

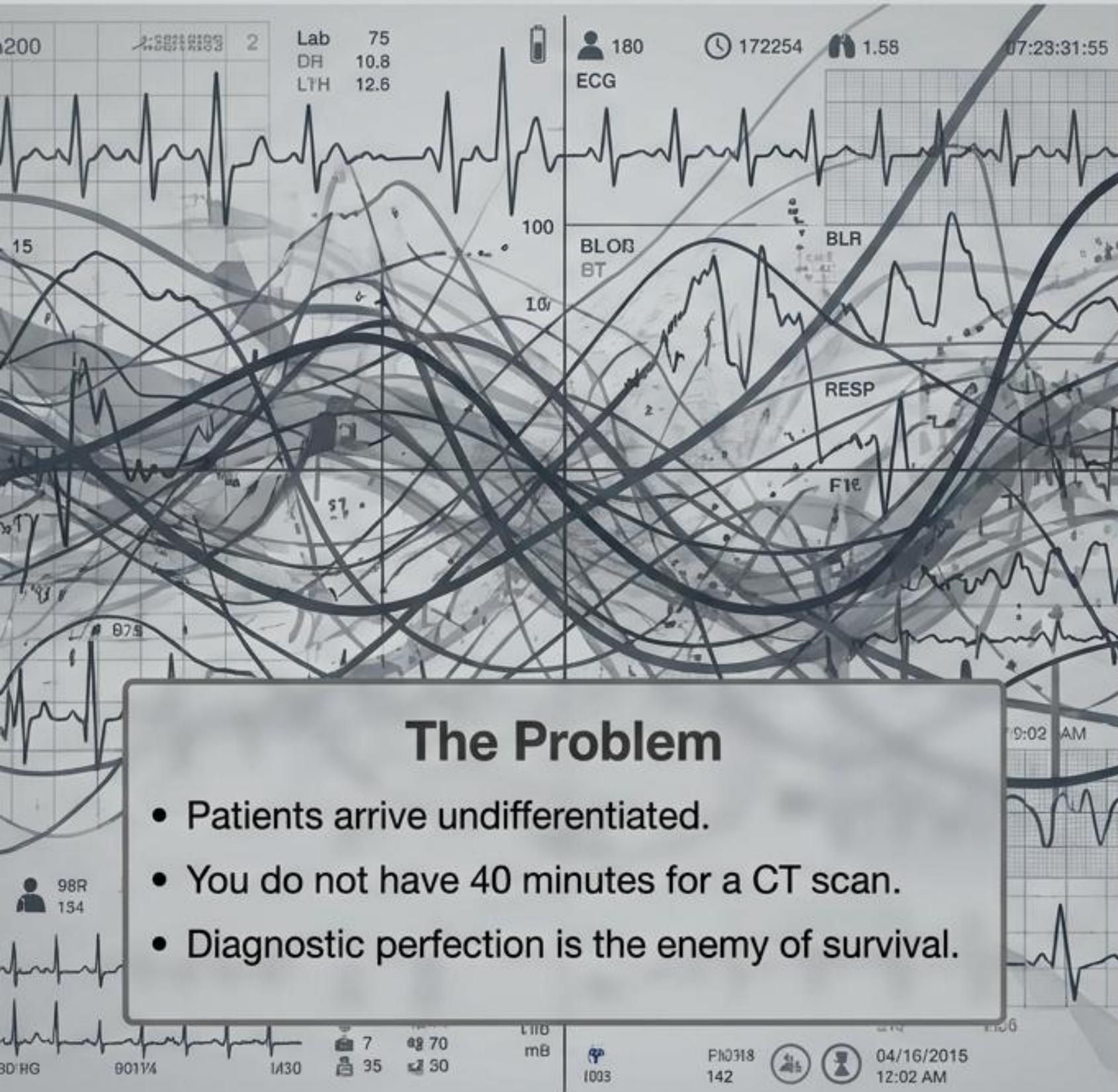
Anatomy of an Emergency

The Paradigm Shift to
the ATLS XABCDE
Trauma Protocol



A Systems-Based Blueprint
for the Primary Survey

The Reality of the Trauma Bay



The Problem

- Patients arrive undifferentiated.
- You do not have 40 minutes for a CT scan.
- Diagnostic perfection is the enemy of survival.

The Algorithm



The Solution

- Determine Sick vs. Not Sick in 60 seconds.
- Deploy the OMI Safety Net immediately: Oxygen, Monitor, IV.
- Goal: Rapid identification and treatment of life threats.

