

START Triage Awareness Training

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MCI and Disaster Triage Tools



Topics

What is Triage?

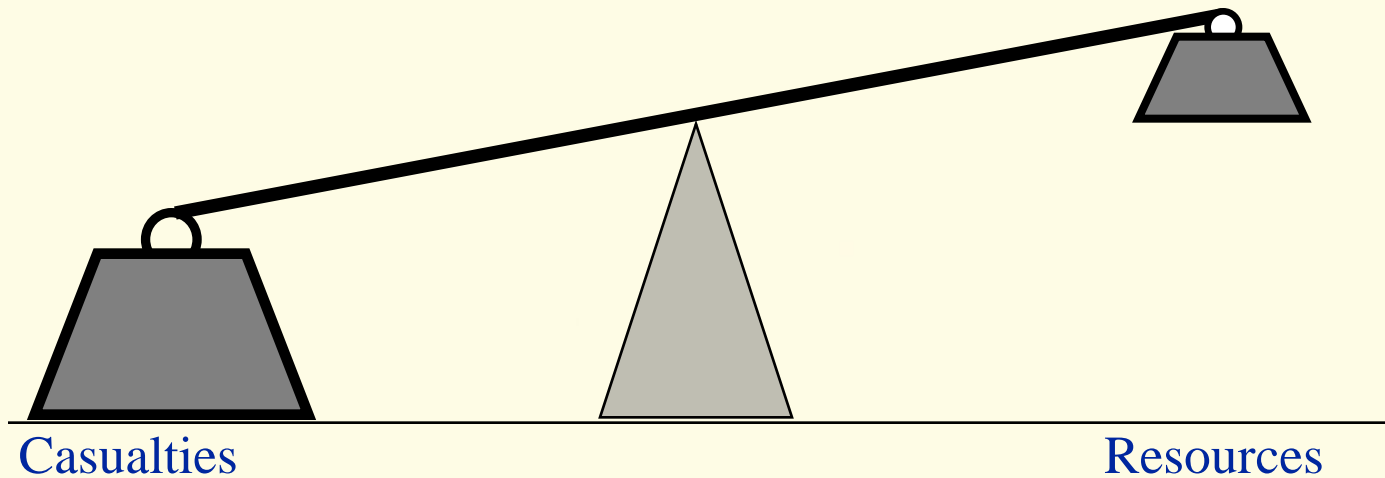
Triage
Categories

Triage Tools

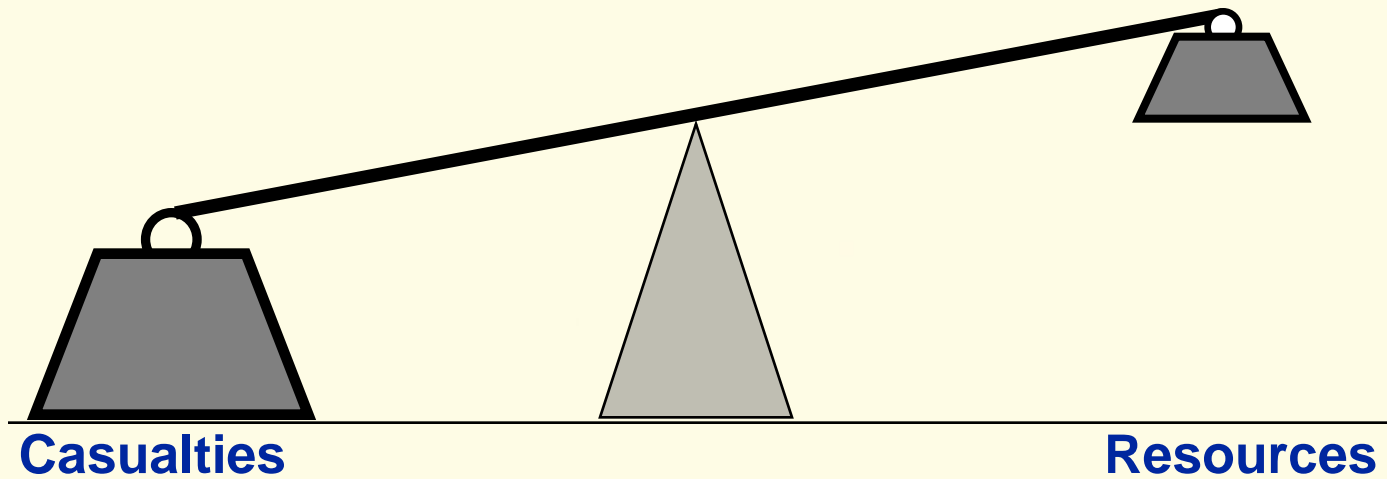
The MCI Scene



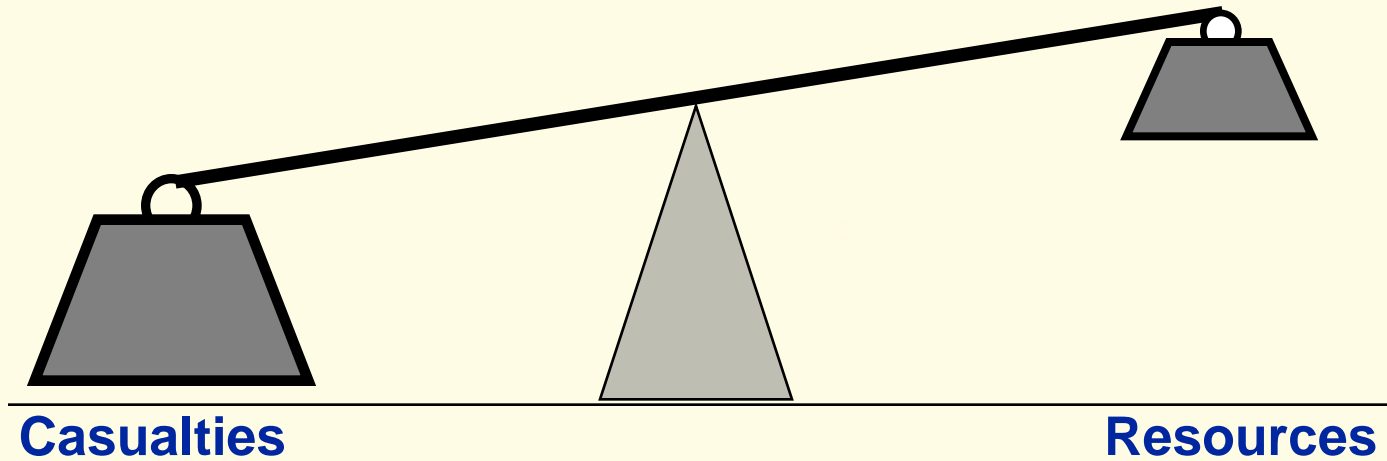
THE INITIAL PROBLEM



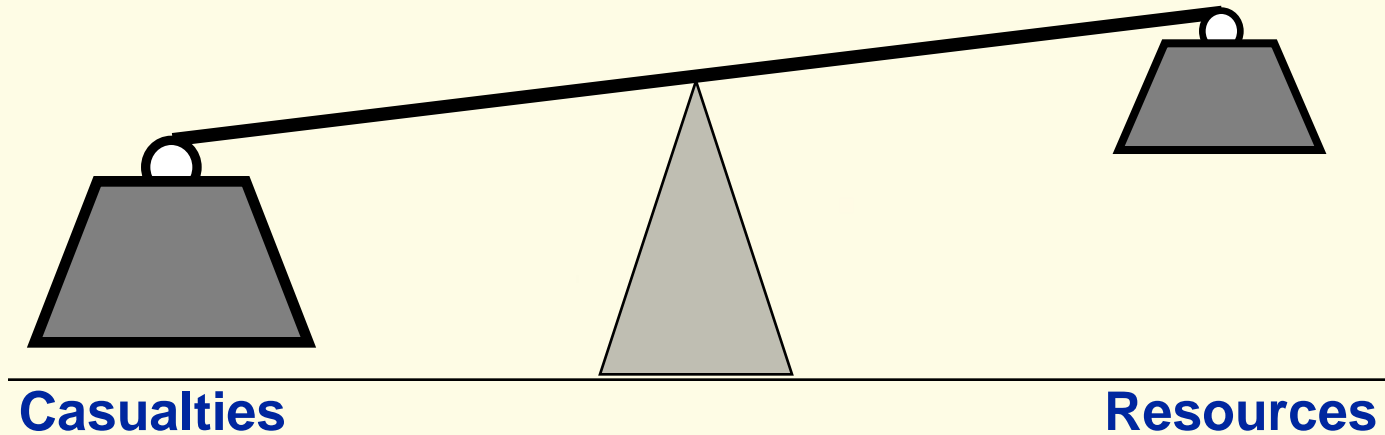
THE OBJECTIVE.



