Pediatric Emergency Medicine Simulation Curriculum:
Blunt Abdominal Trauma Scenario

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1. Author Contact Information

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2. Description of Scenario

Scenario Overview
This scenario teaches learners to recognize and manage pediatric blunt abdominal trauma.

The scenario is simulation-based, designed for manikin-based simulation equipment with an integrated team communication focus.

Learners will participate in a simulation scenario and be asked to identify the signs and symptoms of blunt abdominal trauma and its management (See Appendix A).

At the end of training, the learners should be able to recognize the severity of the patient’s illness and manage a full resuscitation team. The primary complication for the team to recognize and manage is hemorrhagic shock.

Educational Rationale on How the Scenario Generalizes to Real-Life Circumstances
Injury in general, is the leading cause of death for children in the United States and most developed countries. Blunt abdominal trauma occurs in 10-15% of injured children, with two typical patterns: isolated injury (e.g. to the spleen, liver, or pancreas) caused by a direct blow or as a part of a high-mechanism, multi-system trauma.

Rapid identification of blunt abdominal trauma and its potential sequelae (hemorrhagic shock, bowel injury) is critical. Management should include monitoring (heart rate, respiratory rate, blood pressure, temperature, pulse oximetry, end tidal carbon dioxide if available), supplemental 100% oxygen, recruitment of additional resources (e.g. surgery, anesthesia, radiology, intensive care, transport services as institutionally available), airway protection (cervical spine stabilization, securement), intravascular volume replacement (normal saline or lactated ringers, followed by packed red blood cells, then additional fluids/blood products as needed). Rapid sequence intubation should be considered for unstable patients. Definitive care may only be available at trauma centers; thus, prompt transfer to a pediatric trauma facility may be critical.

The goal of this scenario is to provide the learner with an opportunity to manage pediatric blunt abdominal trauma with hemorrhagic shock, where the correct steps need to be taken in a limited period of time.

Key elements include the primary survey, eliciting critical history (fall from >3 feet for child <2 years), recognizing blunt abdominal trauma (abrasions, bruising, abdominal tenderness, guarding, distension, hypotension, altered mental status, delayed capillary refill), managing blunt abdominal trauma (cervical spine stabilization, intravascular volume replacement, evaluation for trauma (radiologic and laboratory as available)], rapid sequence intubation, and coordination of definitive treatment.

Duration of Training Session: 1 hour

Frequency of Scenario: Goal is to have each learner experience this scenario approximately once/year. We have a non-mandatory curriculum that offers a different scenario every 2 weeks. This particular scenario is offered approximately 4 times a year to try to ensure that all our learners are exposed at least once.
2. Description of Scenario

**Number of Trainees per Session:** 5 to 10. This scenario is most realistic and achieves maximal learning, if all participants are functioning in their “normal” roles, with the same number of participants as would typically be expected. For example, nurses perform nursing roles and physicians perform physician roles. If a more experienced physician would normally function as the team leader, s/he plays that role in the simulation. If a response team at your institution normally consists of ~ 7 respondents, then that should be the target number of trainees. If necessary, trainees or confederates can “act” to cover any unfilled roles or those roles can be left unfilled. The instructor should be aware that realism will be compromised and learning objectives may be harder to achieve if these compromises are made.
3. Target Trainees

<table>
<thead>
<tr>
<th>Primary:</th>
<th>Pediatric and emergency medicine residents, fellows, faculty and nurses</th>
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<tbody>
<tr>
<td>Secondary:</td>
<td>N/A</td>
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</tbody>
</table>
4. Prerequisite Knowledge and Skills

**Required background knowledge:**
- Signs and symptoms of blunt abdominal trauma
- Management of trauma and blunt abdominal trauma
- Rapid sequence intubation medications and equipment
- TeamSTEPPS communication terminology (See Appendix B)
- Best practice would include certification/experience in Advanced Trauma Life Support (ATLS) offered by the American College of Surgeons or the Trauma Nursing Core Course (TNCC) offered by the Emergency Nurses Association

**Required background skills expected in trainees prior to receiving training in the target scenario:**
- Primary and Secondary Assessment of trauma patient
- Cervical spine stabilization
- Endotracheal intubation
- Best practice would include certification/experience in Advanced Trauma Life Support (ATLS) offered by the American College of Surgeons or the Trauma Nursing Core Course (TNCC) offered by the Emergency Nurses Association
5. Goals and Objectives

Goal 1: Identify blunt abdominal trauma
The learner will identify blunt abdominal trauma. (ACGME Competencies: Medical Knowledge, Patient Care, Interpersonal and Communication Skills, Professionalism, Systems-based Practice)

Objective 1a – Demonstrate initial patient assessment [A, B, C, D]
The learner will be expected to discuss what s/he would look for in an initial physical examination (primary survey e.g. airway, breathing, circulation, disability, exposure) and history (SAMPLE- Signs and symptoms, Allergies, Medications, Past medical history, Last meal, and Events) of any pediatric patient s/he is evaluating.

Objective 1b– Apply appropriate monitoring [A, B, C]
The learner should apply basic monitoring standards for a trauma patient (cardiorespiratory monitors, pulse oximetry, blood pressure, temperature, end tidal carbon dioxide monitoring if available). S/he should obtain a patient weight or accurate estimate (e.g. Broselow-Luten Tape).

Objective 1c - Identification of blunt abdominal trauma [A, B, C]
The learner should identify risks/signs of blunt abdominal trauma and state in working/differential diagnosis. Historical risk: fall from greater than 3 feet (<2yrs) or greater than 5 ft (>2yrs). Potential signs of blunt abdominal trauma: abdominal abrasions, bruising, tenderness, guarding, distention.

Goal 2: Manage blunt abdominal trauma
The learner will manage blunt abdominal trauma in a safe and professional manner. (ACGME Competencies: Medical Knowledge, Patient Care, Interpersonal and Communication Skills, Professionalism, Systems-based Practice)

Objective 2a – Recruit additional resources [A, B, C]
The learner should initiate recruitment of additional resources available at their institution or needed to transport the patient to definitive care. The learner should identify this early in the scenario and begin activation of personnel (e.g. surgery, anesthesia, radiology, intensive care, transport services, etc) and supplies.

Objective 2b – Airway management [A, B, C]
The learner should maintain in-line cervical spine stabilization while securing the airway. Team should prepare to establish a secure airway, due to Glasgow Coma Scale < 9: organize personnel, medications and equipment. If intubating, consider premedications such as atropine to blunt bradycardia or pain medications. Provide a sedative and a paralytic. During the scenario, the team is unlikely to know if there is intracranial injury in addition to the blunt abdominal trauma. Best practice would be to assume there is and select rapid sequence induction medications accordingly.

