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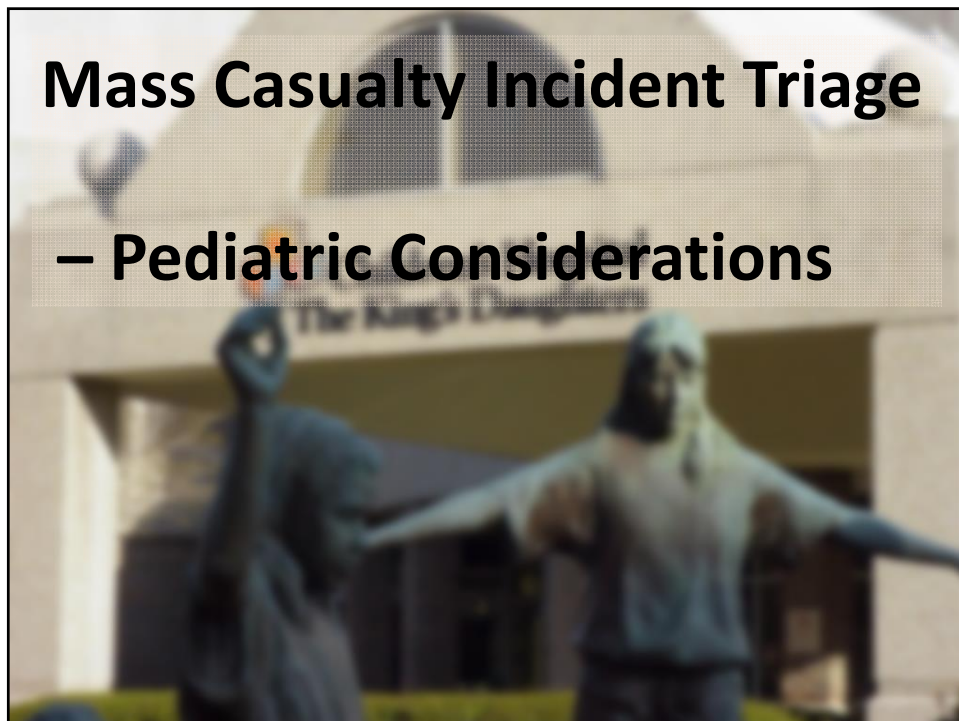
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Mass Casualty Incident Triage – Pediatric Considerations


Terminal Learning Objectives:



Mass Casualty Incident Triage – Pediatric Considerations

Terminal Learning Objectives:

There is a reason why they call them TERMINAL learning objectives



Mass Casualty Incident Triage – Pediatric Considerations

Terminal Learning Objectives:

I know, right, that's the part of the presentation where I am already zoned out, too.
But ... it *is* important!


- 1- First I tell you what I'm *going* to tell you.
- 2- Then, I tell you what I'm *telling* you.
- 3- Finally, I tell you what I *told* you.

Mass Casualty Incident Triage – Pediatric Considerations

Terminal Learning Objectives:

Principles of MCI Triage

At the conclusion of this session, participants will be able to:




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Mass Casualty Incident Triage – Pediatric Considerations

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MCI Triage algorithms - START, JumpSTART, SALT and STM (Sacco Triage Method)

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At the conclusion of this session, participants will be able to:

- Identify differences between the most common triage algorithms.



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- Apply the JumpSTART triage algorithm to a simulated pediatric victim.





Principles of MCI Triage

- Recognize how the philosophy of multi-casualty incident (MCI) triage differs from that of our daily non-disaster triage.



Principles of MCI Triage

- Recognize how the philosophy of multi-casualty incident (MCI) triage differs from that of our daily non-disaster triage.

Historical meaning of Triage

Contemporary use of the term "Triage"

Triage in the context of multiple -casualty incident



Principles of MCI Triage

- Describe the circumstances under which MCI Triage may be implemented.



Principles of MCI Triage

- Describe the circumstances under which MCI Triage may be implemented.

We are used to functioning under *constraints*, but is that Triage ?

Temporary “crunch time” situations

The “Goals” of triage are the difference

Reality vs Reality T.V.



Principles of MCI Triage

- Describe the circumstances under which MCI Triage may be implemented.

We are used to functioning under *constraints*, but is that Triage ?

Am I the only one who noticed that this line changed?

The “Goals” of triage are the difference

Reality vs Reality T.V.

So ... what might it take here in Coastal Virginia, for us to “Go There?”



Principles of MCI Triage

- Describe the circumstances under which MCI Triage may be implemented.

