START Triage Awareness Training

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Special Thanks to the Stony Brook Regional Resource Center
MCI and Disaster Triage Tools
The MCI Scene
THE INITIAL PROBLEM

Casualties

Resources
THE OBJECTIVE.
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THE OBJECTIVE.
Abundant resources relative to demand

Do the best for each individual

(P = Patient)
Resources challenged

(P = Patient)

Do the best for each individual
Do the greatest good for the greatest number

Resources overwhelmed

(P = Patient)
THE OBJECTIVE

Casualties

Resources
Daily Emergencies

*Do the best for each individual.*

Disaster Settings

*Do the greatest good for the greatest number. Maximize survival. Save the largest number of Survivors*
TIME IS IMPORTANT

THE GOLDEN HOUR

“The critical trauma patient has only 60 minutes from the time of injury to reach definitive surgical care, or the odds of a successful recovery diminish dramatically”.

“time of injury”
YOUR SCENE MANAGEMENT

- Command
- Safety
- Assessment
- Communication
- Triage
- Treatment
- Transport

Definitive Care
Triage

- **Triage Means “To Sort”**
  - A process for sorting injured people into groups based on their need for immediate medical treatment and transport

- Clear and assemble the walking wounded using verbal instructions

- Primary triage assesses respiration, perfusion, and mental status **RPM**

- Secondary triage is a more in-depth assessment usually conducted in the Treatment Unit or at the hospital.
Why are Resources Important in Triage?

• Disaster is commonly defined as an incident in which patient care needs overwhelm local response resources.

• Daily emergency care is not usually constrained by resource availability.
Triage Unit

- Determine location of triage areas
- Conduct primary triage, ensure all patients are assessed and sorted using appropriate triage protocol
- Communicate resource requirements
How should we triage?

By a system which is:

• Dynamic
• Quick
• Safe
• Reproducible
Managing the Scene

- Remember this simple formula to guide your START assessment. RPM stands for:
  - RESPIRATION
  - PERFUSION
  - MENTAL STATUS

- Sequentially use this assessment system for every patient.
Perfusion

Perfusion Assessment

Yes

Under 30 Min

Over 30 Min

Immediate

Perfusion
Mental Status
## Triage Coding

<table>
<thead>
<tr>
<th>Color</th>
<th>Treatment</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Immediate</td>
<td>1</td>
</tr>
<tr>
<td>Yellow</td>
<td>Urgent</td>
<td>2</td>
</tr>
<tr>
<td>Green</td>
<td>Delayed</td>
<td>3</td>
</tr>
<tr>
<td>Black</td>
<td>Dead (Expectant)</td>
<td></td>
</tr>
</tbody>
</table>
Triage Categories

Red
Priority 1

Immediate:
Life-threatening but treatable injuries requiring rapid medical attention
Triage Categories

Yellow
Priority 2

Delayed:
Potentially serious injuries, but are stable enough to wait a short while for medical treatment
Triage Categories

Green
Priority 3

Minimum:
Minor injuries that can wait for longer periods of time prior to treatment
Triage Categories

Black

Expectant:
Death or lack of spontaneous respirations after airway is opened
The Scene

Rescue

HOT

Triage, Treatment
Holding

WARM

Decontamination

COLD

Triage, Treatment
Transport to definitive care

Dirty Zone

Clean zone
The Scene
START Triage Method

• Simple Triage and Rapid Transport
• Based on three criteria
• Method used by EMS in NYS

• RPM
  – Respiratory effort
  – Pulses / Perfusion
  – Mental status
PRIMARY TRIAGE

- WALKING
- Yes
- PRIORITY 3
If you are unable to obtain a capillary refill, check the radial pulse. If absent then control any bleeding and prioritize the patient PRIORITY 1.
Step 1

• START PRIMARY TRIAGE

• Triage officer announces that all patients that can walk should get up and walk to a designated area for eventual secondary triage
  • Start right where you stand
  • All ambulatory patients are initially tagged as Green.
Step 2

- Triage officer with triage tags assesses patients in the order in which they are encountered (Adult and Pediatric)

- Use Adult and Pediatric Triage tools as applicable
Step 3

- Assess for presence or absence of spontaneous respirations

- If breathing, move to Step 4

- If apneic, open airway

- If patient remains apneic, tag as **Black**

- If patient starts breathing, tag as **Red**

Note if pediatric patient follow applicable algorithm
Step 4

• Assess respiratory rate

• If $\leq 30$, proceed to Step 5

• If $> 30$, tag patient as Red

Note if pediatric patient follow applicable algorithm
Step 5

• Assess capillary refill

• If ≤ 2 seconds, move to Step 6

• If > 2 seconds, tag as Red

Note if pediatric patient follow applicable algorithm
Step 6

- Assess mental status
- If able to obey commands, tag as **Yellow**
- If unable to obey commands, tag as **Red**