The Paradigm Shift: Why X Comes First

Historical Standard (ABCDE)

A - Airway

B - Breathing

C - Circulation

D - Disability

E - Exposure

Current ATLS Standard (XABCDE)

X - Exsanguinating Hemorrhage

A - Airway

B - Breathing

C - Circulation

D - Disability

You cannot oxygenate a patient who has completely bled out.
ATLS now prioritizes the rapid assessment and control of
life-threatening hemorrhage ahead of airway and breathing.

Hunting for Hemorrhage: The 5 Zones

Blood on the floor, and four more. Stop blood at the source before airway management.

“External”

- Compressible wounds on limbs, neck, or junctional zones.

“Thorax”

- The pleural cavities (massive hemothorax).

“Abdomen”

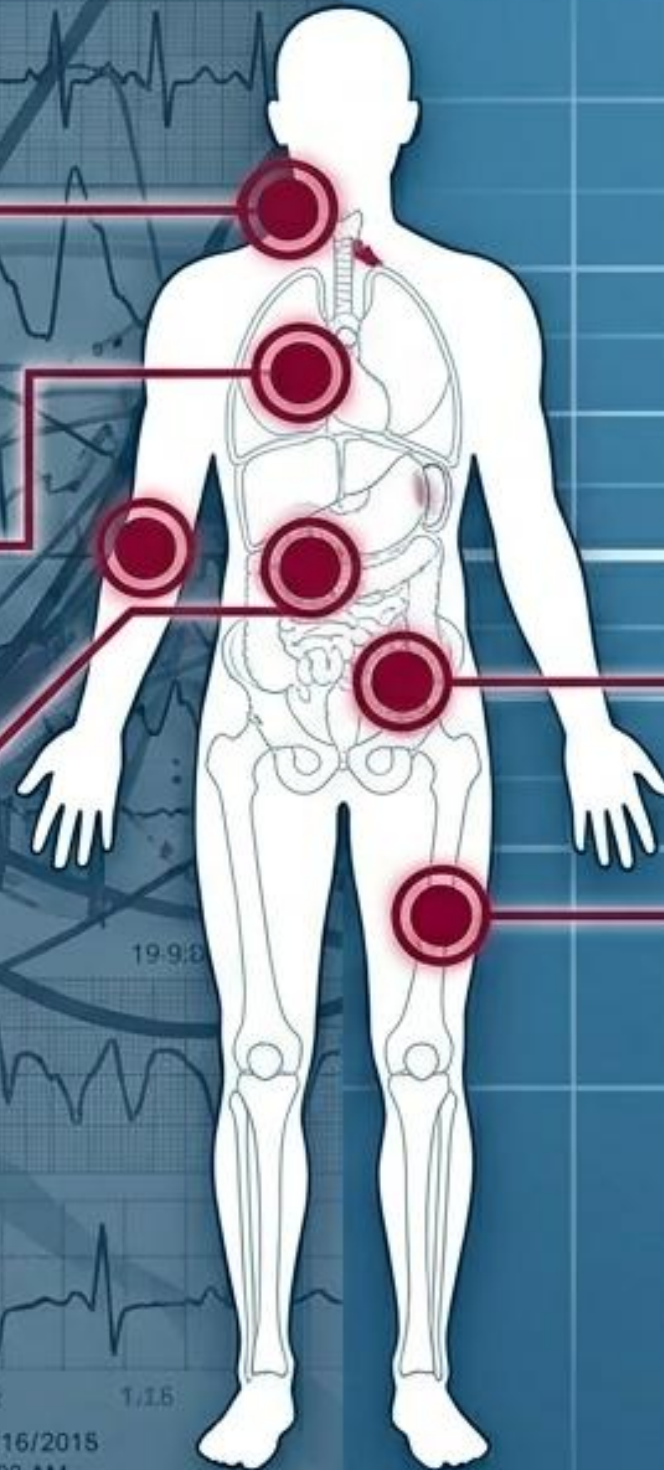
- The peritoneal cavity (solid organ lacerations: spleen/liver).

“Pelvis”

- Pelvic ring fractures causing massive venous or arterial shearing.

“Long Bones”

- Bilateral femur fractures (hiding up to 2 liters of blood).



