Trauma Drama: **Approach to blunt and penetrating trauma patients in the ED** **Twitter/Instagram: @emboardbombs**

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Objectives: define blunt versus penetrating trauma, understand the critical points of the primary survey, indications for FAST, highlight the secondary survey, disposition of trauma patients

Disclaimer: this guide will provide a generalized overview and approach to understanding the evaluation of patients of trauma. This does *NOT* serve as an all-encompassing guide and does not account for the variable presentations. As is often said, patients do not read the textbook.

Blunt trauma: most common overall cause of trauma in the United States. ~75% are from MVCs.
Blunt forces push against the anterior thorax and abdomen, compressing viscera against the posterior thoracic cage or vertebra, causing crushing of tissue and shearing open organs at their point of attachment to the peritoneum. Spleen and liver are most commonly injured in the abdomen in blunt trauma. Retroperitoneal structures are also at risk. Tears or stretch injuries to arteries, can result in infarction downstream tissues. The kidney is most susceptible to such stretch injury.

Quick hits:
Bike handlebar injury: duodenal rupture, pancreatitis
Lap belt injury: small bowel rupture
To assess pelvic fractures, gentle lateral compression of iliac wings is all that is needed
Sternal fracture is associated with aortic injury in <10% of patients. Rib fracture is the most common associated fracture

Penetrating trauma: any object that breaks the skin barrier and enters or "penetrates" the body at a particular location. The most common cause is a tight heat between ballistic injury and stabbing. Other causes include various work-related or random hazards. In general, ballistic injury causes more damage due to force principle alone and will more often than not require operative intervention due to concern for pressure-wave damage to nearby structures.

Quick hits:
GSW to abdomen: 80% mortality, most common location is small bowel Stab wound to abdomen: 20% mortality, most common location is liver
In order of most likely damaged organs in penetrating trauma to the abdomen: small bowel > liver > colon
Most common injury in the chest is a pneumothorax, followed by pulmonary contusion, hemothorax, tamponade, tracheobronchial injury.

Primary Survey	Investigation	Comments/interventions
Airway:	**Is the patient protecting their airway?** Are they struggling/working hard to breath? Obvious trauma to the face/neck/chest? Can they speak? Are they alert?	The easiest way to assess airway is ask the patient to speak If any concern, a definitive airway should be sought. If a burn patient, evaluate for potential airway trauma/burn
Breathing:	Bilateral breath sounds present? Unlabored? Patient initiating spontaneous breaths? Is the chest rising and falling appropriately (e.g. no flail chest)?	Goes hand-in-hand with airway. Absent breath sounds and hypotension suggests pneumothorax/hemothorax and requires immediate intervention.
Circulation:	Manual blood pressure measured on arrival 2 large bore IV's at a minimum should be placed Is the patient hypotensive? Show signs of shock?	The most common causes of hypotension on arrival are: 1) hypovolemia, 2) pneumothorax, 3) tamponade Crystalloids (LR) should be hung immediately but if there is concern for hemorrhage, time should not be wasted and transfusion should occur.
Disability & **E**xposure:	Occur simultaneously. All items of clothing should be removed, any obvious deformities should be addressed (e.g. c-collar present? Obvious open fractures or significant bleeding	Temporary interventions should be sought for obvious deformities: c-collar placement, pelvic binding, tourniquet application, splinting of extremities. Critically, these interventions should not delay definitive life-saving measures.

Portable X-rays: Chest, Pelvis

FAST Ultrasound should be performed if:
-unstable blunt trauma (look to the right margin)
-significant concern for abdominal injury (e.g. seatbelt sign, mechanism, rigid/tender belly, etc)
-penetrating chest injury (injury to "the box"), or occasionally stab wound to abdomen

