Medical Response Management in Disaster

Handoyo Pramusinto

Emergency Dept. Sardjito Hospital

SDG's & Disasters

Katrina survivor , 2005 (?)

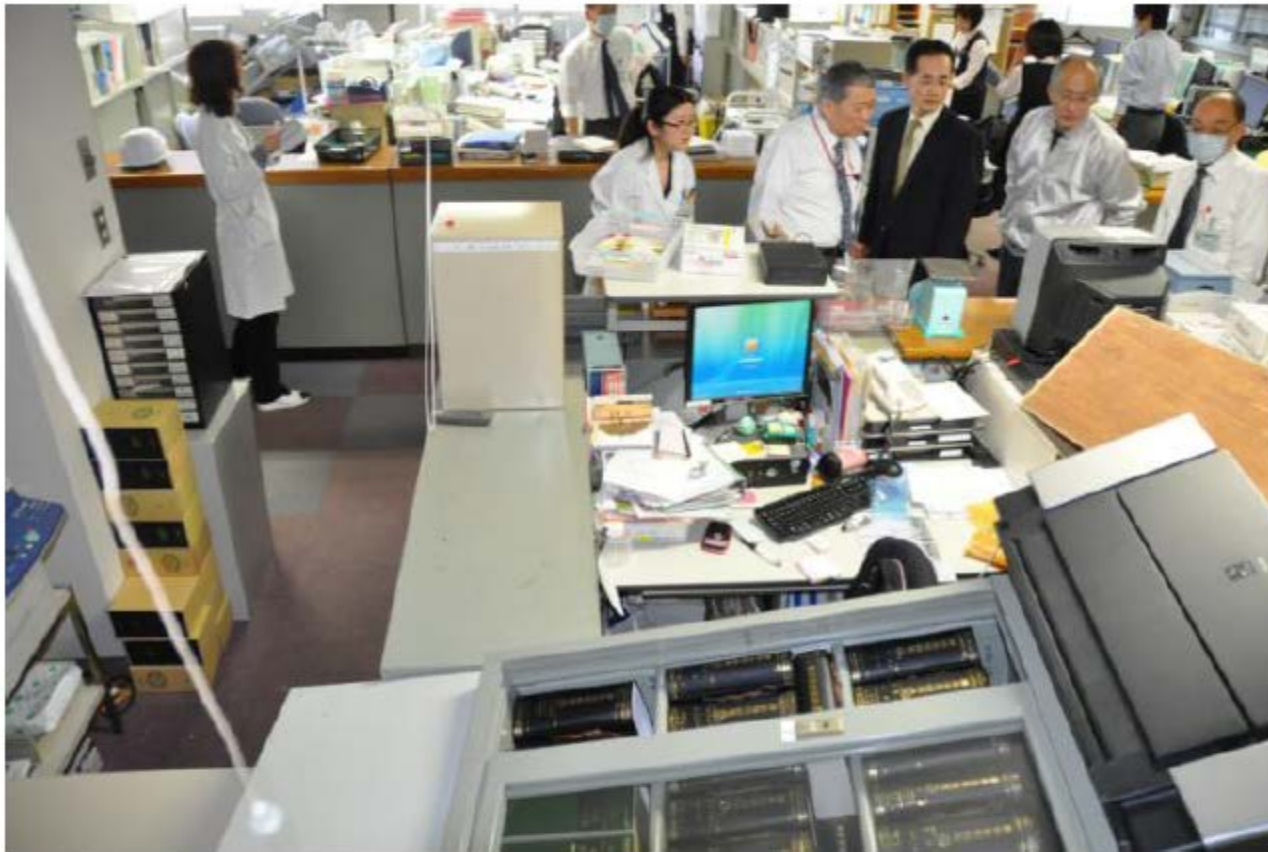18.000 in Houston Astrodome

January, 2013

311 case

Friday, March 11 , 2011, **8,9 Magnitude**
the most powerful ever earthquake in Japan and
resulting tsunami devastated parts of northern Japan
(coastal area Tohoku and southern Hokkaido)

22.000 death & missing

Great East Japan Earthquake

· Quake intensity registered at 5-lower in Musashino City
· Felt the severe shock of the earthquake on the 8th floor of our hospital

March 11, 2011

A. KATSUMI Musashino Red Cross Hospital

Information Gathering Section

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Establishment of Disaster Management HQ

