



MASS CASUALTY INCIDENT

Dr. Abdulhadi Tashkandi

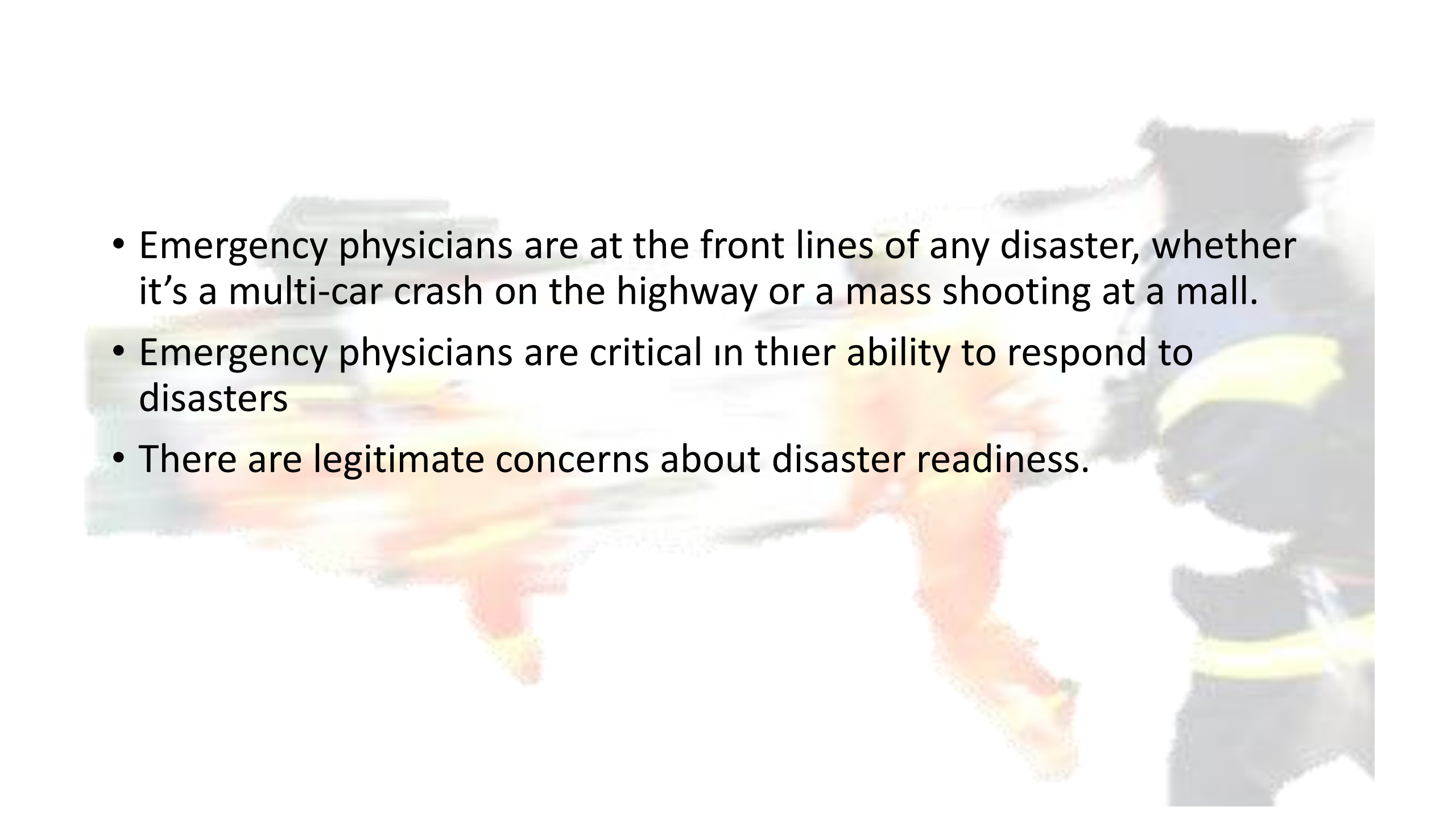
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MCI RESPONSE

Potential Danger

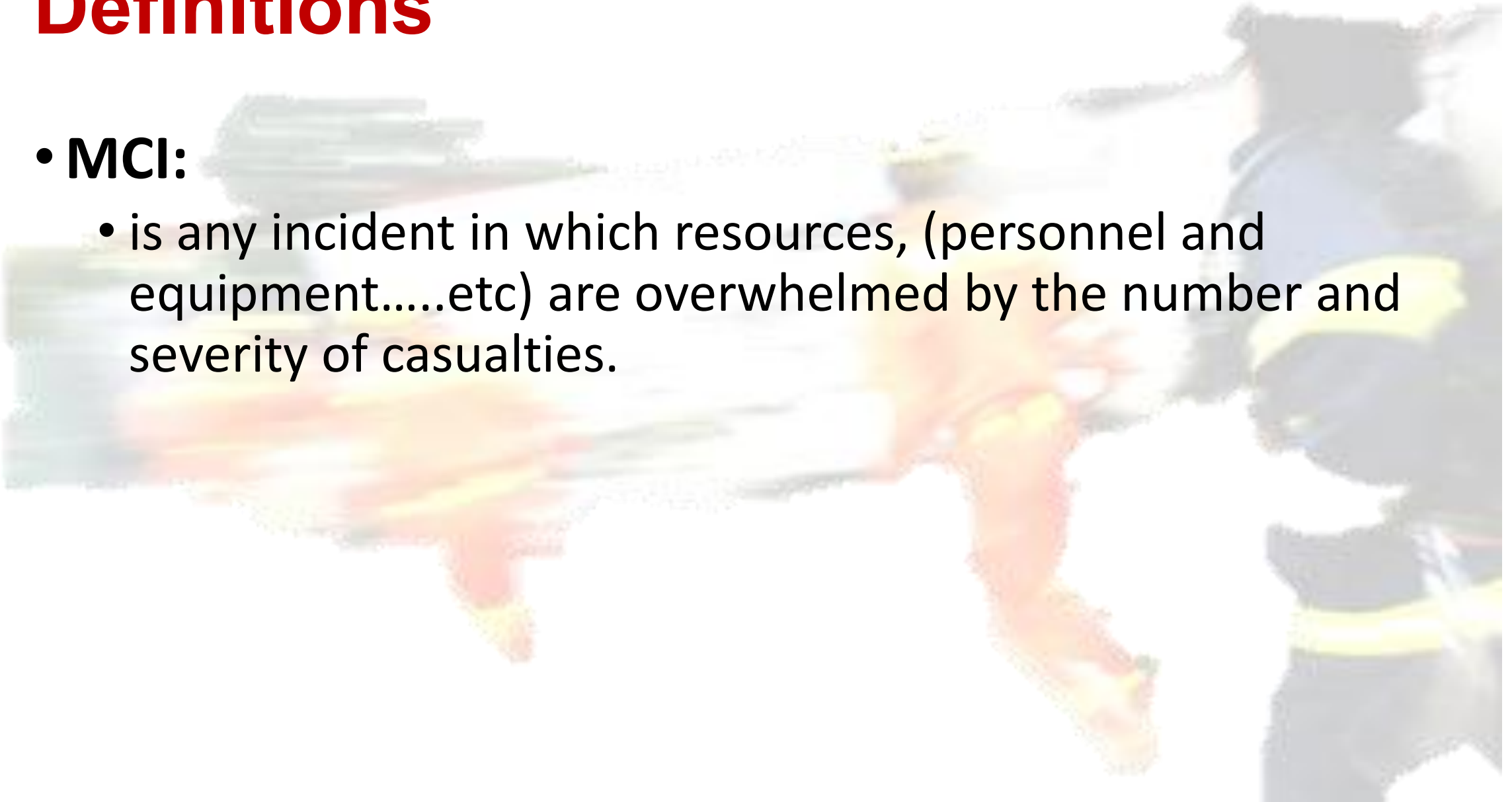
- Major and catastrophic incidents are a potential in any community.
- With the great variety of natural and man-made disasters that face us everyday, something major can happen almost anywhere.
- Whether it is a natural disaster or terrorist incident there can be significant impact on the community



- 
- Emergency physicians are at the front lines of any disaster, whether it's a multi-car crash on the highway or a mass shooting at a mall.
 - Emergency physicians are critical in thier ability to respond to disasters
 - There are legitimate concerns about disaster readiness.

Definitions

- **MCI:**
 - is any incident in which resources, (personnel and equipment.....etc) are overwhelmed by the number and severity of casualties.





