

First Hospital Aid in Mass Casualties. Guidelines and Protocols

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This lecture covered two main issues:

1. The first treatment and stabilization of major trauma patients with particular attention to post- traumatic Acute Respiratory Failure and the indications for intubation.
2. Intrahospital admission and diagnostic algorithms for multiple trauma patients including brain injured patients.

The trauma treatment has protocols for early diagnosis, stabilization and treatment but the first, main and most important step is: Triage

The article: "Dealing with casualties from a terrorist attack" from Prof. R. Frykberg (Florida, USA) says: "Immediate evacuation of hospitalized patients and setting up triage and information centers, helped prevent medical staff being overwhelmed and save the lives of more than 80% of the critically injured".

In hospital:

1. Postpone all elective surgical or diagnostic procedures
2. Prepare your ICU service and Emergency room service
3. Prepare the staff mainly for life-saving procedures

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The main and most important treatment is to **secure the airway**.

In the prehospital field, be prepared for evaluation, stabilization and run to the nearest trauma center. The resuscitation of the patient with isotonic fluids and blood as required should be started as soon as possible.

The main trauma treatment is based on the ABC: Airway, Breathing, Circulation, Disability and Exposure.

Airway management is a crucial step in the management of any medical emergency, regardless of whether it is associated with trauma or toxic injury to the respiratory system or is combined with unconventional trauma. Direct laryngoscopy and the insertion of an endotracheal tube has thus far been the classic and safest approach for airway control under any circumstances. **The laryngeal mask** has gained popularity in emergency situations outside the operating room and has been successfully used by paramedical personnel. The laryngeal mask has even become a part of the difficult airway algorithm and it may be the step-down solution in cases when laryngoscopy and tracheal intubation have become impossible or inadvisable despite the need for airway control. The laryngeal mask is the second best choice for airway management. Do not forget: **during intubation time, avoid manipulation of the cervical spine**.

Breathing: After mechanical ventilation, check for tension pneumothorax, flail chest or open pneumothorax. **There are life-threatening injuries which require intervention before X-ray.**

Circulation: The peripheral pulse is a good indicator of perfusion and the heart rate is a very good indicator of hypovolemia. **Do not use hypertonic saline**, albumin or Haes and avoid dopaminergic agents in the presence of hypovolemia.

Disability: Rapid neurological assessment – check pupillary size and activity, motor and sensory responsiveness and level of consciousness.

Exposure: check for occult injuries – this includes complete clothes removed. After the check, cover the patient to avoid hypothermia.

There are three main treatment points: **Primary Survey, Secondary Survey and Definitive management.**

Primary Survey includes the ABC treatment.

Secondary Survey includes RX, CT, MRI, abdominal ultrasound, angiography etc.

Definitive management: This involves transport to the operating theatre, ICU, surgical ward or to another facility at which the appropriate care can be provided.

Pre hospital Care: The protocol is: **"The Scoop and Run Protocol"** – The treatment includes Airway, Breathing and Circulation treatment and then, transport (air or ground transport) to a trauma center.

The Israeli Defense Forces Guideline for transport a patient from the field to the trauma center are:

Glasgow coma scale < 13

Systolic blood pressure < 90

Respiratory rate < 10 or > 29

Penetrating injury to chest, abdomen, head, neck or groin.

Two or more proximal long bone fractures.

Burns of face / airway or more than 15% total body surface area

Evidence of flail chest

Evidence of high velocity impact

Age < 5 or > 55

Known Cardiac or Respiratory risk factors.

In Hospital Care: A trauma center must be prepared with all the equipment tested before the arrival of the patients of a mass casualty event: warming IV fluids and blood for rapid infusion, laboratory, radiology, transfusion services etc.

The primary and secondary survey and the definitive care treatment are the main treatment, like in the pre hospital care. And remember: **Trauma Management is a team effort.**

The two most common injury severity scales are: GCS (Glasgow Coma Scale) and RTS (Revised Trauma Score).

Organizing an emergency response of Joseftal Hospital in Eilat – Israel to a mass casualty event: Principles, Specifications and Procedures.

The call may originate from one of the following:

Paramedics, Israeli Defense Forces, Civilian informers.

If possible, verify: number of wounded, type of injuries, estimated time of arrival, mode of transportation involved.

Critical point: **"don't try to remember everything!! Write it down"**.

* Communication through telephone or walkie-talkie between treatment stations is essential.

* All involved must confirm the call and consequent arrival to the hospital.

* Check the situation of the hospital regarding: occupation of the emergency room, the wards, the operating theatre, the ICU, stock of blood products in blood bank etc.

The main treatment targets are: life-saving procedures, prevention of morbidity and prevention of future disabilities.

When hospital resources allows it, life-saving treatment should be dealt with first, even if it involves postponing other mild or agonizing patients.

Severe or Moderate patients are defined by the severity of injury that can be life threatening or possibility of losing an organ.

Mild injuries are defined by the rest, which are not life-threatening (life/organ) including those who need psychological support.

Every station has its own M.D. in charge, responsible for all aspects of the station function.

The circulation of patients between treatment station is **one way only** (no going back!!).

Some of the stations are: staff registration, field triage, severe-moderate patients station, mild patients station, discharge station, inter hospital transport station, general headquarters of the event, information and public relation center, emergency room available for treatment of the general population, fatalities station.