

HOW TO START ASSALTING YOUR TRIAGE SCHEMES - SORTING THE DIFFERENT TRIAGE SCHEMES

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Disclosures

- I have no significant financial disclosures

Disclaimers

- Out-of-hospital providers should follow local protocols at all times



- Compare and Contrast Mass Casualty Triage and Field Triage
- Compare and contrast the different triage schemes
- Review the literature on triage
- Discuss the FICEMS report *National Implementation of the Model Uniform Core Criteria for Mass Casualty Incident Triage*

- Mass Casualty Incident Triage
 - The process of prioritizing multiple victims when resources are not sufficient to treat everyone immediately
 - Primary Triage
 - Secondary Triage
- Field Triage
 - The process of ensuring that injured patients are transported to a trauma center or hospital that is best equipped to manage their specific injuries, in an appropriate and timely manner
 - Destination Determination



United Kingdom

Set by the Major Incident Medical Management and Support System (MIMMS)

MIMMS classes are being taught across Europe

Primary Triage - Triage Sieve

Secondary Triage - Triage Sort



Australia

Care Flight Triage – Primary Triage



United States

National Disaster Life Support

START – Primary Triage

JumpSTART – Primary Triage

SALT – Primary Triage

Local Trauma Criteria – Secondary Triage



Triage Sort

STEP 1: Calculate the GLASGOW COMA SCORE (GCS)

| A Eye opening: | | B Verbal response: | | C Motor response: | |
|-----------------------|---|---------------------------|---|--------------------------|---|
| spontaneous | 4 | orientated | 5 | obeys commands | 6 |
| to voice | 3 | confused | 4 | localises | 5 |
| to pain | 2 | inappropriate | 3 | pain withdraws | 4 |
| none | 1 | incomprehensible | 2 | pain flexes | 3 |
| | | no response | 1 | pain extends | 2 |
| | | | | no response | 1 |