Key Factors for Systematic Response for Large-Scale Accidents and Disasters

C : **C**ommand & **C**ontrol	指揮と統制	**Medical**
S : **S**afety	安全	**Management**
C : **C**ommunication	情報伝達	（医療管理）
A : **A**ssessment	評価	Forming Organization

Establish CSCA to start TTT

T : **T**riage	トリアージ	**Medical**
T : **T**reatment	治療	**Support**
T : **T**ransport	搬送	（医療支援）
		3T

Source: United Kingdom MIMMS®　Major Incident Medical Management and Support

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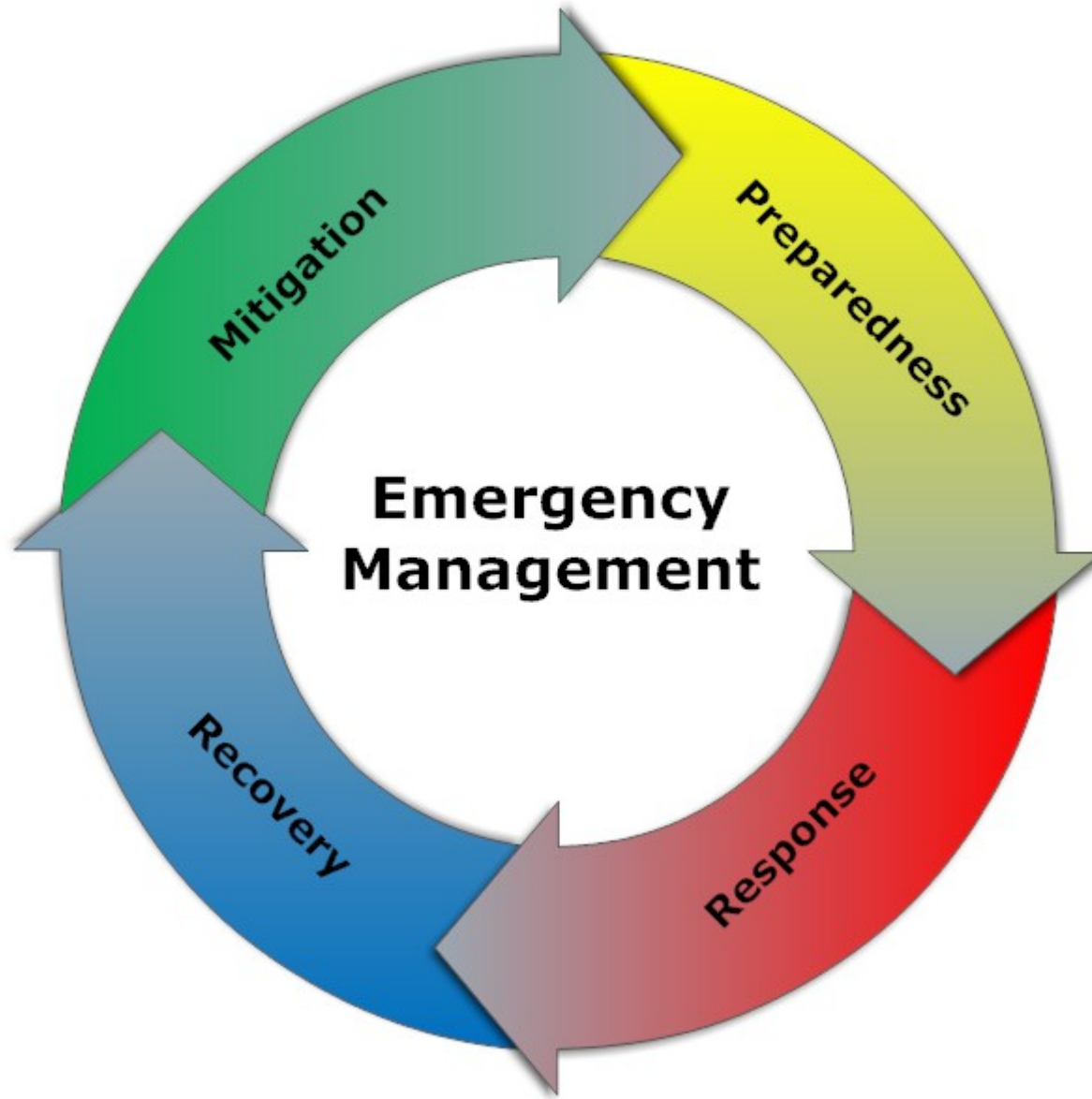Preparation for mobilization to disaster sites   March 11, 2011