Transportation Accidents

Technology failures

Large scale acts of terrorism

Civil unrest / war

Pandemic communicable disease

Natural disaster

NaTech accidents



Principles of MCI Triage

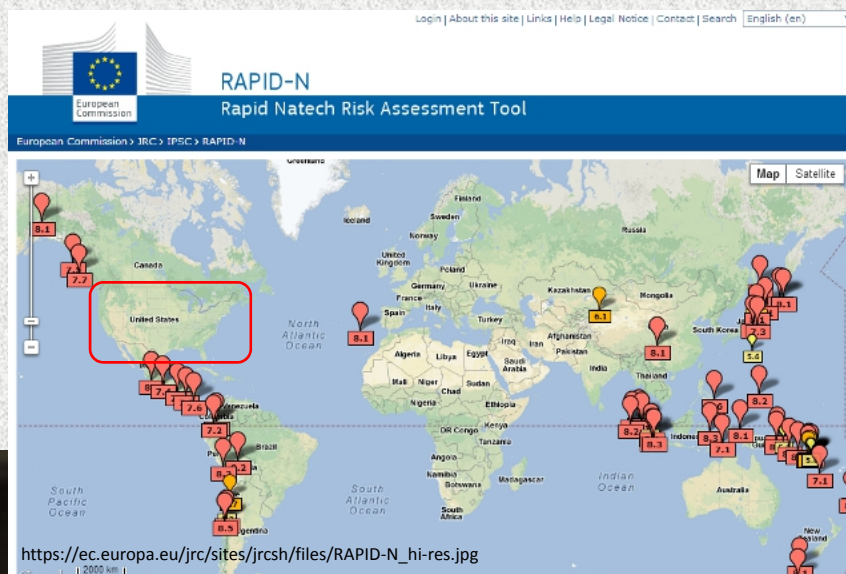
- Describe the circumstances under which MCI Triage may be implemented.

Other Considerations:



Principles of MCI Triage

- Describe the circumstances under which MCI Triage may be implemented.



Principles of MCI Triage

- The Flip Side: when might MCI triage algorithms be *less* appropriate

Not for routine triage

Developed for trauma

Not for medical patients *during an MCI*

Not for pandemic disease

Chemical exposure without accompanying trauma

Appropriate if *radiological exposure* accompanies trauma

Principles of MCI Triage

- The Flip Side: when might MCI triage algorithms be *less* appropriate

But we have to use ...
something !



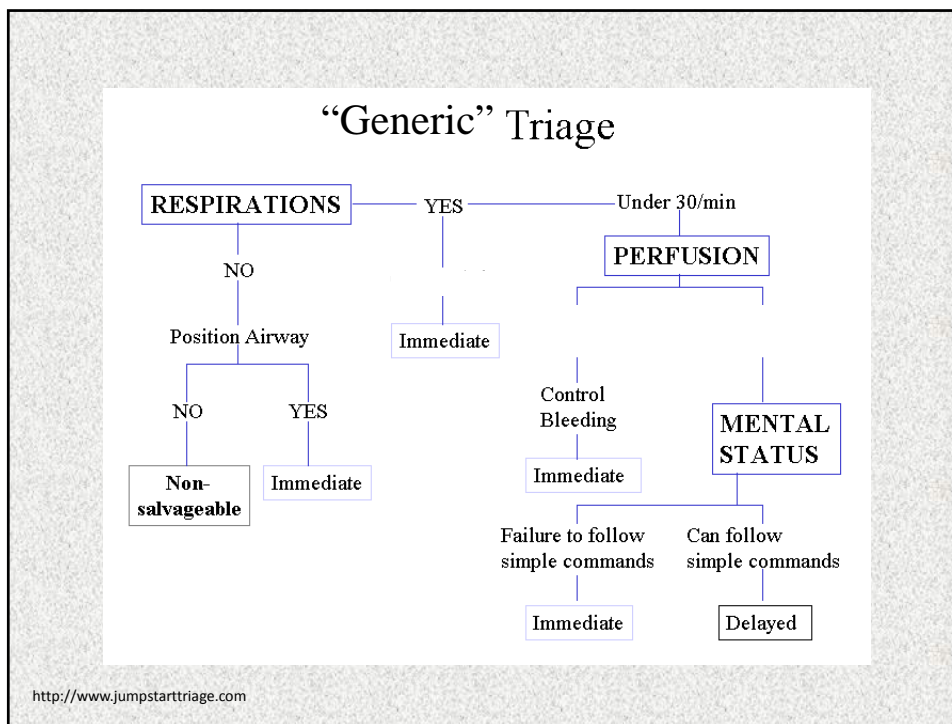
LIFE HACK
open a beer with your
seatbelt while driving

<http://i.imgur.com/kbsj5F>

Principles of MCI Triage

- Describe the standard patient classifications of MCI Triage.





Principles of MCI Triage

- Describe the standard patient classifications of MCI Triage.

Minor: **Green** Triage Tag Color

Delayed: **Yellow** Triage Tag Color

Immediate: **Red** Triage Tag Color

Expectant: **Black** Triage Tag Color

Triage levels can update, but should only increase, never DECREASE



Principles of MCI Triage

- Understand the performance criteria to be accomplished at each stage of MCI Triage.