$$\text{GCS} = \text{A} + \text{B} + \text{C}$$

STEP 2: Calculate the TRIAGE SORT SCORE

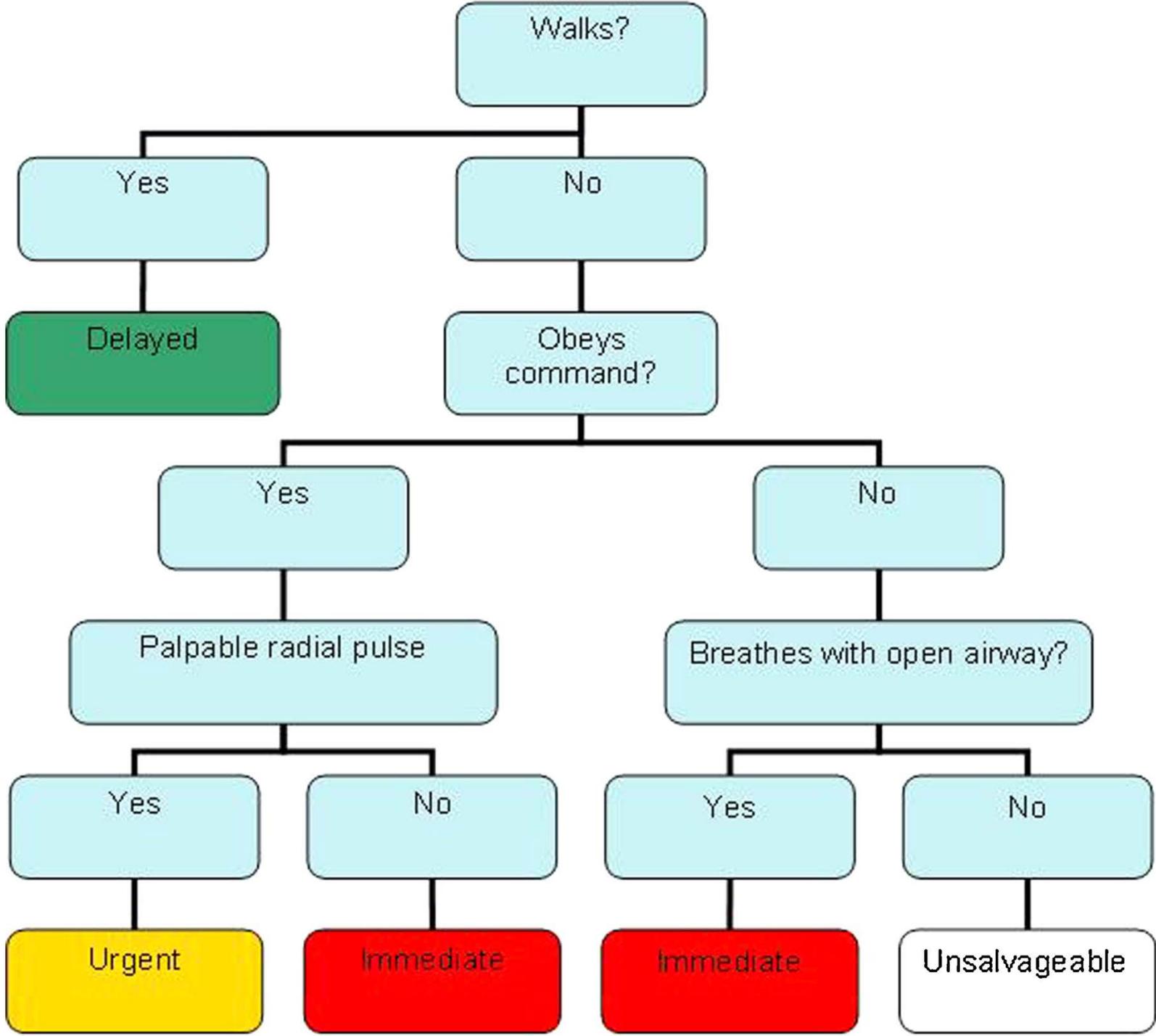
| X GCS | | Y Respiratory rate | | Z Systolic BP | |
|--------------|---|---------------------------|---|----------------------|---|
| 13 - 15 | 4 | 10 - 29 | 4 | ≥ 90 | 4 |
| 9 - 12 | 3 | ≥ 30 | 3 | 76 - 89 | 3 |
| 6 - 8 | 2 | 6 - 9 | 2 | 50 - 75 | 2 |
| 4 - 5 | 1 | 1 - 5 | 1 | 1 - 49 | 1 |
| 3 | 0 | 0 | 0 | 0 | 0 |