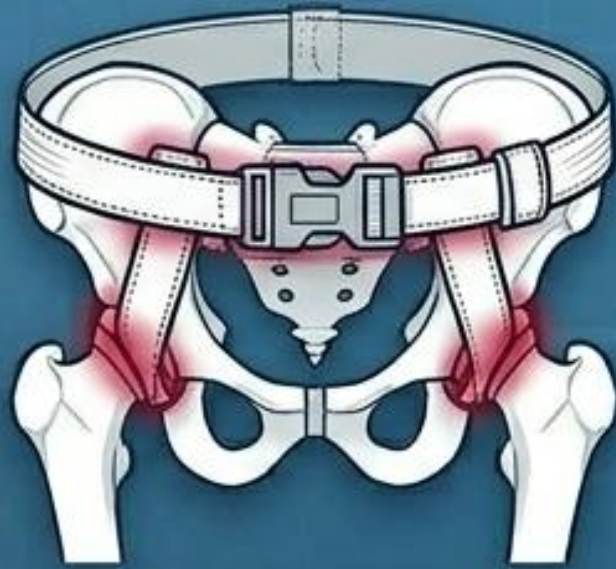
Intervening on X: Stop the Leak

External / Limbs



- Apply high and tight until bleeding stops.
- Reduce fractures to restore anatomical alignment and pulses.
- Apply direct pressure to junctional wounds.

Pelvis



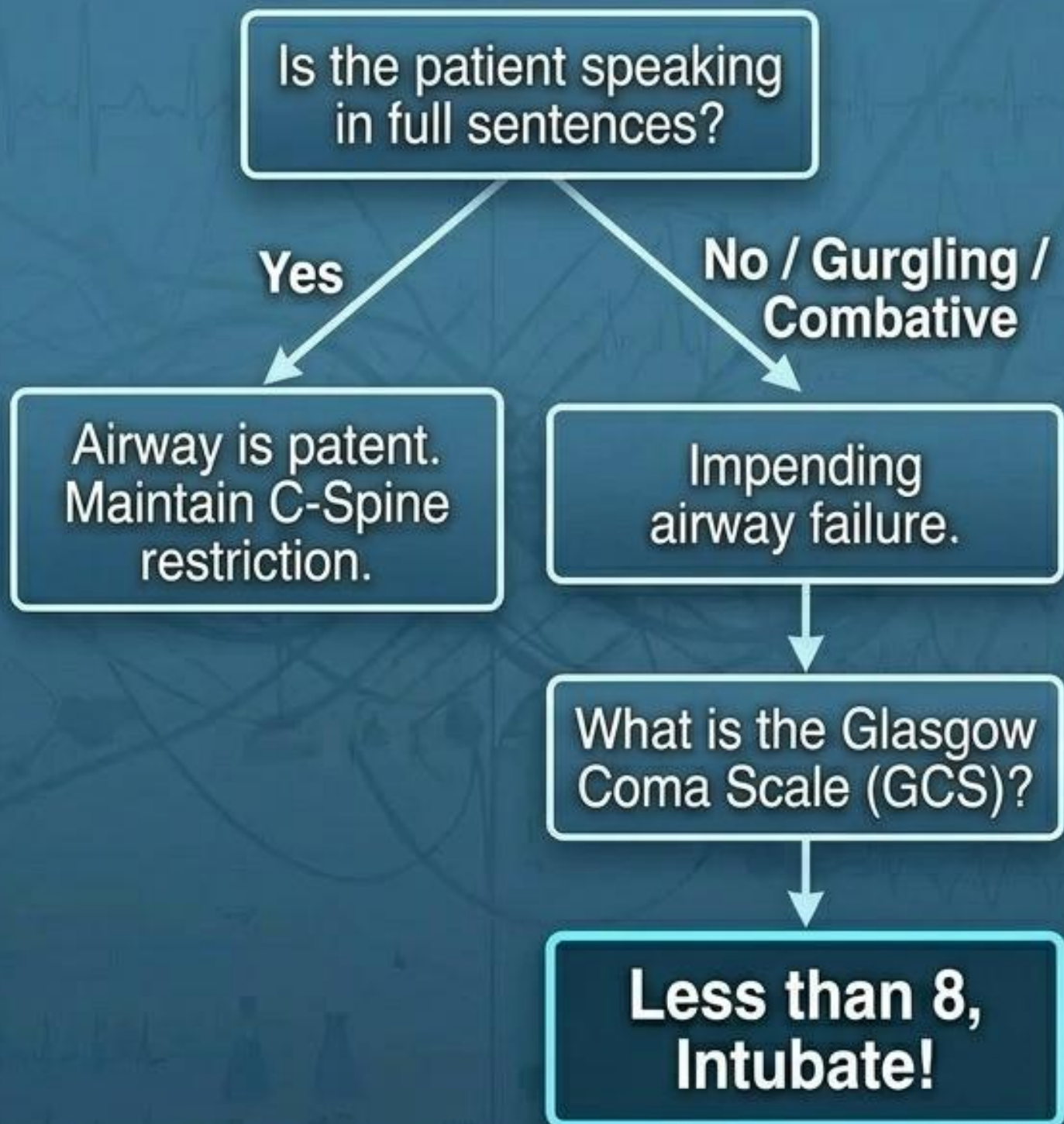
- Stabilize the ring to tamponade venous bleeding.
- Check pelvic stability only ONE time.
- Greater trochanter alignment is critical.