MASS CASUALTY MANAGEMENT SYSTEMS

Strategies and guidelines
for building health sector capacity



World Health Organization
20 Avenue Appia, CH-1211 Geneva 27, Switzerland
Fax: +41 22 791 4844 Email: crises@who.int
http://www.who.int/crises

Health Action in Crises



World Health Organization



MASS CASUALTY MANAGEMENT SYSTEMS

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Health Action in Crises

Injury and Violence Prevention

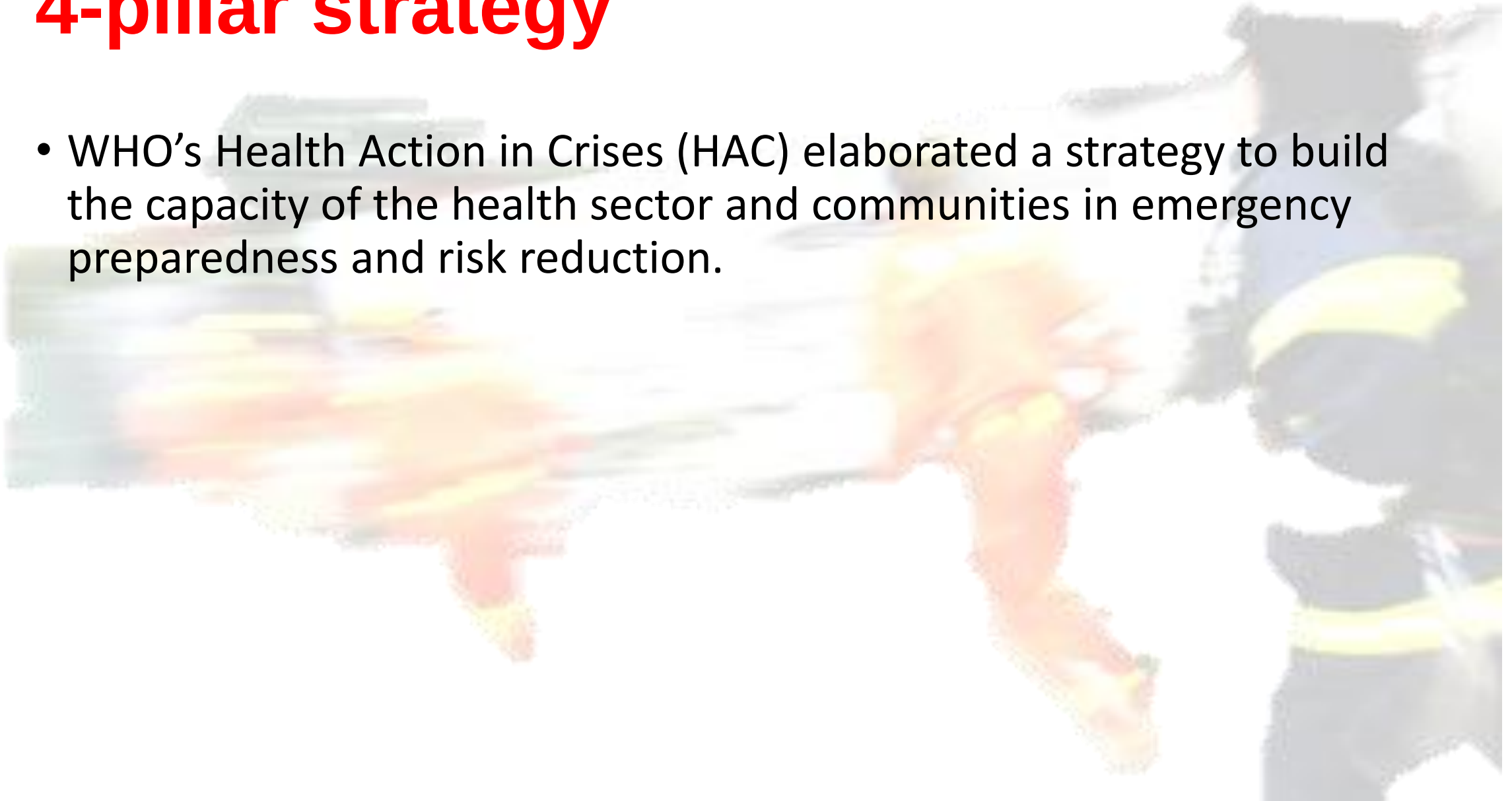
April 2007



World Health Organization

4-pillar strategy

- WHO's Health Action in Crises (HAC) elaborated a strategy to build the capacity of the health sector and communities in emergency preparedness and risk reduction.



4-pillar strategy



- assessing and monitoring **baseline information** on the status of health emergency preparedness and risk management at regional and country levels



- incorporate emergency **preparedness** and risk management in ministries of health



- improving **knowledge and skills** in health emergency preparedness and response, and risk management.



- encouraging and supporting **community-**based emergency preparedness and risk management

4-pillar strategy



- assessing and monitoring **baseline information** on the status of health emergency preparedness and risk management at regional and country levels



- institutional emergency **preparedness** risk management ministries of health establishing an effective hazard/whole-hazard programme for this purpose



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HAZARD RISK ASSESSMENT MATRIX

Frequency of Occurrence	Hazard Categories			
	1 Catastrophic	2 Critical	3 Serious	4 Minor
(A) Frequent	1A	2A	3A	4A
(B) Probable	1B	2B	3B	4B
(C) Occasional	1C	2C	3C	4C
(D) Remote	1D	2D	3D	4D
(E) Improbable	1E	2E	3E	4E



Unacceptable



High



Medium



Low

[illegible]

4-pillar strategy



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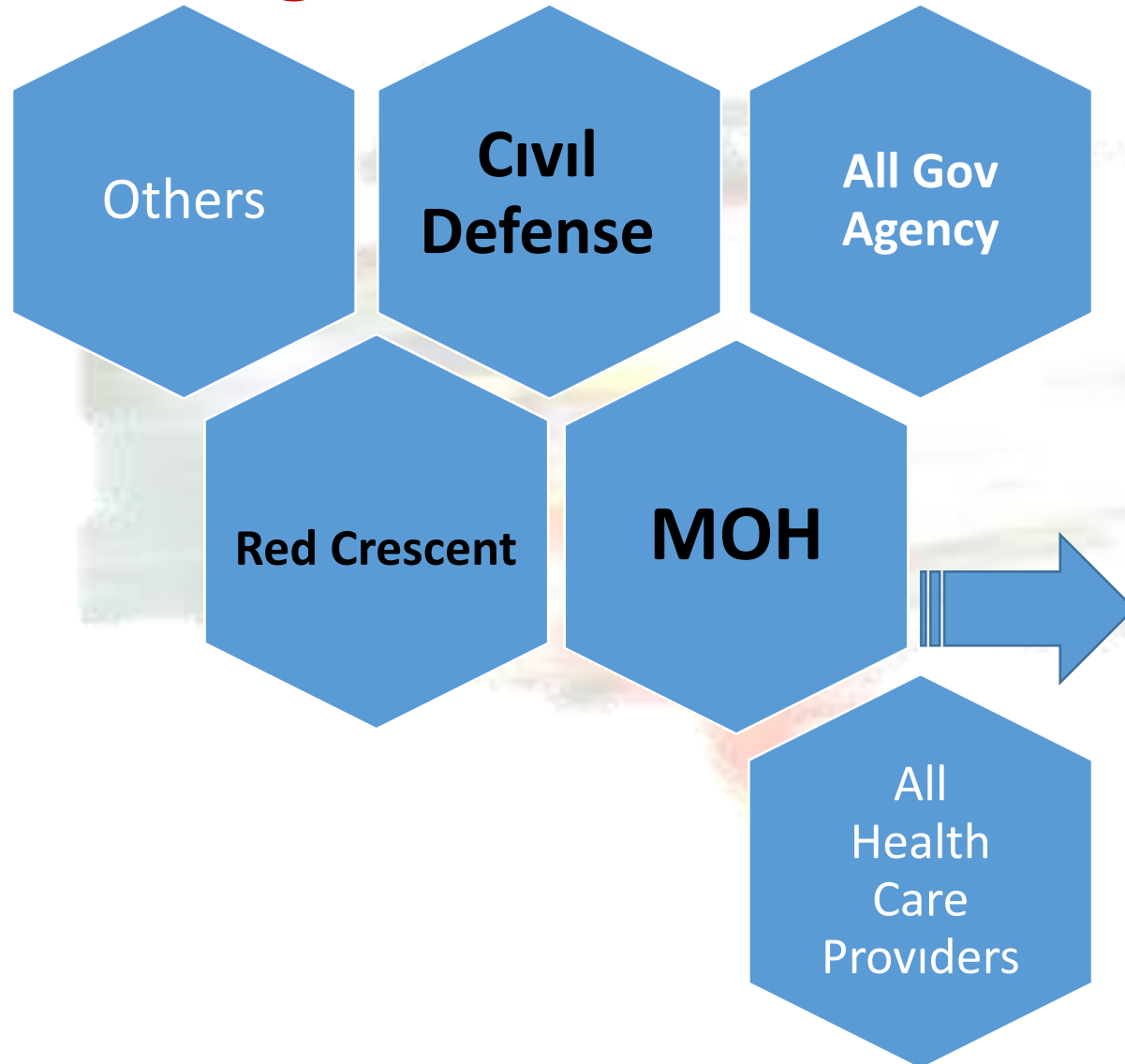


- improving knowledge and skills in health emergency preparedness and response, and risk management.