$$\text{TRIAGE SORT SCORE} = \text{X} + \text{Y} + \text{Z}$$

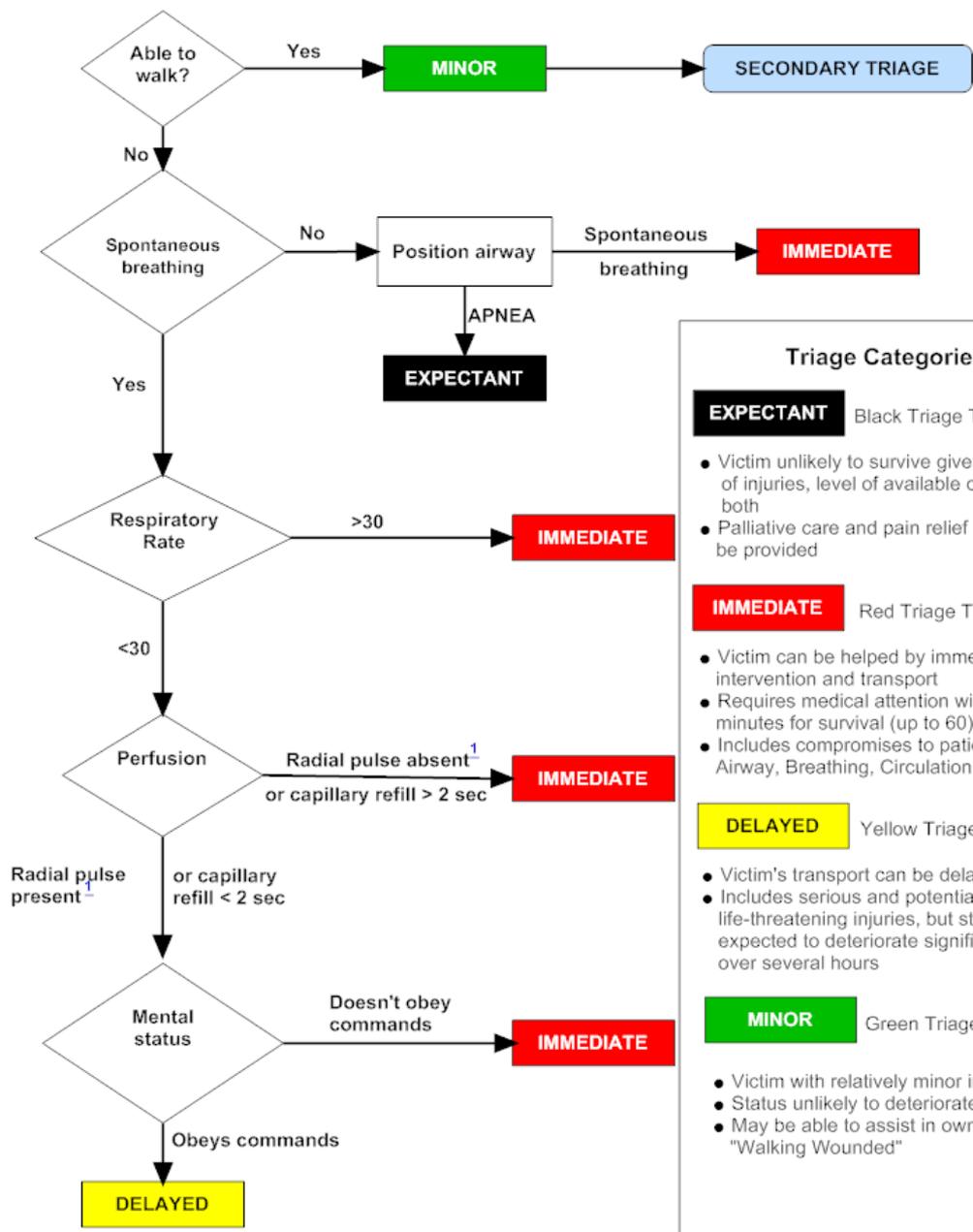
STEP 3: Assign a triage PRIORITY

| |
|-------------------------|
| 12 = PRIORITY 3 |
| 11 = PRIORITY 2 |
| ≤10 = PRIORITY 1 |

STEP 4: Upgrade PRIORITY at discretion of senior clinician, dependent on the anatomical injury/working diagnosis



START Adult Triage



Triage Categories

EXPECTANT Black Triage Tag Color

- Victim unlikely to survive given severity of injuries, level of available care, or both
- Palliative care and pain relief should be provided

IMMEDIATE Red Triage Tag Color

- Victim can be helped by immediate intervention and transport
- Requires medical attention within minutes for survival (up to 60)
- Includes compromises to patient's Airway, Breathing, Circulation