Objective 2c – Intravascular volume replacement for hemorrhagic shock [A, B, C]
Volume replacement begins with either normal saline or lactated ringers (20 mL/kg, repeat if needed). After 2 boluses, blood should be given (packed red blood cells 10-15 mL/kg- O negative if cross matched blood not immediately available). Following this, additional volume replacement and blood products may be needed for ongoing hypotension and blood loss. If your institution has a blood replacement protocol (lab evaluations, blood products recommendations, resources, it can be incorporated into your scenario).
5. Goals and Objectives

Goal 3: Recognize multi-system trauma may be present
The learner will evaluate the patient for signs/symptoms of multi-system trauma. (*ACGME Competencies: Medical Knowledge*, *Patient Care*, *Interpersonal and Communication Skills*, *Professionalism*, *Systems-based Practice*)

**Objective 3a – Perform complete primary and secondary trauma survey** *[A, B, C]*
The learner should demonstrate a complete primary survey (airway, breathing, circulation, disability and exposure) and secondary survey (head to toe exam), including appropriate laboratory and x-ray evaluations (according to your institutional standards) for a patient with potential multi-system trauma.

**Objective 3b – Demonstrate management for potential multi-system trauma** *[A, B, C]*
During the scenario, the learners are unlikely to know if multi-system trauma is present, best practice would be to assume it is. The learner should maintain in-line cervical spine protection, select pre-medications for intubation as if multi-system trauma was present (consider premedication with pain medications and atropine) and recruit additional resources (radiology, laboratory, consultation or transport services needed for complete evaluation).

Goal 4: Demonstrate effective teamwork and communication skills
The learner will become more skilled in the management and leadership of emergency personnel including physicians, nurses, and ancillary personnel. (*ACGME Competencies: Medical Knowledge*, *Patient Care*, *Interpersonal and Communication Skills*, *Professionalism*, *Systems-based Practice*)

**Objective 4a – Team structure and leadership** *[C, D]*
The learner will be exposed to a full-scale manikin-based simulation, in which the learners are faced with a life threatening emergency due to blunt abdominal trauma. They will be expected to clearly identify and maintain a team leader and team member roles.

**Objective 4b – Communication skills** *[C, D]*
The learner will be required to direct available resources to manage hemorrhagic shock due to blunt abdominal trauma. The team will be expected to *brief* at the beginning of the scenario and *huddle* during the scenario. The goal of *briefing* and *huddling* is to create a shared mental model, so that the team is on the same page regarding working diagnoses, management priorities and plan of care. S/he will coordinate, direct and communicate with a resuscitation team using directed call-out and check-back.
These are general “tips”. Everything in this section is included because at one time or another, we forgot to do it. The result was a suboptimal learning experience.

A. Environmental Set Up (See Section 10)
   - Try to re-create the location, look, and feel of the participants’ work environment.
   - Place simulator in a gown, diaper, etc. in order to maximize realism.

B. Pre-Simulation Introduction
   - Share a “learning contract” with participants. An example of some elements you may include: “We believe each of you is intelligent, well-trained, and doing their best” (adapted from the Center for Medical Simulation, Cambridge, MA). “We recognize this is a fictitious environment. We ask you to stretch your imagination, go beyond your comfort zone and help promote each others’ learning”.
   - Share ground rules with participants (e.g. “Treat others with respect, maintain confidentiality”).
   - Share the agenda (e.g. “We will begin with a 15 min simulation followed by a 30 min debrief.”).
   - Orient your participants (e.g. Review capabilities of simulator being used. Review location/availability of equipment/supplies. Identify facilitator to whom requests/questions should be directed during the simulation).
   - Review safety issues (e.g. correct use of defibrillator).
   - Review principles of teamwork and communication – TeamSTEPPS (See Appendix B).

C. Scenario Notes
   - A “trigger” is a critical time or event that signifies the start or end of a Stage in the scenario. These are the critical steps that help the scenario progress. Please review these prior to conducting your session.
   - Prompts. Sometimes learners get stuck- miss a physical exam finding, critical piece of history or don’t know/fail to implement a critical action that’s needed to help the team meet a learning objective or advance to the next stage. When this happens, the facilitator, who is actively monitoring the team’s progress, may choose to ask a question, state a que or have a third party “drop a critical hint” to mobilize the team towards meeting the objectives. The instructor needs to balance “keeping the team from failing to met the learning objectives” with the team’s opportunity to work through a problem. Careful not to shift it from self-discovery to a lecture!

D. Debriefing (See Appendix C)
   - Remember: Try to have participants step away from the simulator, into a different space (e.g. chairs in a circle or separate room). This physical cue helps participants shift from “doing” - a clinical focus to “reflecting” - a learning focus.
   - Remind participants that the debriefing time is intended to focus on the group’s performance.

E. Learner considerations
   - Over time, we have discovered that each group of learners’ needs vary. Thus, we have included a range of potential objectives, which can be tailored to suit different learner groups. E.g. for our less experienced clinical providers, we focus more on the medical
6. Instructor Notes

decision making goals. For our more advanced providers, we focus more on the team work and communication goals.

- If you are instructing more experienced learners, consider “titrating” the learning objectives. E.g. for learners that have limited medical knowledge, ordering the second fluid volume bolus will be all that we require to move them from Stage 2 to Stage 3 or 4. For experienced providers, they need to administer at least 2 fluid boluses, order the packed red blood cells and be preparing for endotracheal intubation, before we will advance from Stage 2 to Stage 3.

- If you are instructing more experienced learners, consider “titrating” the scenario’s signal to noise ratio. E.g. for resident learner groups, we will run the scenario as written. For those with more experience, we might add more “noise”. This could be an actor playing the role of a parent who gives insufficient history, is crying or questioning the team (providing a distraction).

- Participants. The most realistic and richest learning experiences occur when all the participants are performing their “normal” roles. E.g. physician functions as physician, nurse as a nurse, respiratory therapist as a respiratory therapist. If your learner group does not contain the full spectrum of “normal team members”, you may have to either ask some participants to function in different roles or provide “actors” to fill the necessary roles. Recognize that realism is going to be lost and learning opportunities missed. E.g. If the group is all physicians, none of your learners may have drug measuring/admistration experience. As an instructor, you will need to make decisions on how much you want them to do to “get credit” and be able to advance to the next Stage in the scenario. Is it enough to be able to order the drug? Do they need to find the vial? Draw it up? Administer it to the simulator? Your answer should be driven on helping your learners to achieve the learning objectives.