- Note if pediatric patient follow applicable algorithm
Helpful Mnemonic

RPM

30

2

Can do
SECONDARY TRIAGE
Secondary Disaster Triage

- **Goal:** to best match patients’ current and anticipated needs with available resources.
- **Incorporates:**
  - A reassessment of physiology
  - An assessment of physical injuries
  - Initial treatment and assessment of patient response
  - Further knowledge of resource availability
Secondary Triage Tools

• Goal is to distinguish between:
  – Victims needing life-saving treatment that can only be provided in a hospital setting.
  – Victims needing life-saving treatment initially available on scene.
  – Victims with moderate non-life-threatening injuries, at risk for delayed complications.
  – Victims with minor injuries.
## Glasgow Coma Score

### Eye Opening:
- Spontaneous: 4
- To Voice: 3
- To Pain: 2
- None: 1

### Verbal Response:
- Orientated: 5
- Confused: 4
- Inappropriate words: 3
- Incomprehensible words: 2
- No response: 1

### Motor Response:
- Obey commands: 6
- Localises: 5
- Pain withdraws: 4
- Pain flexion: 3
- Pain extension: 2
- No response: 1

### Total Glasgow Coma Scale Total:

### Respiratory Rate:
- 10 - 29: 4
- 30 or more: 3
- 6 - 9: 2
- 1 - 5: 1
- 0: 0

### Systolic BP:
- 90 or more: 4
- 76 - 89: 3
- 50 - 75: 2
- 1 - 49: 1
- 0: 0

### Summary:
- 12 = Priority 3
- 11 = Priority 2
- 10 or less = Priority 1

Total:
Jump START
Pediatric Triage Method
Decisions !!!!

The ages of “tweens and teens” can be hard to determine so the current recommendation is:

*If a victim appears to be a *child*, use Pediatric Tool

*If a victim appears to be a *young adult*, use Adult algorithm*
Why do we need a pediatric tool?

Pediatric multicasualty triage may be affected by the emotional state of triage officers.
**Use of SMART Tape**

These guidelines are based on best clinical experience at the time of production and assist the triage officer to make appropriate decisions. It is the responsibility of the triage officer to override a guideline when the clinical context requires. The use of the Smart Tape assumes medical support is limited, in which case basic life support is considered inappropriate. TSQ Associates Ltd can accept no liability for the application of the equipment, as the final decision remains the responsibility of the suitably trained and experienced triage officer.

1. If the child is “Alert and moving all limbs” OR “Walking” they are a Green, Priority 3 for evacuation.

2. If the child is NOT “Green” then use the tape, as flat as possible, to gauge the child’s length in order to determine which set of physiological values to compare the child against.

   If the child is on the boundary between two sections then **use the section for the longer child**.

3. A trapped child is a Red, Priority 1 for treatment (i.e. extrication) until released whereupon the tape can be used to reassess priority.

4. Infants under 50 cm are unlikely to be out of hospital and are therefore Red, Priority 1.

5. If a child’s age is known then you can calculate its weight by using the formula:

   \[2 \times (\text{age in years} + 4) = \text{Weight (Kgs)}\]

   The appropriate section for comparing physiological values can then be selected.

6. **REMEMBER:**

   The first coloured box you come to determines the treatment / evacuation priority for that child – action it and move to the next child immediately.
The physiology of adults and children are not the same.

Primary MCI triage is based on physiology...
Smart Pediatric Triage
Potential Problems with Children

• An apneic child is more likely to have a primary respiratory problem than an adult. Perfusion may be maintained for a short time and the child may be salvageable.

• RR +/- 30 may either over-triage or under-triage a child, depending on age.
Potential Problems with Children

- Capillary refill may not adequately reflect peripheral hemodynamic status in a cool environment.

- Obeying commands may not be an appropriate gauge of mental status for younger children.
Why do we need a pediatric tool?

To optimize triage effectiveness to benefit all victims, not just adults.
Pediatric Triage: Age

- Initially ages 1-8 years chosen
- Less than one year of age is less likely to be ambulatory.
- The pertinent pediatric physiology (specifically, the airway) approaches that of adults by approximately eight years of age.