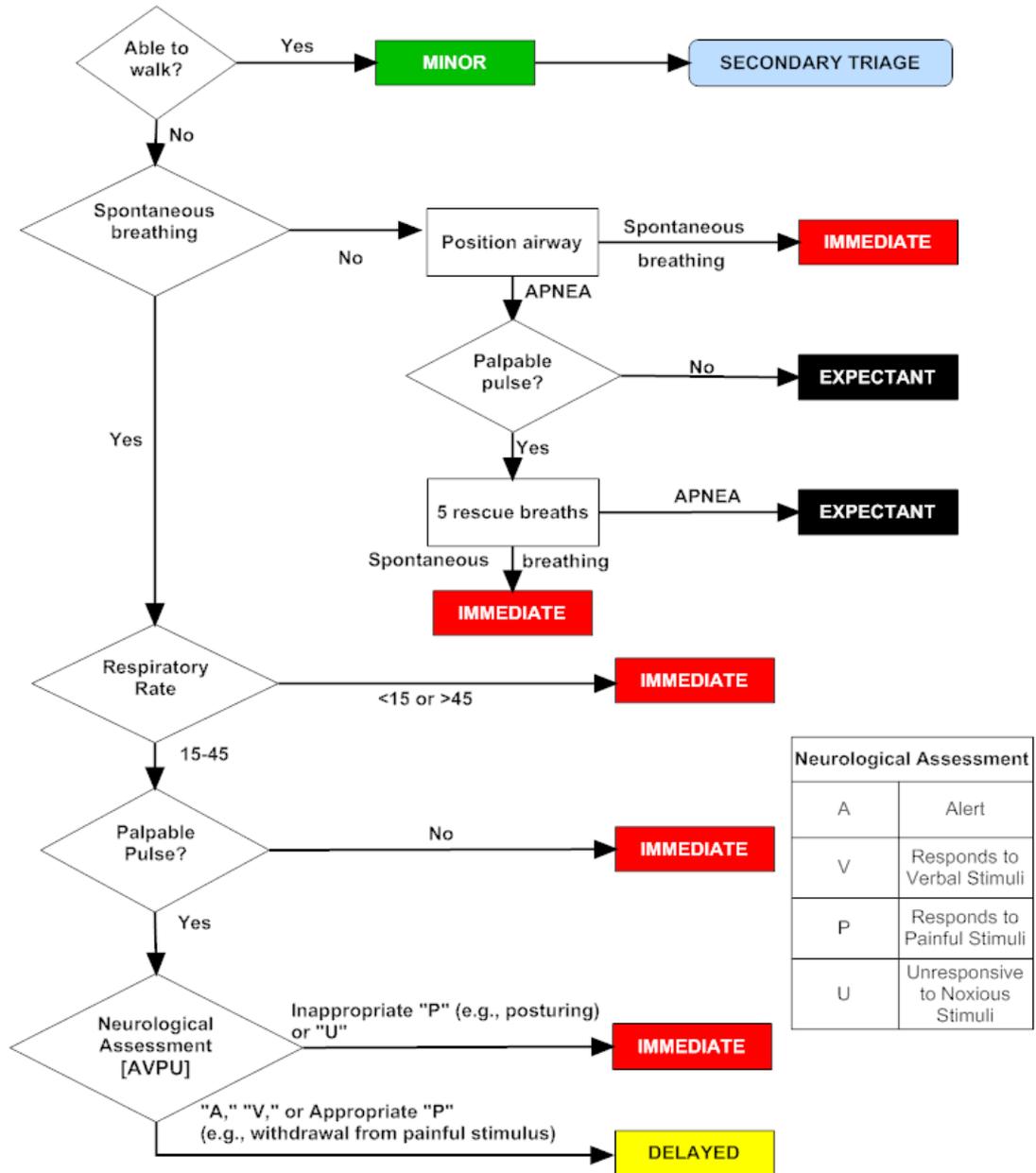
DELAYED Yellow Triage Tag Color

- Victim's transport can be delayed
- Includes serious and potentially life-threatening injuries, but status not expected to deteriorate significantly over several hours

MINOR Green Triage Tag Color

- Victim with relatively minor injuries
- Status unlikely to deteriorate over days
- May be able to assist in own care: "Walking Wounded"

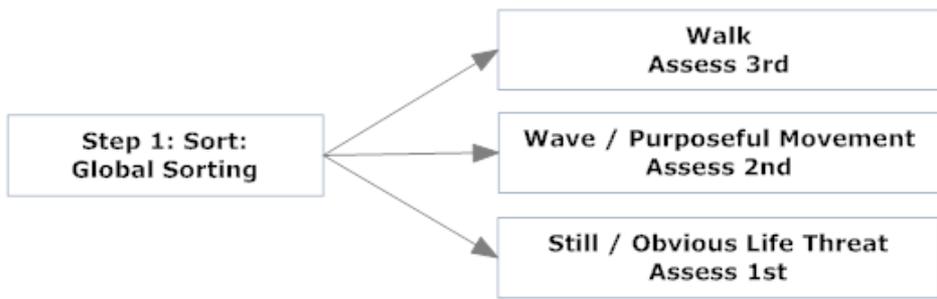
JumpSTART Pediatric Multiple Casualty Incident Triage