- encouraging and supporting community-based emergency preparedness and risk management

Regional Disaster Response Group



All Contact Details
Response Plans
Mobile team(s)
Number of Ambulances
Hospital Bed Capacity
ED & ICU Bed capacity
Number of O.R.
Number of Physicians (per specialty)
Specific Units (Burn ...)

4-pillar strategy



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MCI Response

Primary concern must be to save as many lived as possible and protect responders

- **Response**

- First unit establishes command and sizes-up the scene
- The IC determines need for additional resources
- Triage
- Treatment
- Transport

① Establish Command/
Scene Size-up

② Request Additional
Resources

③ Triage

④ Treatment

⑤ Transport

MCI Response

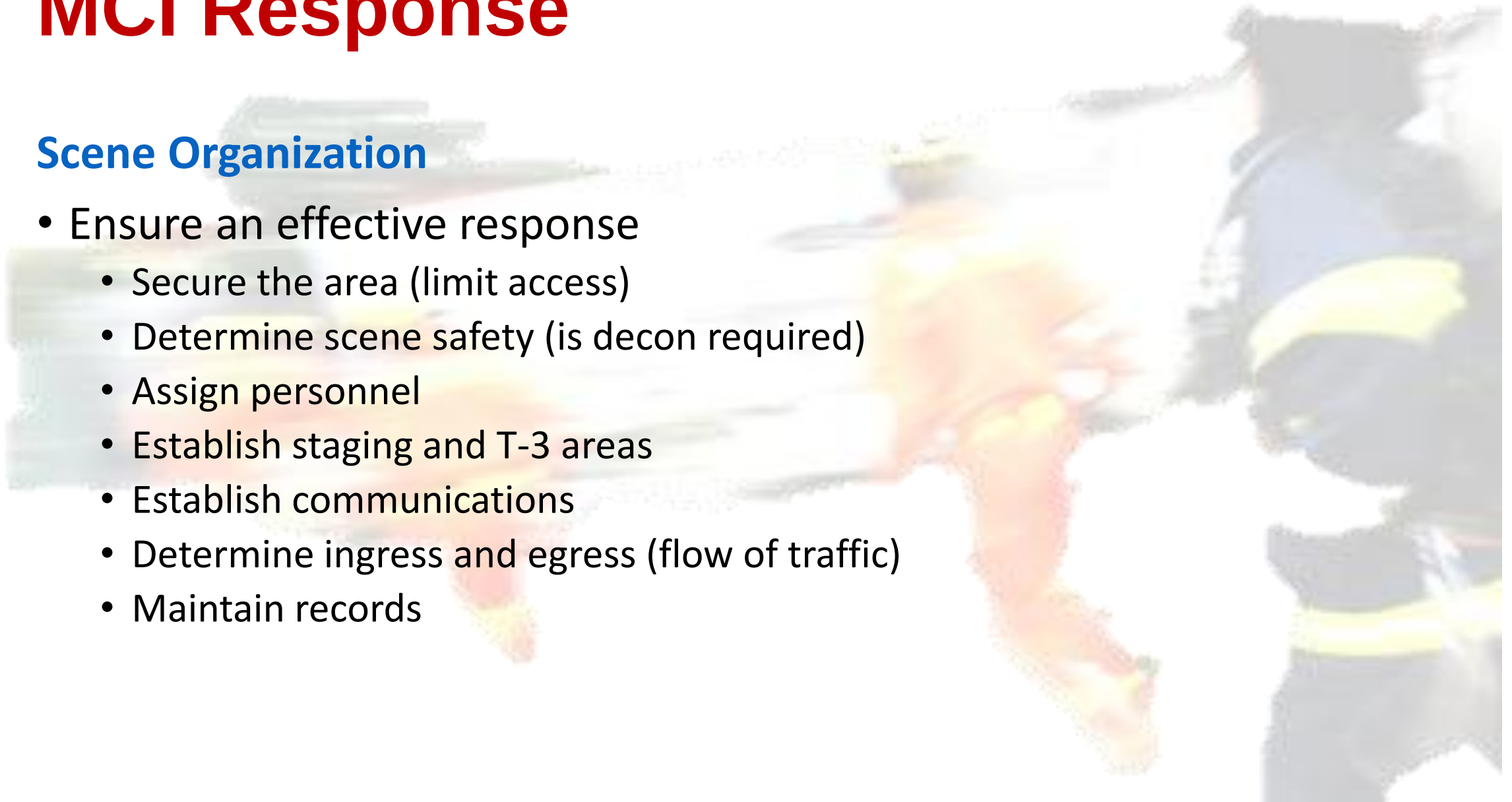
- Scene Assessment:
 - Mass Incident Declared
 - Exact Location
 - Type of Incident
 - Hazards Present
 - Number of Casualties and Severity
 - Emergency Services Required



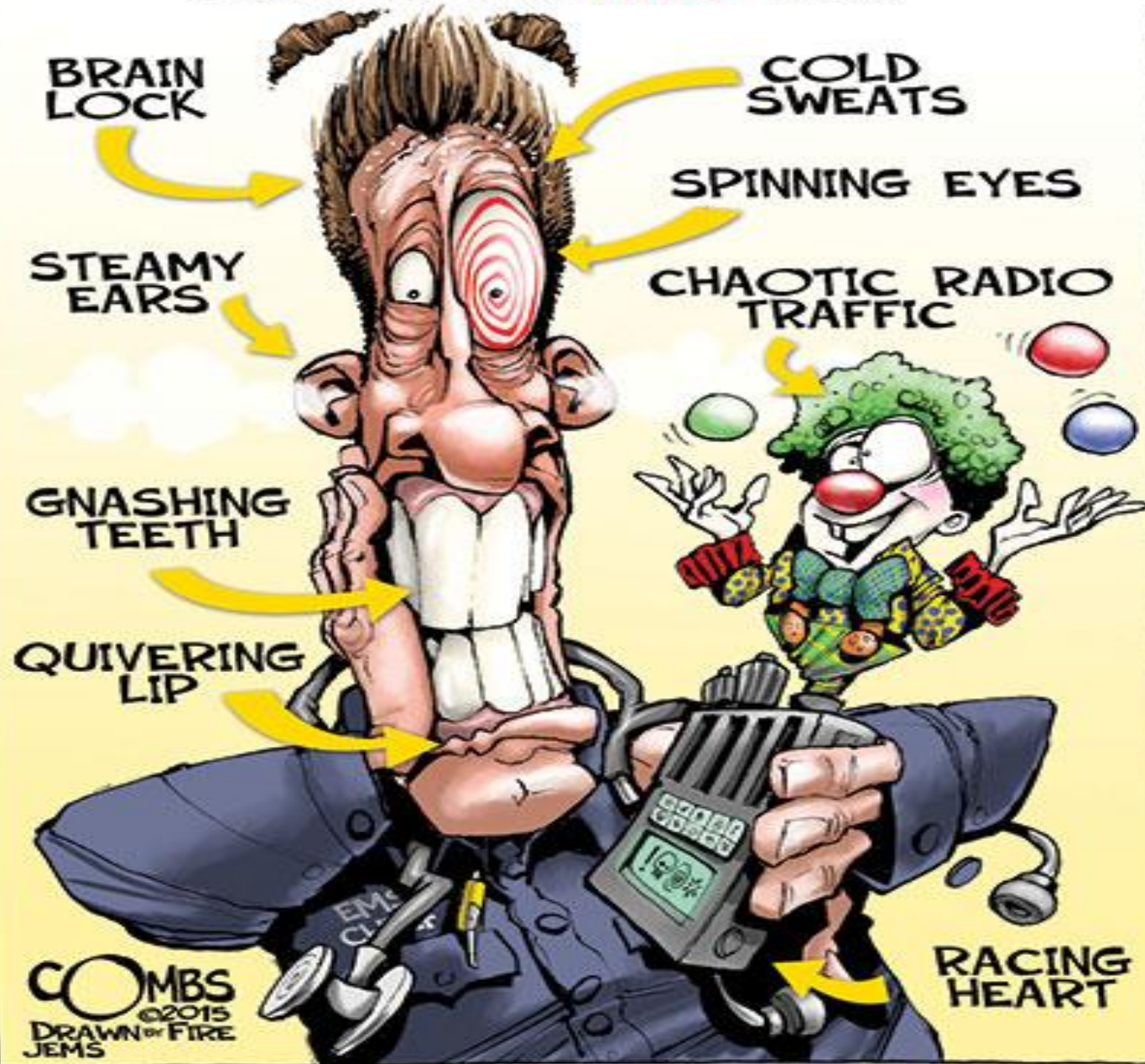
MCI Response

Scene Organization

- Ensure an effective response
 - Secure the area (limit access)
 - Determine scene safety (is decon required)
 - Assign personnel
 - Establish staging and T-3 areas
 - Establish communications
 - Determine ingress and egress (flow of traffic)
 - Maintain records



WHAT MASS CASUALTY INCIDENT
COMMAND CAN **FEEL** LIKE...