Internal / Truncal



- Administer Tranexamic Acid (TXA) within 3 hours of injury.
- Prepare for emergent OR laparotomy.
- Consider REBOA for non-compressible torso hemorrhage.

A – Airway & C-Spine Protection



Clearing the C-Spine (NEXUS Criteria)

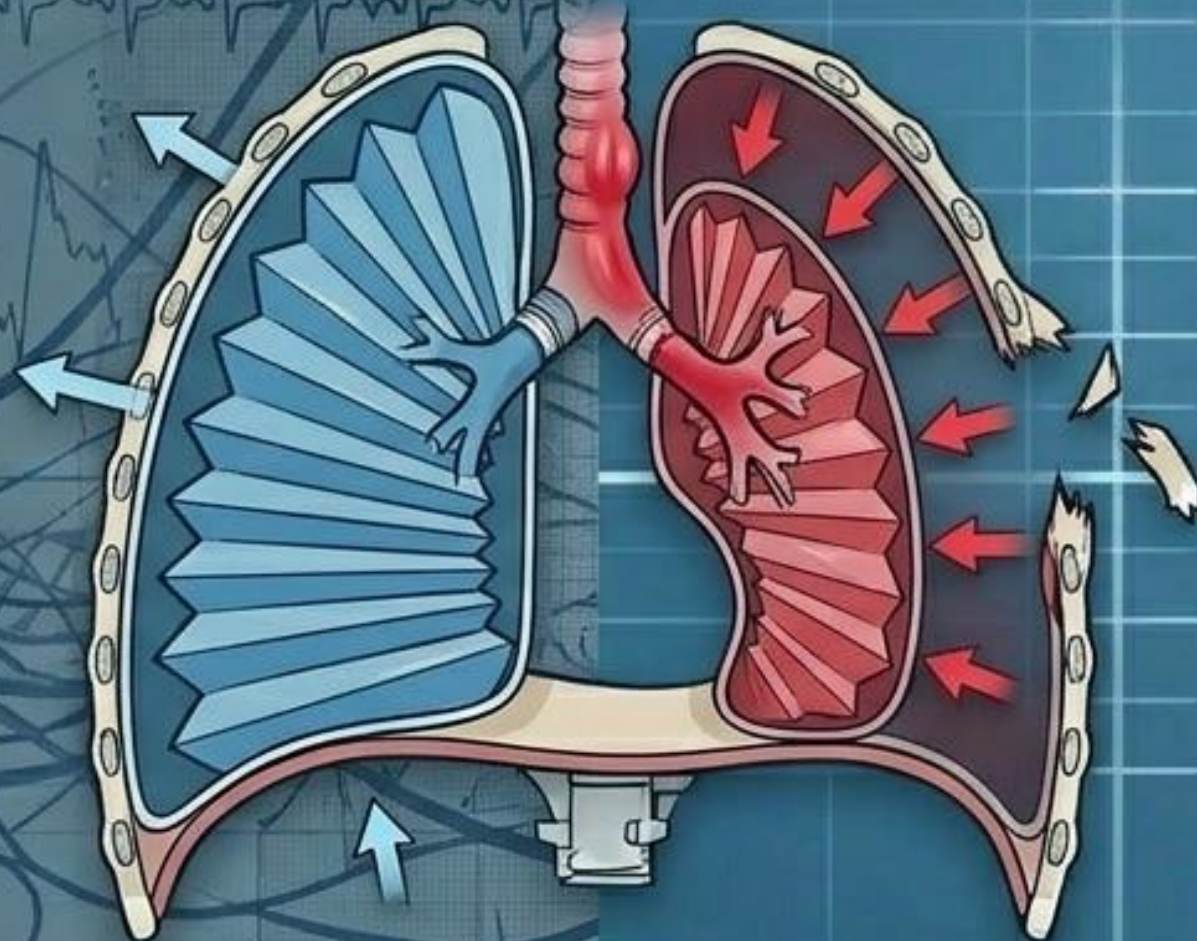
Strict clinical checklist

- ☐ No midline tenderness
- ☐ No intoxication
- ☐ Normal alertness
- ☐ No focal neurological deficit
- ☐ No distracting injury

B – Breathing & Ventilation

A patent airway does not equal adequate ventilation. The bellows must function.

