



Patient Simulation

TRAUMA EMERGENCIES: BLUNT TRAUMA

Instructor Information

Review the scenario with the patient or set up appropriate actions using a simulation system. Instructors may use each checkbox to indicate that the learner has requested an informational item regarding a given scene or patient feature. This simulation involves an 8-year-old child who fell from his bicycle with a fracture to the right arm.

Patient Information and Dispatch

Position: Child sitting on the ground holding his right arm, crying in pain

Moulage: Multiple abrasions with minor to moderate bleeding to the face, chest, legs, and arms

Props/additional personnel: Bike, parents, and friends

Dispatch: You are responding to an 8-year-old male who fell from his bicycle and is complaining of pain. It is a summer evening, with a temperature of 78 °F (25.6 °C).

Or

Hospital hand-off: An 8-year-old male is brought into the ED by his father. The father states the patient fell from his bicycle at the base of a steep hill and is complaining of pain in his right arm. It is a summer evening, with a temperature of 78 °F (25.6 °C).

Initial Observations

SCENE ASSESSMENT

As you arrive on scene, you note the child is complaining of pain to his chest, face, and arms. He is unable to move his right arm due to pain. You notice multiple abrasions with mild to moderate bleeding to the face, legs, and arms. Friends tell you he fell off his bike hitting asphalt as he was riding down a steep hill.

Medical devices: None

WMD/odors/fumes: None

Cultural/social: Lives with parents

Communication: Able to communicate. Child is conscious, alert, and oriented.

CARDINAL PRESENTATION/CHIEF COMPLAINT: Abrasions to the chest, face, arms, and legs with mild to moderate bleeding; chest, arm, and face pain

PEDIATRIC ASSESSMENT TRIANGLE

Appearance: Alert

Work of breathing: Shallow, regular, and fast

Circulation: Skin is pink and dry.



PRIMARY SURVEY

X (eXsanguinating hemorrhage): No major bleeding noted.

A (Airway management and cervical spine stabilization): Open and patent, no secretions.

B (Breathing): Shallow, regular, and rapid with equal chest rise. Lung sounds are clear bilaterally.

C (Circulation): Strong and regular. Skin is pink and dry.

D (Disability): Alert, GCS = 15 (E4, V5, M6).

E (Expose/environment): Abrasions to the chest, face, arms, and legs with mild to moderate bleeding

FIRST IMPRESSION: Quick or Not Quick (circle or underline one)

LIFE THREATS: No

Life threats identified: None

Life threat management: N/A

Transport decision/disposition: Transport to closest appropriate facility; treat in ED.

Discussion Points

- Discuss the findings and physiologic effects of your primary assessment and how they relate to the patient's condition.
- Define treatment options for the patient presentation.
 - Focus should be on supportive care, pain management, cleansing and bandaging wounds, and immobilizing the right arm.
- Identify transportation options. Are there pediatric facilities nearby or will aeromedical resources be needed?
- Ensure that the students assessed scene hazards, including any roadway hazards.

VITAL SIGNS

HR: 111, strong and regular

SpO₂: 92% on room air. Increases to 98% with supplemental oxygen.

RR: 25, shallow and regular. Improves to 18 with appropriate treatment.

BP: 104/70

Temp: 97.6°F (36.4°C)

ETCO₂ waveform: Square, 45 mm Hg

4-lead ECG: Sinus tachycardia with no ectopy

Detailed Assessment

HISTORY

Onset: Sudden

Palliation/provocation: Increase in pain with inspiration and movement

Quality: Sharp

Radiation: No

Severity: 10/10

Time: 20 minutes

Signs and symptoms: Abrasions to the chest, face, arms, and legs with mild to moderate bleeding; chest, arm, and face pain

Allergies: None

Medications: None

Past medical history: No abnormal findings from annual checkup; current with all vaccines

Last meal: Unknown

Events preceding: Riding his bike with friends

Risk factors: Age, trauma

SECONDARY SURVEY

Head: Abrasion to the right side of his face with minimal bleeding noted

Eyes: PERRL

Ears: Unremarkable

Nose: Unremarkable

Throat: Unremarkable

Chest: Abrasions to the chest with minimal bleeding. Lung sounds are clear bilaterally. **Heart sounds:** no murmur.

Abdomen: Soft and nontender with no noted pain. Stable pelvis.

Extremities: Abrasion to both legs and arms. Pulses and motor functions intact. Unable to move right arm.

Other: Skin is pink and dry.

DIAGNOSTICS

Blood glucose: N/A

Weight: 62 lbs (28 kg)

Labs: N/A

Potential Diagnosis by Body System

Respiratory: Negative

Cardiovascular: Hypovolemia

Gastrointestinal: Negative

Renal/Urinary: Negative

Reproductive: Negative

Endocrine/Metabolic: Negative

Environmental: Negative

Musculoskeletal/Integumentary: Fracture, sprain, contusion, dislocation

Neurologic: Traumatic brain injury (TBI)

Toxicology: Negative

REFINE DIFFERENTIAL DIAGNOSIS

Life threatening: No

Critical: No

Nonemergent: Yes

ONGOING MANAGEMENT: Discuss with students.

Reassess: Discuss what reassessments will be performed and how often.

Refine diagnosis: Discuss with students.

Modify treatment: Discuss treatment options with students.

Patient disposition: Transport to the closest appropriate facility; treat in ED.

TREATMENTS/CRITICAL ACTIONS

Airway/breathing: Position of comfort, oxygen

Circulation: Cardiac monitor, IV therapy

Life threats managed: Discuss with students.

- Basic: Position of comfort, supplemental oxygen, immobilize right arm, spinal motion restriction
- Advanced: Cardiac monitor, IV therapy, pain management

Transport decision (for prehospital): Discuss options with students

- Emergent or nonemergent?
- Air or ground?

Destination: Transport to closest appropriate facility.

Teaching Points

1. Ask the students to discuss their physiologic goals for this patient and how they achieved them.
2. Ask the students to identify any "red flags" that could indicate the patient's condition is deteriorating and discuss.
3. Discuss spinal motion restriction needs in this patient.
4. Ask the students to discuss the potential risks and benefits of their treatment alternatives.
5. Recognize and discuss multiple diagnoses and note that more than one can be accurate for a given patient.
6. Disposition
 - a. Discharged from pediatric ED with referral to a pediatric orthopedic due to greenstick fracture to the right radius

Take-Home Points/Critical Actions

- Ensure adequate O₂.
- Monitor airway and breathing status.
- Immobilize the right arm.
- Provide pain management.