WHAT MCI COMMAND SHOULD
ALWAYS **LOOK** LIKE.



MCI Response

Decontamination

- PPE may be needed if the scene includes:
 - Nuclear
 - Biological
 - Chemical
- Determined by HazMat Team
- Victims must be decontaminated prior to T-3



MCI Response

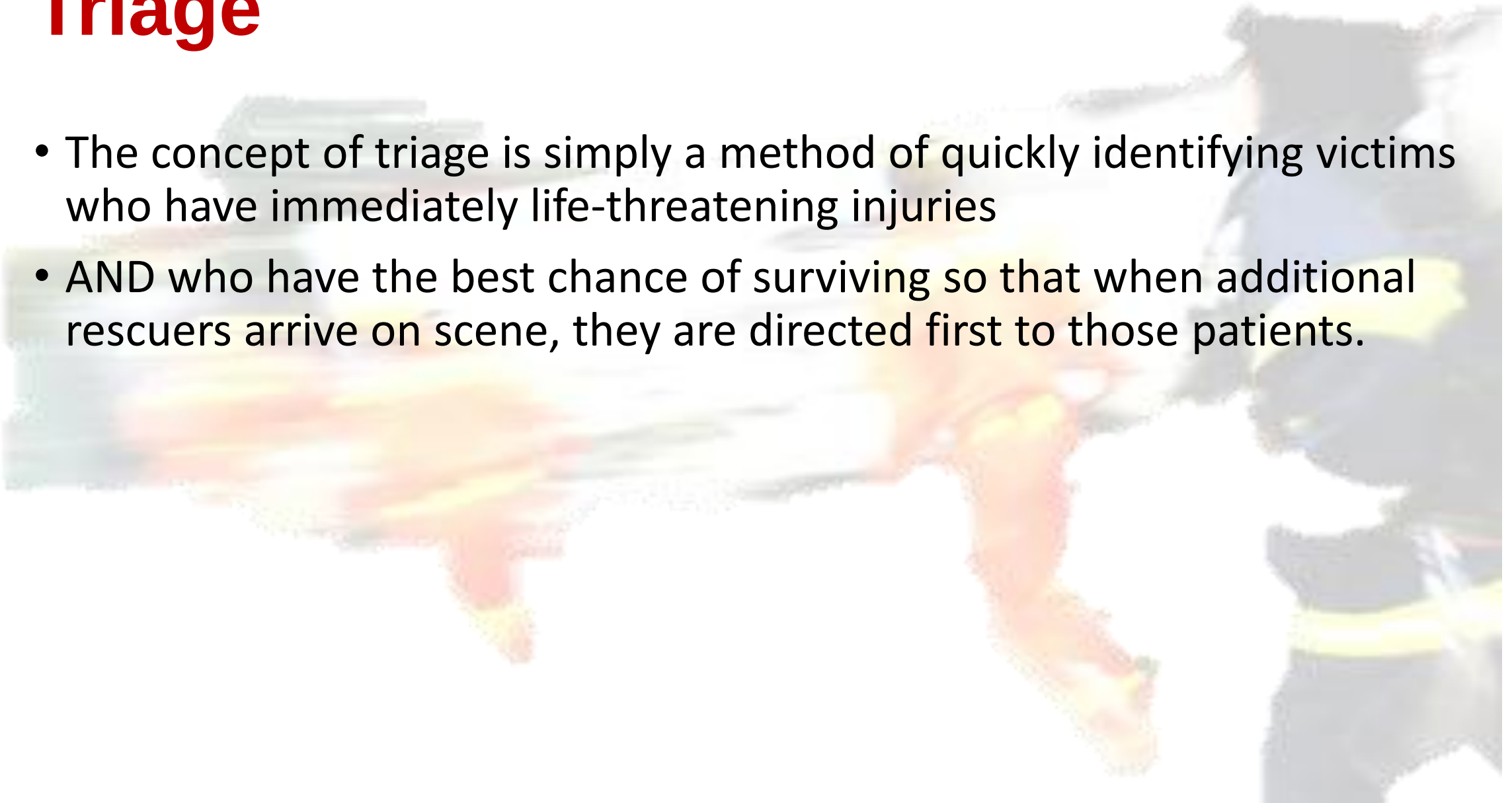
T-3

- Triage
- Treatment
- Transport



Triage

- The concept of triage is simply a method of quickly identifying victims who have immediately life-threatening injuries
- AND who have the best chance of surviving so that when additional rescuers arrive on scene, they are directed first to those patients.



START (Simple Triage And Rapid Treatment)

- Developed by *Hoag Hospital and the Newport Beach Fire Department*
- Relies on making a rapid assessment (taking less than a minute) of every patient
- Determining which of four categories patients should be in
- Visibly identifying the categories for rescuers who will treat the patients



MCI Response

Triage

- Victims are divided in the following categories:

Immediate (RED) - Life-threatening

**Delayed (YELLOW)-
Serious but not life-threatening**

Walking woundedable

Deceased (BLACK)- Includes non-salvageable

IMMEDIATE

DELAYED

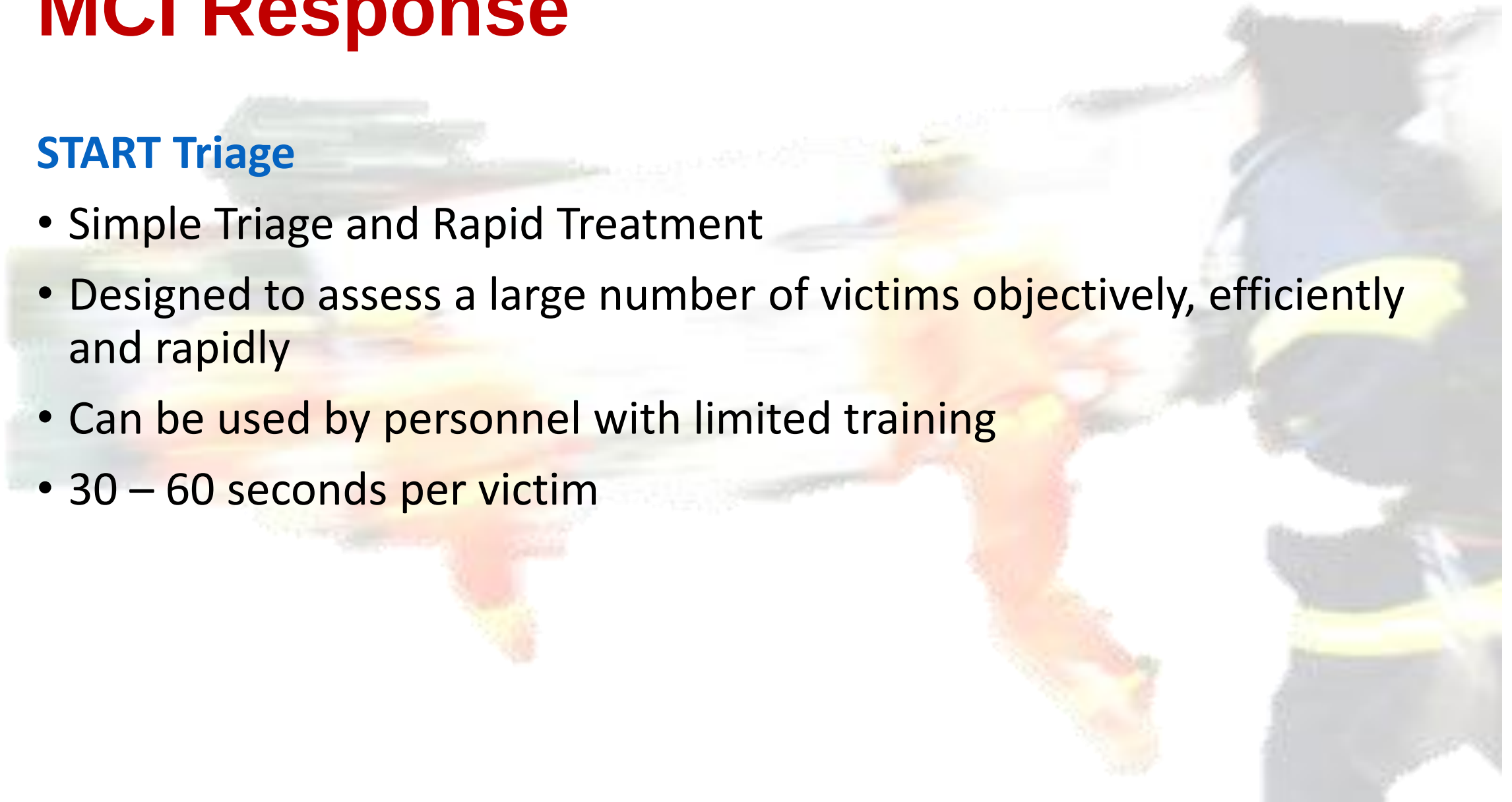
MINOR

DECEASED/NON-SALVAGEABLE

MCI Response

START Triage

- Simple Triage and Rapid Treatment
- Designed to assess a large number of victims objectively, efficiently and rapidly
- Can be used by personnel with limited training
- 30 – 60 seconds per victim



MCI Response

Evaluating Patients

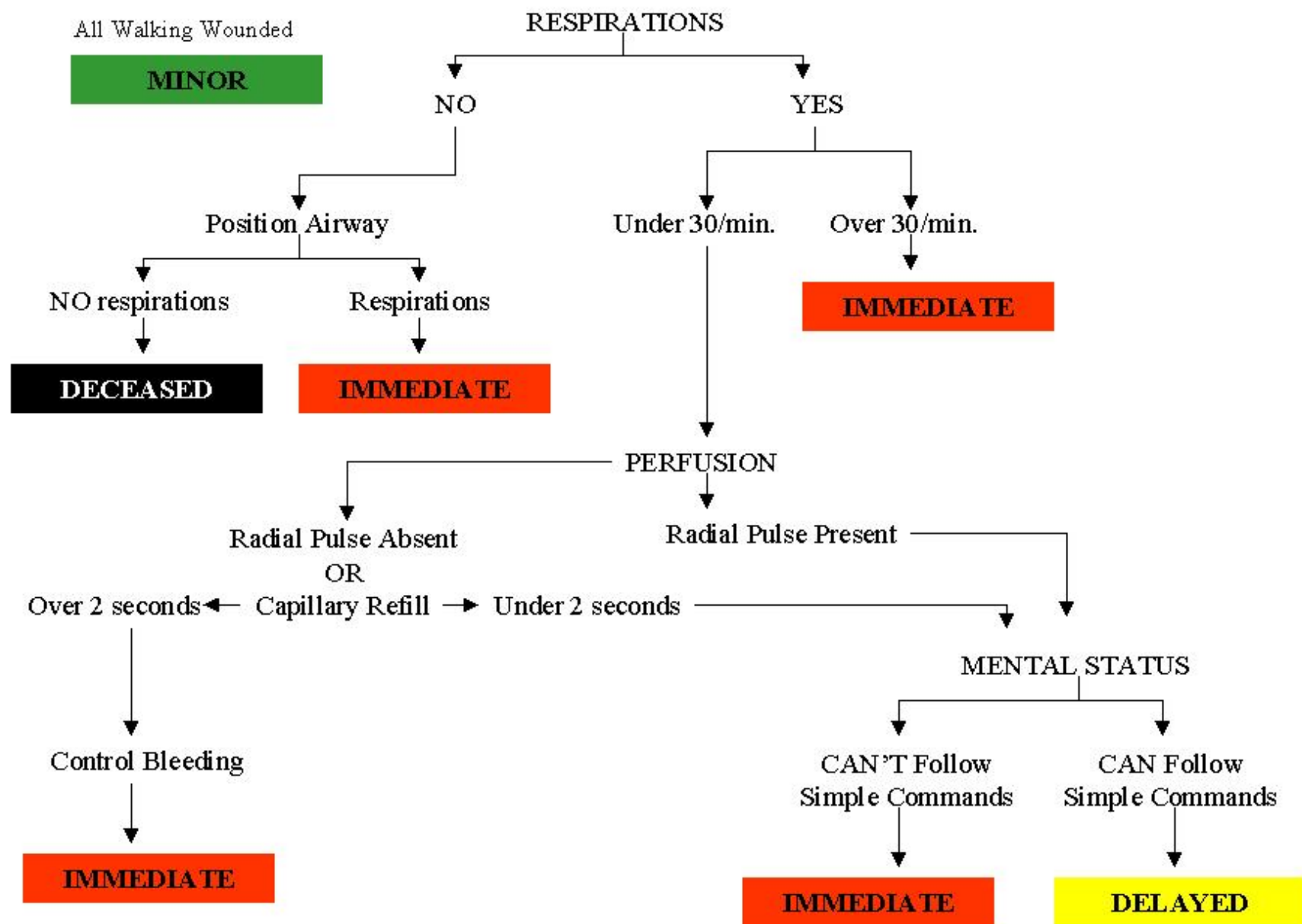
- START, ambulatory patients are automatically triaged for delayed care
- Non-ambulatory evaluated:
 - Respiration
 - Perfusion
 - Mental status
 - R.P.M



Ambulatory - Delayed Care



Non-Ambulatory - **Respiration**
Perfusion
Mental Status



Medical Treatment During Triage

- Only life-threatening problems are corrected
 - Opening the airway
 - Attempt to control exsanguination
 - Resuscitation is not attempted

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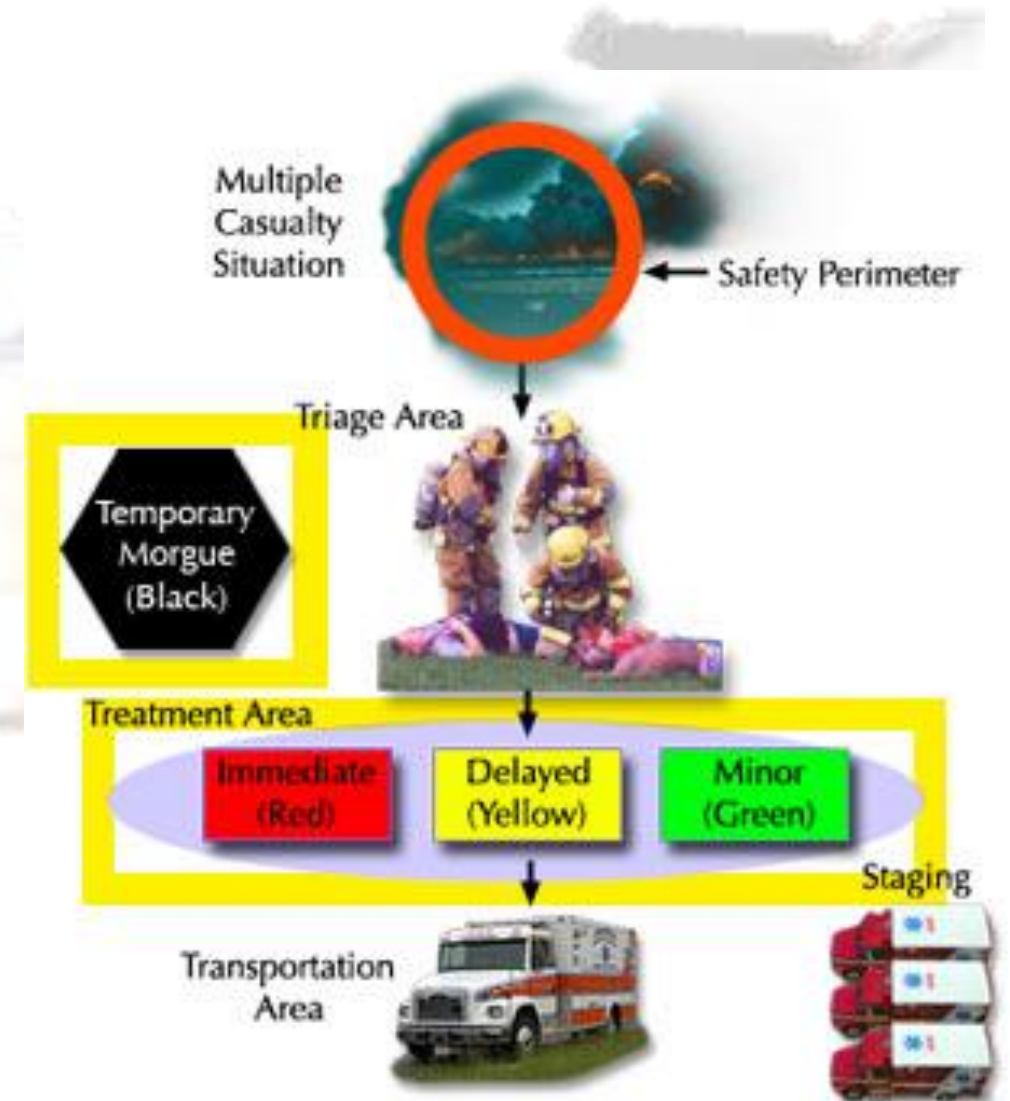
- ## Medical Treatment During Triage
- Only life-threatening problems are corrected
 - Opening the airway
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MCI Response