- This scenario is part of the Pediatric Emergency Medicine Simulation Curriculum. The curriculum includes didactic sessions, skills sessions, and patient based education on topics ranging from septic shock to resuscitation skills to communication and teamwork. In addition, it includes several simulation scenario modules, presented on a rotating basis. We are in the process of submitting all of the scenario modules to MedEdPORTAL.

- Impact of the curriculum. We have studied our Pediatric Emergency Medicine Simulation Curriculum as a whole and are in the process of submitting our results for publication. We have observed that over the course of a year, our learners’ performance (in medical decision making, technical skills and teamwork) improves. There is a dose response (greater exposure, better performance).
7. Common Errors and Prevention Strategies

Common Errors and Prevention Strategies:

A. Failure to recognize blunt abdominal trauma.
   Strategy: Review risks/signs of blunt abdominal trauma: isolated blow to the abdomen vs. multi-system trauma, abdominal injuries- abrasions, bruising, tenderness, guarding, and distention.

B. Failure to manage blunt abdominal trauma.

C. Failure to rapidly recruit additional resources.
   Strategy: Review goal of rapidly determining needs (e.g. surgical intervention/trauma center). Discuss steps necessary to achieve this at your institution (e.g. consultation- surgery, anesthesia, radiologic imaging- X-rays, CT, FAST exam, intensive care, and transport services, etc).

D. Failure to select neuroprotective medications for rapid sequence intubation in trauma patient, who could also have an intracranial injury.
   Strategy: Review medication choices (lidocaine to blunt increased intracranial pressure spike, atropine to blunt reflexive bradycardia, sedative to decrease increased intracranial pressure associated with pain of intubation, paralytic to prevent increased pressure from movement).

E. Inefficient teamwork
   Strategy: Review need to brief (discuss team roles) prior to a critical situation and huddle (ad-hoc planning to re-establish situation awareness) during a crisis.

F. Inefficient communication: lack of call-out
   Strategy: Review importance of directed communication:
   “Survey physician- What’s the circulatory status?”

G. Inefficient communication: lack of check-back
   Strategy: Review use of closed-loop communication:
   Team Leader: “Packed red blood cells, 10mL/kg, total of 120mL”.
   Medication Preparation Nurse: “Packed red blood cells 120 mL”.
   Team Leader: “Correct.”

H. Inefficient communication: lack of shared mental model
   Strategy: Review use/request for team summaries with the establishment of a working diagnosis, rhythm change, clinical change, or lack of response to intervention
   Medication Administration Nurse: “Team leader, can you summarize?”
7. Common Errors and Prevention Strategies

General Strategies to Solve the Problems:

- Increase knowledge base: assigned reading, lectures, teamwork and communication training
- Debriefing focused to re-evaluate critical thinking and structure planning of actions
- Teaching points based on errors
- Regular simulation training to avoid previous mistakes
- Behavior change comes slowly, over time. We believe it is critical to create opportunities for your learners to develop their skills over time.
8. Cognitive Training

Key methods for delivering cognitive training include the following:

- Blunt Abdominal Trauma Learner Handout (See Appendix D).
- We recommend sharing these with your learners sometime BEFORE your simulation, if you want them to have the information ready to apply, AVAILABLE DURING your simulation if you want them to have a “reference” to turn to, or AFTER your simulation, if you want them to be able to compare their actions to a reference. When you share it with them should match your educational goals and philosophy: formative, summative, etc.
Skills Training Scenario:

Patient
Age: 18 Months  |  Weight: 12 kg  |  Gender: Male

Scenario: Parents arrive with a child who fell off a deck. The patient is initially in compensated shock with tachycardia and then develops uncompensated shock with hypotension and altered mental status. Anticipated interventions include C-spine stabilization, primary assessment, secondary assessment, oxygen, IV and/or IO placement and intravascular volume resuscitation. The patient stabilizes after volume resuscitation.

Learning Objectives:

1. Identify blunt abdominal trauma
   a. Demonstrate initial patient assessment
      i. SAMPLE history, primary and secondary survey
   b. Apply appropriate monitoring
      i. Cardiac & respiratory, oximetry, blood pressure, temperature
   c. Identification of blunt abdominal trauma
      i. History of fall from >3 feet (<2 yrs old) or >5 feet (>2 yrs old)
      ii. Signs of abdominal injury: abdominal contusions, distension, tenderness, guarding
      iii. Additional signs of trauma: forehead and upper extremity abrasions.
      iv. Hemorrhagic shock: hypotension, altered mental status
   v. Imaging: consider imaging modalities available at your institution- xray, ultrasound, computed tomography
2. Manage blunt abdominal trauma
   a. Recruit additional resources
      i. Surgery, anesthesia, radiology, intensive care, blood bank etc.
   b. Airway management
      i. Provide cervical spine protection
      ii. Prepare for rapid sequence intubation (personnel, medications, equipment)
3. Intravascular volume replacement for hemorrhagic shock
   a. Perform complete primary and secondary survey
   b. Evaluate/ manage for potential multi-system trauma
      i. Premedication consideration, laboratory and xray evaluation, consider ultrasound/CT studies, specialty consultations, transportation needs
4. Teamwork skills
   a. Team structure and leadership
      i. Determine and indicate team leader and member roles
   b. Communication skills
      i. Brief prior to starting the scenario
      ii. Huddle as needed during the scenario
      iii. Utilize directed communication
      iv. Utilize check-back for closed loop communication
9. Skill Training

Scenario Intro:

ED: The patient is an 18 month-old boy who fell off his deck.

Facilitator Notes:
Give team intro outside the simulation area.
Patient is initially clothed, not on monitors.

SAMPLE History: (If asked)
Signs/symptoms: fussy, multiple abrasions
Allergies: none
Medications: none
Past medical history: no hospitalizations, no surgeries, immunizations up to date
Last oral intake: 2 hours prior to fall
Events prior: he fell through a separation in the back porch railing, about 10 feet onto rocky landscaping below, no vomiting

Prelude. 0-5 minutes
Give team the scenario intro outside the simulation area. You may answer any questions (if asked) which include the SAMPLE medical history. Give them up to three minutes to plan: decide on roles, priorities, organizational elements before entering the simulation area.

Stage 1. Initial assessment: 5-10 minutes

| Heart Rate | 162 |
| Oxygen saturation | 98% RA |
| Blood Pressure | 85/46 |
| Respiratory Rate | 32 |
| Temperature | 37.5 |

Technologist Information
Fussy. Cries with touching and IV attempt (painful stimuli).
Clear breath sounds, shallow.

