Pediatric Trauma Resuscitation Protocol

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. It is the expectation that all members of the trauma team work together in the roles in a professional manner to provide the highest level of trauma care.

Conduct of a Resuscitation

1) Activation of either a P1 or a P2.
2) Trauma team members arrive and **SIGN IN** with name and time on trauma flow sheet or trauma narrator within EPIC. (Scan in badge)
3) Prior to patient arrival a **PREARRIVAL REVIEW** is performed:
   i) Confirm patient meeting P1/P2 criteria, brief summary of patient information
   ii) Identify present staff and roles assigned, confirm team members sign in
   iii) Verification of equipment needed, present and in working order
4) Team prepares the trauma room:
   i) Team Leader clarifies roles of each person
   ii) P1 activations require emergency release blood present in the room, 2 units whole blood (4 units PRBC if WB not available). EM Attending or resident to sign emergency consent and notify blood bank.
   iii) Equipment verified by Trauma Team Leader, EM resident and primary nurse
      (1) Ultrasound for FAST and procedures
      (2) Blood transfusion equipment (ThermaCore or Level 1 rapid transfuser)
      (3) Procedural Equipment: Chest tubes, central line, IO, airway kit
      (4) Trauma Cart
   iv) Respiratory therapist confirms adequate oxygen available and prepares ventilator as needed
5) On patient arrival, Team Leader requests report from EMS
   i) Patient moved to stretcher once report received
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) Primary Survey:

a) Airway Management per ED attending/resident (Head of Bed):

i) If intubation is needed:
   (1) The airway will be managed by the EM faculty.
   (2) If anesthesia is needed, a direct call to the pediatric anesthesia charge at 137337 will be made if they are not present. If pediatric anesthesia not in house, then called to anesthesia charge at 7-6263.
   (3) When a surgical airway is needed, the trauma team will be charged with obtaining the appropriate surgical airway.

8) Respiratory Therapist provides supplemental O2 or placement on the ventilator.
9) Primary Nurse obtains and announces initial manual BP using arm as first choice, then places NIBP cuff.
10) Primary survey is completed by the trauma resident. (Breathing, Circulation, Disability)
11) By the end of the primary survey, the patient will be completely unclothed and then covered with blankets (Exposure)
12) CA places pulse oximeter FIRST, and NBP/cardiac monitoring placement, EKG monitor and temperature. Initial values are announced to team.
13) IV access if obtained with 1-2 large bore IVs in the upper extremities
   i) Ultrasound available for difficult placement
   ii) Use of alternative site (IO, Central venous access) when appropriate
   iii) Blood is drawn for trauma labs as appropriate (see list at end of document)
14) Trauma provider states clinical findings of primary survey, so that Recording Nurse can record findings. Team Leader directs any emergency procedures.
   i) Emergent life saving procedures are to be performed at the direction of the Trauma Team Leader in conjunction with the ED attending.
   ii) Procedures will be performed by members of the trauma team and ED team
      (1) Chest tubes
      (2) Central venous and arterial lines
      (3) Resuscitative thoracotomy
      (4) REBOA
      (5) Wound packing, tourniquets, pelvic binder, repair of lacerations
15) When appropriate Trauma Team Leader admits X-ray techs to trauma area.
   i) Films obtained at this time include
      (1) CXR
      (2) Pelvis X-ray
      (3) Lateral Cervical Spine if indicated.
16) Surgery or EM resident will perform a FAST scan overseen by EM attending or trauma faculty and announces results
17) Recording Nurse will record drug administrations, dosages, and time.
18) Primary Nurse obtains q 15 minutes vital signs x 1 hour at a minimum
19) Secondary Survey: EM Resident questions patient regarding (AMPLE) history
   i) Allergies
   ii) Medications & dosage
   iii) Past medical/surgical history
   iv) Last meal
   v) Events and Environment related to injury

vi) Advanced directives
vii) Family Hx of any anesthesia problems
viii) Social Hx: tobacco/alcohol use

20) Trauma Resident/APP completes secondary survey.
21) When appropriate the entire team will log roll the patient to remove backboard and perform axial spine evaluation. Trauma Resident/midlevel will do a rectal exam if indicated.
22) EKG performed on all P1 and/or patient age is greater than 50 or signs/symptoms of chest trauma or mechanism.
23) Placement of Foley catheter as directed by Trauma Team Leader.
24) NG/OG as directed by Trauma Team Leader.
25) Team Leader provides **PREDEPARTURE REVIEW** for all team members. Review is to include:
    i) Hemodynamics
    ii) Review of key findings of primary and secondary survey
    iii) Procedures or interventions completed
    iv) Medications given
    v) Patient disposition and destination
26) Orderset part B is initiated to order scans and plain films.
    i) ICU status patients should have a bed request placed and a bed requested to the SICU attending.
    ii) Patients who are ICU status should NOT go to radiology to get plain films.
27) 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.
28) Team Leader confirms need for tetanus and antibiotics
29) If patient is to have a CT scan:
    i) Team Leader confirms adequate medications available.
    ii) Team accompanies patient to CT. (Resident and ED Nurse to remain with patient while in CT scanner)
    iii) Team leader stays with patient until CT rules out need for emergent operative or other interventions
    iv) 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.
30) If patient is hemodynamically stable and does not meet criteria for ICU admission, plain film x-rays may be obtained in the x-ray suite with accompanying nurse.
31) 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 discharge note completed. 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 should have clinic follow-ups as necessary.

Trauma Labs:

PEDS PI Labs: ATL, Amylase, AST, BMP, VBG w/ Lactate, CBC, Lipase, PT/INR, PTT, HCG, T&S, UDS, urinalysis, TEG (optional)

PEDS PII Labs: same as Peds PI labs minus PT/INR, PTT, and TEG

Trauma workup considerations for P3 activations and trauma consults:

1) Follow ATLS protocol
2) CNS evaluation
    a. Consider CT brain and CT C-spine per pediatric guidelines.
3) Torso and abdominal evaluation
    a. Minimum: CXR and FAST
    b. If suspected trauma, consider CT chest, abdomen, pelvis per pediatric guidelines
4) Extremity evaluation
    a. Appropriate plain film imaging

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