Normal Lung Expansion



Tension Pneumothorax & Flail Chest

Look

- Cyanosis, asymmetrical chest rise, accessory muscle use, JVD.

Listen

- Absent breath sounds, stridor.

Feel

- Subcutaneous emphysema, tracheal deviation, paradoxical movement.

Intervening on B: The Tension Pneumothorax

ATLS 10th Edition Update: Cadaver studies reveal traditional landmarks often fail.

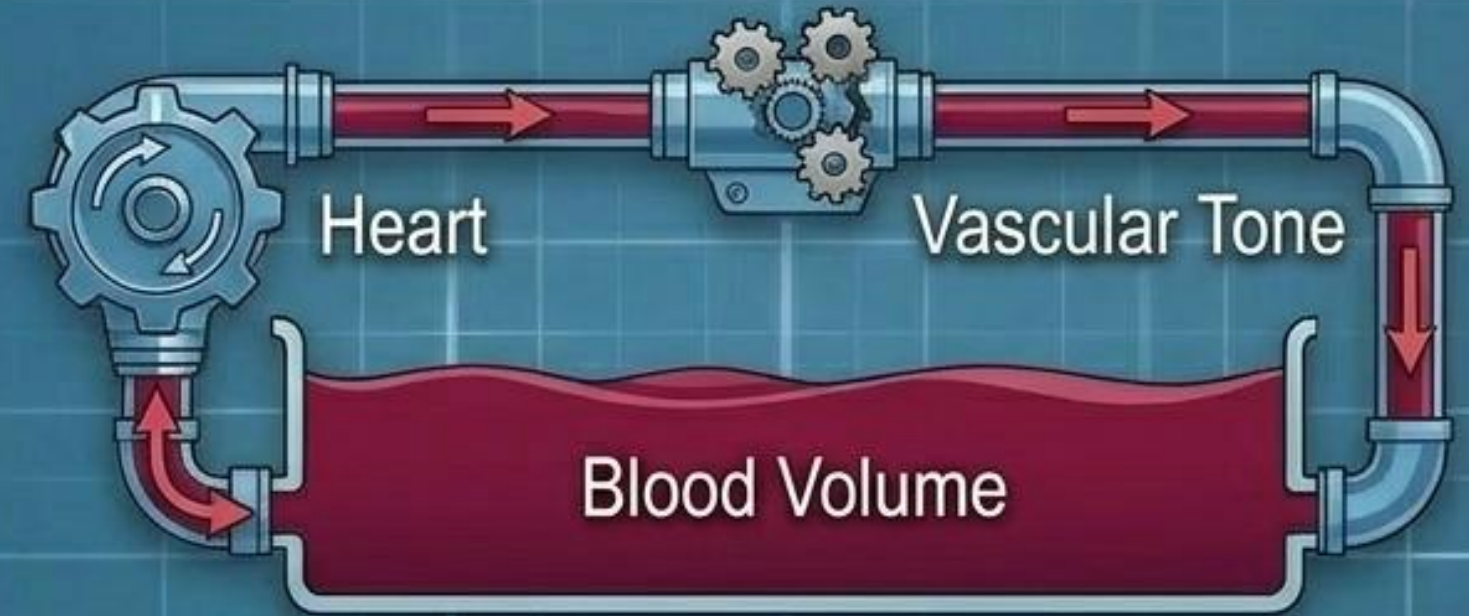
OLD LANDMARK:
2nd intercostal space
mid-clavicular line.

NEW STANDARD:
4th or 5th intercostal space
at the anterior axillary line.

Tool: Large-bore (14-gauge) angiocatheter

Definitive Care: Needle decompression must be followed immediately by definitive tube thoracostomy (chest tube).

C – Circulation & Shock



Hypovolemic / Hemorrhagic

(Empty Tank) Loss of blood volume. The most common cause of shock in trauma.



Cardiogenic

(Broken Pump) Direct myocardial injury, contusion, or infarction.



Distributive

(Leaky Pipes) Loss of vascular tone. Neurogenic shock from high cervical cord injury; septic shock.



