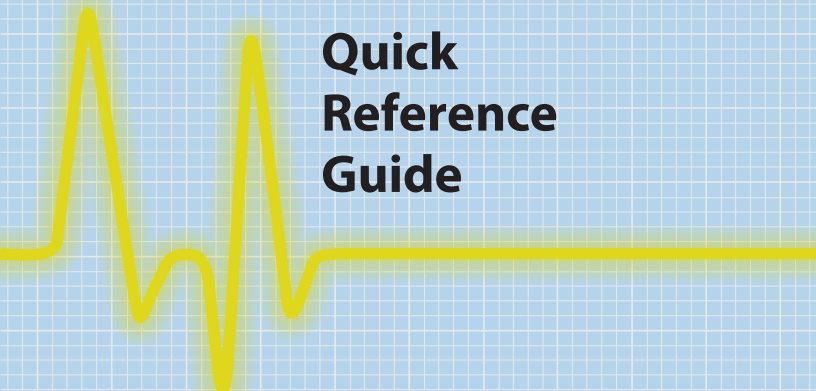


Trauma Assessment

A yellow ECG (heart rate) line graphic is positioned on the left side of the cover, extending horizontally across the middle. It features two prominent peaks followed by a smaller peak and then a flat line.

**Quick
Reference
Guide**

2014

Primary Survey

Purpose is to identify and immediately correct any life threatening problems.

A (Airway)

- Assess for patency/obstruction.
- Open airway with jaw thrust if necessary. Have suction and intubation supplies ready. Be prepared to relieve obstruction.
- Think basic interventions such as oral or nasal airway. If necessary, advanced intervention such as endotracheal tube (ETT), King airway, or similar device.

B (Breathing)

- Yes or no? If not, begin ventilating (Bag Mask Ventilation) with 100% oxygen.
- Assess breath sounds if possible.
- Are they bilateral and equal? If not consider pneumothorax and attempt needle decompression.
- Stabilize flail chest.
- All patients get oxygen.
- Ventilators are a precious commodity.

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Primary Survey

C (Circulation)

- Are there pulses? Radial, Femoral, Carotid.
- Is capillary refill less than 2 seconds?
- Is there any obvious bleeding needing immediate control (tourniquet, pressure dressing, hemostatic dressing)?
- Vitals q 5-15 minutes.
- Pelvic wrap/sling/binder (if indicated).
- Splinting.

D (Disability)

- Are there obvious injuries?
- GCS/AVPU (before intubation).
- Check pupils.
- C-spine control.

E (Exposure)

- Remove all the patient's clothing quickly, then cover the patient with warm blankets.
- Hypothermia in trauma is common, temperature control is critical.

Glasgow Coma Scale for Head Injury

Eye Opening	Spontaneous	4
	To loud voice	3
	To pain	2
	None	1
Verbal Response	Oriented	5
	Confused, disoriented	4
	Inappropriate words	3
	Incomprehensible sounds	2
	None	1
Best Motor Response	Obeys	6
	Localizes	5
	Withdraws (flexion)	4
	Abnormal flexion posturing	3
	Extension posturing	2
	None	1

AVPU

A

The patient is awake.

V

The patient responds to verbal stimulation.

P

The patient responds to painful stimulation.

U

The patient is completely unresponsive.

Secondary Survey

Systematic assessment done to identify all injuries – head to toe.

Vitals

- Pulse, blood pressure, respirations, temperature (core), and pulse ox.

Head

- Palpate the head and feel for any crepitation, depression or misalignment.

Eyes

- Pupillary response to light (Altered response may be a sign of brain injury or toxicological emergency)
- Look for bruising around the eyes, so-called “Raccoon eyes” (may indicate basilar skull fracture).

Ears

- Is there any bruising behind the ears (hemotympanum)? (Fluid draining from the ears after trauma is assumed to include CSF, it does not matter if it is clear or not).
- Look in the canals. (Blood behind the tympanic membrane is a basilar skull fracture until proven otherwise).

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Secondary Survey

- Is there any bruising around the ears? (Battle's sign of basilar skull fracture).

Nose

- Is there any trauma or is there any fluid draining?

Throat

- Is there any oral trauma? (Blood and broken teeth are serious airway hazards).

Neck

- Deformity or tenderness?
- JVD? (Cardiac tamponade).
- Subcutaneous air? (Pneumothorax or airway injury).
- Palpate carotid pulses.

Chest

- Any chest wall tenderness, paradoxical movement (Flail chest), subcutaneous air?
- Consider chest tubes if indicated.

Lungs

- Are breath sounds present and equal?

Cardiac

- Are the sounds muffled? Decrease in pulse pressure, tachycardic (Cardiac tamponade).

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Secondary Survey

Abdomen

- Tenderness, rigidity, guarding? (Hemoperitoneum)

Pelvis

- Palpate symphysis pubis and compress iliac crests gently; pain, instability, crepitus (fracture).
- Palpation is an unreliable assessment and any symptoms should be further investigated.

Genitals

- Blood from the urethra? (Urinary tract injury)

Upper extremities

- Pulse, movement, sensation intact?
- Are pulses equal? (Aortic injury - especially in rapid deceleration accidents)

Lower extremities

- Pulse, movement, sensation intact?

Back

- Don't forget – all patients must be rolled, using spinal precautions if necessary.
- Any injury, tenderness, or deformity?

Rectal

- Blood. (GI injury)
- In males, is there a "high-riding prostate?"(urethral injury)
- Is sphincter tone normal? (Spinal injury)

Life Saving Interventions

Control Bleeding

- Apply dressing/bandage.
- Apply direct pressure.
- Elevate limb if possible.
- Apply hemostatic dressing.
- Apply tourniquet (should be on the limb between the wound and the body trunk, 2-4 inches from the edge of the wound).
- Apply 2nd tourniquet if necessary.