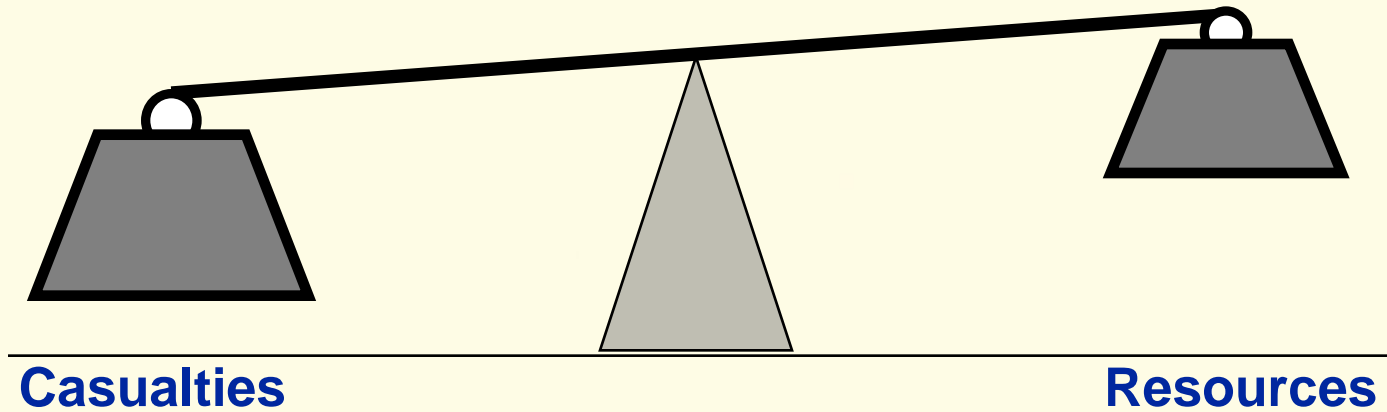
THE OBJECTIVE.



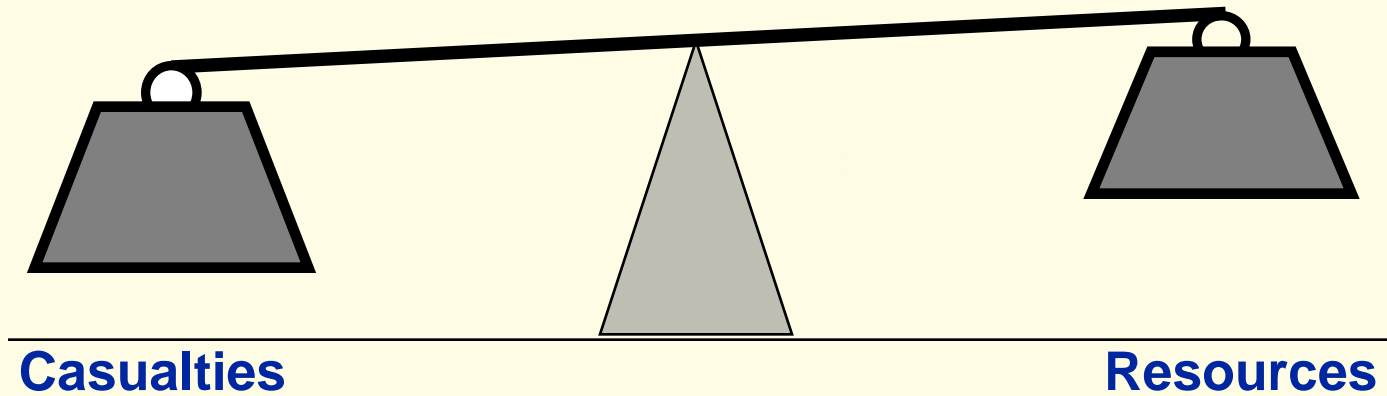
THE OBJECTIVE.



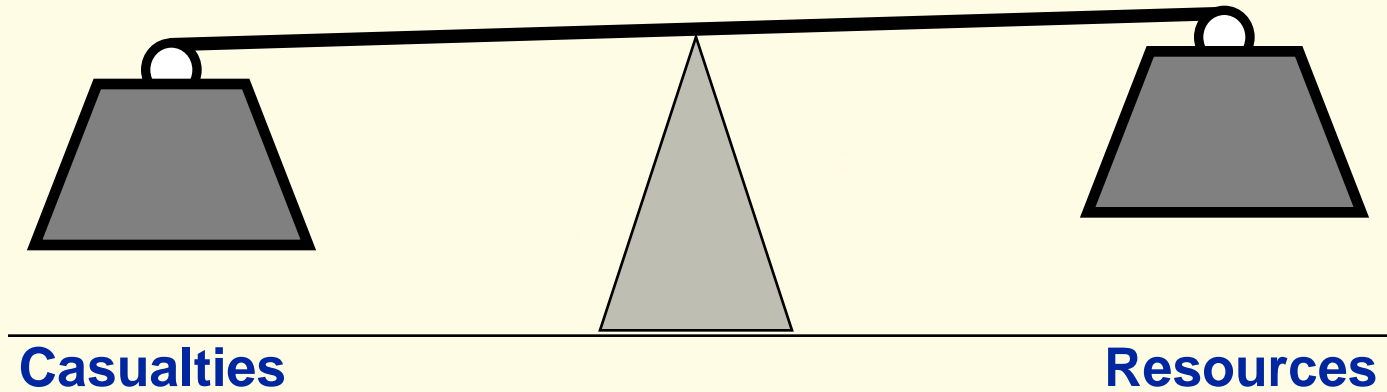
THE OBJECTIVE.



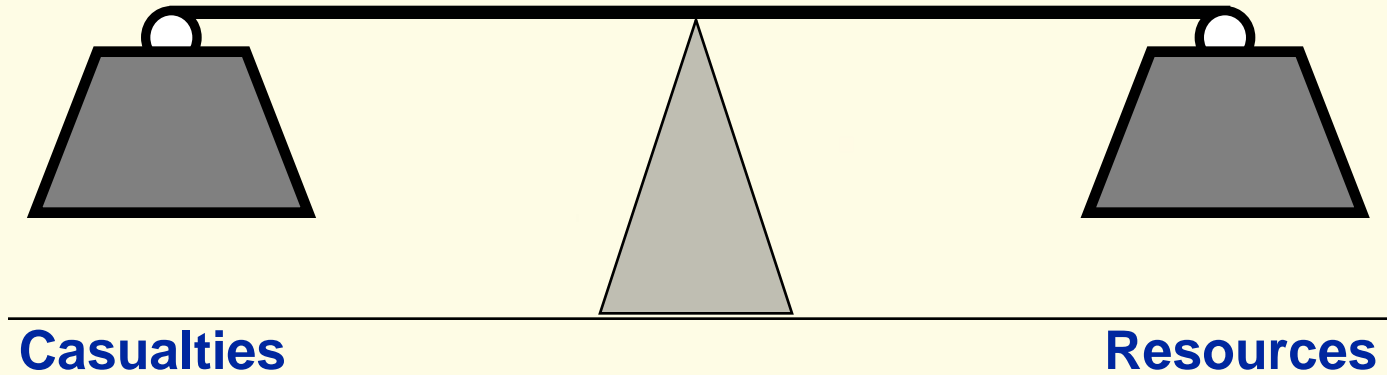
THE OBJECTIVE.



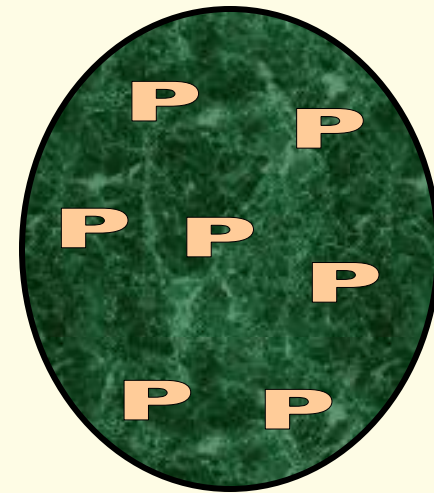
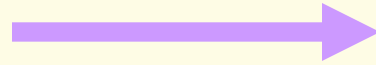
THE OBJECTIVE.



THE OBJECTIVE.



Abundant resources relative to demand

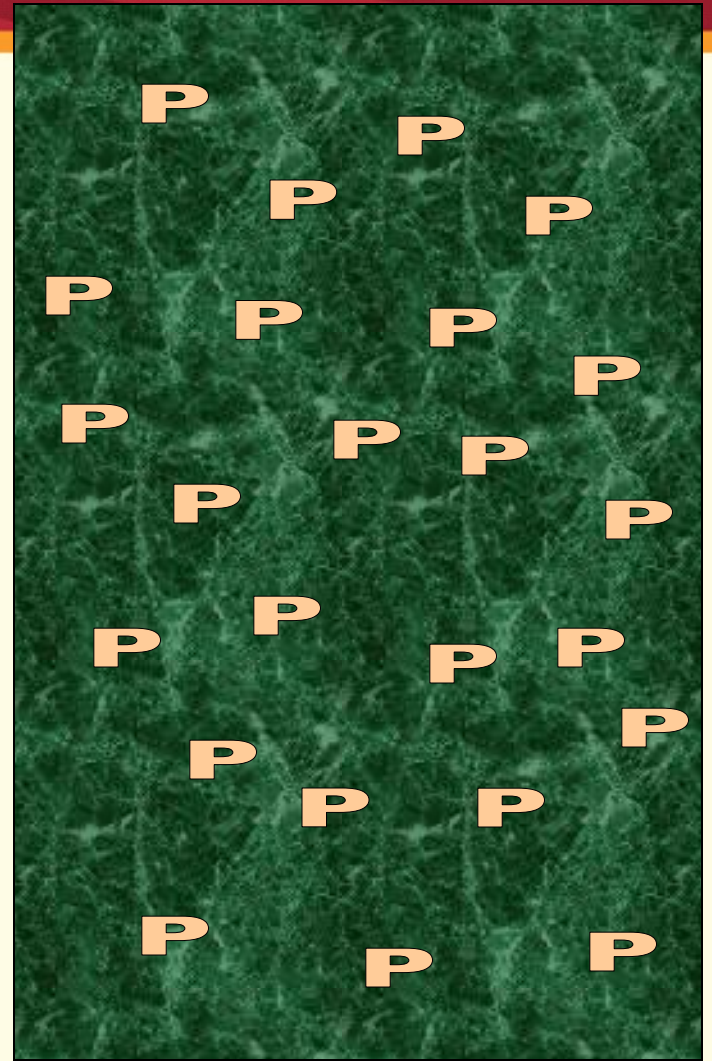
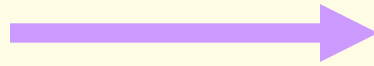