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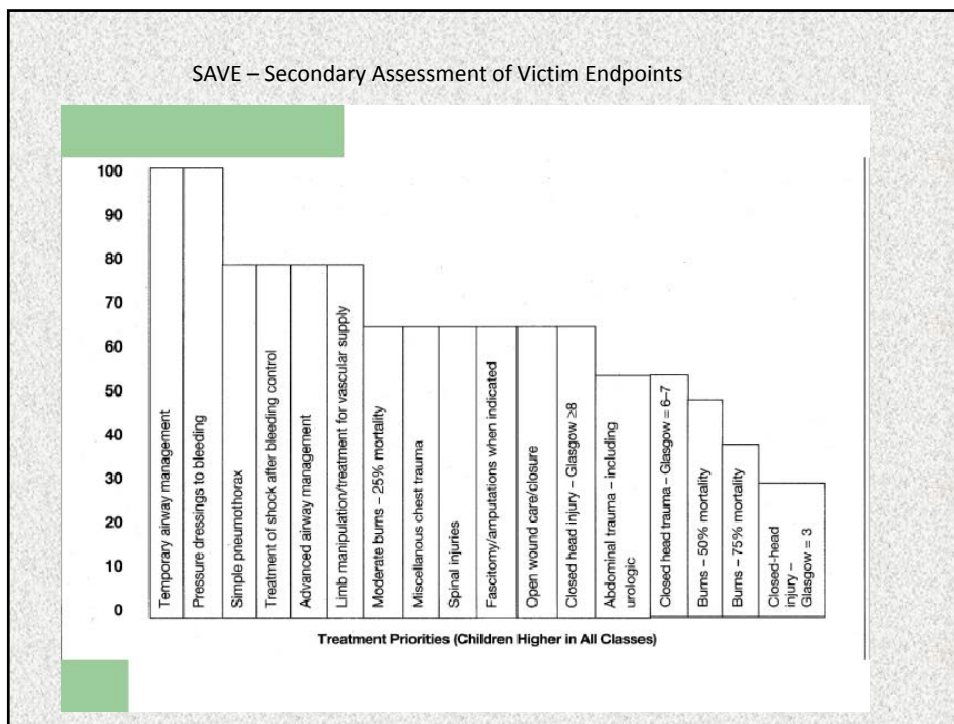
MASS Triage: **M**ove, **A**ssess, **S**ort, **S**end
(this is kind of a pre-Triage)

Concerns with MASS Triage

Initial (actual) Triage:

What happens next?





Principles of MCI Triage

- Discuss psycho-social barriers to effective implementation of MCI Triage for the pediatric victim.



Principles of MCI Triage

- Discuss psycho-social barriers to effective implementation of MCI Triage for the pediatric victim.

Some thoughts, on that.



Principles of MCI Triage

- Discuss psycho-social barriers to effective implementation of MCI Triage for the pediatric victim.

One rescuer's perspective



MCI Triage algorithms - START, JumpSTART, SALT and STM (Sacco Triage Method)

- Identify differences between the most common triage algorithms.



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- Identify differences between the most common triage algorithms.

What is the level of evidence for the usefulness of these tools?

Is there a Standard of Care?



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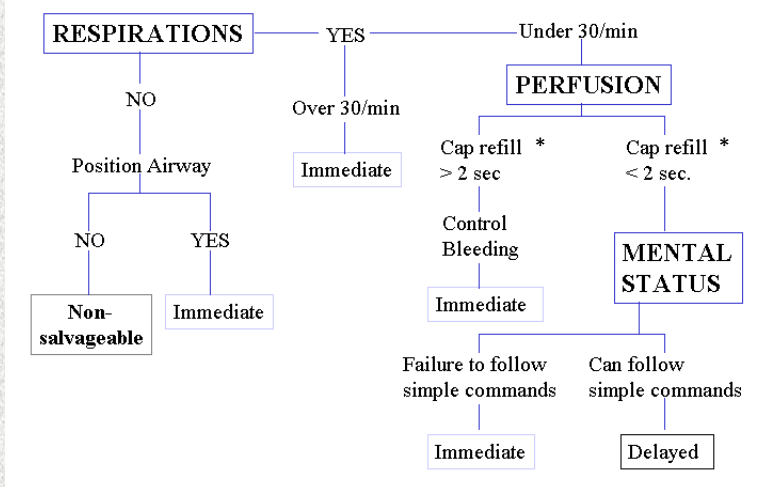
Intangibles

My Take Home



30 - 2 - Can Do

START Triage



<http://www.jumpstarttriage.com>

Background information

START was developed by the Newport Beach Fire and Marine Department and Hoag Hospital in Newport Beach, California in 1983.

Used the ability to obey commands, respiratory rate, and capillary refill to assign triage category.

Modified in 1996 to assess radial pulse instead of capillary refill, with a report of improved accuracy, especially in cold temperature.