After 5 minutes in this Stage ➔ Go to Stage 2

Teaching Objectives
Primary Assessment
- ABCDE
- Stabilize cervical spine

Apply monitors
Identify probable blunt abdominal trauma
- Identify facial, upper extremity abrasions
- Identify right upper quadrant abdominal bruise, tenderness, abdominal distension and guarding

Instructor Information
Exam (If asked):
- Eyes open. Fussy. Cries and withdraws to touch + painful stimuli (GCS = 13)
- Pupils 4 mm, equal, reactive
- Superficial abrasions-forehead, upper extremities
- No bony deformities
- Abdominal exam: right upper quadrant bruise, tenderness, guarding, mild distension
- Normal back, rectal, penis
- Capillary refill 3-4 seconds
9. Skill Training

### Stage 2. Hemorrhagic shock: 10-24 minutes. 14 minutes maximum in this Stage.

<table>
<thead>
<tr>
<th>Heart Rate</th>
<th>182</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen saturation</td>
<td>94% if on room air, 98% if on oxygen</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>60/28</td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>32</td>
</tr>
<tr>
<td>Temperature</td>
<td>37.5</td>
</tr>
</tbody>
</table>

Manage probable blunt abdominal trauma
- Obtain IV/IO access
- Apply supplemental oxygen
- Activate trauma team/consultants, if available

**Responses:**
- IV access obtained
- SAMPLE history as above
- Lab requests “pending”

After 5 min in Stage 1 → Go to Stage 2

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<table>
<thead>
<tr>
<th>Patient stops crying. Sinus tachycardia.</th>
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<tbody>
<tr>
<td>If give bolus #1 → No change</td>
</tr>
<tr>
<td>If give bolus #2 → Heart rate 170,</td>
</tr>
<tr>
<td>blood pressure 68/36</td>
</tr>
<tr>
<td>If give blood or bolus #3 or 14</td>
</tr>
<tr>
<td>minutes in this Stage → go to</td>
</tr>
<tr>
<td>Optional Stage 3 or Stage 4 for</td>
</tr>
<tr>
<td>Resolution</td>
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</tbody>
</table>

| Identify Hemorrhagic Shock               |
| Hypertension, tachycardia,              |
| poor end organ perfusion:               |
| prolonged capillary refill,             |
| altered mental status                   |
| Treat hemorrhagic shock                  |
| Bolus fluid (normal saline or lactated ringer) |
|   o 20 mL/kg, repeat for ongoing hypotension |
| Blood- Packed Red Blood Cells (O negative if cross matched not immediately available) |
|   o 10-15 mL/kg                          |
| Consider additional blood products      |
| Perform trauma imaging                   |
| Xray studies of lateral cervical spine, chest and pelvis |
| Consider FAST exam, if                   |

**Exam (If asked):**
Glasgow Coma Scale 8 (eye open to pain, moans to pain, withdraws to pain)
- If team fails to identify clinical change after 1 min in this Stage, announce that patient is unresponsive.
  - Capillary refill 4-5 seconds

**Responses:**
Any requested additional personnel “on their way”.

If trauma radiographs obtained: see Appendix

If FAST exam obtained: sign of hemorrhage in the hepatorenal fossa. No sign of hemorrhage anywhere else
### 9. Skill Training

<table>
<thead>
<tr>
<th>Optional Stage 3. Intubation: 6 minutes, maximum</th>
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<tbody>
<tr>
<td>Heart Rate</td>
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<tr>
<td>Oxygen saturation</td>
</tr>
<tr>
<td>Blood Pressure</td>
</tr>
<tr>
<td>Respiratory Rate</td>
</tr>
<tr>
<td>Temperature</td>
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<table>
<thead>
<tr>
<th>Teaching Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish secure airway while maintaining cervical spine precautions</td>
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<tr>
<td>Maintain cervical spine precautions (collar or in-line stabilization)</td>
</tr>
<tr>
<td>Rapid sequence intubation</td>
</tr>
<tr>
<td>Lidocaine 1mg/kg IV/IO to protect against additional increased intracranial pressure</td>
</tr>
<tr>
<td>Atropine 0.02 mg/kg IV/IO to protect against additional bradycardia</td>
</tr>
<tr>
<td>Sedative (choose 1)</td>
</tr>
<tr>
<td>Etomidate 0.3 mg/kg IV/IO or</td>
</tr>
<tr>
<td>Midazolam 0.1 mg/kg IV/IO</td>
</tr>
<tr>
<td>Paralytic</td>
</tr>
<tr>
<td>Rocuronium 1 mg/kg IV/IO Or</td>
</tr>
<tr>
<td>Succinylcholine 1-2 mg/kg IV/IO</td>
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<table>
<thead>
<tr>
<th>Instructor Information</th>
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<tbody>
<tr>
<td>Exam (if asked): Glasgow Coma Scale 8 (eye open to pain, moans to pain, withdraws to pain)</td>
</tr>
<tr>
<td>Responses:</td>
</tr>
<tr>
<td>After intubation or 6 minutes in Stage 3 → Go to Stage 4</td>
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<table>
<thead>
<tr>
<th>Optional Stage 3. Intubation: 6 minutes, maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>If consider CT, identify that hemodynamic instability is a contraindication</td>
</tr>
<tr>
<td>Recruit additional resources</td>
</tr>
<tr>
<td>Surgery, anesthesia, radiology, intensive care, transport services, as institutionally appropriate</td>
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</tbody>
</table>

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<tr>
<th>Instructor Information</th>
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<tbody>
<tr>
<td>If CT exam obtained: hepatic hemorrhage. No additional sign of injury or bleeding.</td>
</tr>
<tr>
<td>After bolus #3 / blood or 14 min max in this Stage → Go to Optional Stage 3 or Stage 4</td>
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</tbody>
</table>

### Technologist Information

<table>
<thead>
<tr>
<th>Vital signs normalizing</th>
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<tbody>
<tr>
<td>After intubation or 6 minutes, maximum in this scenario → Go to Stage 4.</td>
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</table>
9. Skill Training

Stage 4. Resolution: 5 minutes, maximum

<table>
<thead>
<tr>
<th>Heart Rate</th>
<th>148</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen saturation</td>
<td>94% if on room air, 98% if on oxygen</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>76/50</td>
</tr>
<tr>
<td>Respiratory Rate</td>
<td>28, or rate of bagging if paralyzed</td>
</tr>
<tr>
<td>Temperature</td>
<td>37.5</td>
</tr>
</tbody>
</table>

Technologist Information

Vital signs normalizing
After 5 min → end scenario

Teaching Objectives

Secondary survey
- Head to toe assessment if not already done
- Coordinate additional radiologic studies, laboratory studies, disposition, definitive treatment
- Focused Assessment with Sonography for Trauma (FAST) exam if not already complete and institutionally available
- Consider CT scan since patient is stabilizing, if available and does not delay definitive treatment/transfer
- Laboratory studies should include CBC, liver function tests, pancreatic enzymes, chemistries, urinalysis
- Arrange definitive care by a trauma team: either within institution, if available or timely transfer to trauma center

Instructor Information

Exam (If asked):
If intubated:
- Sedated, paralyzed
If not sedated and paralyzed:
- Glasgow Coma Scale 11 (eye open to voice, cries with pain, withdraw to touch)
- Pupils 4 mm, reactive bilaterally.

