuries inconsistent with the story, patterned bruises (grip marks, loop marks), multiple injuries in different healing stages, and delay in seeking care raise concern.

The nurse's job is to RECOGNIZE and REPORT - never to 'diagnose' abuse in the

record.

A 'fall down the stairs' story with spiral femur fracture and multiple healing bruises: report suspicion per law.

8

Non-Accidental Trauma:
Role

Document objectively (describe, don't conclude), treat injuries, and follow mandatory reporting - do not accuse or interrogate the family.

Exam answers pick objective documentation + reporting, not confrontation.

The nurse documents 'bruising in varying stages of healing' and makes the required report - objective facts only.

9

Geriatric Physiology

Older adults: reduced reserve, osteoporosis, fragile vessels, polypharmacy (especially anticoagulants and beta-blockers), and blunted responses to injury.

A 'ground-level fall' in an anticoagulated older adult is a major trauma workup - never 'minor'.

A 78-year-old on apixaban after a ground-level fall with a headache: head CT and anticoagulant reversal.

10

Geriatric: Blunted Vital
Signs

Beta-blockers hide tachycardia, anticoagulants hide nothing (bleeding is worse), and a 'normal' HR is often abnormal for them.

NEVER rely on 'normal vital signs' in the older trauma patient - mechanism and meds trump numbers.

A 72-year-old on metoprolol, HR 82 after a car crash: that 'normal' HR may be masking shock.

11

Geriatric: Falls &
Injuries

Ground-level falls cause head bleeds, hip/pelvic fractures, and are a leading injury mechanism; osteoporosis makes minor force fracture bones.

A hip fracture after a 'minor' fall still threatens blood loss and immobility - treat the whole patient.

A hip-fracture patient needs analgesia, orthopedic care, and VTE prevention - not just a splint.

12	Polypharmacy & Frailty	Multiple medications alter response to injury and resuscitation; frailty predicts worse outcomes and drives goals-of-care conversations.	Answers that include medication review and early goals-of-care are correct for older trauma patients.	An older patient on several cardiac drugs needs a medication reconciliation and an advance-directive check.
13	Pregnancy: Anatomic Changes	The uterus displaces the bowels upward, the diaphragm rises, and blood volume increases by ~40-50%; a pregnant patient can lose more blood before showing shock.	Pregnant trauma = altered landmarks AND altered physiology - auscultate higher, expect later signs.	In a pregnant trauma patient, breath sounds are assessed higher on the chest and shock signs come late.
14	Pregnancy: Uterine Injury	Blunt trauma can cause placental abruption - the leading cause of fetal death in trauma: uterine tenderness, contractions, vaginal bleeding, fetal distress.	Any pregnant trauma patient: fetal assessment + monitor for abruption even with minor MOI.	A restrained pregnant driver has abdominal tenderness: continuous fetal monitoring and abruption workup.
15	Perimortem Cesarean	In cardiac arrest, delivery of the fetus improves maternal resuscitation (relieves aortocaval compression) - the classic timing is 4-5 minutes after arrest.	'Perimortem C-section at ~4-5 minutes' is a tested fact - it helps BOTH patients.	A pregnant patient in arrest: CPR, left uterine displacement, and perimortem cesarean by 5 minutes.
16	Pregnant: Positioning & Resuscitation	Left uterine displacement (or manual) offloads the vena cava to restore venous return; full resuscitation per standard algorithms.	LUD is part of the primary survey in pregnant	

trauma - every scenario includes it.

A hypotensive pregnant patient is placed with the uterus displaced left while fluids run.

17

Elder/Pregnancy Hidden Patterns

The same A-E approach applies to everyone - the differences are physiologic, not conceptual; never skip the systematic assessment because a patient is 'different'.

A-E-B-C-D-E is universal - the answer never skips a life threat for the special population.

An older pregnant patient with a femur fracture still gets airway, breathing, circulation first - then the pregnancy care.

Section 11: Ongoing Care, Psychosocial, Team & Test-Day (18 Concepts)

Pain, wounds, transfers, documentation, family care, and the test-day skills that make the difference on an open-book exam.