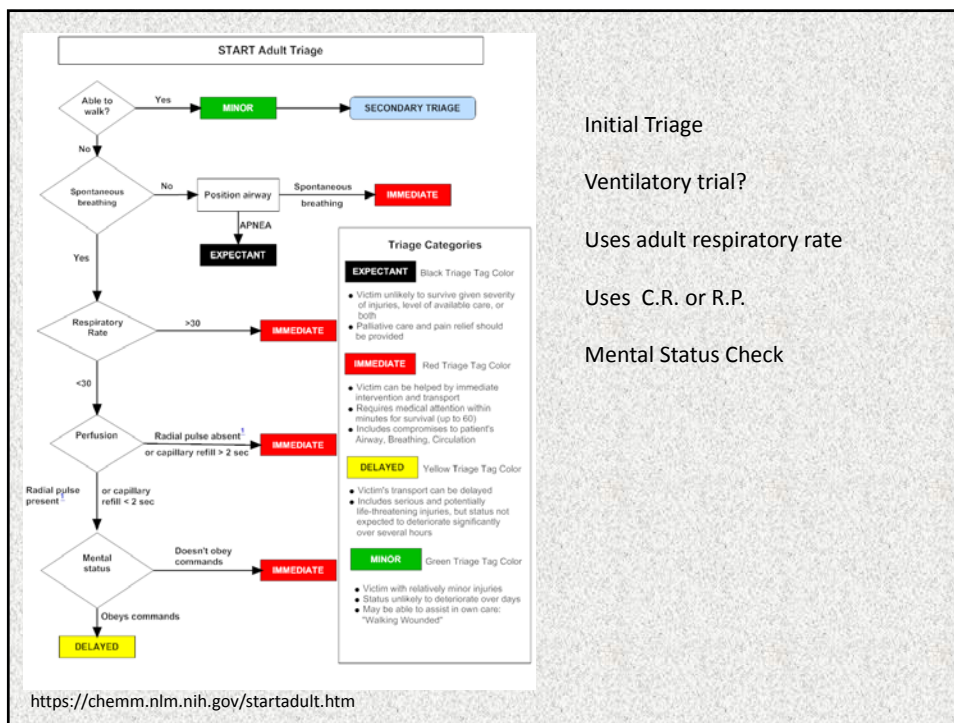
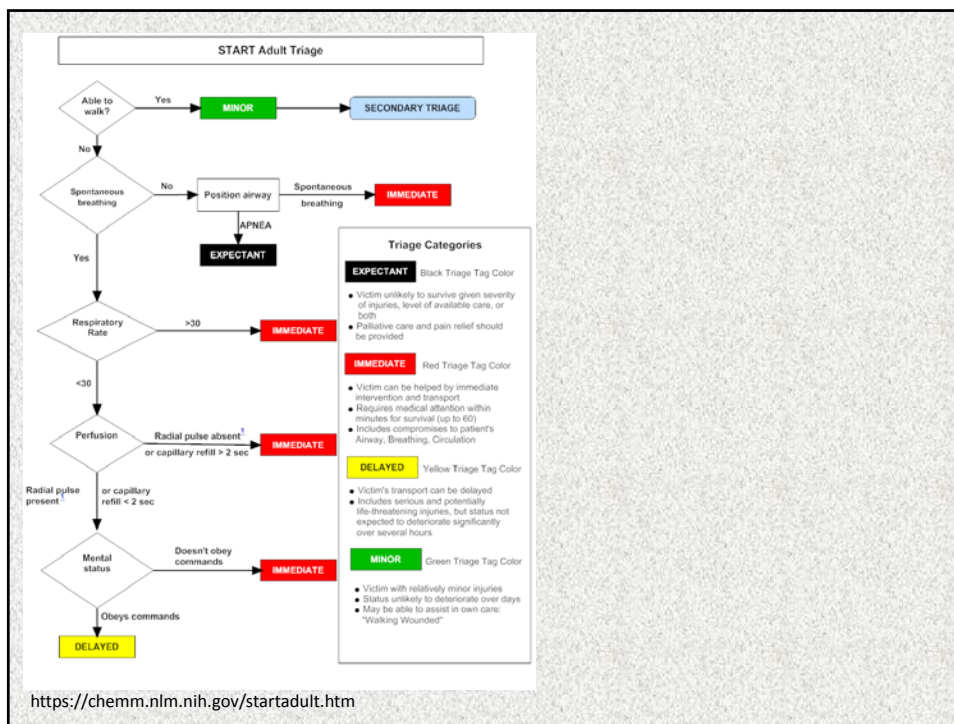
The Benson revision (START - SAVE [Secondary Assessment of Victim Endpoint]), also uses "survivability factors" to help determine outcomes.

<https://chemm.nlm.nih.gov/startadult.htm>

MCI Triage algorithms - START, JumpSTART, SALT and STM (Sacco Triage Method)

- Identify deficiencies in the START and SALT triage algorithms with regard to the triage of pediatric victims.