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In fact three distinct disasters

Massive scale earthquake with major urban destruction,
disruption of residential and industrial structure,
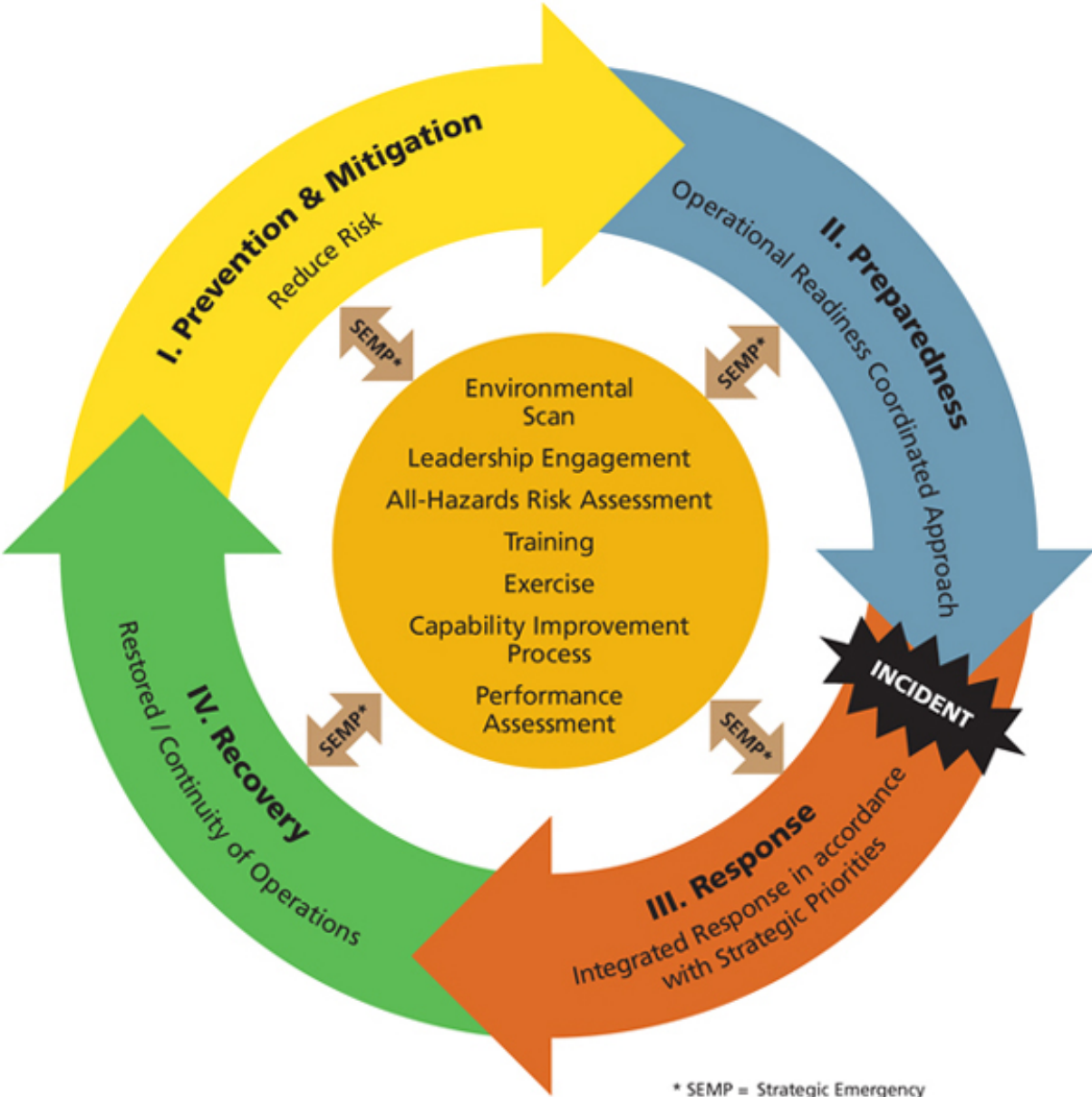loss over 4.000 lives and many traumatic injuries

A series of tsunami (material loss, loss of lives)

Major disruption several nuclear power plants
resulting radiation emergency

Disaster Management Cycle

Emergency Management Continuum

I. Prevention & Mitigation
Reduce Risk

II. Preparedness
Operational Readiness Coordinated Approach

III. Response
Integrated Response in accordance with Strategic Priorities

IV. Recovery
Restored / Continuity of Operations

INCIDENT

SEMP*

Environmental Scan

Leadership Engagement

All-Hazards Risk Assessment

Training

Exercise

Capability Improvement Process

Performance Assessment

* SEMP = Strategic Emergency Management Plan

4 Elements of Medical Response

1. **Search & rescue**

2. **Triage & initial stabilization**

3. **Definitive care**

4. **Medical Evacuation**

Important Aspects of Medical Response

1. *Response time is **critical***
2. ***Rapid** assesment*
3. *Need **most attention and resources***
4. *Rapid and effective **action***
5. ***Save lives**, protect health and stabilize situation*
6. ***Avoid** making the emergency worse*

85-95 % survivor extricated within **24 hours**

Prehospital Response:
organizational structure

- **Incident Command System:**
  - **Incident Command**
    - Overall responsibility of event
  - **Operations Section**
    - Manages all tactical activities (**police, fire, medical**)
  - **Planning Section**
    - Collect and analyze data of event, develop plans
  - **Logistics Section**
    - Provide equipment for operations
  - **Finance Section**

Phases of Response

- **Activation:**
  - event is first discovered
  - Scene assessed
  - Command established
- **Implementation:**
  - Search and rescue
  - Triage
  - Stabilization
  - Transport
  - Definitive management of patients and scene

Phases of Response

- **Recovery**
  - Withdrawal from scene
  - Resume normal operations
  - Debriefing
  - Analysis of event

The Disaster Site – How is it organized?

- Scene secured
- Command Post
- Staging area for incoming personnel and supplies
- Landing Zone
- Casualty collection point
- Morgue

Emergency Support Function No. 8 Menu of Functional Areas[20]

Assessment of health and medical needs

Health surveillance

Medical care personnel

Health and medical equipment and supplies

Patient evacuation

In-hospital care

Food/drug/medical device safety

Worker health/safety

Radiologic/chemical/biologic hazards consultation

Mental health care

Public health information

Vector control

Potable water, and wastewater/solid waste disposal

Victim identification/mortuary services

Veterinary services

Veterinary services

Triaging Patients

- Basic goal is to do the **most good** for the **most people**

- Priority is given to the **most salvageable** patients with the **most urgent problems**

- Transport patients first who have problems **treatable in hospital but fatal in the field**
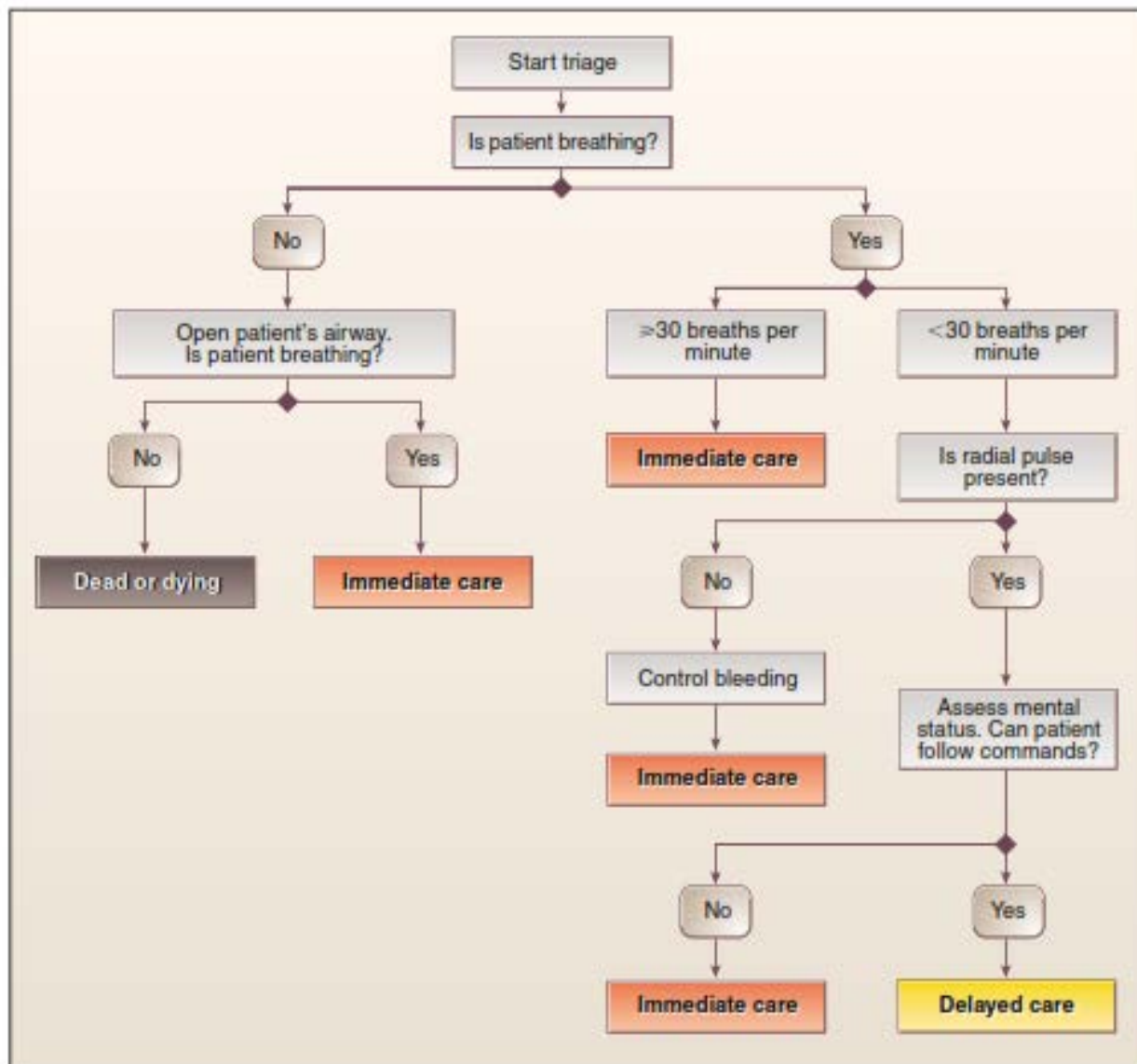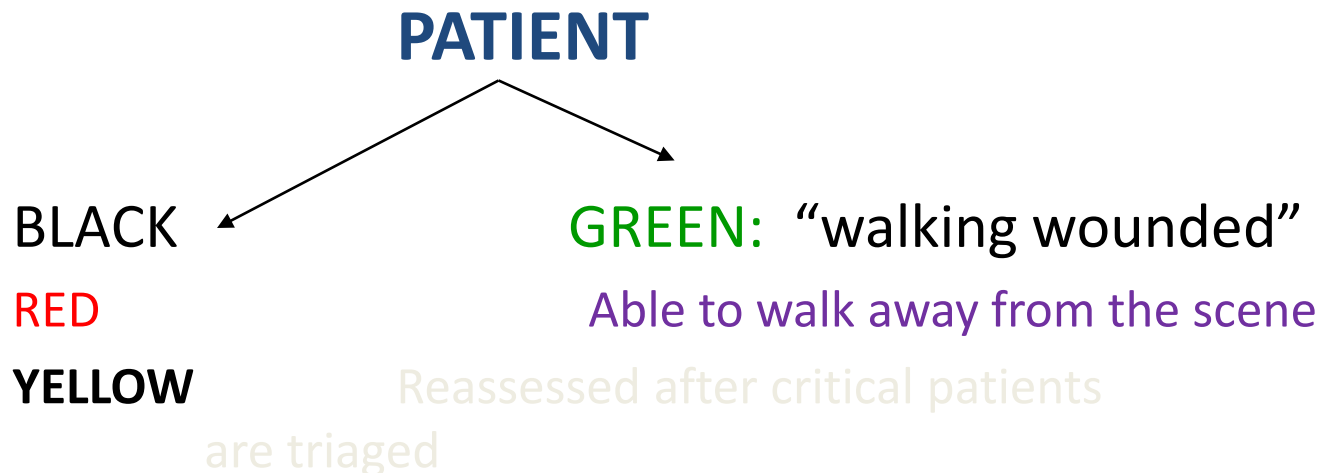
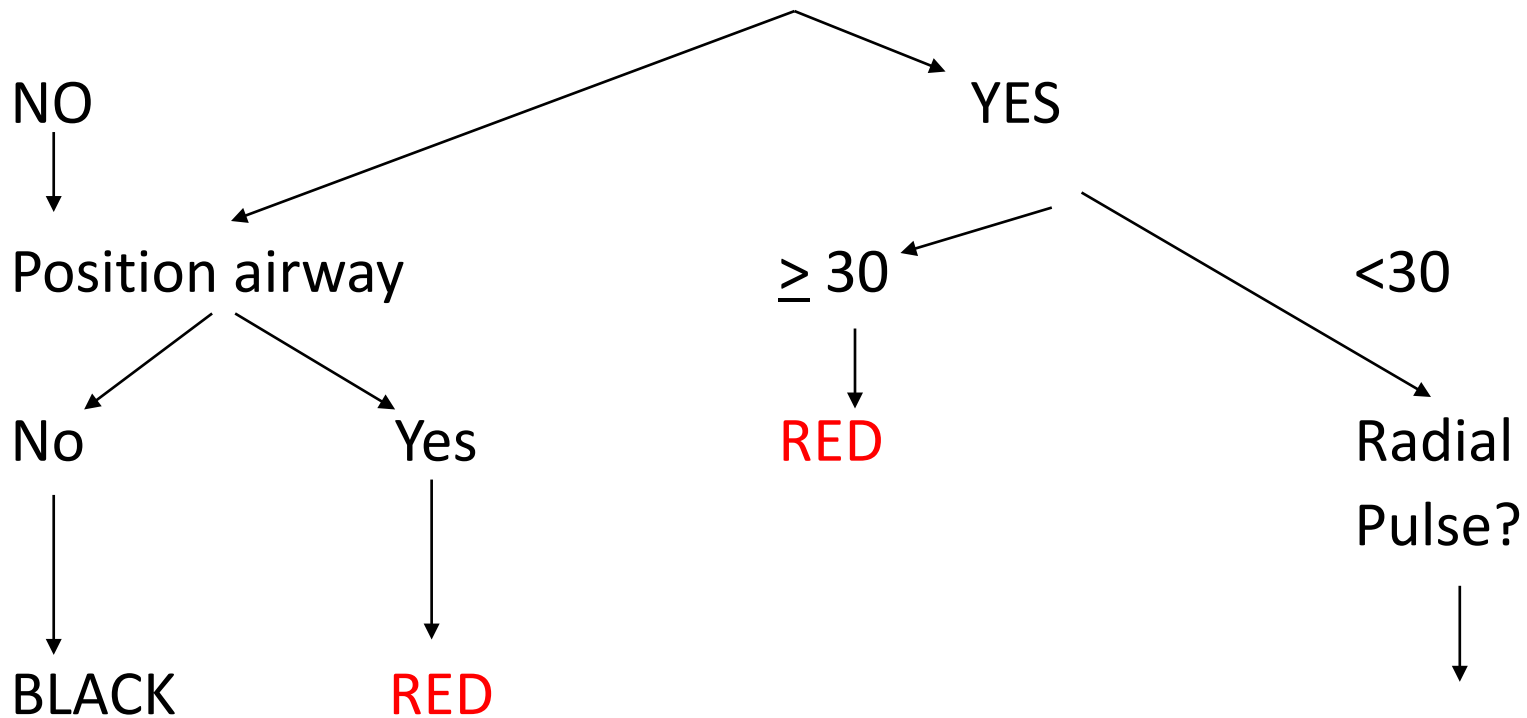Figure 1. The Modified Simple Triage and Rapid Treatment System.