"Stability":
BP >95 systolic
HR <120
SpO2 >95%
GCS >14

Secondary Survey: Head-to-toe physical exam

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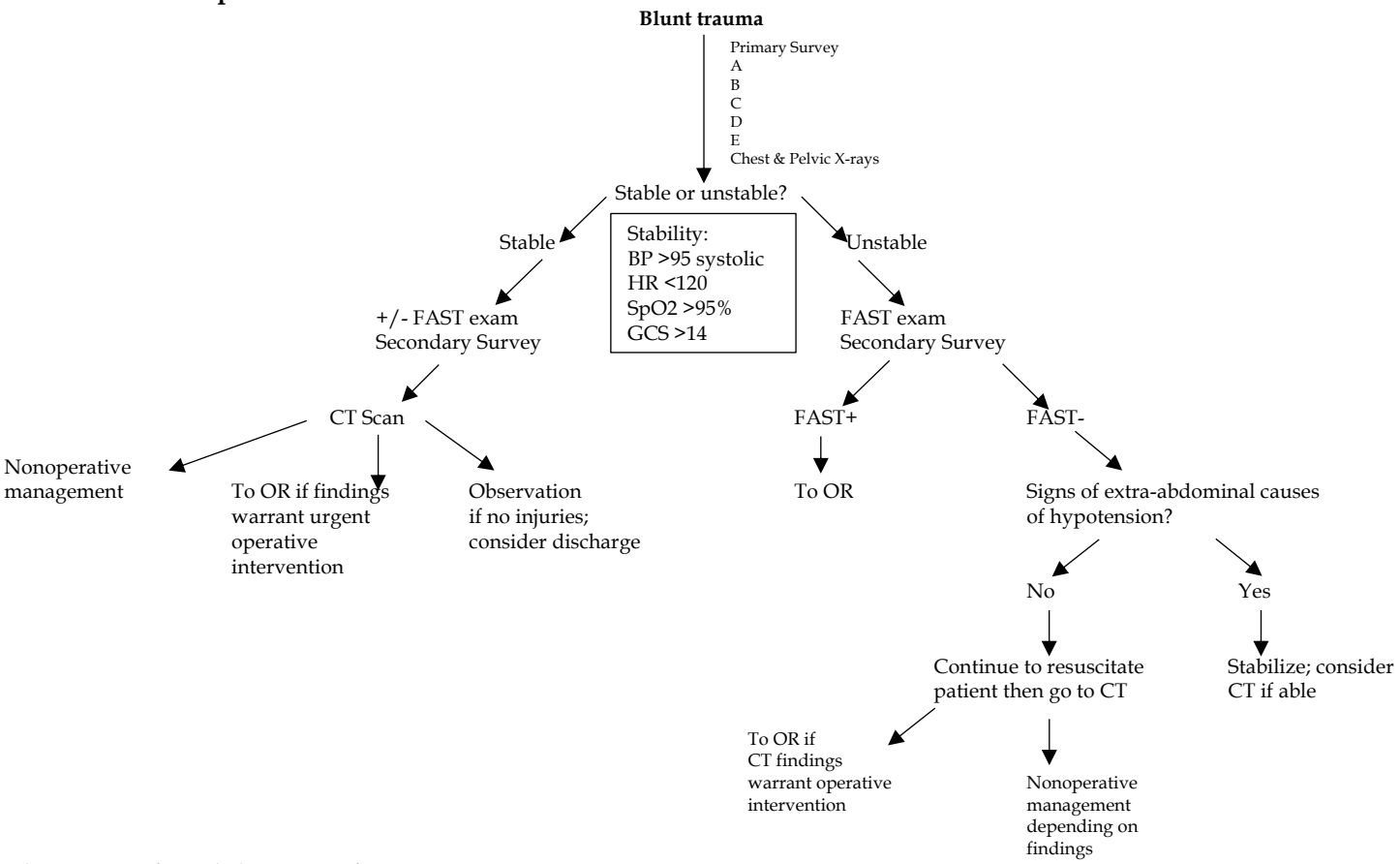
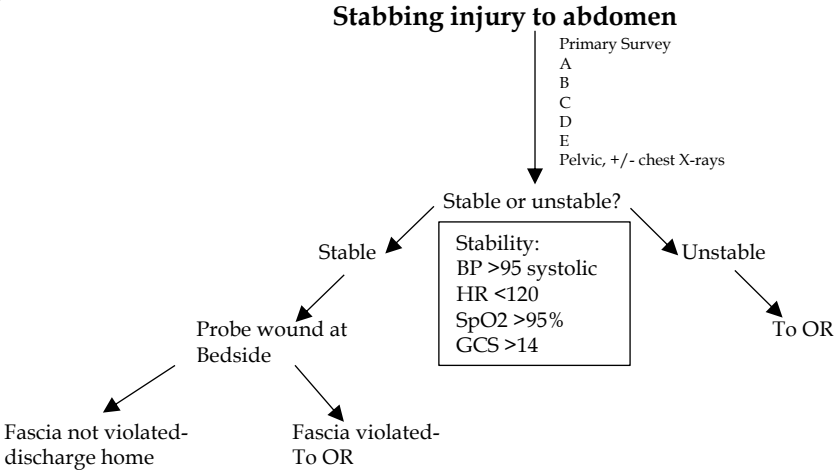
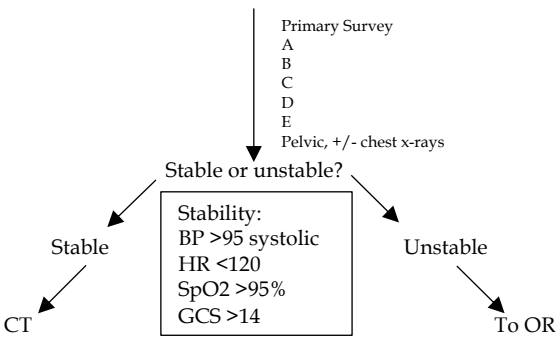
The blunt trauma patient:

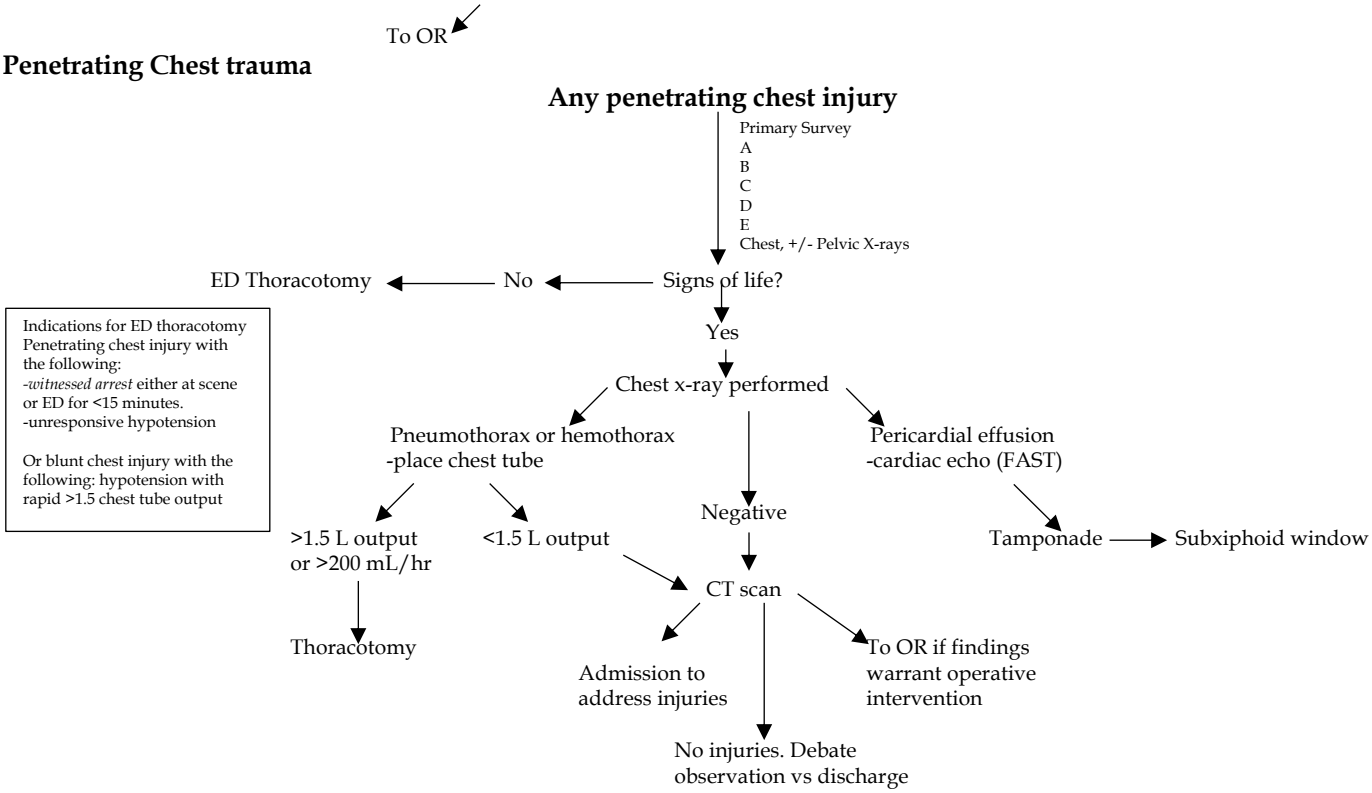


The penetrating abdomen patient:





Penetrating Chest trauma



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