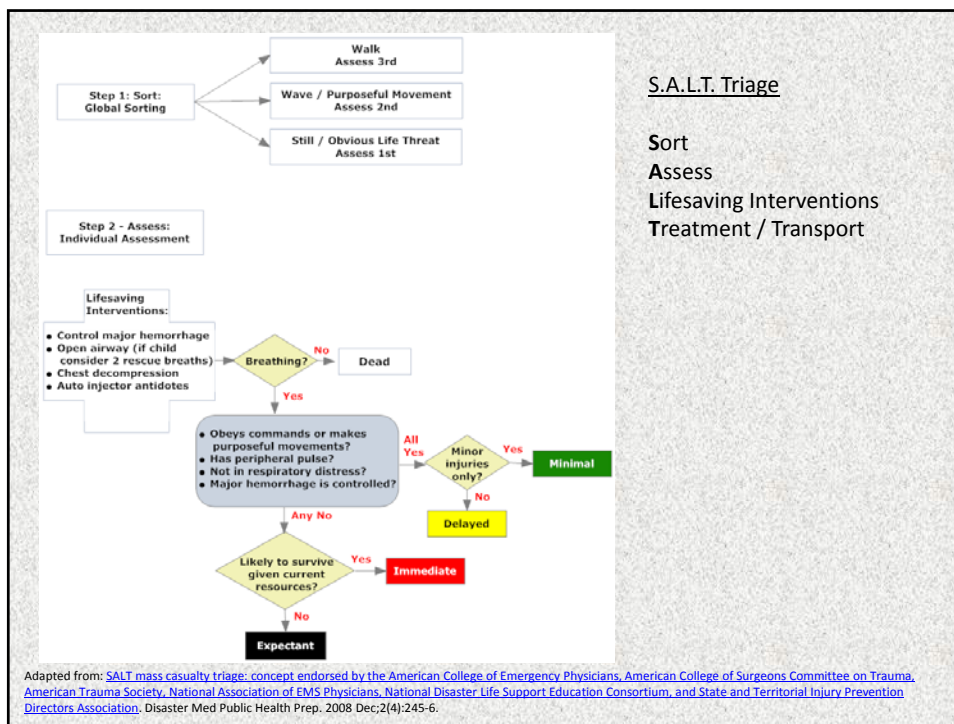
Initial Triage

Ventilatory trial?

Uses adult respiratory rate

Uses C.R. or R.P.

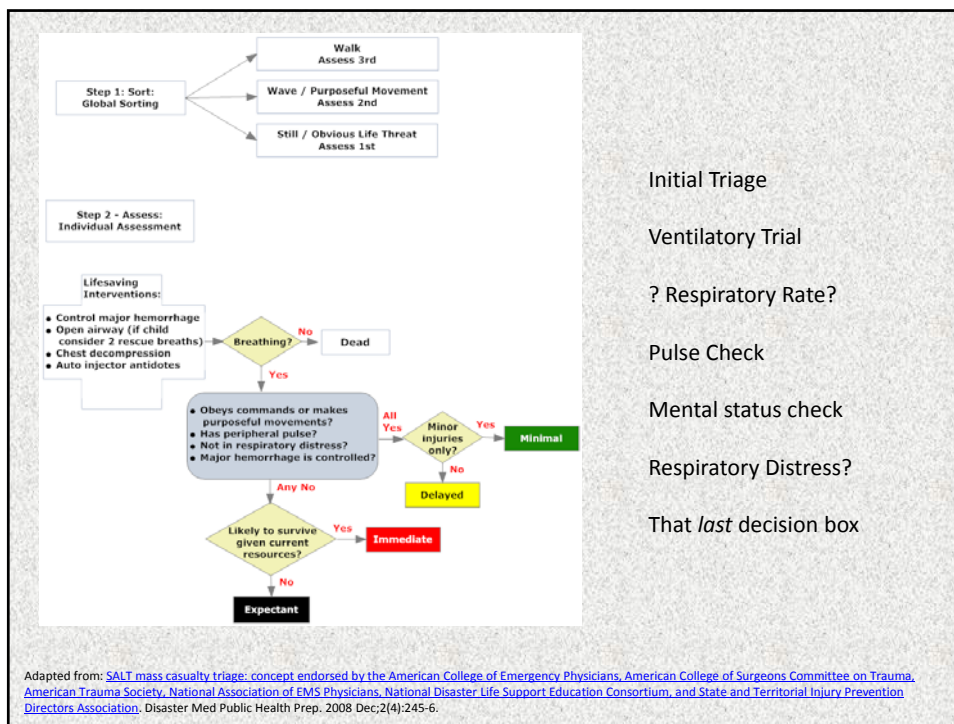
Mental Status Check



Background information

Endorsed by: ACEP, ACS Committee on Trauma, ATS, NAEMS Physicians, NDLS Education Consortium, and taught by FEMA C.D.P.

Emphasizes Lifesaving Interventions






MCI Triage algorithms - START, JumpSTART, SALT and STM (Sacco Triage Method)

- Compare relative merits of JumpSTART and Sacco Triage Method “STM” algorithms for the pediatric victim.