Responses:
- After 5 min → end scenario
Debriefing the Team:
Below are examples of learning objective based statements & questions you may use to debrief the team. Please see Appendix C- Debriefing Overview for general recommendations on overall debriefing format.

### Examples of debriefing for different learning objectives

#### Recognizing blunt abdominal trauma

<table>
<thead>
<tr>
<th>Debriefe Script</th>
<th>Reference Material</th>
<th>Instructor Notes</th>
</tr>
</thead>
</table>
| I noticed you *(were quick/took a while)* to identify the risk for blunt abdominal trauma. This was *(great/could lead to delays)* since delays in recognition can result in clinical deterioration.  
  - What risks/signs of blunt abdominal trauma did you notice?  
  - What helped/hindered you? | Risks/signs of blunt abdominal trauma  
  - Potential high mechanism injury: fall from >3 feet (<2 yrs old) or >5 feet (≥2 yrs old)  
  - Abdominal trauma: abrasions, bruising, tenderness, guarding, distention |                                                                                  |

#### Managing blunt abdominal trauma

<table>
<thead>
<tr>
<th>Debriefe Script</th>
<th>Reference Material</th>
<th>Instructor Notes</th>
</tr>
</thead>
</table>
| I noticed you *(were quick/ could have been quicker)* to treat the hypotension.  
  - How did your team decide on the management priorities?  
  - What helped/hindered you? | Managing blunt abdominal trauma  
  a. Recruit additional resources  
  b. Airway management (cervical spine stabilization, secure airway  
  c. Fluid replacement  
  o Normal saline or lactated ringers 20mL/kg, twice  
  o Packed red blood cells 10-15 mL/kg  
  o Additional volume/blood products as needed  
  d. Complete trauma evaluation  
  o Secondary survey  
  o Imaging (FAST exam, X-ray, CT, ultrasound, etc. depending on institution)  
  o Laboratory evaluation |                                                                                  |
I noticed that you (were complete/could have included) neuroprotective medications for rapid sequence intubation. Your choices (were great/could be more protective) against intracranial pressure spikes - since at this point it was unknown if your patient also had an intracranial injury.

- How did you select your intubation medications?
- What helped/hindered you?

Review neuroprotective rapid sequence intubation medications

e. Premedication
   - Lidocaine 1mg/kg IV/IO to decrease additional increased intracranial pressure
   - Atropine 0.02 mg/kg IV/IO to decrease additional bradycardia

f. Sedative (choose 1)
   - Etomidate 0.3 mg/kg IV/IO or
   - Midazolam (0.1 mg/kg IV/IO)

g. Paralytic (choose 1)
   - Rocuronium 1 mg/kg IV/IO
   - Succinylcholine 1-2 mg/kg IV/IO
### 9. Skill Training

#### Examples for debriefing different Teamwork Learning Objectives

<table>
<thead>
<tr>
<th>Roles and Responsibilities</th>
<th>Debrief Script</th>
<th>Reference Material</th>
<th>Instructor Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Let’s talk about how you functioned as a team.</td>
<td>Team leader</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It looked like you <em>(did/did not)</em> have a clear team leader and defined team roles. I think this is <em>great/concerning</em> because clear team roles can help a team function smoothly—improving how quickly interventions take place and reducing errors.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o What did you think about your roles?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o What worked well?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>o What could have been better?</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Team leader
  - Clear direction, coordination, timely interventions
  - Foot of patient

- Airway/Procedure MD
  - Manage airway/c-spine
  - Head of patient

- Survey MD
  - Primary, Secondary survey, pulses with CPR, reassess

- Nursing roles
  - Medication Prep (draw-up meds)
  - Medication Admin (give meds)
  - Documenting (time keeper)

### Brief and Huddle

<table>
<thead>
<tr>
<th>Debrief Script</th>
<th>Reference Material</th>
<th>Instructor Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I noticed that your team <em>(did/didn’t/took a while to)</em> brief *(prior to the patient’s arrival/huddle after the initial evaluation. I thought this was <em>great/could have helped you work better as a team.)</em></td>
<td>The goal of a brief/huddle is to create a shared mental model. Assure all team members know what the working diagnosis is, management priorities and next steps in care.</td>
<td></td>
</tr>
<tr>
<td>What <em>(helped/hindered)</em> your team from <em>(briefing/huddling)?</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How did that impact your team?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>What could your team have done differently?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How can you make sure that <em>(does/doesn’t)</em> happen again?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Everyone on the team is responsible for making this happen. Anyone can ask for a brief/huddle. Brief/huddle is usually led by team leader.
- If one team member doesn’t know what’s up or what’s next- s/he is probably not alone.
## 9. Skill Training

### Directed call out

<table>
<thead>
<tr>
<th>Debrief Script</th>
<th>Reference Material</th>
<th>Instructor Notes</th>
</tr>
</thead>
</table>
| I noticed that you **(did/didn’t/intermittently)** used **(peoples names/roles/eye contact)** when **(calling out orders/asking for assistance)**. I thought this was **(great/could have been more directed)**.  
- What did you notice about orders/questions that were asked?  
- How did this impact your team? | Directed call out. A tactical communication skill to assure that important orders/questions are specifically directed to one individual (rather than called out into the air).  
- Example:  
  - “Jennifer - What’s the circulatory status?”  
  - “Kim - Give normal saline 240 mL”  
  - “Team leader - he stopped responding to pain” | |

### Closed loop communication/Check back

<table>
<thead>
<tr>
<th>Debrief Script</th>
<th>Reference Material</th>
<th>Instructor Notes</th>
</tr>
</thead>
</table>
| I noticed that you used closed-loop communication **(consistently/a lot/rarely)**. Closed-loop communication can be critical for catching errors and assuring that **(information/an order/a request)** is heard.  
- What did you think about your communication loops?  
- How did that impact your team?  
- Has anyone seen problems with this in a patient resuscitation?  
- Has anyone seen closed loop communication prevent an error?  
- How could you do it differently next time? | Closed loop communication/check back is a strategy that requires verification of information. This enables the sender of the message to verify it has been heard and heard correctly. It enables the receiver to confirm what they heard is correct.  
- Team leader “packed red blood cells 120 mL”  
- Medication preparation nurse “packed red blood cells 120 mL”  
- Team leader “correct” | |
## 10. Equipment Set-up

### Simulation Environment preparation

Before each simulation, ensure the anticipated resuscitation equipment is available for the team’s use.