Obstructive

(Blocked Flow) Tension pneumothorax or Cardiac Tamponade physically restricting cardiac output.



Intervening on C: Resuscitation & The FAST Exam

Fluid Strategy & Massive Transfusion



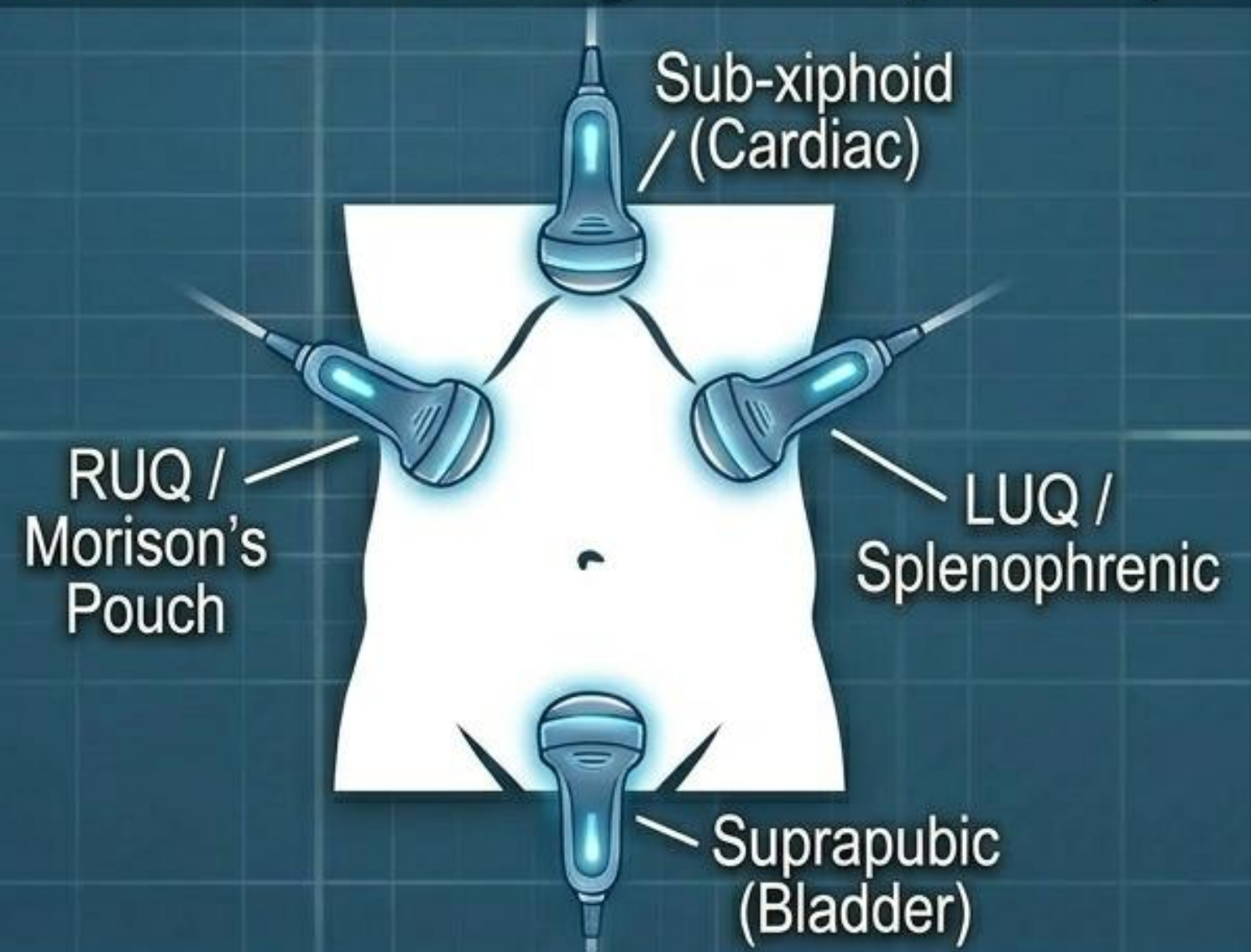
PRBC

FFP

Platelets

- Limit crystalloids (1-2L max).
- For transient/non-responders: Initiate blood products immediately.
- Target a 1:1:1 ratio of PRBC : FFP : Platelets.

Occult Bleed Diagnostics (eFAST)



THE GOLDEN RULE: Never send a hemodynamically unstable patient to the CT scanner. A positive FAST in an unstable patient goes straight to the OR.

D – Disability & Neurological Status



The GCS Gauge

The EVM Metric (4-5-6)

Eyes (4)

- 4 Spontaneous
- 3 Voice
- 2 Pain
- 1 None

Motor (6)

- 6 Obeys
- 5 Localizes
- 4 Withdraws
- 3 Flexion

Verbal (5)

- 5 Oriented
- 4 Confused
- 3 Words
- 2 Sounds
- 1 None

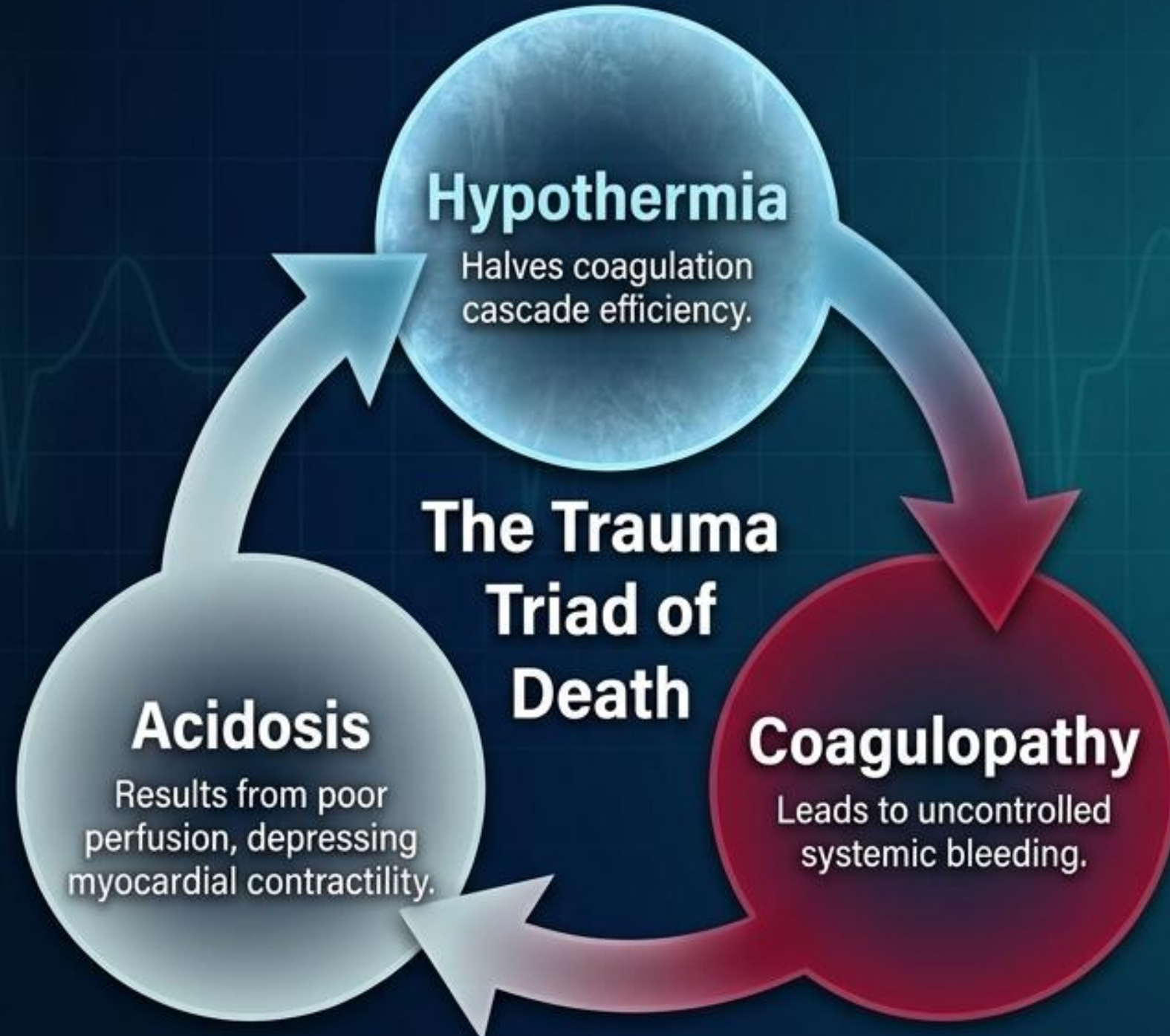
Motor (6)

- 6 Localizes
- 4 Withdraws
- 3 Flexion
- 2 Extension
- 1 None

Critical Action: Maintain SBP >100 mmHg and avoid prolonged hyperventilation to protect cerebral perfusion pressure.