Think Sharp Sacco Score R + P + M +/- A

1 min (60 seconds)	0	1	2	3	4
R 	0	1-9*	36+	25-35	10*-24
P 	0	1-40	41-60*	121+	61*-120
M 	No Response	Extension/ Flexion	Withdraws	Localizes	Obeys Commands
A	Age: 0-7 +2	8-14 +1	15-54 0	55-74 -1	75+ -2

* - measure must be verified

M- Rest 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

Survival Outcomes		
12 = 58%	11 = 47%	10 = 92%
9 = 85%	8 = 78%	7 = 76%
6 = 67%	5 = 54%	4 = 30%
3 = 27%	2 = 17%	1 = 11%
	0 = 5%	

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<http://www.jumpstarttriage.com>

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<http://www.jumpstarttriage.com>

Proprietary
 Order of Operations
 Lou Romig like it
 Fine tuned for Pediatrics
 Prediction of Survival Outcomes
 It's "fiddly"

JumpSTART Pediatric MCI Triage®

©Lou Romig MD, 2002

Background information

JumpSTART, a pediatric version of START was developed at the Miami, Florida Children's Hospital in 1995 by Dr. Lou Romig.

JumpSTART's objectives:

- 1) optimize the primary triage of injured children
- 2) enhance the effectiveness of resource allocation
- 3) to reduce the emotional burden on triage personnel

JumpSTART provides an **objective** framework intended to:

Reduce Under-triage of pediatric patients by using physiologic considerations specific to children, while providing an objective framework that reduces Over-triage caused by emotional considerations

<http://www.jumpstarttriage.com>

JumpSTART Pediatric MCI Triage®

©Lou Romig MD, 2002

JumpStart is familiar

It is fine-tuned for kids.

It is similar to START

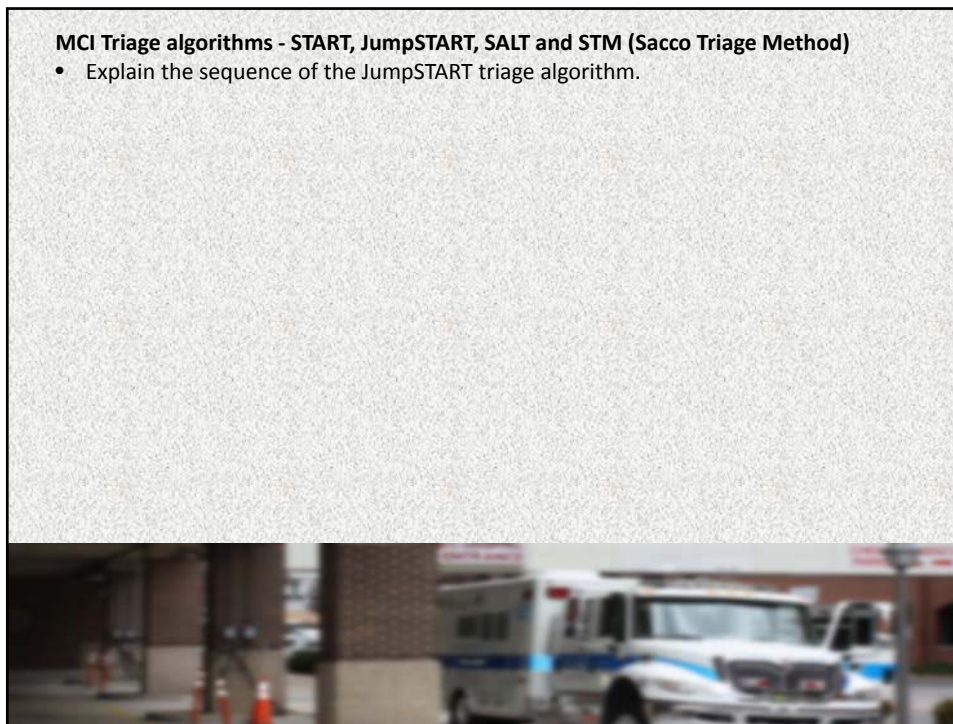
Has some of the same limitations

Possible less effective in outcomes prediction

<http://www.jumpstarttriage.com>

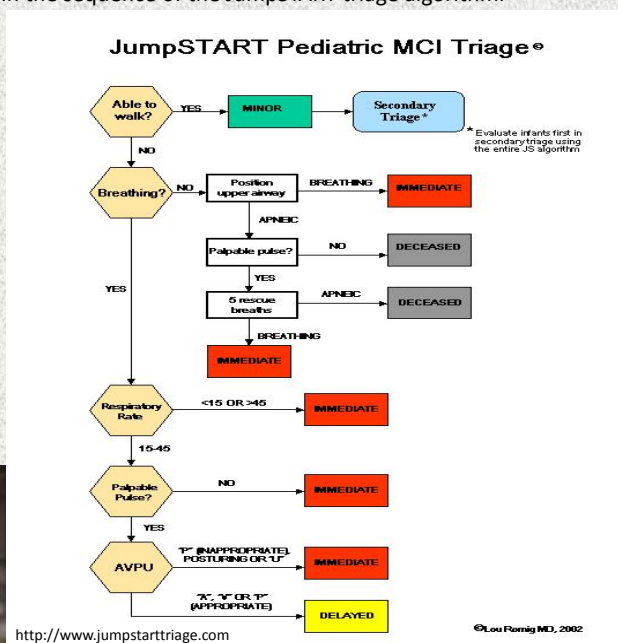
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- Explain the sequence of the JumpSTART triage algorithm.