### Resources

- PALS reference cards, material
- Patient Weight Estimator
- Pediatric Resuscitation Medication references (e.g.: Broselow tape, reference cards)
- Documentation forms

### Universal Precautions

- Staff gowns
- Gloves
- Mask and face shields

### Medications (consider having all or only a limited number of medications available)

- Adenosine
- Amiodarone
- Atropine
- Etomidate
- Fentanyl
- Ketamine
- Lidocaine
- Midazolam
- Normal Saline/Lactated Ringers
- Packed red blood cells
- Rocuronium
- Succinylcholine
- Epinephrine 1:10,000
- Epinephrine 1:1,000

### Equipment

- Simulator in hospital gown, on bed
- Monitor – NIBP, HR, RR, Oxygen saturation, temperature
- Blood Pressure cuff, Heart Rate monitor leads, Oxygen saturation probe, defibrillator cables
- Oxygen hook-up on wall or cylinder
- Bag-mask system, multiple size masks
- O₂ Mask, simple and/or non-rebreather
- Suction
- Thermometer
- Temperature probe
- Nasal, oral airways, multiple sizes
- Shoulder roll
- Endotracheal tubes- 3.0, 3.5, 4.0, 4.5, 5.0, cuffed, stylets
10. Equipment Set-up

**Equipment Cont’d**

- Laryngoscope, Miller and Mac blades, multiple sizes
- End-tidal CO2 colorimeter
- Nasogastric tube(s), various sizes
- Stethoscopes
- IV/Angiocaths, various sizes
- IO needles, 2 sizes
- Gauze, Tape
- IV tubing/blood product tubing and filters
- IV pumps, pressure bags/ blood product pumps
- Syringes, multiple sizes
- Bedside blood sample processors: glucose, electrolytes, gases
- Specimen tubes
- Crash cart & backboard
- Defibrillator / AED
- Cervical spine collars (1-3 different sizes)
## 11. Assessment Methods

Type(s) of Assessment Methods Used in This Scenario:

- [x] Pre-test Only
- [ ] Pre-test & Post-test
- [ ] Post-test Only

- [x] Medical Management Evaluation/Debriefing Form *(Appendix E)*
- [x] Teamwork and Communication Evaluation/Debriefing Form *(Appendix F)*
- [x] Simulation Session Evaluation *(Appendix G)*
# 12. Appendices

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<th>Description</th>
</tr>
</thead>
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<td>Pediatric Blunt Abdominal Trauma Scenario Algorithm</td>
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<td>Pediatric Blunt Abdominal Trauma Medical Management Evaluation/Debriefing Form</td>
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<td>Appendix G</td>
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<tr>
<td>Appendix H</td>
<td>Pediatric Blunt Abdominal Trauma Simulation Session Evaluation Form</td>
</tr>
<tr>
<td>Appendix I</td>
<td>References</td>
</tr>
</tbody>
</table>
Appendix A: Scenario Algorithm

SCENARIO TIMELINE

Prelude
Start Time: 0-5 min.
Scenario intro and team brief

Stage 1: Initial Assessment
5-10 min.
Triggers: Start 5 min into scenario
End: 10 min into scenario

Stage 2: Hemorrhagic Shock
10-24 min (14 min maximum)
Triggers: Start 10 min into scenario
End: If given blood or bolus 2 or 3 or 4 minutes in this Stage go to Optional Stage 3 or Stage 4 for Resolution

OPTIONAL Stage 3: Intubation
6 min maximum
Triggers: Start 24 min into scenario
End: After intubation or 6 minutes, maximum in this stage go to Stage 4.

Stage 4: Resolution
5 min maximum.
Triggers: Start after Stage 2 or Optional Stage 3
End: 5 min into Stage 4

VITAL SIGNS

- Rhythm: sinus
- HR: 162 bpm
- BP: 86/45
- SAT: 98%
- RR: 32/min
- Temp: 37.5°C

- Rhythm: sinus
- HR: 162 bpm
- BP: 60/28
- SAT: 94% if on room air (98% if on oxygen)
- RR: 32
- Temp: 37.5°C

- Rhythm: sinus
- HR: 162 bpm
- BP: 76/50
- SAT: 94% if on room air (98% if on oxygen)
- RR: 28
- Temp: 37.5°C

- Rhythm: sinus
- HR: 148 bpm
- BP: 76/50
- SAT: 94% if on room air (98% if on oxygen)
- RR: 28 or rate of bagging
- Temp: 37.5°C

FACILITATOR INFORMATION

- Allow team to enter outside of the simulation room
- Pt. fussy: Cries with touching and M attempt
- CR 3-4 sec
- If requested, additional exam info available
- Glasgow Coma Scale 8
- CR 4-5 sec
- If clinical change unnoticed, announce pt. is unresponsive
- Glasgow Coma Scale 8
- If intubated: sedated, paralyzed
- If not intubated, paralyzed
- Glasgow Coma Scale 11
- Pupils 4mm, reactive bilaterally