(P = Patient)

Do the best for each individual

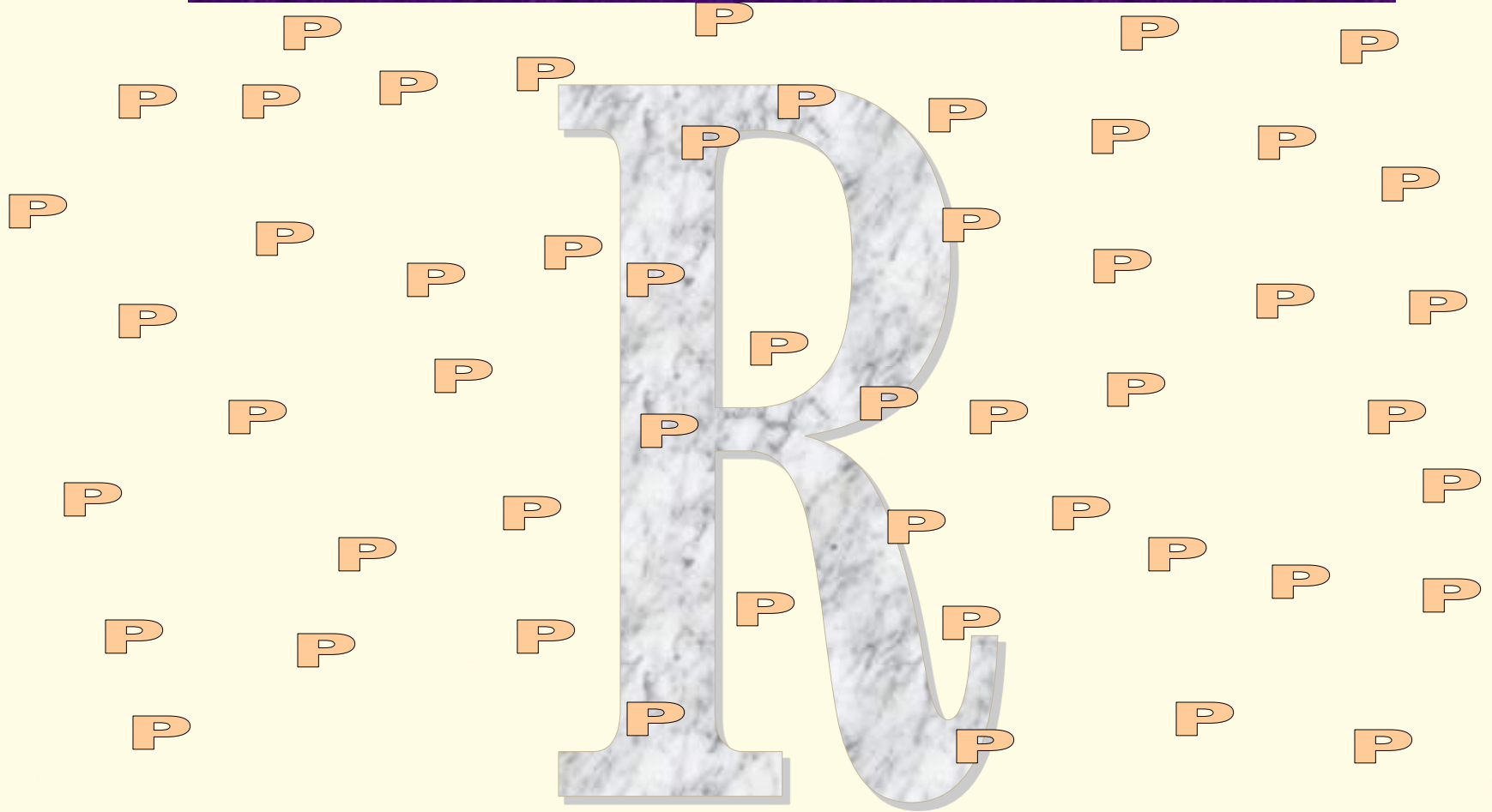
Resources challenged

(P = Patient)



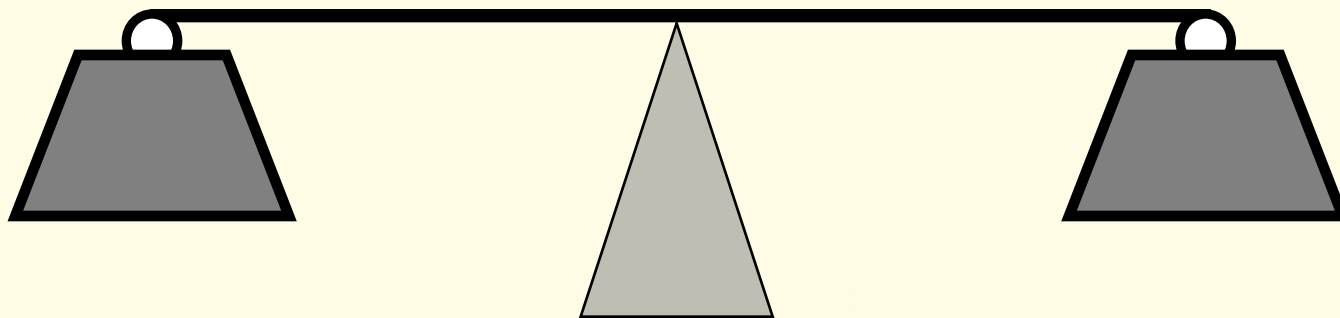
Do the best for each individual

Resources overwhelmed



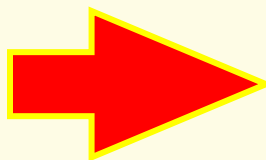
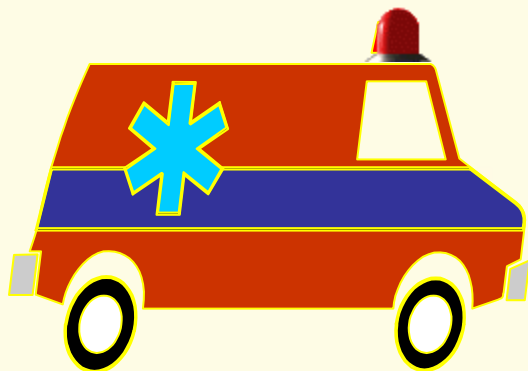
(P = Patient)

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”.



YOUR SCENE MANAGEMENT



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 :

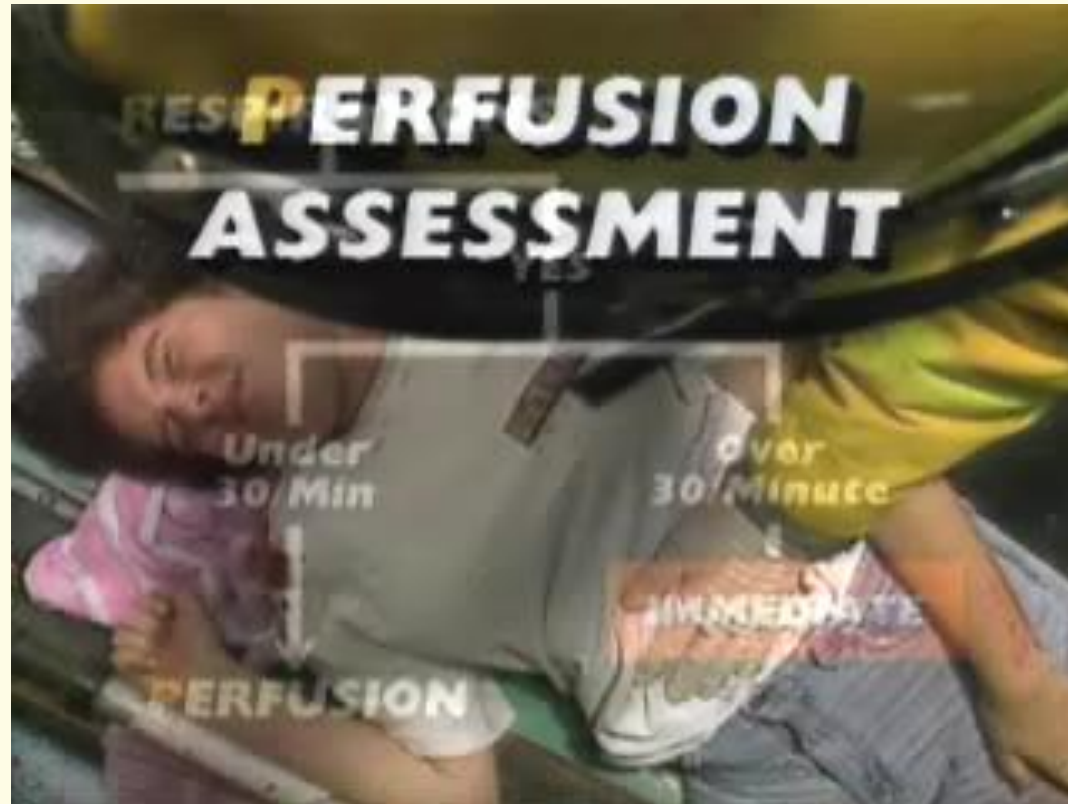
- *Dynamic*
- *Quick*
- *Safe*
- *Reproducible*

