TRAUMA RESUSCITATION

Objective: This guideline is designed to provide a consistent, reproducible standard approach to the work up and evaluation of the trauma activation patient. This was developed with the principles of ATLS with roles designated with input and agreement by Trauma and Emergency Medicine faculty. It is expected that the principles of trauma care be always the center of the evaluation, that the resuscitation is efficient and complete and that all members of the trauma team work together in the roles in a professional manner so as to provide the highest level of trauma care.

POSITION	TEAM MEMBER	ROLE
Head of Patient	• ED Resident • Respiratory Therapy • ED Attending	• Assessment and control of airway
Left of Patient	• Trauma Resident / PA • Medical Student (if present)	• Primary Survey • Resuscitative Lines • ABG • Other Procedures
Right of Patient	• Primary Nurse • Nurse Trainee • Clinical Assistant	• Vital Signs • IV Access • Administer Fluids/Medications • Obtains Labs • Secure Patient Belongings
Foot of Patient	• Team Leader (Chief Trauma Resident or Trauma Attending) • Scribe	• Manage Resuscitation • Documents All Events During Resuscitation
Stand-by (Outside of Resuscitation Room)	• X-ray Tech • EKG • Operating Room Personnel • Pharmacy • Additional Trauma Team Members • Consulting Services	• Await Instructions from the Team Leader to Enter the Resuscitation Room

Role Clarification:
The role of Team Leader will be the Surgery Chief in most activations.
However, on Wednesday mornings from 7-12, the EM resident will be the Team Leader with the Trauma Attending also present.

On Thursday mornings from 7-1, the Trauma resident will be the Airway Manager with the EM attending.

Procedures: Even Days: EM: central lines and arterial lines
Surgery: Ultrasound and wound repair
Odd Days: EM: Ultrasound and wound repair
Surgery: Central lines and arterial lines

Multiple, concomitant procedures at direction on Team Leader

Conduct of a Resuscitation

1. Activation of either a P1 or a P2.
2. Trauma team members (EM and Surgery) arrive and sign in with name and time on trauma flow sheet.
3. Prior to patient arrival: Recording Nurse provides Trauma team with any updates regarding patient information. Universal precautions are employed and at minimum the Primary Nurse, EM resident, and Trauma resident/midlevel need to put on lead aprons.
4. Team prepares the trauma room:
    a. Team Leader clarifies roles of each person
    b. P1 activations require emergency release blood present in the room. EM Attending or resident to sign emergency consent and notify blood bank.
    c. Primary Nurse confirms blood available in the trauma room, verifies all monitors are present and working, confirms appropriate trauma stretcher, confirms rapid infuser (if needed) is present, and ABG and blood sampling supplies are available.
    d. EM resident confirms equipment is available for airway and that ultrasound is in the room.
    e. The CA gets a cup of ice for the ABG.
    f. X-ray tech places X-ray cassette on grid in trauma stretcher.
    g. Respiratory therapist prepares supplemental oxygen and confirms oxygen tank on trauma stretcher has adequate oxygen.
    h. Recording Nurse "Arrives" patient in Merlin and activates Part A of order set.
5. Patient arrives. Team Leader requests report. EMS providers give 1 minute overview/report. Report should include: airway status, highest heart rate, lowest blood pressure, GSC, confirm movement of all extremities, all IVF/blood, blood products, key medications. During this time there should be NO other talking. Once directed by the Provider who is managing the airway (most often EM residents), the patient is moved to the trauma stretcher.
6. All providers move outside boundary line unless part of the core trauma team doing the primary assessment. Team Leader allows providers to enter trauma boundary when time/service is appropriate.
7. Emergency Medicine Resident (Airway Manager(assesses:
    a. Airway patency. If intubated, confirms tube level at lips and presence of end-tidal CO2.
    b. Breathing
    c. Presence of major head / neck trauma
    d. Announces to team the findings of all 3 items above.
        a. If intubation is needed:
            1. The airway will be managed by the EM faculty. The resident will have 2 attempts to obtain the airway which the EM faculty will intervene. If anesthesia is needed, a direct call to the charge at 7-6263 will be made.
            2. When a surgical airway is needed, the trauma attending will be charged with obtaining the appropriate surgical airway.
            3. Once intubated, end tidal CO2 will be used.
8. Respiratory Therapist provides supplemental O2 or placement on the ventilator.
9. Primary Nurse obtains and announces initial manual BP using right arm as first choice, then places NIBP cuff.
10. Patient is completely unclothed and then covered with blankets.
11. CA places pulse ox FIRST, and NBP/cardiac monitoring placement, EKG monitor and obtains temperature with thermoscan. Intubated patients should have an esophageal temperature probe. Initial values are announced to team.