Treatment

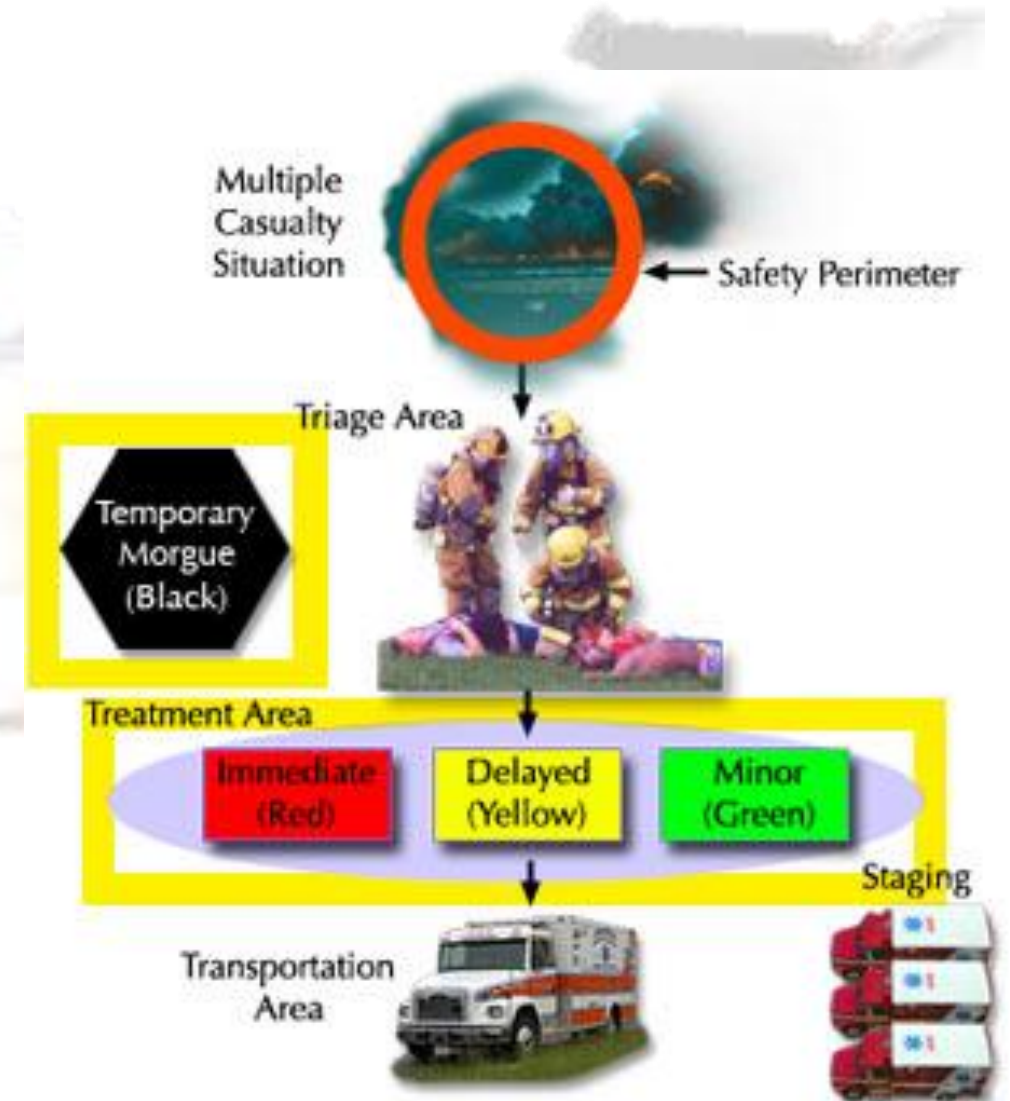
- Patients are re-evaluated using more in-depth assessment
 - Secondary triage
- Separate treatment areas; Red, Yellow, Green
- Definitive/stabilizing emergency care
 - ABC's
 - Wound care



MCI Response

Transport

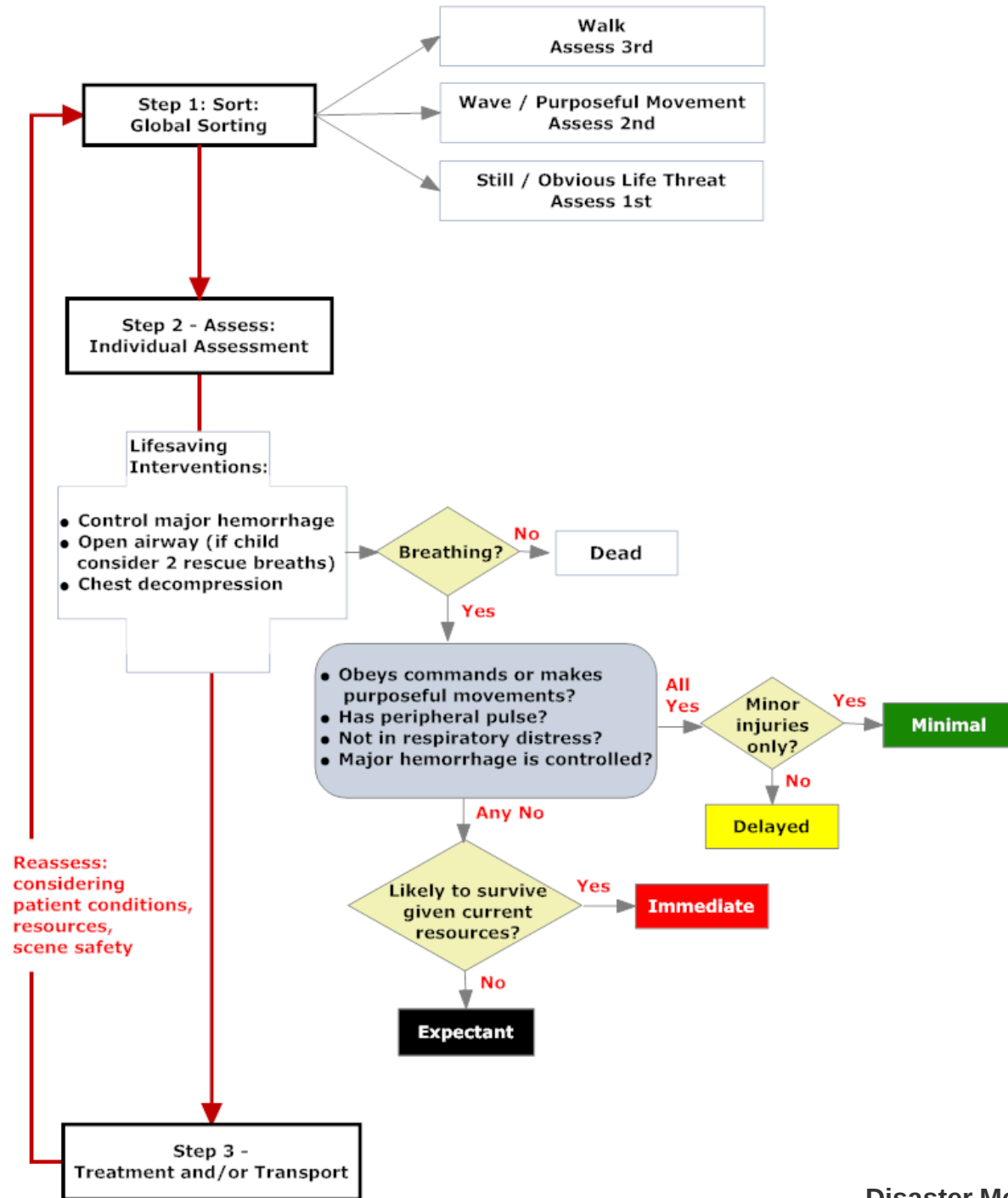
- Transported by triage determination
 - **Red** go first
- **Green** patients made be transported by alternative means (Bus)
 - Accompanied by medical personnel
- Transportation Officer designates facility