#	Term	Key Facts	Strategy Tip	Example
1	Ongoing Assessment Loop	After the primary survey and any interventions, reassess continuously: vital signs, pain, level of consciousness, and the ABCDE variables; document trends.	The 'next action' in most scenarios is reassess after an intervention - the loop never ends.	After a chest tube, reassess breath sounds, vitals, and oxygen - the loop continues.
2	Pain Management in Trauma	Pain drives oxygen demand and catecholamines; treat it early with titrated analgesia (opioids or ketamine, which spares BP). Analgesia is NOT withheld in the 'stable enough' patient.	Ketamine is a great exam answer for analgesia with unstable BP; titrate opioids cautiously.	An alert patient with a femur fracture: titrated IV analgesia while splinting and preparing for surgery.
3	Wound Care Basics	Clean, cover, and reassess; tetanus prophylaxis per history (updated or boosted		

within the appropriate window); antibiotics per protocol for high-risk wounds.

Check tetanus history with every wound - the answer is 'tetanus prophylaxis' when the stem hints at the date.

A rusty-metal wound with no booster in 7 years: tetanus booster and wound cleaning.

4

Tetanus Prophylaxis

For dirty wounds, a booster is needed if the last one was >5 years (clean wounds: >10 years). Tetanus immune globulin for high-risk wounds in the non-immune.

Dirty wound + over 5 years = booster; high-risk + unsure immune status = booster + TIG.

A dirt-contaminated wound, last tetanus shot 8 years ago: tetanus booster now.

5

Transfer & Destination

Critical patients go to the nearest appropriate trauma center; stabilize life threats THEN transfer - the survey does not delay the transfer.

Transfer answers = stabilize first (airway, breathing, circulation, hemorrhage) then move.

A hypotensive patient with a pelvic fracture is stabilized with a binder and blood, then transferred.

6

EMS Handoff

Give a structured report: MOI, injuries found, interventions done, vitals trends, and what remains to do - closed-loop and complete.

'Include the MOI, findings, and what was done' is the model report the exam expects.

Handoff: 'Restrained driver, 40 mph, chest struck wheel; intubated; 2 units given; next: CT chest.'

7

Documentation

Document the systematic assessment, findings, interventions, and reassessment objectively and in time order; nursing documentation supports care and safety.

Never 'document opinions' - document observations and actions.

'GCS 14 (E3 V5 M6), left pupil reactive, chest tube placed, output 150 mL' - objective.

8

	Family Presence	Offering families the choice to be present during resuscitation, with a staff member to support them, is evidence-aligned practice - it does not harm outcomes.	'Allow family presence with support' beats 'escort the family out' answers.	A family asks to stay during the resuscitation: a dedicated staff member supports them at the bedside.
9	Breaking Bad News	Use a structured, empathetic approach (e.g., SET: Support, Empathy, Time or the SPIKES-style framework): prepare, say the news simply, allow reactions, follow up.	The right answer is supportive + honest + gives time - never abrupt or avoidant.	'I have difficult news. We did everything we could - I'm here with you.' Then silence and presence.
10	Psychological First Aid	After trauma, support survivors' coping: safety, calm, connection, self-efficacy, hope - without forcing debriefing.	PFA answers = practical support and calm presence, not mandatory psychological 'debriefing'.	A survivor's family is given a quiet space, updates, and a support person - basic PFA.
11	Team Communication: Closed Loop	State the request, the receiver confirms, and the sender verifies completion - reduces errors on the station and in the scenario.	Closed-loop answers 'confirm the task was done' - pick them over one-way orders.	'Start a second large-bore IV - done? Yes, IV in right antecubital - thank you.'
12	Situational Awareness & Leadership	The nurse anticipates needs (blood, airway, OR), assigns tasks, and keeps the team moving through the A-E loop.	Leadership answers = priority-setting + delegation + verification, not doing everything solo.	The leader assigns airway, circulation, and recorder roles and calls for MTP early.
13				

Debriefing After Resuscitation

After the event, teams review what went well and what to improve - improves future performance; it is not family debriefing.

A 'team debrief after the case' answer is quality-improvement, do it.

The team reviews a difficult airway case for 10 minutes - learning from it.

14

The 8-Step Open-Book Drill (Your Exam Method)

1) Read the stem for the UNRESOLVED life threat; 2) state your priority BEFORE reading options; 3) if uncertain, find the topic in the provider manual index (open book); 4) confirm which option matches the systematic A-E answer; 5) eliminate distractors (late interventions, equipment-only, specialty-only); 6) choose the option that addresses the highest-priority threat first; 7) flag anything over ~60 seconds and move; 8) on review, verify flagged items against the manual, not memory.