Blunt Abdominal Trauma
### Appendix B: TeamSTEPPS References

#### Teamwork and Communication (TeamSTEPPS) Glossary

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptability</td>
<td>The ability to adjust strategies and altering a course of action in response to changing conditions (internal and external).</td>
</tr>
<tr>
<td>Brief</td>
<td>Discussion prior to start that assigns essential roles, establishes expectation, anticipated outcomes and likely contingencies.</td>
</tr>
<tr>
<td>Call-Out</td>
<td>A tactic used to communicate critical information during an emergent event. Helps the team prepare for vital next steps in patient care. <em>(Example: “Airway status?” – “Airway clear”; “Breath sounds?” – “Breath sounds decreased on right”)</em></td>
</tr>
<tr>
<td>Check-Back</td>
<td>A communication strategy that requires a verification of information. The sender initiates the message; the receiver accepts it and restates the message. In return, the sender verifies that the re-statement of the original message is correct or amends if not. <em>(Example: “Give Benadryl 25 mg IV push” – “Benadryl 25 mg IV push” – “That’s correct”)</em></td>
</tr>
<tr>
<td>CUS</td>
<td>Signal phrases that denote “I am Concerned, I am Uncomfortable, This is a Safety Issue.” When spoken, all team members will understand clearly not only the issue but the magnitude of the issue.</td>
</tr>
<tr>
<td>Debrief</td>
<td>Brief, informal information exchange session designed to improve team performance and effectiveness.</td>
</tr>
<tr>
<td>DESC Script</td>
<td>A technique for managing and resolving conflict. Describe the specific situation or behavior; provide concrete data. Express how the situation makes you feel/what your concerns are. Suggest other alternatives and seek agreement. Consequences should be stated in terms of impact on established team goals; strive for consensus.</td>
</tr>
<tr>
<td>Huddle</td>
<td>Ad hoc planning to re-establish Situation Awareness; designed to reinforce plans already in place and assess the need to adjust the plan.</td>
</tr>
<tr>
<td>SBAR</td>
<td>A framework for team members to structure information when communicating to one another. S = Situation (What is going on with the patient?) B = Background (What is the clinical background or context?) A = Assessment (What do I think the problem is?) R = Recommendation (What would I do to correct it?)</td>
</tr>
<tr>
<td>Shared Mental Model</td>
<td>An organizing knowledge structure of relevant facts and relationships about a task or situation that are commonly held by team members</td>
</tr>
<tr>
<td>Situation Awareness</td>
<td>The ability to identify, process, and comprehend the critical elements of information about what is happening to the team with regards to the mission. It’s knowing “What is going on around you” &amp; “What is likely to happen next”.</td>
</tr>
<tr>
<td>Situation Monitoring</td>
<td>The process of actively scanning and assessing elements of the situation to gain information or maintain an accurate awareness or understanding of the situation in which the team functions.</td>
</tr>
<tr>
<td>Two-Challenge Rule</td>
<td>Assertively voicing concern at least two times to ensure it has been heard.</td>
</tr>
</tbody>
</table>
Appendix C: Debriefing Overview

Simulation creates the opportunity to debrief.
We believe that the focus of each simulation should be the DEBRIEF.
Simulation creates the opportunity to examine our medical management, technical skills, and teamwork and communication skills. It facilitates discussion about challenges in a safe environment in order to improve the quality of patient care.

Framework for debriefing:
Each debrief should consist of 4 components:
- Introduction
- Discussion of emotions
- Discussion of medical management and technical skills
- Discussion of teamwork and communication skills

1) Introduction
This “sets the stage” for debriefing and creates expectations.
What you might say:
- This is an opportunity to reflect and learn, improve our medical care, teamwork, and communication.
- Everyone should be able to ask questions and share their thoughts.
- Once you leave this session, we encourage open discussion of the concepts, but ask you to not to discuss individual performance.

2) Emotional experience discussion
There are a couple of camps regarding discussing emotions. One perspective is that until emotions are dealt with, it’s difficult for adult learners to “move on”: switching gears to process thoughts, actions and opportunities for improvement. Another perspective is that adult learners should process their emotions independently.

Our perspective is the first. If a group or team member is emotionally charged (sad, mad or frustrated) regarding something that did or didn’t happen in a scenario, it’s usually difficult for the individual or the group to be actively engaged, receptive to feedback and able to promote learning, until the emotions are addressed.

An example: a medication error occurs. One team member may think it is all his/her fault. S/he may feel embarrassed, judged, etc. If he/she can verbalize this, other team members may offer different perspectives, which enable the team to process the error together, potentially identifying contributing systems issues. If the emotions aren’t addressed- 3 separate people may feel embarrassed, responsible and not engage in a discussion, failing to identify systems issues which led to the error.

What you might say:
- How did that feel?
- Can you tell me more? Why?
Appendix C: Debriefing Overview

3) Medical management and technical skills
   This portion of the discussion focuses on the medical aspects of the scenario. It’s usually more comfortable to begin with these “facts”.

   What you might say:
   • Let’s begin by discussing medical management.
   • What did you think was wrong with the patient? Can someone briefly summarize what happened in this scenario?
   • How did you reach those conclusions?

4) Teamwork and communication (a. k. a. crew resource management, non-technical skills, human factors)
   This portion of the discussion focuses on how the team worked together. It can be emotionally charged and difficult to discuss without feeling personal. The challenge is to try to generalize specifics into themes.

   What you might say:
   • Let’s talk about how you functioned as a team.
   • What did your team do well?
   • What could your team do differently next time?
   • That is something I see often. Has anyone else experienced that? How have you seen that handled?

4) Summarizing
   • This is your opportunity to ensure the key learning points are highlighted
   • Try to identify approximately three take-home points
   • You may ask the participants’ to identify take home points or call them out yourself.

   Medical management/technical skills examples:
   (a) This was a scenario of pediatric blunt abdominal trauma.
   (b) Signs of blunt abdominal trauma: abdominal abrasions, bruising, tenderness, guarding and distension. Hemorrhagic shock was reflected in hypotension, poor capillary refill and altered mental status.
   (c) Management of blunt abdominal trauma: complete trauma evaluation, cervical spine stabilization, intravascular volume replacement with fluid and blood products, and coordination with trauma services/center.

   Teamwork/ communication examples:
   (a) Recognize need for a full resuscitation team when a patient develops blunt abdominal trauma.
   (b) Designate leadership and team member roles to ensure coordinated team functioning.
   (c) Use brief or huddle to create a shared mental model for the working diagnosis and management plan.
Appendix C: Debriefing Overview

**General Debriefing Goals:**
- Try to facilitate the TEAM’s discussion (avoid dominating the conversation)
- Ask open ended questions (avoid yes/no questions)
- Discuss the team performance (not the individual)
Instructor Guide:
Pediatric Emergency Medicine Simulation Curriculum
Blunt Abdominal Trauma Radiology

Axial image from an IV contrast enhanced CT shows an area of low density in the central liver in the area of the falciform ligament, with irregular borders (arrow). Some irregularity of the posterior right lobe is also seen.

Axial image from an IV contrast enhanced CT shows a small amount of free fluid (arrow) in the hepatorenal pouch (Morrison’s pouch). The normal adjacent right kidney and the inferior aspect of the liver are seen.

Longitudinal (sagittal) image of the right upper quadrant shows the right kidney just behind the liver. A small amount of anechoic fluid (arrow) is seen at the liver tip just anterior to the kidney in the inferior part of Morrison’s pouch. This fluid can track between the liver and kidney also (not seen in this patient).