BUT...
80 - 100 cm  or  11 - 18 Kg

Alert and moving all limbs.  OR  Walking

Yes

DEAD

No

Breathing

Yes

No

Open the Airway

Breathing

Yes

< 15 or > 40

< 15 or > 40

PRIORITY 3

15 to 40

Capillary refill  < 2 Secs  
(Use child's forehead)

Yes

No

Pulse Rate

< 80 or > 160 /min

80 to 160 /min

PRIORITY 2

PRIORITY 2

PRIORITY 1

PRIORITY 1

100 cm
Modification for non-ambulatory children

All children carried to the GREEN area by other ambulatory victims must be the first assessed by medical personnel in that area.
Pediatric Triage: Breathing?

- If breathing spontaneously, go on to the next step, assessing respiratory rate.
- If apneic or with very irregular breathing, open the airway using standard positioning techniques.
- If positioning results in resumption of spontaneous respirations, tag the patient Red and move on.
Pediatric Triage

🌟 If no breathing after airway opening, check for peripheral pulse. If no pulse, tag patient **Black** and move on.

🌟 If there is a peripheral pulse, give **5 mouth to barrier ventilations**. If apnea persists, tag patient **Black** and move on.

• If breathing resumes after the “jumpstart”, tag patient **Red** and move on.
Pediatric Triage - Respiratory Rate (11-18 kg child)

• If respiratory rate is 15-40/min, proceed to assess perfusion.

• If respiratory rate is <15 or >40/min or irregular, tag patient as Red and move on.
Pediatric - Perfusion

- If peripheral pulse is palpable, proceed to assess mental status.
- If no peripheral pulse is present (in the least injured limb), tag patient Red and move on.
Pediatric - Mental Status

• Use AVPU scale to assess mental status.
• If Alert, responsive to Verbal, or appropriately responsive to Pain, tag as Yellow and move on.
• If inappropriately responsive to Pain or Unresponsive, tag as Red and move on.
Modification for non-ambulatory children

- Infants who normally can’t walk yet
- Children with developmental delay
- Children with acute injuries preventing them from walking before the incident
- Children with chronic disabilities
Individuals with special health care needs may also be MCI victims!
SMART Triage System

- System contains primary and secondary triage cards
- SMART tape for assessing pediatric patients
COMPONENTS OF SMART SYSTEM

• Tags

• Command Module (Commander)

• Command Boards

• Triage Pac

• WMD Tag

• Triage Tape
The Smart Tag is a dynamic, high visibility, triage tag. Folded design makes effective triage quick & simple. It is usable in all weather conditions, will provide a permanent record of patient info that will even survive the decontamination process.
Initial patient assessment and treatment should take less than 30 seconds for each patient.
PATIENT ACCOUNTABILITY and TRACKING
Triage Tags

• Alerts care providers to patient priority
• Prevents re-triage of the same patient
• Serves as a tracking system
Kit contains limited amount of tags to allow for regular report of victim numbers as well as providers physical and mental safety.
Washington Metro Area Tag
NYC Triage Tag

<table>
<thead>
<tr>
<th>Victim Information</th>
<th>Comments: __________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information Unavailable</td>
<td>__________________________</td>
</tr>
<tr>
<td>M □ F Age ___ DOB ___</td>
<td>__________________________</td>
</tr>
<tr>
<td>Patient Name: __________________________</td>
<td>__________________________</td>
</tr>
<tr>
<td>Date of Incident: <em><strong>/</strong></em>/___</td>
<td>__________________________</td>
</tr>
<tr>
<td>Transport To: (Hospital/Facility Name)</td>
<td>__________________________</td>
</tr>
<tr>
<td>Injury: __________________________</td>
<td>__________________________</td>
</tr>
</tbody>
</table>

| 1 | IMMEDIATE TRANSPORT CRITICAL CARE | 1 | 1 | CRITICAL CARE | 1 |
| 2 | URGENT CARE LIFE THREATENING INJURIES | 2 | 2 | URGENT | 2 |
| 3 | DELAYED TRANSPORT UNABLE TO WALK | 3 | 3 | DELAYED | 3 |
| 4 | MINOR INJURIES | 4 | 4 | MINOR | 4 |
| 5 | NO INJURIES OCCUPANT | 5 | 5 | NO INJURIES | 5 |
The New ORANGE

- Orange category
- Chest pain
- Respiratory distress
- SOB, stridor
- Increased work of breathing
- Head/ chest trauma
What about WMD?

There is no widely recognized civilian MCI triage tool used in the US for any of the NRBC agents.
Any triage model for WMD must consider decontamination:

- Who goes first?
- At what stage does triage take place?
- Difficulty of conducting patient assessment and care with responders in protective gear.
• Biological agents may impact field triage mostly in choice of destination facility (quarantine hospital).

