

Sample Single-Tier Trauma Team Activation (TTA) Protocol

Purpose:

A team must be rapidly assembled to provide for the initial evaluation and resuscitation of major trauma patients in an organized and efficient manner.

Policy:

The team is a multi-disciplinary panel of professionals assembled in an organized fashion to perform the tasks necessary to efficiently resuscitate seriously injured patients.

1) The activation criteria are as follows:

Activate trauma team upon realization that any of the following patient conditions exists, either upon arrival of the patient or notification by EMS.

Adult or pediatric trauma patient and presenting with:

- Altered level of consciousness secondary to trauma: GCS ≤ 13 or less than "V" on AVPU scale
- Respiratory distress, airway compromise, intubation or respiratory rate outside of acceptable range:
 - Adult RR < 10 or > 30
 - Child RR

Age	RR
≥ 6	< 10 or > 30
2-5	< 10 or > 40
12-24 months	< 10 or > 50
0-12 months	< 20 or > 60

- Shock, evidence of diminished perfusion, transient hypotensive episode or vital signs outside of acceptable range:
 - Adult BP < 90 or HR > 120
 - Child capillary refill < 2 seconds or

Age	BP	HR
≥ 6	< 90	< 60 or > 140
2-5	< 80	< 60 or > 160
12-24 months	< 75	< 70 or > 180
0-12 months	< 70	< 80 or > 180

- Suspected cardiac or major vessel injury
- Penetrating wound to the head, neck, chest or abdomen
- Suspected severe orthopedic injuries:
 - Pelvic fracture
 - Unstable facial fracture
 - Femur fracture
 - Open long bone fracture
 - More than one proximal long bone fracture
 - Knee dislocation
- Burns:
 - $> 20\%$ TBSA
 - Facial burns
 - Suspected inhalation burn
 - Burns with concomitant trauma

- Traumatic paralysis or focal neurological signs/symptoms (i.e., numbness, tingling)
- Pregnancy >20 weeks with vaginal bleeding or contractions
- Aeromedical launched by EMS
- Provider discretion; consider for:
 - Multiple injuries (two or more systems) or severe single system injury
 - Co-morbid factors:
 - Anti-coagulant therapy
 - Age <5 or >55 years old
 - Multiple co-morbidities

Mechanism of Injury

- Fall:
 - >15 feet
 - > 65 years old and fall from elevation or down stairs
 - Pediatric <10 years old: >2x patient's height
- Death in same passenger compartment
- Extrication time >20 minutes (i.e., time spent accomplishing the extrication)
- Ejection from auto
- Motorcycle, snowmobile or ATV crash with separation of rider
- Bicyclist struck by auto with separation of rider
- Pedestrian struck and thrown by auto

2) Trauma team members:

- Emergency department provider (e.g., physician, nurse practitioner or physician assistant)
- Two emergency department RNs
- Nursing assistant or EMT
- Laboratory technician
- Radiology technician
- Health Unit Coordinator (HUC)

The individual roles of the team members are subject to change based on the needs of the patient and resources available during the resuscitation. Below is a guideline. The provider leading the resuscitation may modify the duties of any team member if in the best interest of the patient.

Emergency Department Provider:

- Perform primary and secondary survey.
- Perform or delegate airway management.
- Perform procedures as needed such as chest tube insertion, central venous access, ultrasound exam.
- Order appropriate lab and radiographs.
- Responsible for all medications and fluids given.
- Make triage and transfer decisions.
- Determine the need for and mode of inter-facility transfer (air vs. ground) early in resuscitation course.
- Communicate directly with receiving physician at trauma hospital regarding transfer.
- Document case (complete trauma flow sheet, dictate emergency department note).
- Complete and sign patient transfer form.

Emergency Department Nurses

- Prepare trauma room before the patient arrival.
- Place X-ray trauma blocks on the gurney.
- Assist EMS with transfer from EMS gurney to trauma bed.
- Attach BP, cardiac and oximetry monitors to the patient.
- Obtain initial vital signs and report out loud to emergency department provider. (BP, HR, RR, SpO₂ and temp (Core temp if hypothermia is considered)).
- Maintain and monitor all intravenous lines. Obtain fluid resuscitation orders and IV rate from emergency department provider. Report to recorder (at end of emergency department course) total IV intake and urine output.
- Set up fluid and blood warmer. Start blood transfusion as ordered.
- Remain at patient bedside throughout the emergency department course.
- Assist with equipment preparation before the patient arrives.
- Assist with transfer from the EMS gurney to the trauma bed.
- Assist in removing patient's clothing.
- Draw up and label airway drugs (succinylcholine, Etomidate, etc.). Be prepared to administer drugs as ordered by the emergency department provider.
- Obtain IV access if needed. (If primary IV is done, place 2nd IV and draw bloods).
- Inserts Foley catheter when authorized by the emergency department provider.
- Set up chest tube drainage system if needed.
- Assist emergency department provider with procedures as needed.
- Administer tetanus booster and antibiotics when ordered by emergency department provider.
- Initially document emergency department course by filling out the trauma resuscitation record.
- Record vital signs initially and every 5 minutes; make sure that provider in charge is aware of any significant changes in the patient's status.
- Accompany patient out of department for any diagnostic procedures.
- Control traffic in the trauma room; attentive to patient's privacy, e.g., keep curtains closed, keep other patients and family members away from traffic areas.
- Communicate with family.
- Escort family members to trauma room and attend them when appropriate.