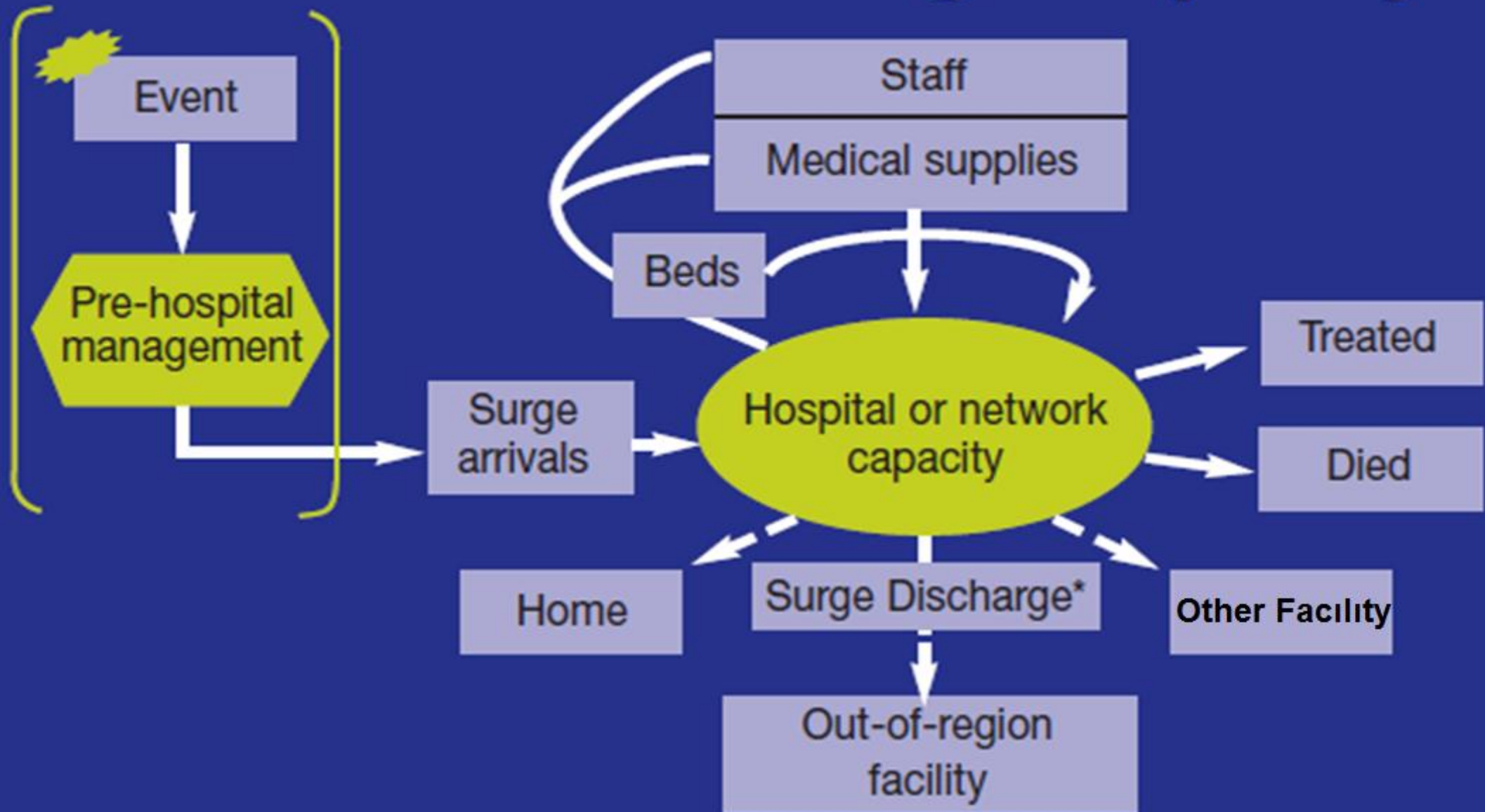
SALT Mass Casualty Triage

Algorithm

(Sort, Assess, Lifesaving Interventions, Treatment/Transport)



Determinants of Surge Capacity



Surge capacity

- is a measurable representation **of ability to manage a sudden influx of patients.**
- It is dependent on a well-functioning **incident management system** and the variables of **space, supplies, staff** and any **special** considerations (contaminated or contagious patients, for example)

Development of surge capacity requires augmenting existing capacity as well as creating capacity by **limiting elective** appointments and procedures and practicing “surge discharge” of patients that can be effectively managed in non-hospital environments.

Effective surge capacity planning integrates facility plans with a **regional disaster response program** involving other area health care institutions and considers **hazard vulnerability assessments** (HVAs) and historical natural disaster threats.

Surge Capacity of Hospitals in Emergencies and Disasters With a Preparedness Approach: A Systematic Review.

[Sheikhbardsiri H¹](#), [Raeisi AR¹](#), [Nekoei-Moghadam M²](#), [Rezaei F¹](#).

CONCLUSION: Surge capacity is a basic element of disaster preparedness programs. Results of the current study could help health field managers in hospitals to prepare for capacity-building based on surge capacity components to improve and promote hospital preparedness programs. (Disaster Med Public Health Preparedness. 2017;page 1 of 9).

[J Ambul Care Manage. 2008 Oct-Dec;31\(4\):377-85. doi: 10.1097/01.JAC.0000336556.54460.25.](#)

Integrating disaster preparedness and surge capacity in emergency facility planning.

[Zilm F¹](#), [Berry R](#), [Pietrzak MP](#), [Paratore A](#).

Abstract

The ability to adapt and utilize emergency facilities is a critical element in responding to surges resulting from man-made and natural events. The current stresses on emergency services throughout the country find few adequately prepared to effectively absorb a sudden increase in patients along with some of the potential special requirements, such as quarantining of epidemic patients and mass decontamination. This article reviews major findings of the federally funded ER One project, a research initiative that has described a number of facility strategies, which should be considered in planning new emergency facilities. An early case study in the application of these principles at the recently completed Tampa General Hospital emergency service is provided, illustrating how, when integrated into the early planning and design, many of the ER One recommendations can be implemented at modest capital cost increases.