• Patterns of EMS calls may assist in identification of an occult biological agent attack or a natural epidemic.

• Multiple software programs are available as surveillance tools for trends in patterns of illness.
WMD Triage Challenges

- Some agents cause “toxindromes” that allow for prediction of outcome based on presenting symptoms and signs.
- Agent-specific triage is dependent upon identification or strong suspicion of the agent’s use.
- Very difficult to train and maintain readiness with multiple agent-specific triage schemes.
Chemical Toxindrome Examples

• Nerve agent
  – **Red:** severe distress, seizure, signs in two or more systems (neuromuscular, GI, respiratory – excluding eyes and nose)
  – **Black:** pulseless or apneic, unless intensive resources are available
Chemical Toxindrome Examples

• Phosgene and vesicants
  – **Red:** moderate to severe respiratory distress, only when intensive resources are immediately available
  – **Black:** burns >50% BSA from liquid exposure, signs of more than minimal pulmonary involvement, when intensive resources are not available
Chemical Toxindrome Examples

- **Cyanide**
  - **Red:** active seizure or recent onset of apnea with preserved circulation
  - **Black:** no palpable pulse

Let’s practice!
A bus on its way to Atlantic City carrying 20 passengers of various ages loses control on the LIE, slams into the center median, then rolls. You are the triage officer.
What’s your call?

• You are met by outside the bus by a young male approximately 25 years old. He is walking complaining of burns to both arms. Burns appear to be second degree.
• Breathing 20/min
• Good distal pulse
• Obeys commands
What’s your call?

• An adult kneels at the side of the road, shaking his head. He says he’s too dizzy to walk.
• RR 20
• CR >2 sec
• Confused
What’s your call?

- A school aged girl crawls out of the wreckage. She’s able to stand and walks toward you crying.
- Jacket and shirt torn
- No obvious bleeding
What’s your call?

- A small child lies with his lower body trapped under a seat inside the bus.
- Apneic
- Remains apneic upon opening airway
- No pulse
What’s your call?

- Adult male bus driver still in the bus, lower legs trapped under caved-in dash.
- RR 24
- Cap refill 4 sec
- Moans with verbal stimulus
What’s your call?

• A male passenger lies among the wreckage.
• RR 40
• Palpable distal pulse
• Obeys commands but can not walk
What’s your call?

• A woman is carrying a crying infant. She is able to walk.
• RR 20
• CR around 2 sec
• Obeys commands
What’s your call?

- A male infant carried by the previous victim.
- He’s screaming but the woman quiets him to RR of 30
- CR = 2 sec
- Appears Focuses on rescuer, reaches for mom.
- Has uncontrolled bleeding from scalp
What’s your call?

- A teenage female props herself up on the road.
- RR 28
- Good distal pulse
- Answers question and commands.
- Has obvious deformity of both lower legs.
What’s your call?

- An EMS worker suddenly collapses inside the bus. You assess him and he is
  - Apneic
  - Remains apneic upon opening airway
  - No pulse

OR
What’s your call?

• A small child lies among the wreckage. Using the Jump Start tape. The child measures about 100 cm
• RR 40
• Absent distal pulse
• Withdraws from painful stimulus
What’s your call?

• A female adult passenger is found in their seat. Unable to move. Appears very frightened
• RR 25
• Good distal pulse
• Focuses and reaches for you.
• Has a partial amputation of the foot without active bleeding.
What's your call?

- An adult male lies inside the bus.
- Obey commands but not will get up to walk
- No complaints
- RR 20
- CR < 2 sec
What’s your call?

• A female child not walking
• Measures about 80-100 cm
• RR = 38
• CR < 2 sec
What’s your call?

- A female occupant hysterically screaming
- RR 28
- CR < 2 sec
- Can’t assess ability to obey commands
- Complaining can’t feel her leg
What’s your call?

- A male bus attendant can’t walk, complaining of weakness
- RR = 26
- CR < 2 sec
- Won’t obey commands
- Has bilaterally large open wounds on each lower extremity. Bleeding can’t be controlled
What’s your call?

• An female passenger is previously triaged as **GREEN**.

• Becomes unconsciousness in triage area and is not unable to walk and obey commands

• RR = 30

• CR > 2 sec
What’s your call?

- A female passenger is unconsciousness
- Not breathing  No Cap refill
Lesson Summary

• Regardless of the definition, Mass and Multiple Casualty Incidents stress emergency resources and responders.

• Having knowledge of the systems in use puts us all on the same page, and allows us to work together to achieve the best coordinated response.

• Saves lives that CAN be saved!
Any Questions?

Thank You!