All images: interpretations permission of Drs. Jeffery Otjen, Jennifer Reid and Kimberly Stone 2014.
Portable supine chest radiograph as part of a trauma survey shows an intubate patient with low lung volumes and some upper lobe opacity which is likely atelectasis. Heart size is normal for age and technique. No pneumothorax or large effusion. No fractures. The enteric tube is in the esophagus and the stomach is distended with air, which may be contributing to low lung volumes. If your team has not intubated the patient, direct them to ignore the presence of the endotracheal tube.

Supine frontal portable pelvis radiograph as part of trauma survey shows no fracture or dislocation. No acute abnormalities are apparent.

Lateral portable supine cervical spine radiograph as part of a trauma survey shows an intubated patient with normal spinal alignment and no fractures or gross soft tissue abnormalities. The enteric tube side port (arrow) is in the upper esophagus, so the tip (not seen) is in the mid-lower esophagus. If your team has not intubated the patient, direct them to ignore the presence of the endotracheal tube.

All images and interpretations permission of Drs. Jeffery Otjan, Jennifer Reid and Kimberly Stone 2014
Blunt Abdominal Trauma Learning Objectives

1. Recognize blunt abdominal trauma
   a. Historical risk factors for more significant injury: fall from >3 feet (<2 yrs old) or >5 feet (>2 yrs old), loss of consciousness, high mechanism injury (e.g. motor vehicle crash with death, handle bar injury to abdomen)
   b. Physical signs: abdominal abrasions, bruising, tenderness, guarding, distension, signs of multi-system trauma
   c. Hypotension
   d. Poor end organ perfusion: prolonged capillary refill, altered mental status

2. Manage blunt abdominal trauma
   a. Monitoring (heart, respirator, pulse oximetry, blood pressure, end tidal carbon dioxide if available, temperature)
   b. Recruit additional resources (e.g. surgery, anesthesia, radiology, intensive care, transport, equipment)
   c. Apply 100% oxygen
   d. Airway management. Maintain cervical spine stabilization. Prepare to secure airway (personnel, medications, equipment).
   e. Hemorrhagic shock
      • Normal saline or lactated ringers (20 mL/kg, total of 40 mL/kg)
      • Packed red blood cells (10-15 mL/kg, O negative if cross matched not immediately available)
      • Additional fluid and blood products as needed
   f. Definitive trauma evaluation/intervention
      • Acquire necessary imaging, laboratory tests, consultations to fully evaluate patient for multi-system trauma, possible need for surgical intervention and management by trauma experts/transport to trauma center

3. Rapid sequence intubation medication considerations
   a. Maintain cervical spine protection
   a. Premedication
      • Lidocaine 1mg/kg IV/IO to blunt increased intracranial pressure associated with intubation
      • Atropine 0.02 mg/kg IV/IO to blunt bradycardia associated with intubation
   b. Sedative (choose 1)
      • Etomidate 0.3 mg/kg IV/IO or
      • Midazolam 0.1 mg/kg IV/IO
   c. Paralytic (choose 1)
      • Rocuronium 1 mg/kg IV/IO or
      • Succinylcholine 1-2 mg/kg IV/IO
### Appendix F: Medical Management/Technical Skills Evaluation/Debriefing Form

**Pediatric Blunt Abdominal Trauma**
**Medical Management/Technical Skills**

This checklist identifies core medical management/technical skills. It’s hard to discuss more than 3 of these during one debriefing session. We recommend focusing on 2-3 of these issues.

#### Assessment of ABCDE’s
- [ ] Done Well
- [ ] Needs Work

Specific comments: ________________________________________________________________

---

*What did you think of the assessment of the ABCDE’s? What could you do differently?*

#### Recognizing blunt abdominal trauma
- [ ] Done Well
- [ ] Needs Work

Specific comments: ________________________________________________________________

---

*Discuss Points: What are signs of blunt abdominal trauma? abdominal abrasions, bruising, tenderness, guarding, distension*

#### Managing blunt abdominal trauma
- [ ] Done Well
- [ ] Needs Work

Specific comments: ________________________________________________________________

---

*Discuss Points: What’s the management for blunt abdominal trauma? Recruit resources, evaluate for multi-system trauma, stabilize cervical spine, secure airway with rapid sequence intubation, intravascular volume resuscitation with normal saline or lactated ringers (40 mL/kg total) then packed red blood cells (10-15 mL/kg) then additional fluid and blood products as needed*

#### Rapid sequence intubation medication selections
- [ ] Done Well
- [ ] Needs Work

Specific comments: ________________________________________________________________

---

*Discuss Points: Consider premedication with pain medications, atropine to blunt bradycardia, sedative to blunt pain, paralytic to blunt movement, maintain cervical spine immobilization*
Appendix G: Teamwork and Communication Evaluation/Debriefing Form

Pediatric Blunt Abdominal Trauma
Teamwork and Communication Evaluation

This checklist identifies core teamwork and communication skills. It’s hard to discuss more than 3 of these during one debriefing session. We recommend focusing on 2-4 of these issues.

---

**Leader/Roles Identified & Maintained**

☐ Done Well  ☐ Needs Work

Specific comments: ________________________________________________________________

________________________________________________________________________________

*Discussion Points: What helped/hindered having clear leadership and roles?*

---

**Directed Call out**

☐ Done Well  ☐ Needs Work

Specific comments: ________________________________________________________________

________________________________________________________________________________

*Discussion Points: How were orders given- “Into the air” or directed at specific individuals? How did that impact you? How could they be delivered more effectively?*

---

**Check back/Closed loop communication**

☐ Done Well  ☐ Needs Work

Specific comments: ________________________________________________________________

________________________________________________________________________________

*Discussion Points: describe closed loop communication*

---

**Shared Mental Model**

☐ Done Well  ☐ Needs Work

Specific comments: ________________________________________________________________

________________________________________________________________________________

*Discussion Points: How did team members share information/working diagnosis/management plan ((brief/huddle))*
## Simulation Session Evaluation Form

**Instructor:** __________________________  
**Date:** __________________

**Case Presented:** Pediatric Blunt Abdominal Trauma

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. This simulation case provided is relevant to my work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2. The simulation case was realistic.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3. This simulation case was effective in teaching basic resuscitation skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4. This simulation case was effective in teaching pediatric blunt abdominal trauma management skills.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5. The debrief created a safe environment.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6. The debrief promoted reflection and team discussion.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Can you list/describe 1 or more ways this simulation session will change how you do your job?

How could we improve this scenario?

Comments:


