

Title: Triage of Mass Casualty in the Developing World – GMHC 2012

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Conflict of Interest: No financial conflict of interest

Description of Session: Triage by definition means that resources are too limited to handle the extent of the injuries being presented. It is always a difficult and stressful situation for the healthcare provider who sometimes must allow some to die so that others might live. Practicing in the developing world, with its much more severe limitations, often changes the application of triage principles in a way which increases stress. Principles of triage in the developed world will be reviewed and practical examples from the developing world will be worked out in a group setting. Participants are encouraged to help mission hospitals develop appropriate plans for handling mass casualty and the numbers of other people that will flock to the hospital.

Objectives:

1. The participant will be able to elucidate one or more methods of determining priority of care
2. The participant will be able to identify one or more distracters which can interfere with proper triage
3. The participant will participate in group exercises to practice application of triage principles
4. The participant will understand the elements which must be considered in a mass casualty plan

Questions:

Question #1: Which of the following patients in a developing world setting should be triaged to immediate care (red tag)?

- A. Laryngeal injury with falling oxygen saturation on pulse oximetry
- B. Fractured femur with blood loss of 500 cc
- C. An important local official with a dislocated shoulder & normal distal pulses
- D. A patient with 40% BSA burns

Answer: A. Using the ATLS ABCDE mnemonic, airway problems take precedent. Patients B & D are triaged to “yellow” and the patient C is triaged to Green.

Question #2: Which of the following is

- A. There should be direct provider to provider communication before transfer
- B. Financial considerations are the major reason for transfer
- C. All procedures that will be needed for total care should be performed before transfer
- D. All diagnostic test that will be needed for total care should be performed before transfer

Answer: A. Patients should be transferred whenever their needs exceed your institution’s capabilities and usually may include those with multiple injures, those with co-morbidity and those at the extremes of age. By definition, in a triage situation, you are short on resources and these are

the ones which may require more resources and/or specialized care. Ability to pay should rarely, if ever, be the reason for transfer. Direct communication with the provider at the other institution is highly desirable and complete copies of records and x-rays should be sent with the patient. Only critical procedures and diagnostic procedures should be performed at the first hospital.

Lecture Outline:

Triage

1. Prioritization of patient care is based on
 - a. Severity of illness/injury
 - b. Prognosis
 - c. Availability of resources (including people and their set of skills) – Biggest issue in the developing world setting
2. Put diagnosis and injury on tag

Triage Categories – Use ATLS' ABCDE to help sort individual patients.

1. Red
 - a. First priority
 - b. Most urgent – Life-threatening shock or hypoxia is present or imminent, but the patient can likely be stabilized and if given immediate care, will probably survive
2. Yellow
 - a. Second priority
 - b. Urgent - The injuries have systemic implications or effects, but patients are not yet in life-threatening shock or hypoxia; although systemic decline may ensue, given appropriate care, can likely withstand a 45- to 60-minute wait without immediate risk.
3. Green
 - a. Third priority
 - b. Non-urgent - Injuries are localized without immediate systemic implications; with a minimum of care, these patients generally are unlikely to deteriorate for several hours, if at all
4. Black
 - a. Dead
 - b. No distinction can be made between clinical and biologic death in a mass casualty incident, and any unresponsive patient who has no spontaneous ventilation or circulation is classified as dead.
 - c. Some place catastrophically injured patients who have a poor chance for survival regardless of care in this triage category

Mass Casualty Triage

1. It is dynamic and always changing
2. Changes can be due to
 - a. Increase in the number of patients
 - b. Increase in the number of doctors or medical personnel
 - c. Decrease in the number of doctors or medical personnel
 - d. Loss of the ED or hospital
 - e. Loss of power or services

Communications

1. One of the largest problems in mass disasters is effective communication
2. No modern communication is a common occurrence
3. What is available is not utilized efficiently
4. There are little or no records available or generated

Lab and X-Ray

1. In mass casualty radiology and laboratory should be used sparingly
 - a. For example, closed fractures would simply be splinted and definitive care could be delayed for 24-48 hours unless there is vascular compromise
 - b. Labs should be limited to H/H, T&C, and UA dipstick

Who should be transported (if possible)?

1. Those whose needs exceed your institution's capabilities
2. Those with multiple injuries
3. Those with co-morbidity
4. Extremes of age
5. Pre-existing diseases

Patient Transfer Principles

1. Know your institutional capabilities
2. Be prepared, anticipate patient needs
3. Do no further harm
4. Identify patients whose need exceed local resources
5. Perform only essential procedures that are needed for safe transport and stabilization

Evaluate Available Transport Options

Patient Transfer Guidelines

1. Establish direct communication between referring and receiving doctors
2. Transport to closest, appropriate facility
3. Use the most appropriate mode of transport available

When should the patient be transferred?

1. After life-threatening problems are managed
2. After disabling injuries are stabilized
3. After transfer is arranged
4. Before performing unnecessary tests and procedures
5. Avoid delay!

