TRAUMA NURSING

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TRAUMA NURSING

- Trauma nursing is a process
  - Simplifies the assessment
  - Systematic approach
- The key to successful trauma nursing is following the process.
  - Avoids missed injuries and patient decompensation
- Trauma is unique in the world of emergency nursing.
  - Unexpected event

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Trauma Systems

- Originated in the late 1960s-early 70s
- "Golden hour"
- Trauma hospital designation is mandated by each state
- Level I-IV

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- Trauma nursing started with Florence Nightingale
- Current trauma practice advances originate in the military
  - Tourniquets
  - Resuscitation fluids
  - Blood products
  - Use of spine boards

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- Trauma comes to the emergency department in many ways.
- It can walk in (or be carried) in the front door.
- It can come via ambulance.
- It can come via helicopter.

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- Once a patient has been received the American College of Surgeons along with the Emergency Nurses Association and the Society of Trauma nurses have an accepted assessment and intervention process in order to best care for this patient population.
- Airway and Alertness
- Breathing
- Circulation
- Disability (Neuro)
- Expose and environment

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Scenario

16 year old female patient on Halloween, en route to a costume party with her friends, takes a corner too fast, catches gravel, over corrects and slides into a tree impacting the left front tire and wheel slightly over an embankment. Upon impact the windshield shatters, the patient is awake and apparently concussed as well as trapped. Extrication is complicated due to the embankment and stability of the vehicle. Extrication takes 78 minutes. Patient's mom, best friend and best friend's dad are on scene. Lifeflight is called for transport prior to EMS arrival.

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- ALERTNESS

  Is the patient A- alert?

  V- verbal (responds to verbal stimulus)?

  P- pain (responds only to painful stimulus)?

  U- unresponsive?

- ALIGNMENT
  - Cervical spine precautions

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- Airway

  Open mouth with c-spine precautions

  Look for tongue obstruction, foreign objects, loose or missing teeth, secretions, blood, vomit, edema, abnormal airway sounds.

  Interventions:

  - Suction
  - Positioning
  - Oral airway
  - Nasopharyngeal airway
  - Oxygen by NRB mask SpO2 goal 94-98%
  - BVM and/or intubation

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16 year old female patient arrives via helicopter.

Upon arrival she is awake, alert, has full memory of the crash.

She has 2 peripheral IVs in place, has received 2 liters of crystalloid, an amp of sodium bicarbonate, 1 unit PRBC, and versed for the flight.

Patient is tachy to 120s, SAO2 high 80s to low 90s on room air.

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- Breathing

  Is there breathing? Symmetrical chest rise? What is the rate, rhythm, and depth? Is there increased work of breathing? Breath sounds? Chest wall integrity? Skin color? Jugular vein distention?

  Interventions:

  - Oxygen via NRB
  - BVM if not effective ventilation
  - Intubation

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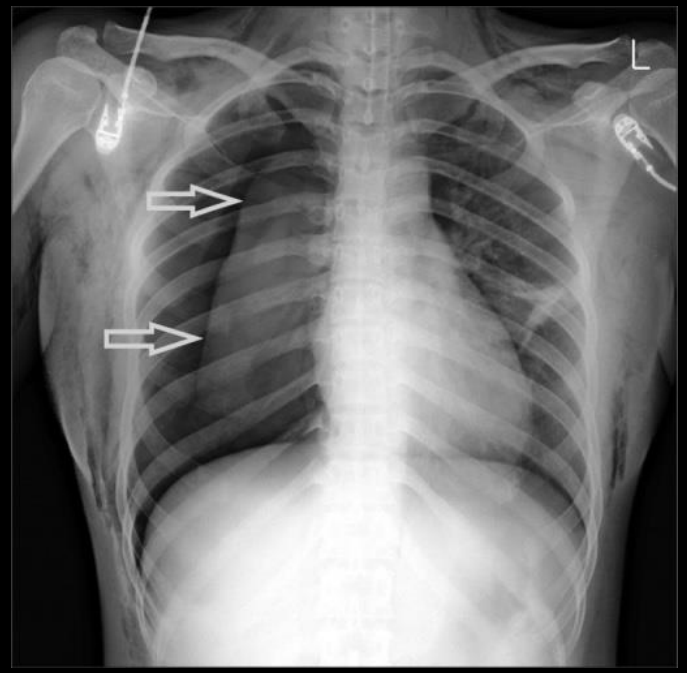
Our 16 year old trauma patient is breathing effectively at this time. She continues to get oxygen via NRB mask and a chest xray is ordered.