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- Discuss the rationale behind the ventilatory trial portion of the JumpSTART system.



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“A large proportion of pediatric emergencies are a result of respiratory problems which, if not treated quickly and appropriately, can result in cardiopulmonary arrest. Early recognition and treatment of respiratory problems is therefore of primary importance to improve the outcome of pediatric emergencies.”

- Upper airway obstruction –
- Lower airway obstruction –
- Lung tissue disease –
- Disordered control of breathing –

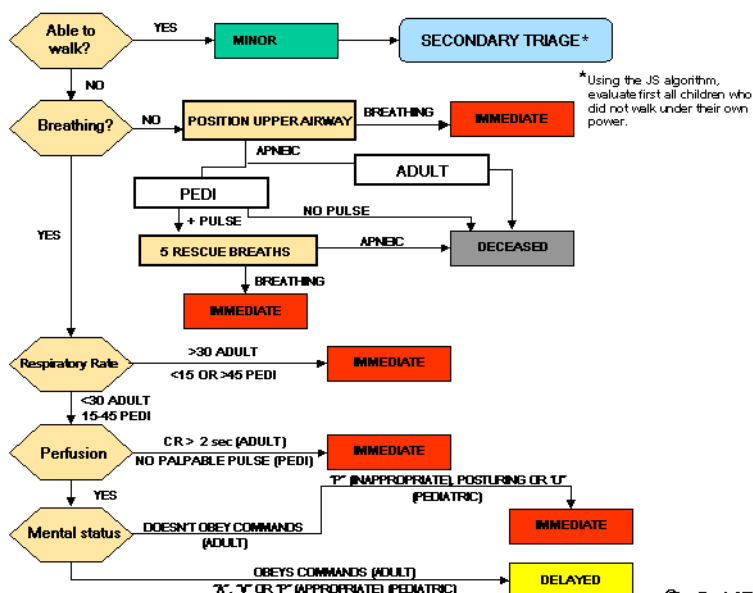


MCI Triage algorithms - START, JumpSTART, SALT and STM (Sacco Triage Method)

- Apply the JumpSTART triage algorithm to a simulated pediatric victim.



Combined START/JumpSTART Triage Algorithm



<http://www.jumpstarttriage.com>

©Lou Romig MD, 2002

Scenario:

Mrs. Henderson's third grade class is at the Virginia Beach ocean front for a school field trip. As they step out of the parking garage onto a 2nd story suspended pedestrian bridge above Pacific Ave, a vehicle strikes the far abutment causing a catastrophic failure of the walkway.

Some of the party tumbles onto the pavement below, while the remainder become entangled within the collapsing structure.

The weather is mild, there is no fire or risk of hazardous materials exposure and there is no reason to suspect the accident was intentional. Traffic is stopped, and several police officers on bike patrol respond immediately.

You call 911, describe the nature and location of the incident and identify yourself as a healthcare professional who is trained in Multiple Casualty Triage. After the dispatcher stops laughing, you indignantly excuse yourself from the phone and begin the task of triaging the injured.

Scenario:

Your first intervention is to initiate MASS Triage by getting everyone's attention and instructing them:

"If you are able to walk, please go stand in front of the Ben & Jerry's"

Several folks stand and begin to mill around, but no one is willing to walk away. These are your Delayed Care (Green) Group.

As you begin to assess the injured, you find:

Patient Number 1:

9 year old female who is entangled in debris but not pinned.
 You can assess her, but not immediately extricate her from the debris
 Her respiratory rate is 40 and she is sobbing
 Her radial pulse is rapid, and she has a moderate amount of bleeding from an open wound in her thigh
 She is able to touch her finger to her nose when instructed to do so

What is her Triage Category?
 What are you going to do after assessing her?
 What *could* you do before you go to the next patient?



JumpSTART Pediatric MCI Triage®

* Evaluate infants first in secondary triage using the entire J2 algorithm

©, Leo Remig MD, 2002

http://www.jumpstarttriage.com

9 year old female who is entrapped in debris but not pinned. You can assess her, but are unable to immediately extricate her from the debris.

Her **respiratory rate is 40** and she is sobbing

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She is **able to** touch her finger to her nose when instructed to do so.

What is her Triage Category?
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 What *could* you do before you go?

Patient Number 2:

9 year old male who was just pulled from a large pile of debris by onlookers. He is unresponsive and has purplish discoloration to the face, ears and neck.

Upon Triage:

A single inspiratory effort is noted without effective air movement. You open the airway with a jaw-thrust maneuver, but he remains apneic. Radial pulse is absent, but there is a weak carotid pulse with a rate of 30. You attempt 5 manual ventilations, but the patient remains apneic.

What is his Triage Category?

What are you going to do after assessing him?