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



Mental Status



TRIAGE CODING

Color	Treatment	Priority
Red	Immediate	1
Yellow	Urgent	2
Green	Delayed	3
Black	Dead (Expectant)	



Triage Categories

**Red
Priority 1**

Immediate:

Life-threatening but treatable injuries
requiring rapid medical attention



Triage Categories

**Yellow
Priority 2**



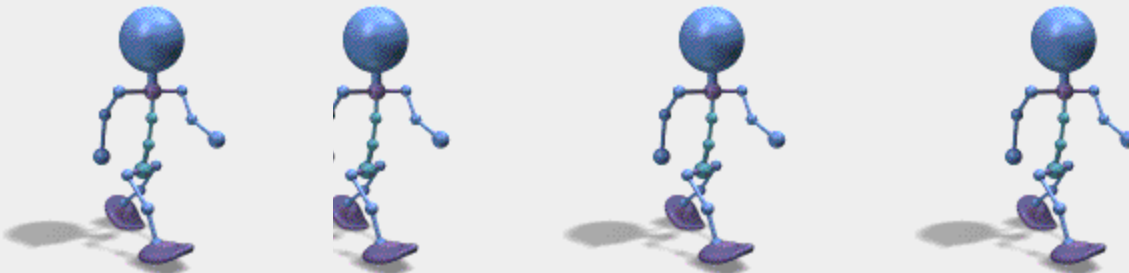
Delayed:
**Potentially serious injuries, but are stable
enough to wait a short while for medical
treatment**

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**



Nuclear, biological, chemical incident organization

Rescue

Triage, Treatment Holding

Decontamination

Triage, Treatment
Transport to definitive care



HOT

WARM

COLD

Dirty Zone

Clean zone

PRIMARY TRIAGE



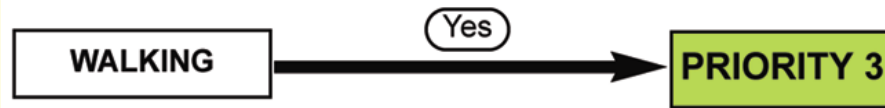
The
Scene

START Triage Method

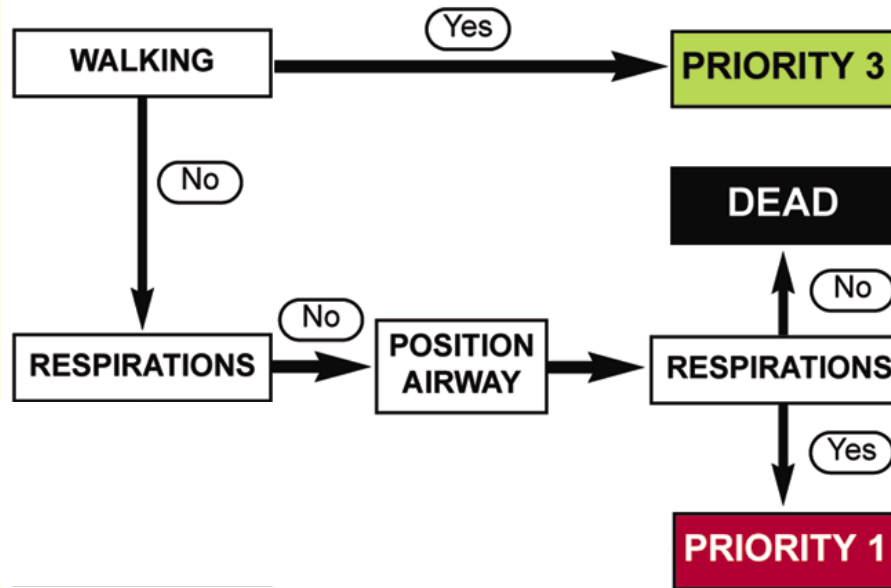
- Simple Triage and Rapid Transport
- Based on three criteria
- Method used by EMS in NYS
- **RPM**
 - Respiratory effort
 - Pulses / Perfusion
 - Mental status