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- Needle decompression
- Chest tube placement
  - FOCA
  - DOPE

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- Circulation
  - Pulses
  - External bleeding
  - Access – IV placement
  - Skin – color, temperature, moisture

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- Scenario update:
  - Patient is pale, warm, dry
  - Tachycardic in the 120s
  - As previously stated has already received crystalloid and blood products
  - Has an obvious left femur fracture, traction splint in place

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- Disability or "de brain"
  - Alert
  - Verbal - responds only to verbal stimuli
  - Pain – responds only to painful stimuli e.g. sternal rub
  - Unresponsive

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- Our patient is "Alert" on the AVPU scale or a GCS of 15.
  - Due to the mechanism of the accident and unknown LOC status a CT scan is ordered which is normal.

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- Neuro interventions
  - Head CT
  - MRI
  - Reverse trendelenburg
  - Mannitol
  - Intubation

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- Expose
  - Get the patient completely undressed
  - Evidence
- Environment
  - Keep the patient warm

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- Patient update:
  - Remains alert and awake
  - Identified injuries include: right pneumothorax, right pelvic fractures, right open patellar fracture, right ankle fracture, left femur fracture, left eyebrow laceration, multiple abrasions and contusions, small right lung contusion

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Patient update: To OR

- Rod placed for left femur fracture
- Endoscopy due to positive blood from the rectum during assessment
- Chest tube placement
- Fixation (screws) of right open patellar fracture

OR time approx 8 hours, patient returned to ICU

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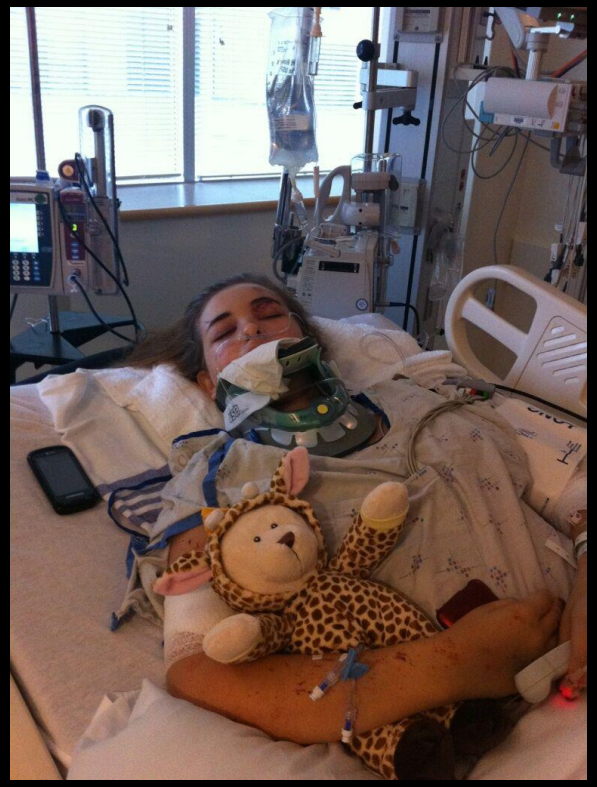
- Day 1 post injury
- PCA for pain
- Arouses to voice
- Requires blood transfusion



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- Patient no longer following commands
- Unresponsive to verbal stimuli
- Repeat head CT shows diffuse cerebral edema

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- Post injury day 2-4
- Patient remains GCS 9
- Requires daily blood transfusion due to falling hct

TABLE 38-2

Glasgow Coma Scale

BEHAVIOR	RESPONSE	SCORE
Eye opening response	Spontaneously	4
	To speech	3
	To pain	2
	No response	1
Best verbal response	Oriented to time, place, and person	5
	Confused	4
	Inappropriate words	3
	Incomprehensible sounds	2
	No response	1
Best motor response	Obeys commands	6
	Moves to localized pain	5
	Flexion withdrawal from pain	4
	Abnormal flexion (decorticate)	3
	Abnormal extension (decerebrate)	2
	No response	1
Total score:	*Best response*	15
	Comatose client	8 or less
	Totally unresponsive	3