What *could* you do before you go to the next patient?

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What are you going to do after assessing him?

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JumpSTART Pediatric MCI Triage®

© 2010 Fleming MD, 2002

9 year old male who was just pulled from a large pile of debris by onlookers. He is apparently unresponsive and has purplish discoloration to the face, ears and neck.

A **single inspiratory effort** is noted without effective air movement. You open the airway with a jaw-thrust maneuver, but he remains **apneic**. Radial pulse is absent, but there is a weak carotid **pulse with a rate of 30**. You attempt 5 manual ventilations, but the patient remains **apneic**.

What is his Triage Category?
 What are you going to do after assessing him?
 What *could* you do before you go?

<http://www.jumpstarttriage.com>

Patient Number 3:

18 month old daughter of one of the chaperones. She is entangled in an umbrella stroller which fell from the walkway onto the pavement below.

Respiratory effort is irregular with an estimated rate of 15/min
 A brachial pulse is present, and the skin is noted to be pink and warm
 The patient does not respond to verbal stimulus, but responds to painful stimulus by clenching her fists, flexing her arms and extending her legs.

What is her Triage Category?
 What are you going to do after assessing her?
 What could you do before you go to the next patient?

JumpSTART Pediatric MCI Triage®

© Lee Fleming MD, 2002

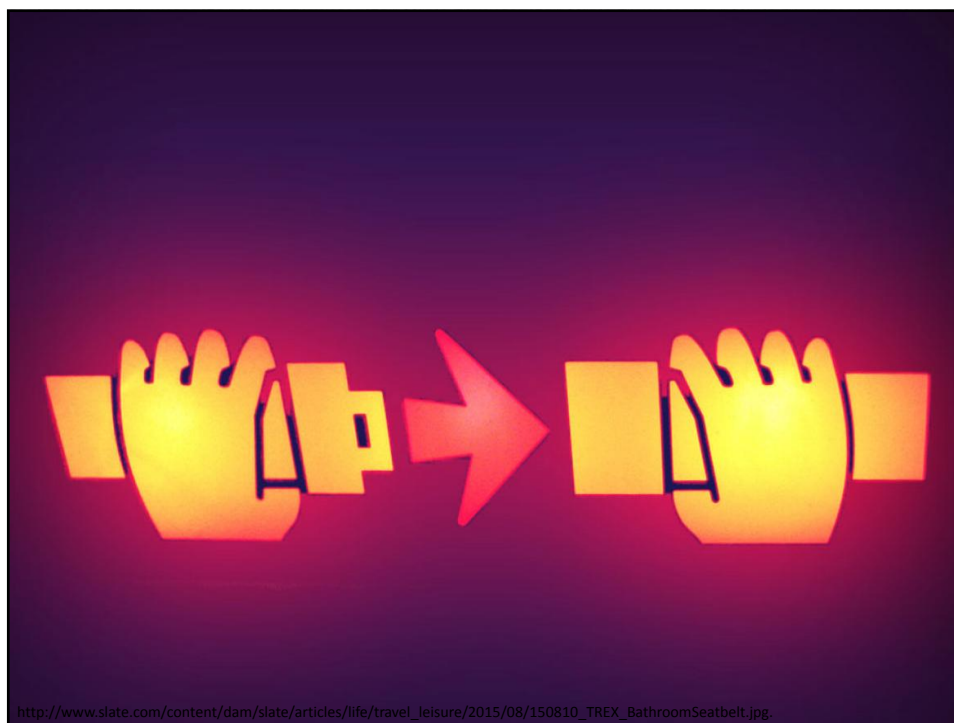
18 month old entangled in an umbrella stroller which pitched out of the walkway onto the pavement below.

Respiratory effort is present with an estimated **rate of 15**. A brachial **pulse is present** and the skin is noted to be pink.

The patient does not respond to verbal stimulus, but when painful **stimulus** is applied she responds by **clenching her fists, flexing her arms and extending her legs**.

What is her Triage Category?
 What are you going to do after assessing her?
 What could you do before you go to?

<http://www.jumpstarttriage.com>



Recap:

Multiple Casualty Incident Triage is different from what we do routinely.

It is an infrequent event, even more so when it involves children.

There are different triage algorithms available.

There is no strong scientific evidence validating their use in Trauma.

There is no suggestion of value in non-traumatic MCI.

There is no good scientific evidence showing a relative superiority of one algorithm for pediatric patients, but there are considerations for which we expect there may be a relative superiority among triage algorithms.

Most likely, there are circumstances in which advantages may be present in some circumstances and not in others.

Recap:

What we THINK is:

Algorithms should be easy to use and easy to remember.

Algorithms should give reproducible results when applied by different individuals.

When used correctly, we believe that these algorithms are likely to rank patient acuity adequately so that we can better address the needs of the many balanced with the needs of the few.

ANY algorithm may be emotionally difficult for the provider to utilize, especially when children are among the injured.



- JumpSTART (Team Life Support, Inc., Commercial web site, no endorsement implied)
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