E – Exposure & Environmental Control

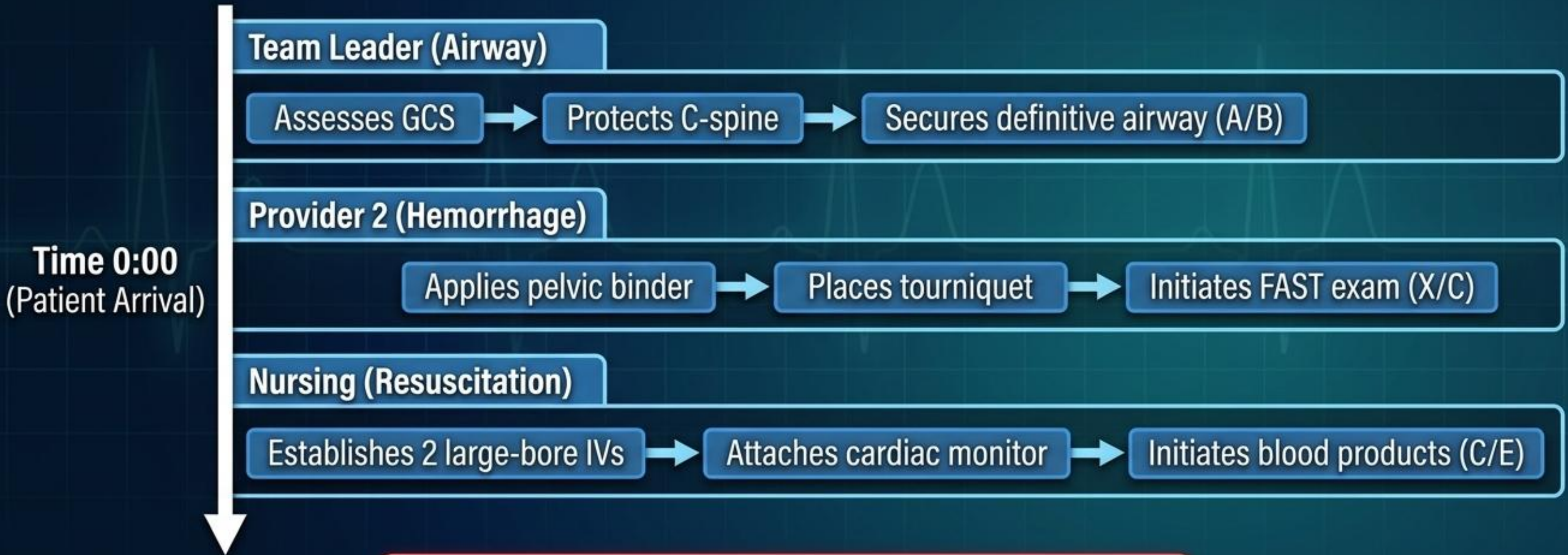
Completely disrobe the patient. Perform a log roll. Apply warm blankets.



The Threat: Heat loss accelerates bleeding. Bleeding worsens shock. Shock worsens acidosis. Acidosis ruins coagulation. You must break the cycle with warm fluids, blood warmers, and blankets.

The Golden Rule: Parallel, Not Serial

The XABCDE framework is taught linearly, but executed simultaneously as a team.



Delegate tasks. Assume the OMI Safety Net (Oxygen, Monitor, IV) immediately.

Beyond the Primary: The Secondary Survey

The trigger: The secondary survey ONLY begins once the primary survey is complete and vital functions are stabilizing.

Phase 1: The Red Zone

- Primary Survey (XABCDE)
- Identify Life Threats
- Immediate Stabilization

Phase 2: The Blue Zone

- The Detective Work
 - A.M.P.L.E. History (Allergies, Meds, Past illness, Last meal, Events)
- The Trauma Frisk (Head-to-toe meticulous physical exam)
- Targeted Diagnostic Imaging (X-Rays, CT Scans)

The Ultimate Goal: Disposition & Definitive Care



The Operating Room

- Positive FAST, penetrating torso trauma with shock, massive hemothorax.



The Intensive Care Unit

- Severe TBI (GCS ≤ 8), multiple rib fractures in the elderly, stabilized solid organ injury.



Transfer

- Recognize institutional limits. Do not delay transfer to obtain imaging if definitive care is not available locally.

Final Takeaway: XABCDE is not just an assessment tool; it is a life-saving intervention blueprint. Treat life and limb threats as you discover them.