Nursing Assistant or EMT

- Assist with transfer from the EMS gurney to the trauma bed.
- Assist in removing patient's clothing; covers patient immediately with warm blankets.
- Assist with intubation: provide in-line cervical spine immobilization or Sellick's maneuver as directed.
- Assist with procedures as needed.
- Assist with transport of patient to X-ray.
- Check airway equipment before the patient's arrival. (i.e., suction, laryngoscopes, ambu bag, O₂)
- Maintain oxygen; insure SpO₂ unit functions properly; assist ventilation with BVM as necessary and as directed by emergency department provider.

Laboratory Technician

- Obtain pre-labeled blood tubes from trauma room; attach ID bracelet to patient.

- Obtain syringes from IV start (by RN) or perform venipuncture to obtain blood for trauma battery.
- Determine availability of blood; bring O negative blood to trauma room immediately if requested.
- Run phase 1 and phase 2 labs. (see below)
- Obtain urine from Foley insertion and run UA on all patients. Run urine HCG on all females in reproductive age group.
- Run ABGs.
- Insure type specific blood is available in blood bank.
- Perform ECG if requested.

Radiology Technician

- Respond immediately to trauma team activation page; transfer portable x-ray machine to trauma room, insure enough film plates for basic trauma radiographs (e.g., lateral c-spine, chest, pelvis).
- Place chest plate on trauma cart under backboard before patient arrives.
- Determine radiographic priorities per physician in charge.
- Ensure at least 2 additional aprons are in trauma room and available for emergency department staff.
- Develop films and immediately take them to the trauma room.
- Inquire if CT will be needed; call in/notify CT tech to prepare for emergency scan.
- Copy radiographs if patient will be transferred; ensure originals accompany the patient.

Health Unit Coordinator (HUC)

- Activate trauma team upon notification of TTA for the field; confirm all team members have arrived. Record arrival times.
- Determine if additional medical staff will be needed.
- Contact receiving trauma hospital as directed by emergency department provider.
- Assemble and copy all documentation for transport team, e.g., chart, labs, x-ray.
- Direct family members to family support person.
- Prepare patient transfer forms and obtain emergency department provider signature if patient is transferred.
- Request security to secure the helicopter landing pad.
- Meet family members; escort them to the family consultation room.
- Offer to contact others, e.g., family, friends, or clergy.
- Authorize food services to provide refreshments to family members as necessary.
- If the patient is transferred, ensure that family members have transportation and directions to receiving facility.

3) Procedure:

1. The emergency department nurse, emergency department provider or EMS becomes aware of a patient meeting TTA criteria and instructs HUC to call a TTA. Call a TTA upon receipt of notification that the incoming patient's condition meets the TTA criteria. Do not wait for the patient to arrive in the emergency department before activating the team.
2. The HUC pages overhead "*Trauma Team Stat, [ETA],*" a total of 3 times.
3. Team members assemble in the emergency department immediately.

4. The emergency department provider team leader briefs the team on the condition of the patient and begins to assign duties.
5. The team leader should immediately consider the need to transfer the patient and activate the trauma transfer protocol, if indicated.

4) Guiding Principles:

- The trauma lab panels are typically:
 - Phase 1
 - Alcohol
 - CBC w/ differential
 - Electrolytes
 - PT/INR
 - PTT
 - Type and screen
 - Phase 2
 - Arterial blood gases
 - Pregnancy test (serum or urine) on all females in reproductive age group
 - UA
 - Urine tox. screen
- Personal Protective Equipment (PPE) should be worn by all personnel who work directly with the patient.
 - Gowns
 - Gloves
 - Masks to include eye shields
 - Shoe covers, surgical caps
 - Lead aprons
- Keep talking and noise to a minimum. Discuss the patient's condition only behind closed doors and after ensuring a private environment.
- Keep doors and curtains closed. Vigilantly maintain the patient's privacy. Encourage other patients and family members to stay in their cubicles during the resuscitation.
- Ensure that the patient is informed of procedures before they are performed. Continuously ascertain the patient's comfort level (e.g., pain, temperature).
- Verbally acknowledge orders; inform the source when the request has been completed; when giving orders, ensure their receipt.
- Stand in an area removed from the patient until called upon or dismissed, if not directly involved in patient care.
- Select proximal sites for peripheral IVs, when possible; they may need to be converted to rapid infusion catheters.
- Vacate the room when X-rays are being taken unless fitted with a lead apron.
- Place the patient's clothing and belongings into labeled bags as soon as possible.