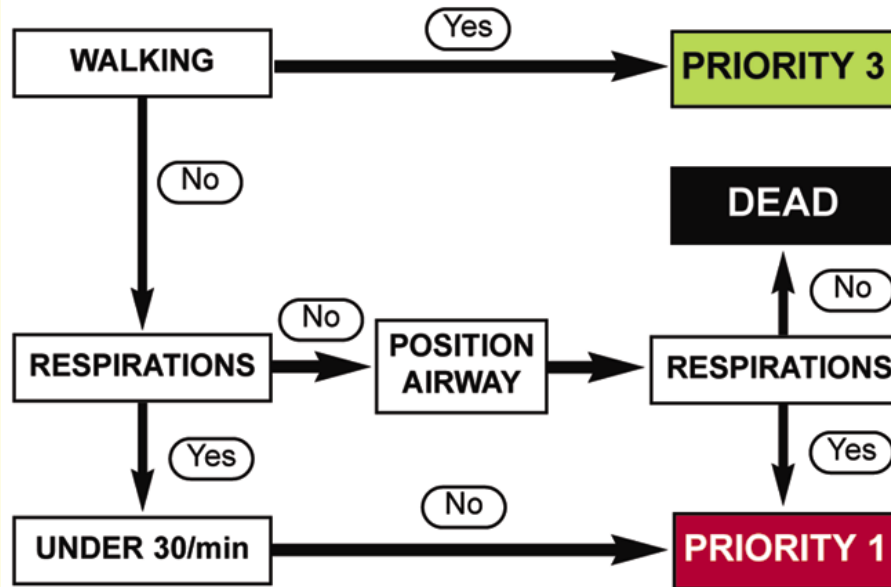
PRIMARY TRIAGE



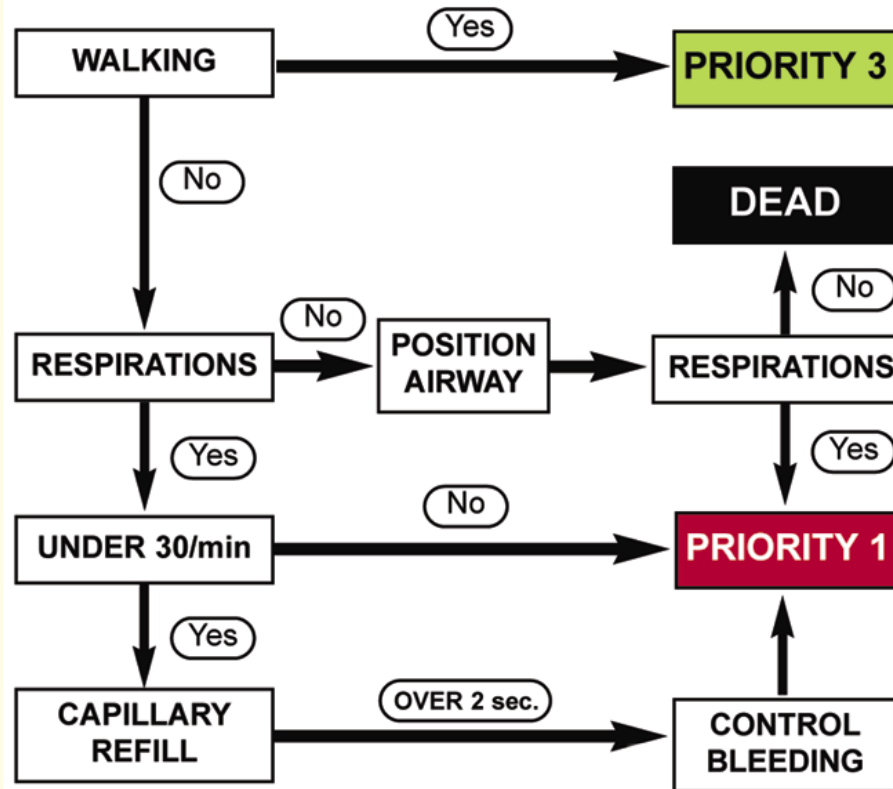
PRIMARY TRIAGE



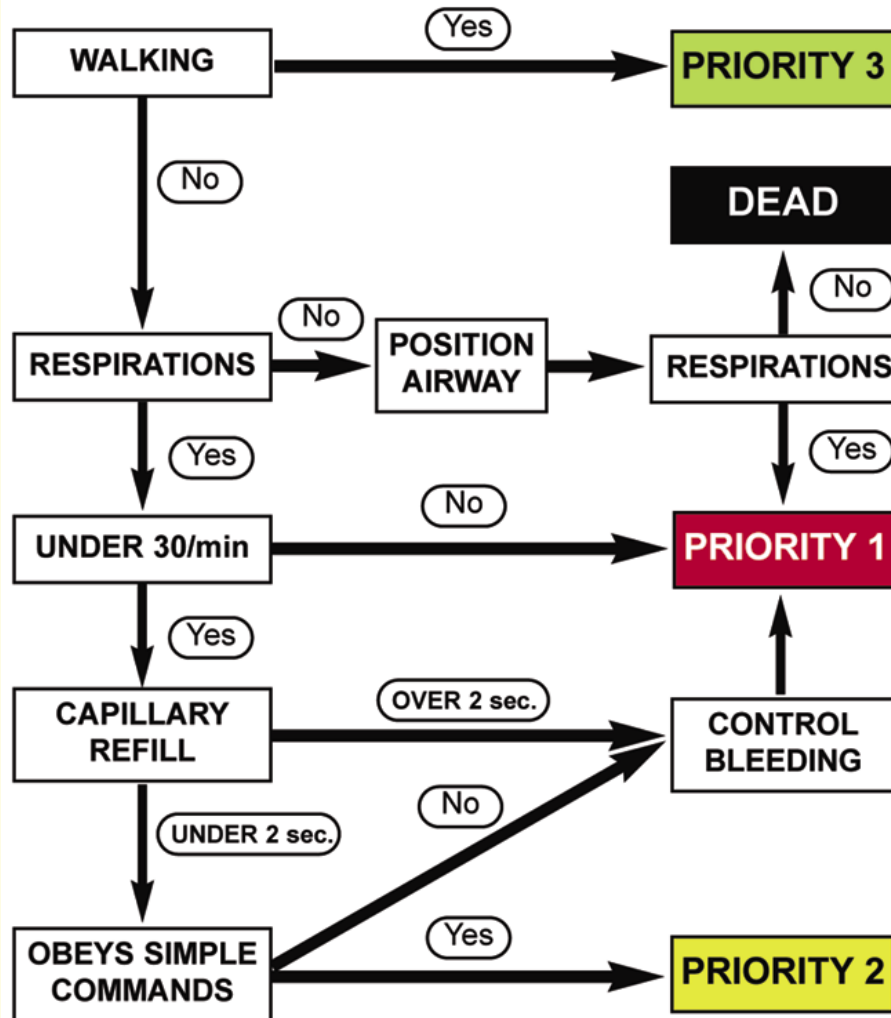
PRIMARY TRIAGE



PRIMARY TRIAGE



PRIMARY TRIAGE



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 ≤ 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

R

P

M

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.

SECONDARY TRIAGE

GLASGOW COMA SCORE

EYE OPENING :

SPONTANEOUS
 TO VOICE
 TO PAIN
 NONE

4
3
2
1

VERBAL RESPONSE :

ORIENTATED
 CONFUSED
 INAPPROPRIATE WORDS
 INCOMPREHENSIBLE WORDS
 NO RESPONSE

5
4
3
2
1

MOTOR RESPONSE :

OBEYS COMMANDS
 LOCALISES
 PAIN WITHDRAWS
 PAIN FLEXION
 PAIN EXTENSION
 NO RESPONSE

6
5
4
3
2
1

GLASGOW COMA SCALE TOTAL :

TOTAL GLASGOW COMA SCALE

13 - 15
9 - 12
6 - 8
4 - 5
3

4
3
2
1
0

RESPIRATORY RATE

10 - 29
30 or more
6 - 9
1 - 5
0

4
3
2
1
0

SYSTOLIC BP

90 or more
76 - 89
50 - 75
1 - 49
0

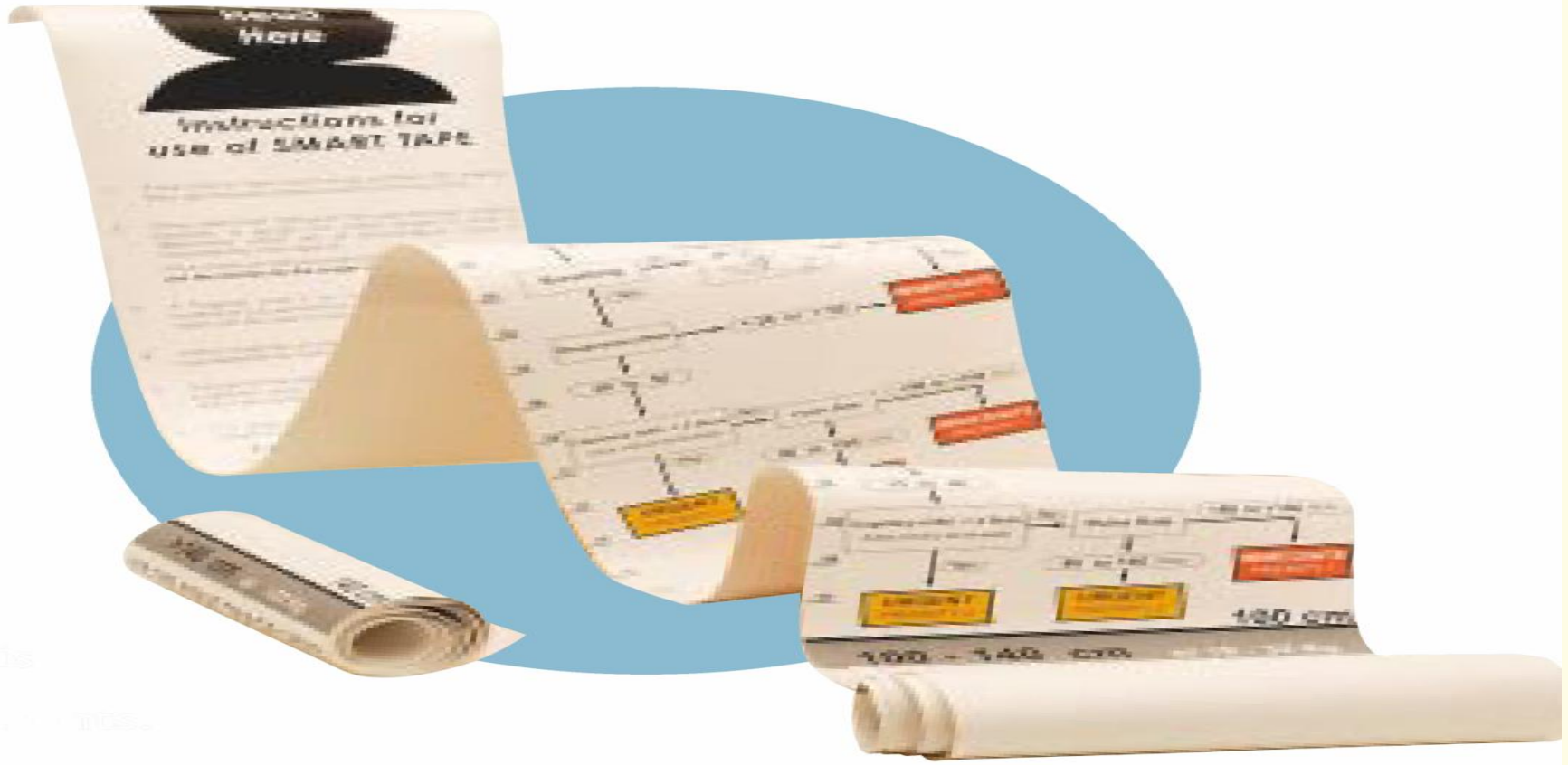
4
3
2
1
0

12 = PRIORITY 3
11 = PRIORITY 2
10 or less PRIORITY 1

TOTAL :

Jump START Pediatric Triage Method

PEDIATRIC TAPE ALGORITHM



1/18

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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.



Pediatric Triage Method

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 overrule a guideline when the clinical context requires. The use of the Smart Tape presumes medical support is limited, in which case basic life support is considered inappropriate. TSG 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.

Relevant research on this tape was published in the journal *Pre-hospital Immediate Care* in 1998 (2) Paediatric Triage Tape, Hodgetts, Hall, Macconochie & Smart pp155-159, which can be downloaded from our website.

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 :

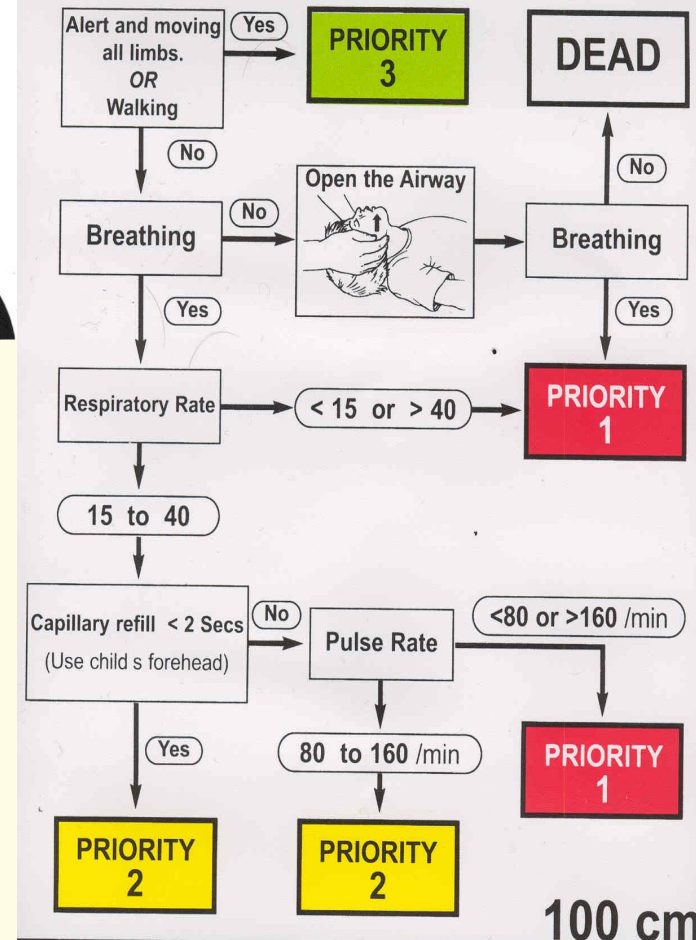
$$2 \times (\text{age in years} + 4) = \text{Weight (Kgs)}$$

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.**



80 - 100 cm or 11 - 18 Kg



100 cm

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?