Transfer Form Essentials

1. Be sure and include the following:
 - a. Patient information
 - b. Date and times

- c. AMPLE history (Allergies, Medicines, Past medical history, Last meal eaten, Events)
- d. Condition on admit
- e. Probable Diagnosis
- f. Studies done
- g. Treatment given
- h. Status on transfer
- i. Transport management
- j. Referring site information
- k. Receiving site information, especially doctor responsible

Transfer to Definitive Care - Pitfalls

1. Tubes may be dislodged or malpositioned
2. Hemodynamic/neurologic deterioration
3. Failure to include x-rays, data, transfer summary
4. Do not delay transfer with diagnostic studies or lab results

Summary of Triage Principles in the Developed World

1. Do no harm
2. Know capabilities of staff/hospital
3. Know indications for transfer
4. Direct doctor to doctor communication
5. Stabilize before transfer
6. Use skilled transfer personnel

Summary of Triage Principles in the Developing World

1. Each of the above will be reviewed as to their applicability in the developing world

Small Group Exercise:

1. Please have a group decision and please decide the proper triage of the patients in each scenario. Please assume that you are the only doctor in a 100 bed district hospital in the country of Malitania on the continent of Afriasia. You have only 1 nurse and 1 aide to help you (all scenarios are to be answered from this perspective). You have only the information given – gathering more on each case uses time that result in the death of others.
2. List of items to consider in creating a plan for mass casualty. Details as to how they would be solved are not necessary for this exercise.

NB: Scenarios and answers are modified from ATLS, edition 8

Triage Scenario 1

Single motor vehicle crash – 100 kph into a tree. The passing mutatu (tap-tap, taxi) scoops them up and dumps all five patients simultaneously on your doorstep

Patients in Scenario 1:

- A – 45 yo M (driver). Severe respiratory distress from maxillofacial trauma, broken arm and chest abrasions. BP 150/80, HR 120, RR 40 GCS 8
- B – 38 yo F ejected 9 meters. Alert, c/o abd. & chest pain. Unstable pelvis. BP 110/90, HR 140, RR 25
- C – 48 yo M, found under car, no breath sounds on L, tender abd., multiple abrasions 90/50, HR 140, RR 35, GCS 10
- D – 25 yo F, hysterical, 8 mo pregnant, abrasions to face and anterior abdomen, in active labor BP 120/80, HR 100 and RR 25
- E – 6 yo M, was alert and talking; now responds to painful stimuli by crying out. Right LE fractured, dried blood around nose and mouth BP 110/70, HR 180 and RR 35

Triage Scenario 2

Gas explosion during a renovation at a local factory. Five workers are transported at once.

Patients in Scenario 2

- Patient A – a young man screaming “Please help me, my leg is killing me”
- Patient B – young woman is cyanotic; tachypneic and breathing very noisily
- Patient C – 50 year old man lying in pool of blood with left trouser leg soaked with blood. He is recognized as a local pastor.
- Patient D – A young man is lying face down on a stretcher and not moving
- Patient E – Young man, swearing and shouting that someone should help him or he will call his advocate and tell his father (the Minister of Health)

Triage Scenario 3

Explosion of a propane tank and resultant fire in a house. All are members of the same family.

Patients in Scenario 3

- A - 45 yo man coughing, expectorating soot-stained sputum. Burns on face, head and hands BP 120 sys, HR 100, RR 30
- B – 6 yo girl, crying. c/o burns on back, buttocks and posterior legs BP 110/70, HR 100, RR 30
- C – 70 yo M, coughing, wheezing and coughing up soot. Voice hoarse, responds to pain only. Burns of abdomen, chest and legs (circumferential). BP 80/40, HR 140, RR 35
- D – 19 yo F, obtunded, pain with movement of right humerus and leg. Thigh is swollen. BP 140/90, HR 110, RR 32
- E – 45 yo M, pale, c/o pain in pelvis. Obvious fracture with abdominal distension. Blisters of chest, abdomen and walls. Laceration of forehead. BP 130/90, HR 90, RR 25

Answers to Scenarios:

Triage Priorities – Scenario 1

- A – Major upper airway obstruction
- C – Tension pneumothorax
- E – Significant head trauma and need to protect airway
- B – History of ejection and pelvic fracture – risk of multiple injuries and shock
- D – Active labor. Once stabilized, look for fetal distress. Not life-threatening

Triage in Scenario 2

- B – Airway
- D – Spine injury? Dead? Comatose? Airway?
- C – Blood loss
- A – ABCDE's normal; broken leg
- E – Conscious & alert. Breathing well enough to yell. r/o hypoxia or pneumo

Triage in Scenario 3

- C – inhalational injury, severe burns, shock
- A – burns, probable inhalation
- D – Ortho injuries and possible chest and abdominal injuries. Decreased LOC - ? Need for airway
- E – Burns requiring fluids & transfer. Evaluation of abdomen and pelvis
- B – Extensive burns - transfer

Discussion points for Exercise 2:

Some Suggested Issues to Consider in Mass Casualty:

1. Traffic flow pattern within hospital facility
2. Discharge of non-critical patients
3. Closing of ongoing clinics
4. Handling crowds – family versus non-family (tags for family)
5. Chaplaincy/Counseling for victims and family
6. Post-event counseling for staff
7. Morgue facilities
8. Establishment of transfer guidelines
9. Modes of transport and personnel for transfer to other facilities
10. Availability of IVs, needles, syringes, drugs, plaster of Paris, tape and other disposable supplies
11. Design of patient tag/chart and someone to trail doctor/nurse to document if necessary
12. Photography for documentation?
13. Public relations including interaction with police, press, etc.
14. Call-in plan for medical personnel, transport personnel, security, etc.
15. Training of hospital staff for such an eventuality (including who goes where)

16. Practice events to keep skills up

17. Others?