12. Trauma Resident/Midlevel states clinical findings of primary survey, so that Recording Nurse can record findings. Team Leader directs any emergency procedures and immediate hemorrhage control for external bleeding.
13. Primary Nurse reports state of IV access, type and rate of fluid being administered.
14. Blood is drawn for Lab work:
    a. Trauma-I labs and TEG for P-1 (ABG-labs on all P-1 patients)
    b. Trauma-II labs for P-2
    c. Blood needs to be obtained as expeditiously as possible. If there is delay secondary to poor access or difficult sticks, then Team Leader should direct a femoral access.
15. Team Leader admits X-ray techs to trauma area.
    a. Films obtained at this time include
        a. CXR
        b. Pelvis X-ray (Exceptions ok based on mechanism and clinical findings after discussion with Team Leader and present Attendings)
        c. Lateral Cervical Spine may on rare occasions be needed if significant subluxation is suspected. When radiographs are done, appropriate shielding of healthcare workers will be in effect. The Radiology technologist will loudly announce "X-ray".
16. Surgery or EM resident will perform a FAST scan and will be overseen by EM attending. (See above in Procedures)
    a. FAST exam will be performed within a maximum of 5 minutes.
    b. FAST exam should start with the pericardial window, then abdominal windows and then thoracic windows.
    c. Results of FAST exam and quality will be announced for team and scribe (Negative with good windows)
17. Recording Nurse will record drug administrations, dosages, and time.
18. Primary Nurse obtains q 15 minutes VS x 1 hour at a minimum and announces results:
    a. Team Leader will determine when more frequent VS's must be obtained (aided by trend in VS's, ABG (base deficit) and other parameters).
    b. When the NIBP and monitors obtain more frequent VS's, their data can be retrieved from the recorder.
19. EM Resident questions patient regarding (AMPLE)
    a. Allergies
    b. Medications & dosage
    c. Past medical/surgical history
    d. Last meal
    e. Events and Environment related to injury
    f. Advanced directives
    g. Family Hx of any anesthesia problems
    h. Social Hx: tobacco/alcohol use
20. Team Leader reassesses patient and Trauma Resident/midlevel completes secondary survey.
21. The entire team will log roll the patient.
22. Examination of the entire axial spine will be performed and results noted. Backboard is removed at this time. Trauma Resident/midlevel will do a rectal exam if there is sign of neurologic, abdominal, or pelvic trauma or if patient is obtunded. Resident will announce findings of DRE (tone, presence or absence of gross blood, evidence of injury (laceration), and position of the prostate.
23. EKG performed on all P1 and/or patient age is greater than 50 or signs/symptoms of chest trauma or mechanism.

24. In cases of shock, pelvic or spine trauma, a Foley will be placed if DRE is negative.
25. EM resident places NG/OG if needed.
26. Team Leader provides **Resuscitation Recap** for all team members so the completion of workup and patient status can be reviewed and verified for all the team. Recap is to include: **Hemodynamics**, Critical Findings, Review of Key Steps, Next Step in work up, Rationale for Plan.
27. Team Leader announces initial disposition based on patient's physiology (Direct to OR if hypotensive, To CT scan, to IR)
28. Orderset part B is initiated to order scans and plain films.
    a. ICU status patients should have a bed request placed.
    b. Patients who are ICU status should NOT go to radiology to get plain films.
29. Scout films may be obtained at this time if needed, if they are needed to evaluate for potential source of limb loss (ie dislocation) or hemorrhage.
30. Team Leader confirms tetanus status and antibiotics if needed, particular attention to potential open fractures.
31. Team Leader announces which Consultants are to be called. Recording Nurse documents consult service and time on the trauma flow sheet.
32. If patient is to have a CT scan:
    a. Team Leader confirms adequate medications and oxygen available.
    b. Team accompanies patient to CT. (Resident and ED Nurse to remain with pt while in CT scanner)
    c. When patient is moved to CT scan, Trauma stretcher is returned to trauma room. Second clean regular stretcher is brought to CT.
    d. Team stays with patient until CT rules out severe injury.
    e. By the conclusion of the CT scan, if the patient's admission disposition can be determined a Bed request should be placed. Patients with rib fractures who are not intubated will need FVC to help determine level of care.
33. If patient does not need CT, patient is transferred to regular stretcher prior to going to plain X-ray.
34. Team Leader verifies that the H&P is complete including clinical findings, radiology results, and is dated and timed. If the trauma attending is not present during a P2 resuscitation, the Team Leader documents verbal conversation with trauma attending (time, date, and plan) within 15 minutes of arrival all P2's. Trauma Attending needs updated regarding injuries/admission.
35. When all diagnostic studies are completed and criteria mentioned above are fulfilled, monitoring VS's will be determined by the category of patient (observation, floor, step-down status or intensive care status.) The Primary Nurse and surgical house staff do not have to remain with the patient. If the trauma team is to leave the ED, there must be a patient handoff with the EM to ensure a communication of care plan. This should include brief review of injuries and plans.
36. All trauma lines & catheters placed in trauma bays need to be changed within 24 hours of patient's arrival.
37. When a patient is being discharged directly from the ED after a trauma evaluation, the ED attending must be informed of this plan and a note dictated. Refer to discharge criteria. C-spine clearance may be done by an EM resident under supervision of the EM attending, Trauma chief or midlevel, or trauma resident under the supervision of the Trauma Attending. Trauma Attending must be called before discharged. Patient must have clinic follow-ups.

Trauma I Labs: Expanded ICU ABG, CBC, BUN, CR Coagulation studies, (PT, INR, PTT), ETOH, BHCG (female), UA, UA, UDS, T&S, Standard TEG

Trauma II Labs: same as Trauma I labs minus Coagulation studies, T&S

PEDS Trauma I Labs: ABG, Electrolytes (Na, K, Cl, CO2, BUN, Cr, Glucose), CBC, UA, T&S

PEDS Trauma II Labs: same as Peds Trauma I labs minus ABG, T&S

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