There has been a mass shooting event at a high school in your city. Your pediatric emergency department (PED) is anticipating 15-20 victims from the event. Which of the following statements is/are true regarding primary triage performed at the disaster site?

A. Patients triaged category Red will predictably arrive at the PED before all other patients.
B. Category Green patients must be evaluated in a hospital following triage.
C. Transport decisions, such as which patients are transported via ambulance first, consider a patient’s triage category.
D. Primary triage is most often performed by physicians.
E. All of the above
Question 2.

What Pediatric Disaster Strategy is used in your city (or state)?

A. Smart Triage  
B. JumpSTART  
C. SALT (Sort-Assess-Life-Saving Treatment)  
D. Medics use their clinical decision-making  
E. Another algorithmic triage strategy

Goals

• Consider the need for resource allocation in disasters  
• Outline the prehospital, primary disaster triage process  
• Survey the many triage systems in use  
• Understand secondary triage, & transport choices  
• Discuss modes of disaster triage education
Rationale for Considering Triage First

- Triage introduces scope of Pediatric Disaster Medicine

- Applicable to all multiple casualty incidents
  - Impact on patient outcome
  - Variation from daily prehospital and hospital practice

- Few providers have experience

- Time for training limited

Disaster Ethics

GUIDING PRINCIPLE IN DISASTER TRIAGE:

Do the most good for the most patients.
Primary Triage Performed at Disaster Site

Patients assigned to color triage groups
- Immediate (Red)
- Delayed (Yellow)
- Ambulatory (Green)
- Deceased/Non-recoverable (Black or Blue)

• No back flow to primary triage once sorted
  - Allows orderly progression through triage system
  - Each triage area has a team leader
Walking and Movement: The simplest sorting

- “If you can hear me and are able, walk over here” gets **GREEN** triage done.
- Many victims may be green, self-extricate

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Basic Triage Principles

- As soon as you can categorize a patient, STOP evaluating
  - if they are **RED** for breathing, they won’t be seen any faster for additional problems

- Minimal treatment during triage
  - Airway maneuver (chin tilt, jaw thrust)
  - Bag valve mask ventilation
  - Address life-threatening active blood loss (tourniquet)
Children In Triage

- Don’t follow commands
- May actually hide from rescuers
- Injured children extricated by well parents/ adults with delay in triage and treatment.
- Need distraction and dedicated supervisor able to run after wandering toddlers
- Family issues
  - Keeping family intact
  - Reunification
  - Mental health

Children with Special Health Care Needs (CSHCN)

- Children with special medical or physical needs
  - Wheelchair or crutches
  - Cognitive disability
  - Vision, hearing, or language impaired
  - Technology dependent
    - Ventilator
    - Dialysis
Disaster Triage for Children with Special Healthcare Needs

• The triage plan still applies

• If chronically non-ambulatory and have no ABCD problems, may still be triaged to **green** area

• Technology dependent children with technological failure may need **red** or **yellow** triage

Pediatric Triage Rationale

• Guiding principles in triaging children
  – Variations in normal vital signs with age
  – Apneic children more likely to have primary respiratory issue than adults
  – Developmental considerations
  – Pre-existing conditions/syndromes
  – Inability to walk/talk or obey commands, as used in adult triage

• Goal is triaging patient in less than 30 seconds
Existing Pediatric Triage Strategies

- JumpSTART (Simple Triage And Rapid Treatment)
- Smart (originated by Colin Smart)
- SALT (Sort- Assess- Life-Saving Treatment- Transport)
- Sacco Triage
- Clinical decision making without an algorithm

JumpSTART

- JumpSTART algorithm used federally and internationally for ages 0-8
  - Discrete set of skills and knowledge
  - Sorts patients into categories
  - Developed as a prehospital tool
- Strengths
  - Used federally and in many states
  - Considers pediatric physiology
- Potential weaknesses
  - Little evidence base
Able to walk? YES → Minor YES → Secondary Triage*

Breathing? NO → Position upper airway BREATHING → Immediate

Position upper airway NOT BREATHING → Palpable pulse?

Palpable pulse? NO → Deceased

YES → 5 Rescue Breaths NOT BREATHING → Deceased

5 Rescue Breaths BREATHING → Immediate

Respiratory Rate <15 OR > 45 → Immediate

15-45 → Palpable Pulse?

Palpable Pulse? NO → Immediate

YES → AVPU

AVPU INAPPROPRIATE RESPONSE OR UNCONSCIOUS → Immediate

AWAKE, VOICE OR APPROPRIATE PAIN RESPONSE → Delayed

Adapted from Lou Romig, MD MD
Smart Triage

- **Potential Strengths**
  - Integrated with a mass casualty event management system
  - Considers pediatric physiology (length-based tape)

- **Potential weaknesses**
  - Limited evidence base


SALT Triage

- **Sort- Assess – Life-Saving Interventions - Transport**
  - Developed by a CDC expert panel
  - Endorsed by several professional organizations

- **Strengths include:**
  - Whole population of victims considered
  - Same tool for adults and children

- **Potential weakness**
  - Little consideration of pediatric physiology
Sacco Triage

- First attempt at modeling triage by patient outcomes

- Assigns a numeric “RPM” score (0-12):
  - Respiration
  - Pulse
  - Motor
  - Age adjustment
Sacco Triage

M – Best Motor Response to sternal rub or nail bed stimulus

**Obeys Commands:** when asked, raises arm, blinks or squeezes hand

**Localizes:** reaches for and tries to remove or push away source of pain

**Withdraws:** turns or pulls away from painful stimulus

**Flexion:** elbows flex towards chest—decorticate posturing

**Extension:** arms extend downward—decerebrate posturing

<table>
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<th>Survival Outcomes</th>
<th>12 = 98%</th>
<th>11 = 97%</th>
<th>10 = 92%</th>
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<tr>
<td>9 = 86%</td>
<td>8 = 78%</td>
<td>7 = 76%</td>
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<td>6 = 67%</td>
<td>5 = 54%</td>
<td>4 = 30%</td>
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<tr>
<td>3 = 27%</td>
<td>2 = 17%</td>
<td>1 = 11%</td>
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</table>

0 = 5%

Sacco Triage

• **Strengths**
  – Relatively strong evidence base
  – Applied to blunt and penetrating trauma
  – Gives children priority

• **Potential weaknesses**
  – Not independently evaluated
  – More complicated
  – All patients triaged before transport decisions
Secondary Triage

- Performed at the scene of disaster or the hospital when patients arrive
- Triage category BLACK patients reassessed following RED category
- Flow within triage categories
  - Based on clinical changes
  - Requires communication
- Reassess venue of treatment
  - Hospital vs. surge capacity venue vs. treating on-site
- Transportation to hospitals or surge capacity venues

Triage Education: Live Simulations

- Advantages
  - Hands on skill practice
  - One-on-one debriefing with facilitator
  - Three simulations over six months
- Limitations
  - Costly
  - Schedule constraints
No patients indicate they can walk.
• An unconscious 4 year old was hit in head by debris moments ago
• In a room full of injured children
• Not breathing
• Obvious head injury

Examples

• What do you do?
  How do you classify this child if he breathes?

IMMEDIATE
How do you classify this child if he does not breathe after 2 rescue breaths?

DECEASED
Examples

- You are responding to a school shooting.
- A crying, alert 16-year-old student has been shot in the thigh, and is unable to walk.
- No respiratory distress, and has a palpable pulse.

Conclusion

- Children will be impacted by disasters
- Preparation matters
- Graded degradation of care
- Triage allows for allocation of resources, and may improve outcomes