START protocol (Simple Triage and Rapid Treatment)

- Based on the **respirations, radial pulse, and mental status**

PATIENT

BLACK   GREEN: "walking wounded"

RED   Able to walk away from the scene

YELLOW   Reassessed after critical patients are triaged

START TRIAGE

Respirations?

NO

YES

Position airway

≥ 30

<30

No

Yes

RED

Radial Pulse?

BLACK

RED

START TRIAGE

Radial Pulse?

No   Yes

Control Bleeding   Follows commands?

RED   No   Yes

RED   **YELLOW**
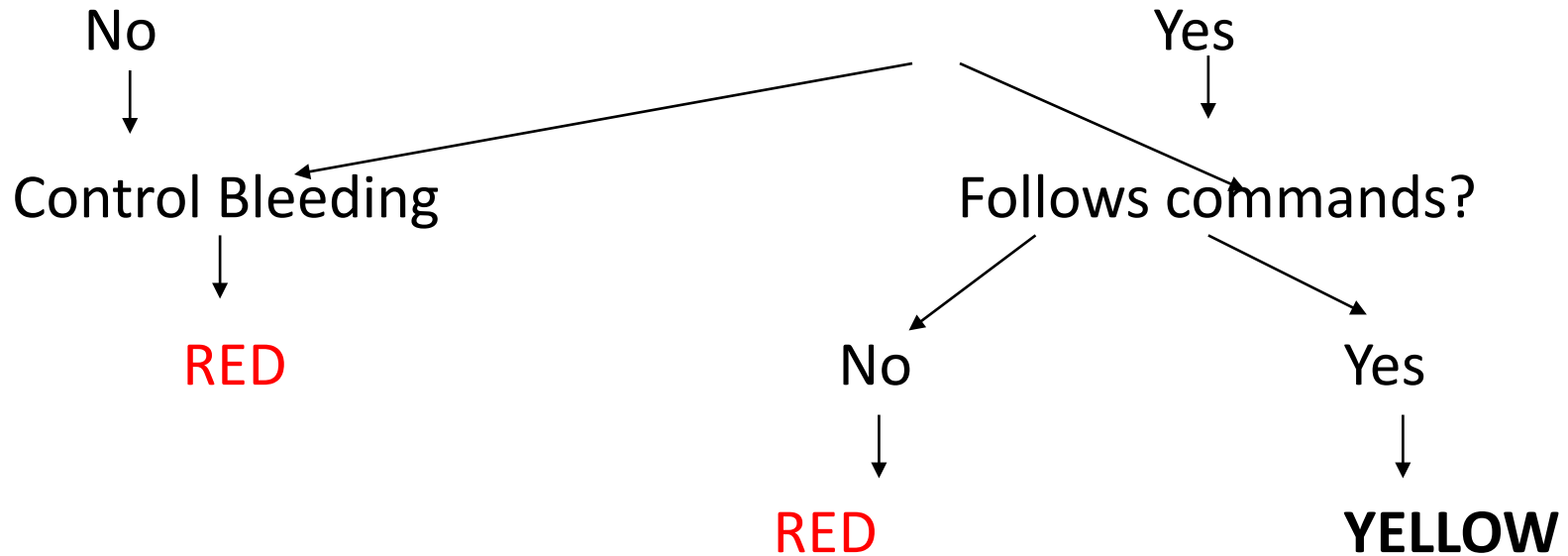
SAVE TRIAGE

- Used when treating multiple patients and there is a delay in accessing definitive management
- 3 categories of patients:
  - Will die regardless of how much care is received
  - Will live whether or not they receive care
  - Will benefit from field interventions