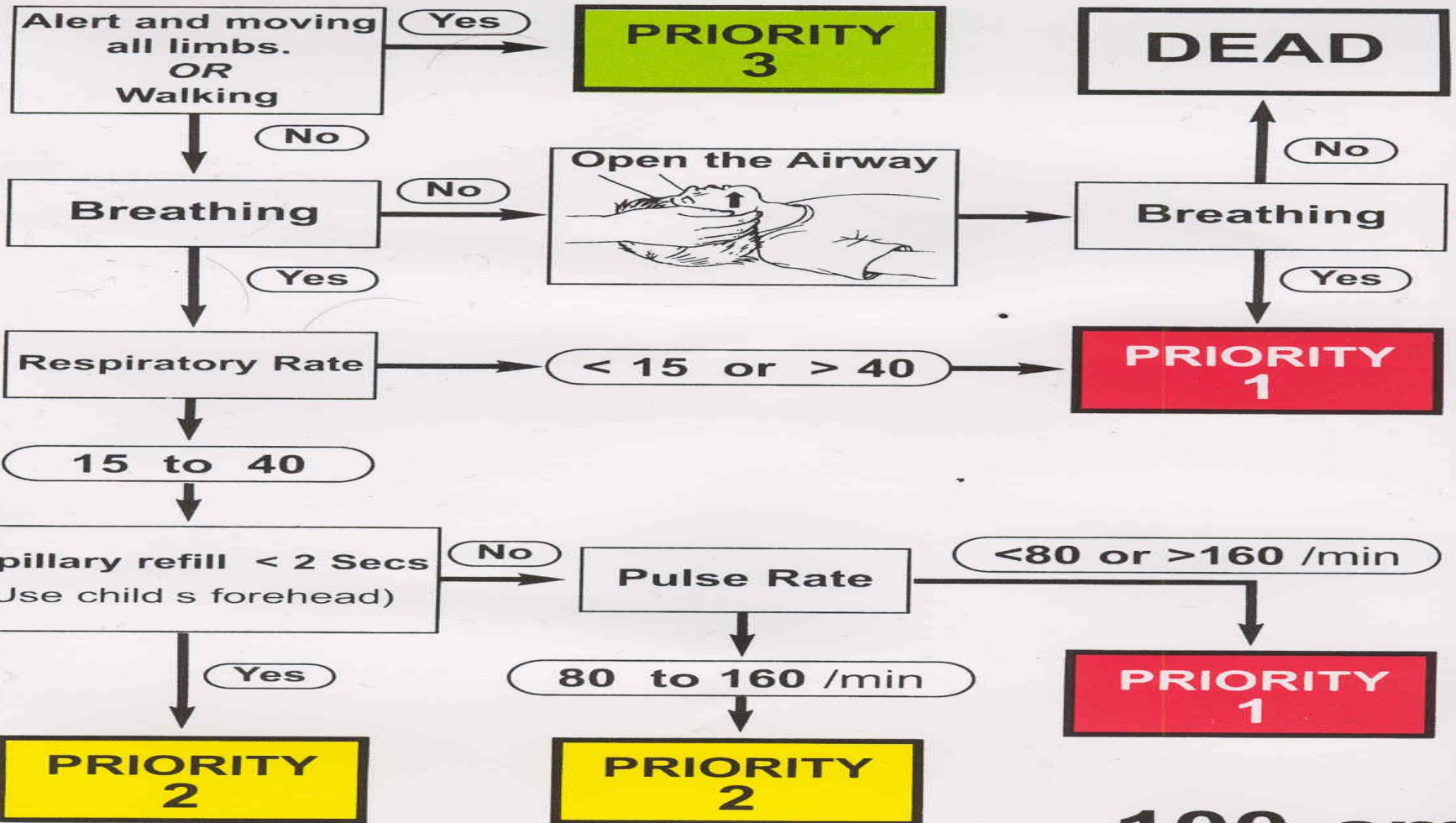
To optimize triage
effectiveness to benefit *all*
victims, not just adults.

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



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!**

COMPONENTS OF SMART SYSTEM

- **Tags**
- **Command Module (Commander)**
- **Command Boards**
- **Triage Pac**
- **WMD Tag**
- **Triage Tape**

SMART Triage Tag

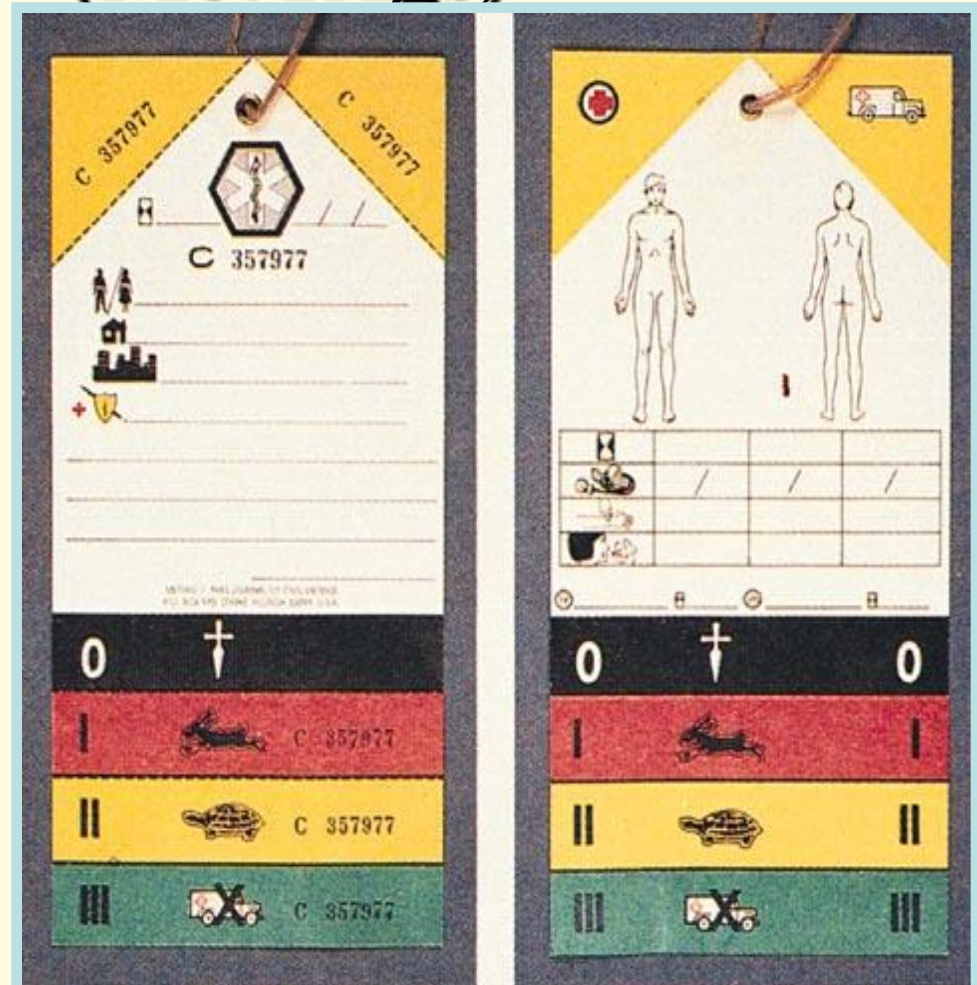


- The Smart Tag is a dynamic, high visibility, triage tag.
- Folded design makes effective triage quick & simple.
- It is usable in all weather conditions, will provide a permanent record of patient info that will even survive the decontamination process.

Multiple-Casualty Triage Tag

(MetTags)

Initial patient assessment and treatment should take less than 30 seconds for each patient.