Airway

- Open and ensure patent airway.
- Use airway adjunct if necessary (nasopharyngeal if no head trauma is suspected).
- Use bridge devices over lengthy intubation: King Airway, Laryngeal Mask Airway (LMA), or Combitube.

Needle Chest Decompression

- Signs/Symptoms of Tension Pneumothorax: Sudden chest pain/tightness, SOB, fatigue, cyanosis, tachypnea, tachycardia, hypotension, decreased consciousness, JVD (late sign).
- Use a long, 3.25" 14 guage IV catheter.
- Identify second intercostal space on the anterior chest

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Life Saving Interventions

wall at the mid-clavicular line on the same side as the injury, approximately 2 finger widths below clavicle.

- Insert needle over the 3rd rib at the second intercostal space at a 90 degree angle.
- Advance needle all the way to the hub.
- Remove the needle, leaving the catheter in place and stabilize.

Rules of Trauma Patients

- All trauma patients need oxygen until proven otherwise.
- All trauma patients are bleeding until proven otherwise.
- All trauma patients have a cervical spine injury until proven otherwise.
- All unconscious/altered LOC trauma patients have a brain injury until proven otherwise.

Ensure

- Direct pressure to all external bleeding, use tourniquets if necessary.
- Rapid suturing/stapling of all scalp and facial wounds.
- Rapid application of traction splints for femur fracture.
- Binder for pelvic fracture or use sheets if binder unavailable.
- Rapid reduction and pressure dressings to mangled extremities.
- Expose patient but maintain temperature.
- 2 large bore IVs – if unable to gain access after 2nd try, immediately insert intraosseous (IO) infusion device.
- Attach and monitor: BP, EKG, pulse ox, end tidal CO₂.
- Encourage use of i-STAT and FAST exam due to lab and imaging being overwhelmed.
- Urinary Catheter.
- Gastric Catheter.
- ABG.

Imaging

- Primary Imaging
 - AP CXR
 - AP pelvis
 - C-Spine
 - Ultrasound
 - EFAST
 - Intraabdominal fluid (RUQ, LUQ, bladder)
 - Pleural effusions
 - Pericardial Effusion
 - Pneumothorax/Hemothorax
 - Renal injury
 - RUSH (Rapid Ultrasound in Shock)
 - “Pump, Tank, Pipes” (heart, intra-vascular, large arteries/veins)
 - Long bone fractures
 - Foreign body
 - ET Positioning
 - Ocular FB or trauma
- Secondary Imaging
 - Additional x-rays of the spine and extremities (refrain from extremity imaging unless absolutely necessary).
 - CT of the head, chest, abdomen, and spine.

Blood Administration

- 1:1:1 (Packed Red Blood Cells (PRBC): Fresh Frozen Plasma (FFP): Platelets).
- If platelets unavailable, 1:1 (PRBC: FFP)

ED Disaster Management Pearls

Overall Scene

- Declare disaster early.
- Restrict access to ED.
- Clear the ED as much as you can.

Command Structure

- ED commander (usually charge RN) should establish command structure and command post.
- Assign deputy to ED commander.
- Wear command vests.
- Determine methods of communications (cell phones, radio, face to face, runners).

Treatment Teams

- Identify and brief treatment teams.
- Attempt to keep treatment teams separate and compartmentalized.

Triage

- Triage team should use triage tags, ribbons, and if not available, sharpie directly on patient.

Resource Utilization

- Expedite patient registration process by use of “unidentified patient” processes.

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ED Disaster Management Pearls

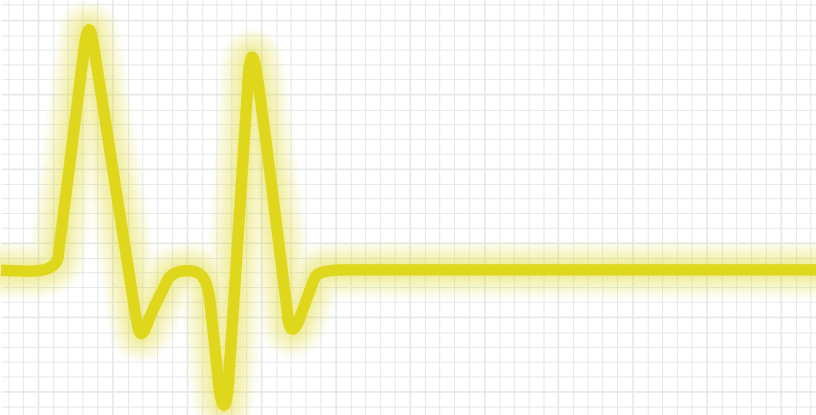
- If resource available and clinically appropriate, pair experienced providers with lessor experienced provider(s).
- Pharmacy services are potential “chokepoint” and plans should be made to address this issue.
- If available, radiology and lab interpretation/support services can assist with both ordering and interpretation of results.
- Minimize lab tests (Point of care works the best in select patients)
- Minimize imaging requests (use US).
 - Only obtain CXR / pelvis as needed.
- Use regional anaesthesia to minimize repeated pain medication administration.

Personnel Management

- Assign staging area for volunteers and other medical staff.

Medical Documentation

- Assign the least trained person to track assessments, interventions, or results (e.g. nursing or medical student or qualified volunteers).
- Use paper charting as necessary.



Disclaimer:

This guide provides optional recommendations during a mass casualty surge of trauma patients. Altered standards of care as outlined in this guide are dependent on each individual facility, provider, and mass casualty situation.