**Daily Surge
Vs.
Emergency Surge Capacity Plans**

4-pillar strategy



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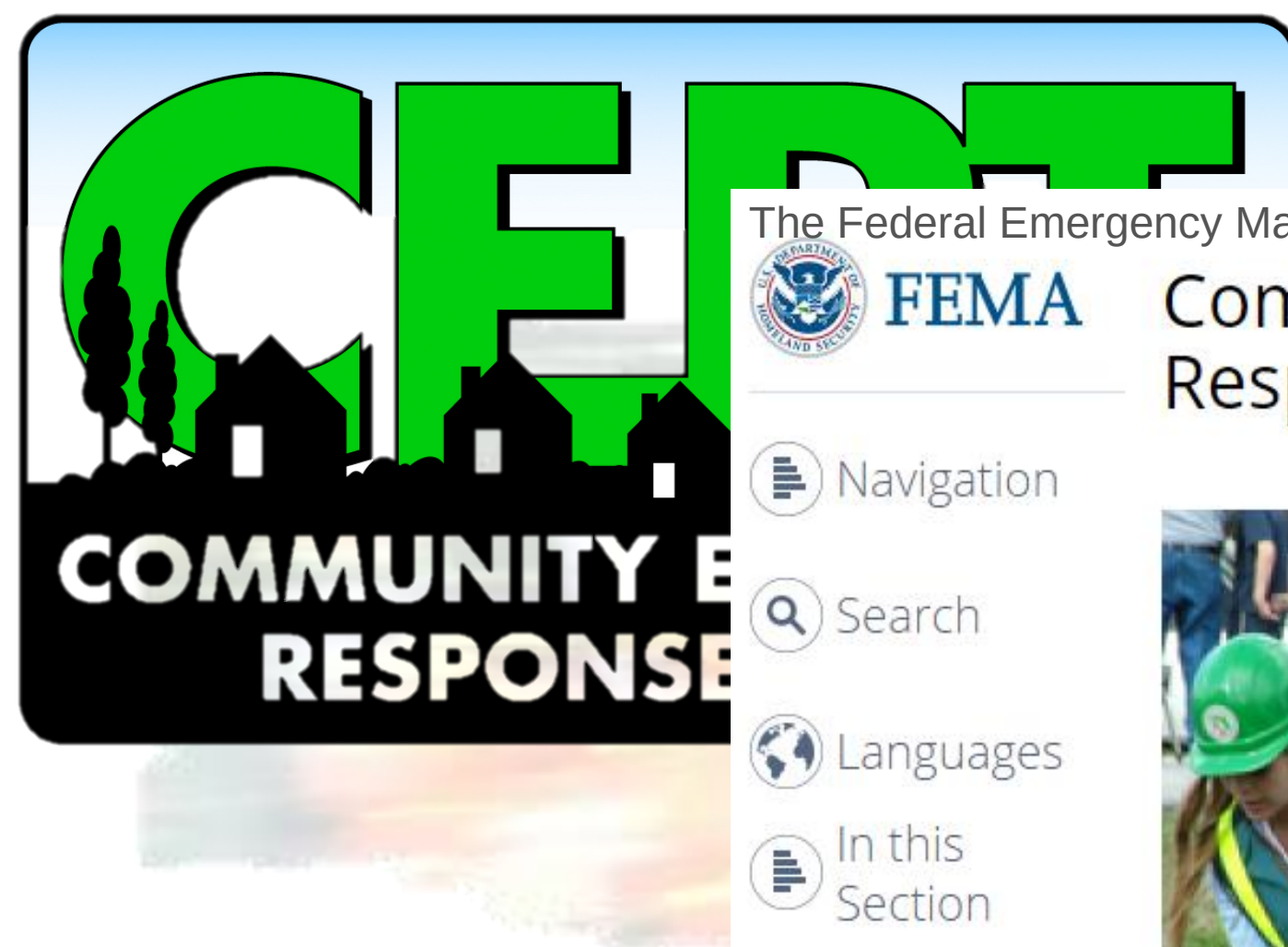


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The Federal Emergency Management Agency



FEMA

Community Emergency Response Teams

 Navigation

 Search

 Languages

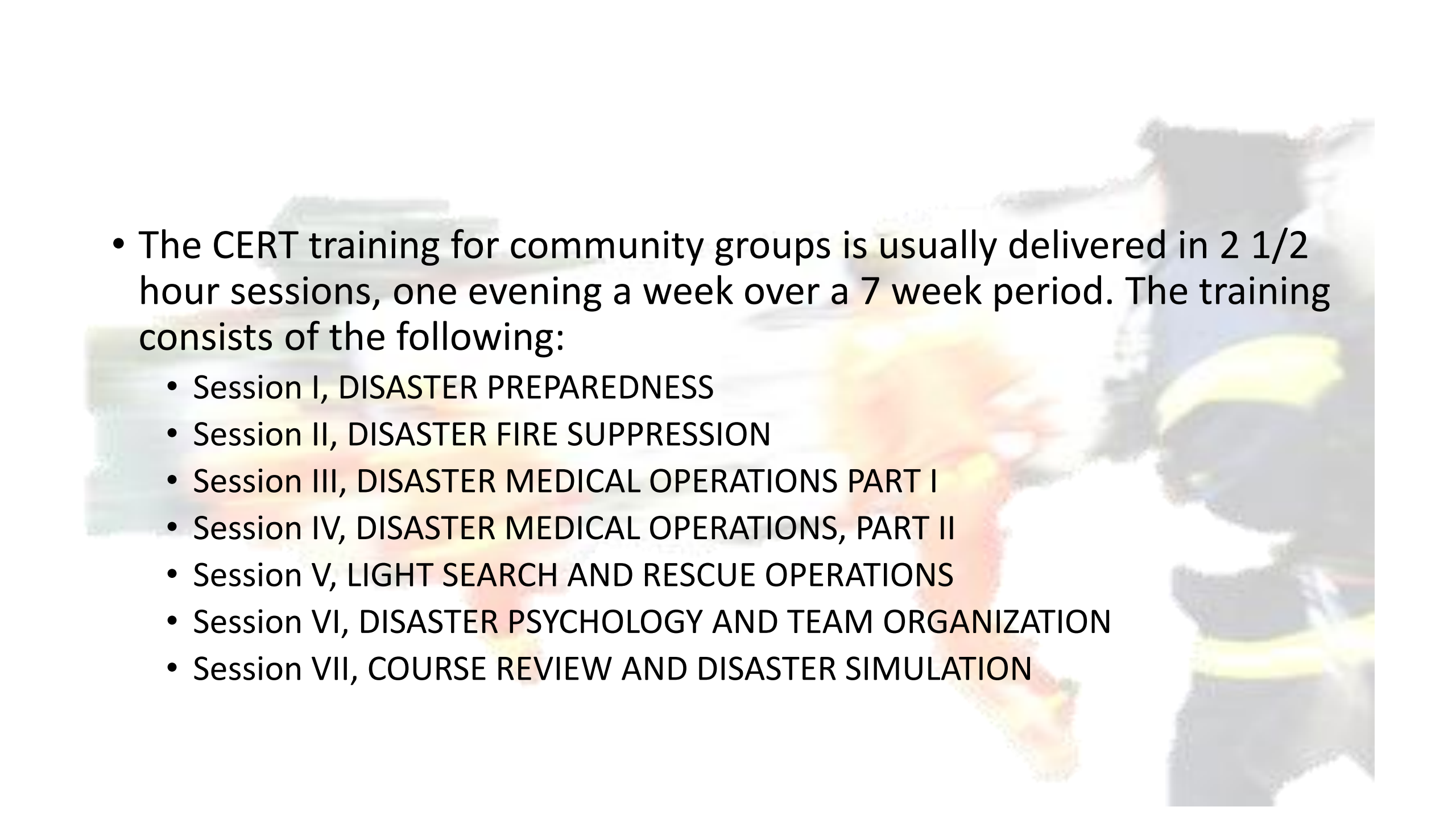
 In this Section

volunteer emergency workers who have received specific training in basic disaster response skills, and who agree to supplement existing emergency responders in the event of a major disaster.



CERT

CERT members carry a disaster survivor.

- 
- The CERT training for community groups is usually delivered in 2 1/2 hour sessions, one evening a week over a 7 week period. The training consists of the following:
 - Session I, DISASTER PREPAREDNESS
 - Session II, DISASTER FIRE SUPPRESSION
 - Session III, DISASTER MEDICAL OPERATIONS PART I
 - Session IV, DISASTER MEDICAL OPERATIONS, PART II
 - Session V, LIGHT SEARCH AND RESCUE OPERATIONS
 - Session VI, DISASTER PSYCHOLOGY AND TEAM ORGANIZATION
 - Session VII, COURSE REVIEW AND DISASTER SIMULATION

Predisaster integration of community emergency response teams.

[Jensen J](#)¹, [Carr J](#)¹.

CONCLUSIONS: This study concludes by making a key recommendation that could benefit any CERT-add a module to the CERT training curriculum designed to integrate the individuals associated with the CERT program within their local emergency management system.

Community Emergency Response Team (CERT) Training of High-Risk Teens in the Community of Watts, South Los Angeles, 2013-2014.

Ossey S, et al. *Disaster Med Public Health Prep*. 2017.

[Am J Disaster Med](#). 2007 Mar-Apr;2(2):59-63.

Basic Community Emergency Response Team training to augment medical infrastructure preparedness.

[Simmons G](#)¹.

[Prehosp Disaster Med](#). 2015 Oct;30(5):486-90. doi: 10.1017/S1049023X15005099. Epub 2015 Sep 15.

Emergency Preparedness and Disaster Response: There's An App for That.

[Bachmann DJ](#)¹, [Jamison NK](#)¹, [Martin A](#)¹, [Delgado J](#)¹, [Kman NE](#)¹.

CONCLUSION: Smartphone applications are fast becoming essential to emergency responders and the lay public. Many high-quality apps existing in various price ranges and serving different populations were identified. This field is changing rapidly and it deserves continued analysis as more apps are developed.

4-pillar strategy

strategy to build the capacity of the health sector and communities in emergency preparedness and risk reduction

- assessing and monitoring baseline information on the status of health emergency preparedness and risk management at regional and country levels

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Thank you for your attention