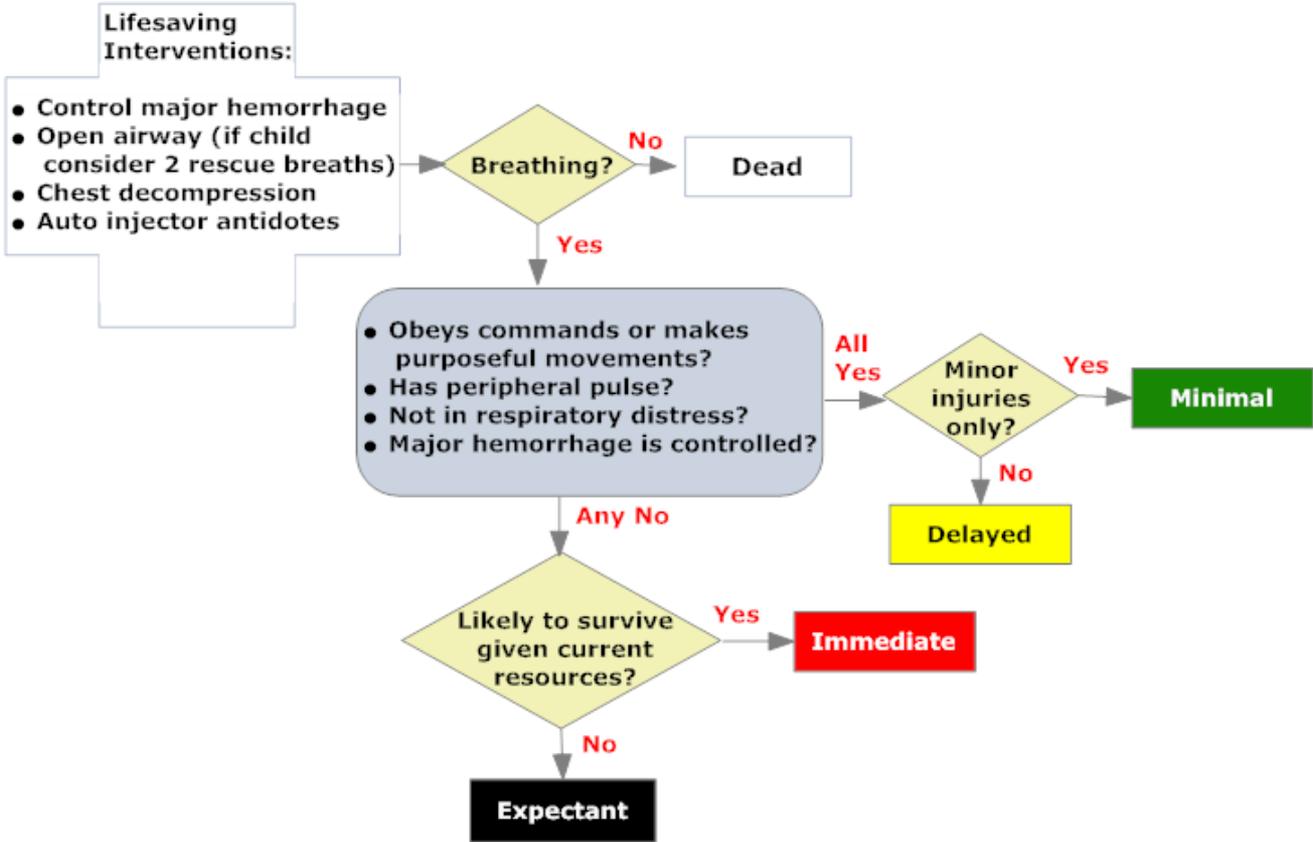
| Neurological Assessment | |
|-------------------------|---------------------------------|
| A | Alert |
| V | Responds to Verbal Stimuli |
| P | Responds to Painful Stimuli |
| U | Unresponsive to Noxious Stimuli |

Use JumpSTART if the Patient appears to be a child.