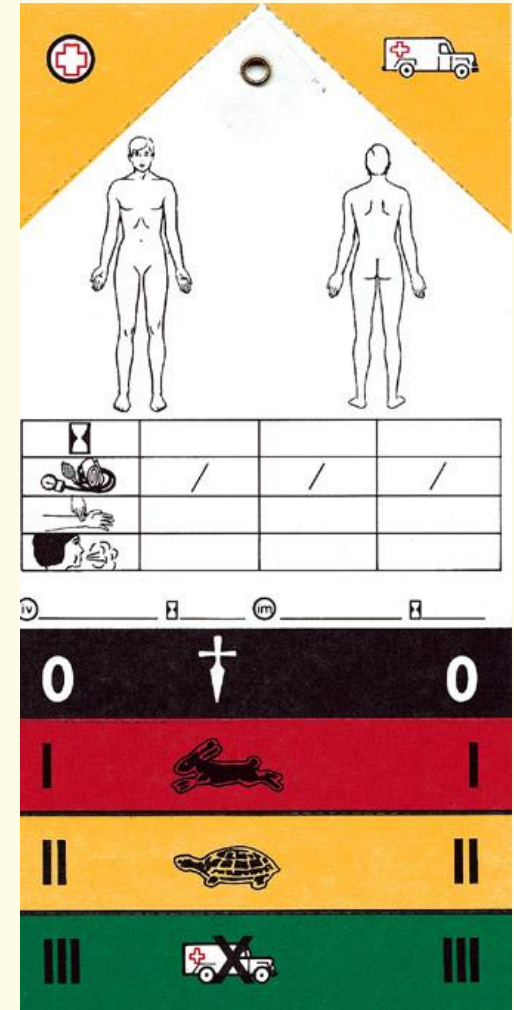


PATIENT ACCOUNTABILITY and TRACKING



Triage Tags

- Alerts care providers to patient priority
- Prevents re-triage of the same patient
- Serves as a tracking system




SMART TRIAGE TOOLS



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

© 1997 NEMEM COUNCIL



WASHINGTON METROPOLITAN AREA

DISASTER TAG
DO NOT REMOVE

PATIENT INFORMATION

AGE WEIGHT


PATIENT NUMBER

MALE FEMALE

NAME _____

ADDRESS _____

CITY _____ STATE _____ PHONE _____


 * 000201 *

TRIAGE STATUS

EVALUATION

TIME

RED

YELLOW

GREEN

BLACK


INITIAL		IMMEDIATE	DELAYED	MINOR	DECEASED
SECONDARY		IMMEDIATE	DELAYED	MINOR	DECEASED
		IMMEDIATE	DELAYED	MINOR	DECEASED
HOSPITAL		IMMEDIATE	DELAYED	MINOR	DECEASED

CHIEF COMPLAINT

Head Injury C-Spine
Blunt Trauma
Penetrating Injury
Burn Fracture
Laceration Amputation

Medical _____

Cardiac Respiratory
Diabetic OB/GYN
Haz-Mat Exposure



COMMENTS _____

TRANSPORTATION AGENCY/UNIT _____

DESTINATION _____

TREATMENT _____	HOSPITAL _____
* 000201 *	* 000201 *
OTHER _____	OTHER _____
* 000201 *	* 000201 *
OTHER _____	OTHER _____
* 000201 *	* 000201 *

TRANSPORT RECORD

AGE

PATIENT NUMBER


MALE FEMALE

NAME _____

CHIEF COMPLAINT _____

DESTINATION _____

TRANSPORTATION AGENCY/UNIT _____ TIME OUT _____


 * 000201 *

TRIAGE STATUS

RED YELLOW GREEN

NYC Triage Tag

City of New York FDNY TRIAGE TAG			City of New York FDNY TRIAGE TAG		
Victim Information			Comments: _____ _____ _____ _____		
<input type="checkbox"/> Information Unavailable <input type="checkbox"/> M <input type="checkbox"/> F Age _____ DOB _____					
Patient Name: _____					
Date of Incident: ____/____/____					
Transport To: (Hospital/Facility Name) _____					
Injury: _____					
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.

WMD Triage Challenges

- 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.

WMD Triage Challenges

- **Biological agents may impact field triage mostly in choice of destination facility (quarantine hospital).**
- **Patterns of EMS calls may assist in identification of a 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 Toxidrome 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 Toxidrome 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 Toxidrome Examples

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

Sidell FR, “Triage of Chemical Casualties” Chapter 14 in **Medical Aspects of Chemical and Biological Warfare**, available on the Internet at <http://www.bordeninstitute.army.mil/cwbw/Ch14.pdf>

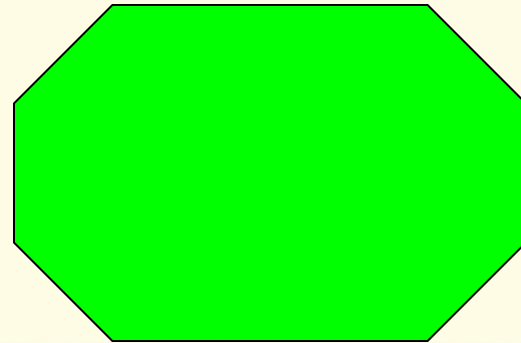
Let's practice!

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.



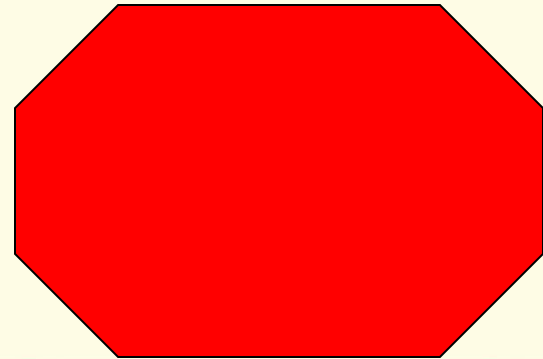
What's your call ?

- 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



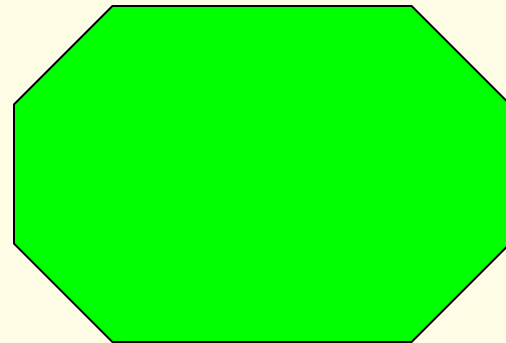
What's your call?

- 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



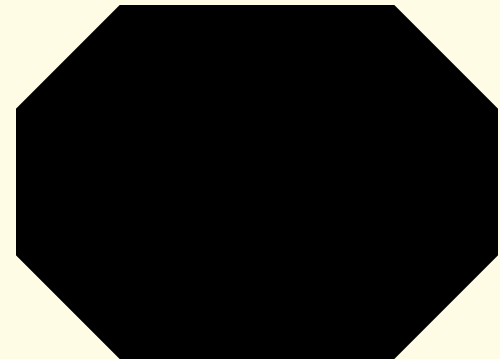
What's your call?

- **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**



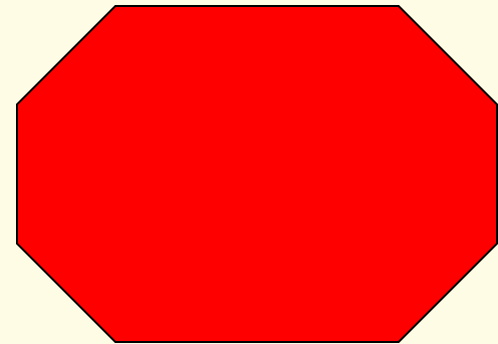
What's your call?

- **A small child lies with his lower body trapped under a seat inside the bus.**
- **Apneic**
- **Remains apneic upon opening airway**
- **No pulse**



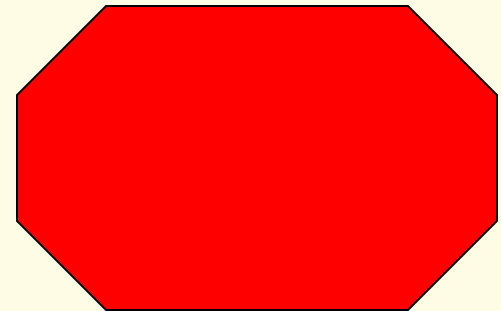
What's your call?

- **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**



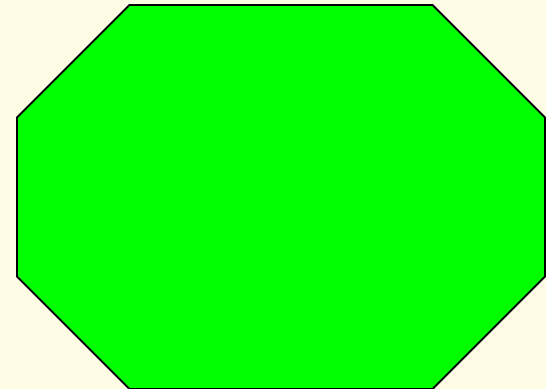
What's your call?

- **A male passenger lies among the wreckage.**
- **RR 40**
- **Palpable distal pulse**
- **Obeys commands but can not walk**



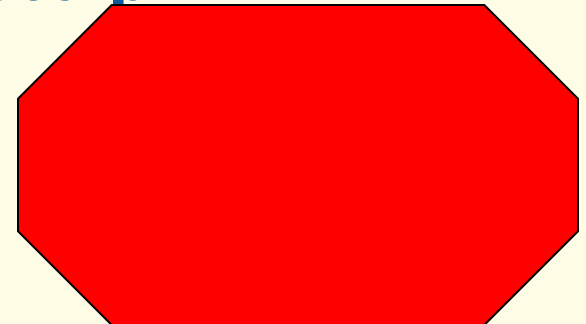
What's your call?