Drill this sequence on 10 practice questions a day - the open-book format rewards fast locating, and the A-E reasoning catches 'first action' items.

In a 'what should the nurse do first?' item, step 2 (state it aloud) usually matches the correct option without opening the book at all.

15

Practice Scenario: MVC Chest

An unrestrained driver at 45 mph has chest wall bruising, absent left breath sounds, HR 124, BP 88/60, and distended neck veins. Priority: tension pneumothorax - needle decompress, then chest tube; reassess; blood if shock persists; chest CT after stabilization.

Run the A-E loop out loud: Airway patent, Breathing: decompress, Circulation: shock - the sequence IS the answer.

After decompression, breath sounds improve and BP rises; chest tube placed; CXR confirms; monitor for further bleeding.

16

Practice Scenario: Fall with Femur

A 62-year-old falls 10 feet, is pale, HR 118, BP 96/70, with a deformed thigh. Priority: hidden blood loss from the femur - start blood, splint, warm the patient, monitor for other blunt injuries (pelvis, spine); femur fracture needs traction/surgical fixation but bleeding control comes first.

Shock + tender pelvis/long bone = blood + splint + binder - never wait for labs.

The patient's shock index is 1.2: activate blood products, splint the femur, apply a pelvic binder if tender, reassess.

17

Practice Scenario: Pediatric Head

A 4-year-old falls from a window, GCS 12, left pupil sluggish, HR 140, pale. Priority: protect the airway (jaw thrust with c-spine), oxygen, and prevent secondary brain injury - maintain BP, avoid hypotension, reduce ICP measures, stat head CT, neurosurgery.

Pediatric + head = airway/oxygen + BP support + CT fast; hypotension is the brain's enemy.

A child with a falling GCS and pupil asymmetry: secure the airway early, keep BP up, CT and neurosurgery now.

18

Skill-Station Checklist

The week of your course, rehearse: A-E verbal sweep in order; jaw thrust + c-collar; two-person BMV; airway adjunct selection; hemorrhage control (pressure, tourniquet, packing); chest decompression steps; pelvic binder; splinting with neurovascular checks; log-roll; closed-loop team communication; and documentation of each intervention. Practice talking as you act - graders hear your priorities.

Say the A-E loop, the red flags, and each intervention out loud; when stuck, go back to the highest unresolved letter.

At the station: 'Airway patent with jaw thrust, c-spine held; breathing: decreased right sounds, decompressing; circulation: control bleeding, binder; disability: pupils; exposure: cover and warm' - smooth and sequential.

The highest-yield items to drill in your final two days.

- The systematic A-E approach is the answer to most 'first action' questions: Airway (with c-spine protection) -> Breathing -> Circulation (with hemorrhage control) -> Disability -> Exposure. State the highest unresolved letter; that is your answer.
- The two open-book facts that change test strategy: 80% or higher to pass the written exam (about 50 questions) and about 70% or higher on the psychomotor stations - so budget time to FIND answers, and rehearse the stations aloud.
- Shock: cool/clammy + tachycardia = hemorrhagic until proven otherwise; hypotension is late. Neurogenic shock = warm + bradycardic + spinal injury. Treat with blood, not liters of saline.
- The lethal triad: hypothermia, acidosis, coagulopathy - warm everything, correct the cause, give clotting support.
- The chest killers: tension pneumothorax (treat before imaging), massive hemothorax (tube + blood), tamponade (Beck's triad), flail chest (pain + ventilation), cardiac tamponade and aortic injury (high-energy patterns).
- TBI: prevent secondary injury - oxygen, BP, glucose; routine hyperventilation is wrong; a blown pupil is herniation until proven otherwise.
- Special populations: children compensate then crash (bradycardia = bad); older adults on anticoagulants/beta-blockers hide injury; pregnant patients need left uterine displacement and lose more blood before showing shock.
- Never: remove an impalement, reduce an evisceration, use head-tilt/chin-lift with possible spinal injury, place a catheter with blood at the meatus, or delay transfer for the full head-to-toe.
- Report suspected abuse objectively and by law; document observations, not opinions.
- Reassess after every intervention - and again at the end of the case.

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