Use an adult system, such as START, if the patient appears to be a young adult.



Step 2 - Assess: Individual Assessment



Kahn C et al. Does START triage work? An outcomes assessment after a disaster. *Ann Emerg Med.* 2009;54:424-430.

This analysis demonstrates poor agreement between triage levels assigned by START at a train crash and a priori outcomes criteria for each level. START ensured acceptable levels of undertriage but incorporated a substantial amount of overtriage. START proved useful in prioritizing transport of the most critical patients to area hospitals first.

Challen K and Walter D. Major incident triage: Comparative validation using data from 7th July bombings. *Injury , Int. J. Care Injured.* 2013; 44:629-633.

Systematic triage of mass casualties is effective but the amount of missing data seriously compromises any attempt to evaluate systems of trauma care in a major incident

Garner A et al. Comparative analysis of multiple-casualty incident triage algorithms. *Ann Emerg Med.* 2001;38:541-548.

Of the physiologic variable used in the triage algorithms, the Motor Component of the Glasgow Coma Scale and systolic blood pressure had the strongest association with severe injury. CareFlight Triage, START, and modified START had similar sensitivities in predicting critical injury in designated trauma patients, but CareFlight Triage had better specificity. Because patients in a true mass casualty situation may not be completely comparable with designated trauma patients transported to emergency department in routine circumstances, the best triage instrument in this study may not be the best in an actual MCI. These findings must be validated prospectively before their accuracy can be confirmed.

Lidal I et al. Triage systems for pre-hospital emergency medical services – a systematic review. *Scand J Trauma.* 2013;21:28

From the systematic review, we conclude that there is a lack of scientific evidence about the effects of validated pre-hospital triage systems and about the effects of using the same triage system in two or more settings of EMS. The fact that there is no robust evidence on the effects of pre-hospital triage systems does not mean that such systems are ineffective. It means that we do not know whether the systems are effective, nor can we suggest the size of a potential effect.



National Implementation Of the Model Uniform Core Criteria for Mass Casualty Incident Triage

A Report of the FICEMS



General

- Must apply to all ages and populations of patients
- Applicable across the broad range of mass casualty incidents
- Simple, easy to remember and amenable to quick memory aids
- Rapid to apply and practical for use in austere environments
- Allow for dynamic triage decisions based on changes in available resources and patient conditions
- The assigned triage category by visibly identifiable
- Assessments must be repeated and categories adjusted to reflect change

Global Sorting

- Simple commands must be used initially to prioritize patients
- First priority is to identify those who are likely to need a lifesaving intervention
- All patients must be assessed individually regardless of their initial prioritization during global sorting

Lifesaving Interventions

- Considered for each patient and provided as necessary before assigning a triage category
- Performed only if the equipment is readily available
- Include:
 - Controlling life-threatening external hemorrhage
 - Opening the airway using basic maneuver
 - Considering 2 rescue breaths for apneic child
 - Performing chest decompression
 - Providing autoinjector antidotes

Individual Assessments

- Each patient must be assigned to 1 of 5 triage categories (immediate, delayed, minimal expectant, dead)
- Each category must be associated with an associated color
- Assessment must not require counting or timing vital signs
- Assessment must use yes/no criteria
- Capillary refill must not be used as a sole indicator of peripheral perfusion
- Patients categorized as immediate are the first priority for treatment and/or transport
- Patients categorized as expectant should be provided with treatment and/or transport as resources allow

Overtriage

- Minimal adverse medical consequences for the patient
- Results in excessive costs and burden for higher level trauma centers
- In disaster and mass casualty events can effect patient care and survival

Undertriage

- Results in preventable mortality and morbidity
- Optimal goal of less than 5%



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