- A woman is carrying a crying infant. She is able to walk.
- RR 20
- CR around 2 sec
- Obeys commands



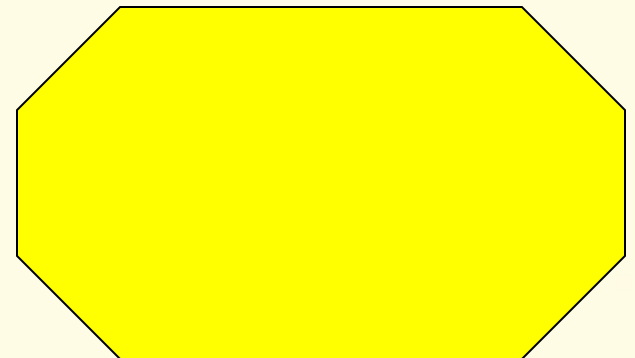
What's your call?

- **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**



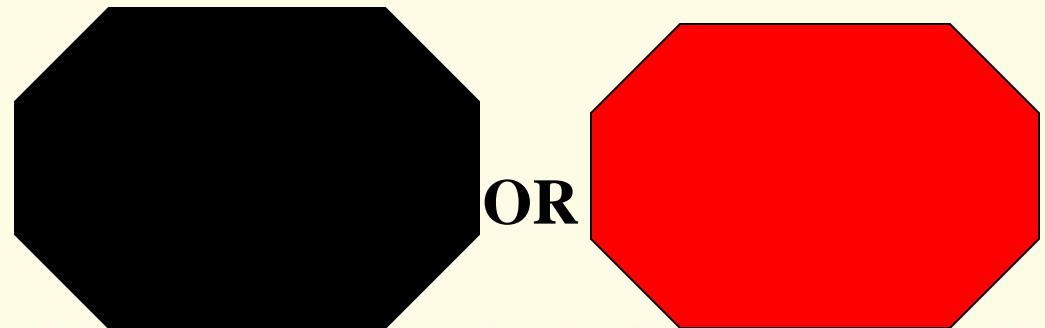
What's your call?

- 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.



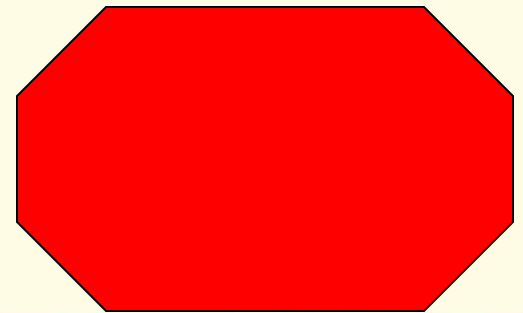
What's your call?

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



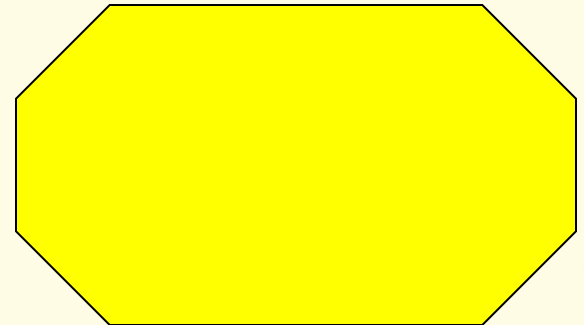
What's your call?

- **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**



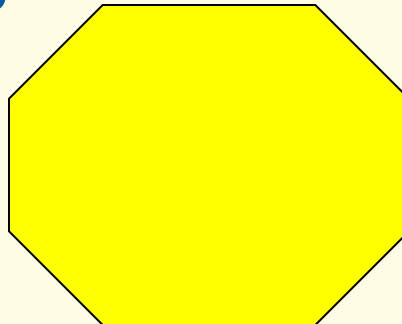
What's your call?

- **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.**

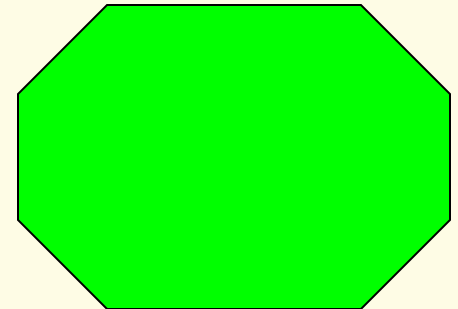


What's your call?

- **An adult male lies inside the bus.**
- **Obey commands but not will get up to walk**
- **No complaints**
- **RR 20**
- **CR < 2 sec**

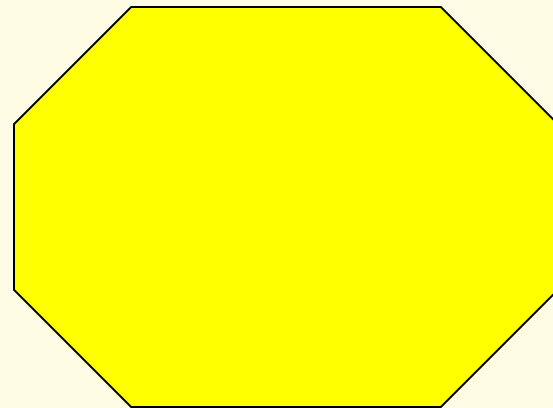


or



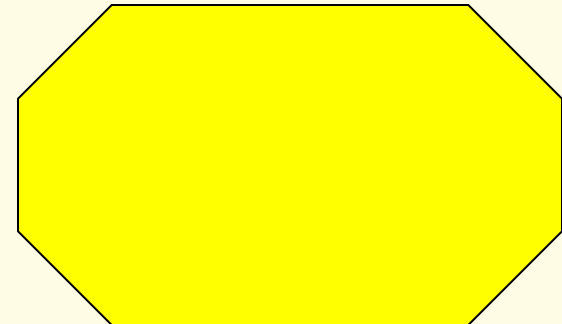
What's your call?

- A female child not walking
- Measures about 80-100 cm
- RR = 38
- CR < 2 sec



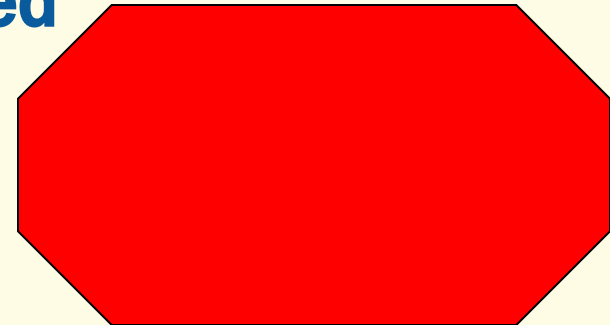
What's your call?

- **A female occupant hysterically screaming**
- **RR 28**
- **CR < 2 sec**
- **Can't assess ability to obey commands**
- **Complaining can't feel her leg**



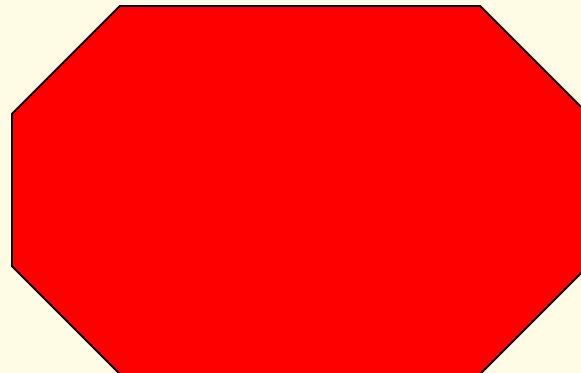
What's your call?

- 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



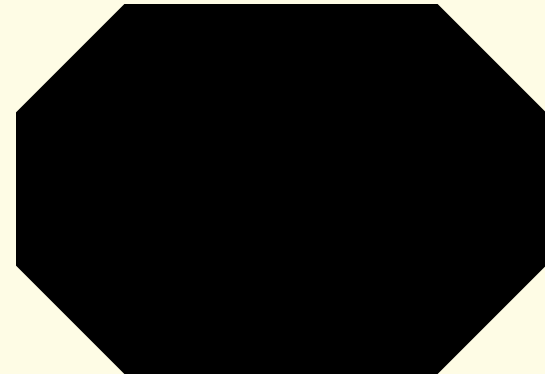
What's your call?

- 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



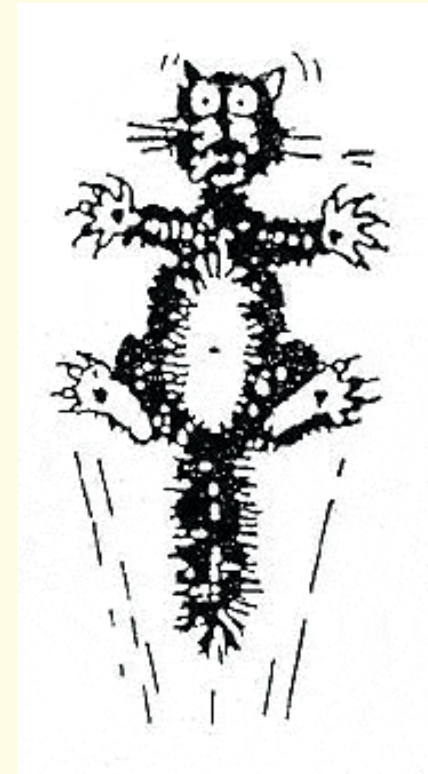
What's your call?

- A female passenger is unconscious
- 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!