Patient triage

- Only 70 % sensitive

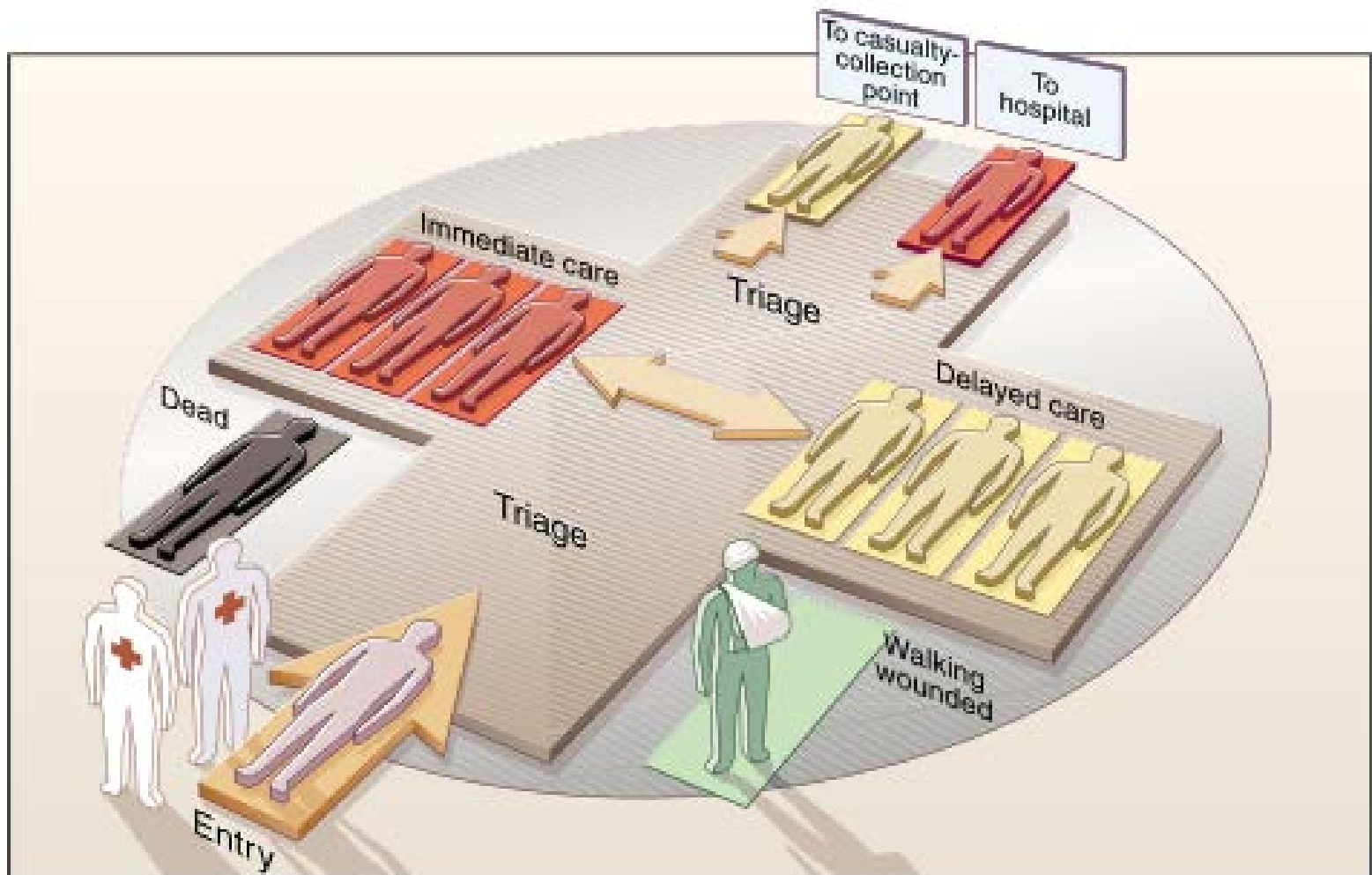- Casualties require frequent reassessment and retriaging as appropriate

Figure 2. Operations of a Disaster-Medical-Aid Center.

As patients arrive, they undergo triage according to the Simple Triage and Rapid Treatment system. Dead or dying patients (black)

First steps in the ED after disaster notification

- **Discharge as many** patients from the ED as possible

- **Quick inventory** of existing supplies

- **Stock extra supplies needed** for patient treatment and to restock ambulances that will return to the disaster scene

Role of the ED during disaster

- **Receiving area** for patients

- **Decontamination**

- **Triage**

- **Stabilization**

- **Initial treatment**

Role of the physician in a disaster

- Medics are **best trained for** initial triage, stabilization and transport
- **Only physicians** trained to work in the field should do so

- Physicians should be sent to the field only if there is a **surplus** in the hospital

- Provide **definitive care** in the hospital setting

How to optimize disaster care

- Have a **pre-made** plan

- Have **clear role** definitions

- Have a **clear chain** of command
- **Clear communication**
- **Practice**

Factors that *negatively impact* of effectiveness of disaster response :

1. **Poor coordination** and lack of warning system
2. Very **slow response** time

3. **Limited number** of trained and dedicated clinicians

4. **Lack of SAR** system and equipment
5. Poor community **empowerment** and participation

Criteria to evaluate healthcare facility's

- Current **disaster planning** strategy
- Bed **capacity**
- **Surgical** capacity
- Blood **transfusion** resources
- **Supplies** of medicine and equipment
- **Staff** availability
- Staff **training**
- **Communication** facility
- **Transport** availability
- Disease **surveillance and control**

KEY ELEMENTS OF INTELLIGENT EMERGENCY RESPONSE

- Communication
- Evacuation
- Mass Care
- Search and Rescue

KEY ELEMENTS OF INTELLIGENT EMERGENCY RESPONSE

- Emergency Medical
- Emergency Transportation
- Local, Regional, and International Assistance

Go Bags

MY information

flashlight

paper communication displays

radio & batteries

food

change of clothes

medication

medical supplies

pet food

water

Thank You
for your attention