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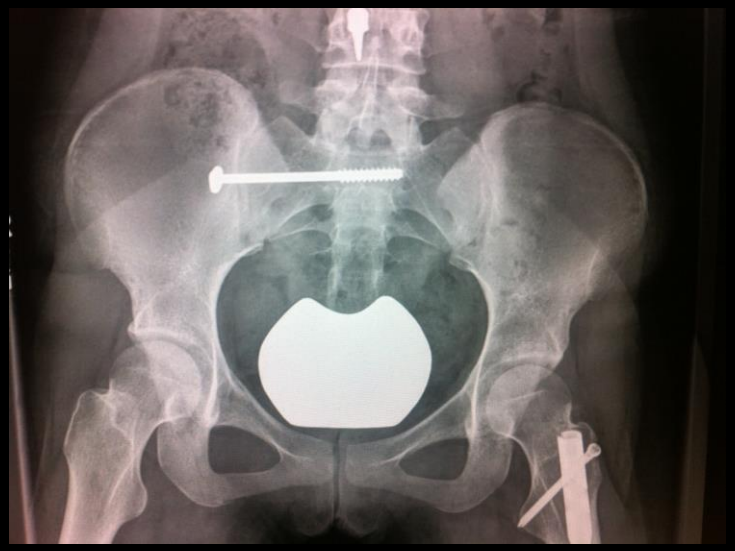
- Back to OR post injury day 4
- Ortho to stress pelvis as suspicion is for ongoing bleeding there
- Feeding tube placement
- PICC line placement for hypertonic saline



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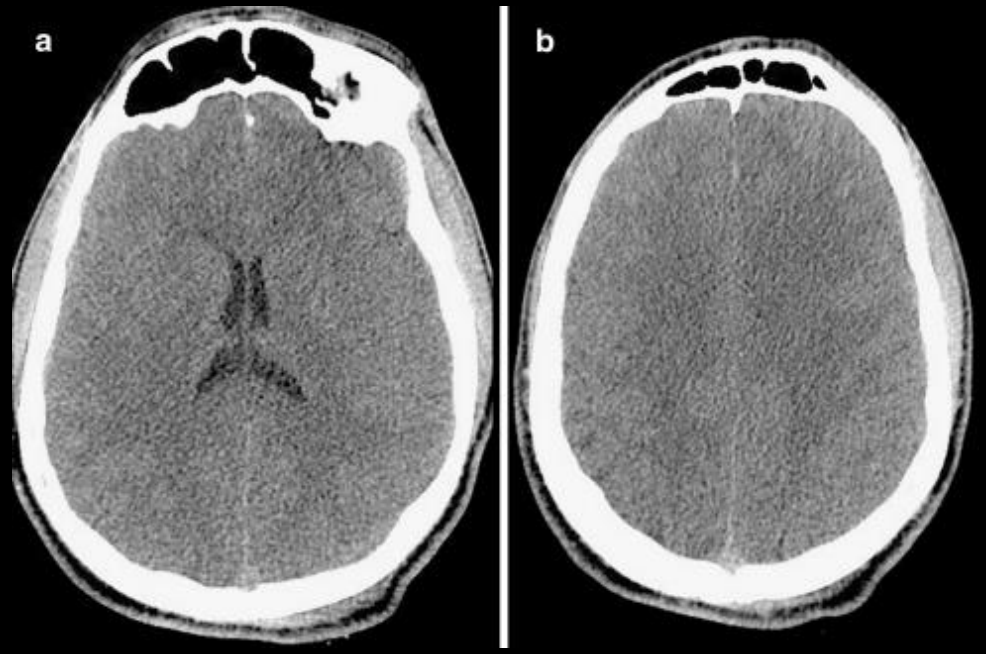
- Hypertonic saline
  - Increases plasma sodium levels to draw extracellular fluid out in order to reduce cerebral edema



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- TXA – tranexamic acid in trauma
  - Is a antifibrinolytic, meaning it enhances clot formation by preventing breakdown.
  - Currently used to control bleeding in surgical patients
  - Currently a ROSC study to treat trauma patients, AMR is administering in the field for patients who meet criteria
  - Half life of approx 12 hours
  - Possible untoward effect is clots e.g. PE, DVT

Citations

Emergency Nurses Association. (2024). *Trauma Nursing Core Course (TNCC) Provider Manual*