# Trauma / Burn Emergencies Job Aid

**A Summary Guide for the Management of Trauma or Burn Emergencies**

<table>
<thead>
<tr>
<th>PHASE</th>
<th>PERSONNEL</th>
<th>JOB ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>D</strong></td>
<td>Detection</td>
<td>ED Nurse or Physician</td>
</tr>
</tbody>
</table>
- Obtain as much information as possible regarding potential source of contamination  
- Notifies the Administrator on Duty (AOD) and the regional EMS communications center |
| **I** | ICS Incident Commander |  
- Upon determination of a multiple casualty trauma/burn event, activate HICS positions and emergency operations plan (EOP) as needed |
| **S** | Safety and Security |  
- Security Branch Director  
  - Assess security needs and capabilities and follow guidance from Operations Section Chief regarding possible victim screening and visitor restriction  
  - Establishes secure ingress and egress for vehicles delivering victims  
- Safety Officer  
  - Assign a safety officer to the Emergency Department as necessary  
  - Monitors staff use of appropriate safety and infection control procedures |
| **A** | Assessment |  
- Medical/Technical Specialist  
  - Provides guidance to the Incident Commander and Operations Section Chief regarding:  
    - Appropriate methods of treating casualties based on their severity  
    - Number of casualties needing immediate surgery or other treatments and the number of casualties that could have delayed surgery or other treatments  
    - Number of pediatric casualties  
    - Determination of criteria for transferring casualties to other facilities (e.g., trauma centers, burn centers, pediatric centers, etc.)  
- Operations Section Chief  
  - Shares information and plans with Branch and Unit Leaders to assure emergency treatment plans and victim dispositions are properly implemented |
| **S** | Support |  
- Casualty Care Unit Leader  
  - Maintains contact with the regional EMS communications centers  
  - Establishes area(s) for the cohorting of patients based on triage categories  
- Inpatient Unit Leader  
  - Manages and promotes rapid admission to appropriate inpatient care areas as well as early patient discharge, if indicated |
| **S** | Support |  
- Logistics Section Chief  
  - Ensures an adequate supply of all resources necessary for patient care activities |
| **T** | Triage and Treatment |  
- Operations Section Chief  
  - Shares plans and information with Branch and Unit Leaders and department managers to ensure treatment plans are properly and completely implemented  
- Casualty Care Unit Leader  
  - Uses established triage guidelines to prioritize patients according to severity of the injury  
  - Ensures that contaminated victims with immediate life-threatening injuries receive life-saving treatments  
  - Assesses and treats traumatic and/or burn injuries based on appropriate treatment guidelines  
- Inpatient Unit Leader  
  - Manages and promotes rapid admission to appropriate inpatient care areas and provides continuity of care for all inpatients  
  - Provides for early patient discharge, if indicated |
| **E** | Evacuate |  
- Casualty Care Unit Leader  
  - In consultation with the senior emergency department physician, prepare the ED by making prompt disposition decisions: discharge to home, or admission to hospital or secondary distribution to another facility for continued care (e.g., pediatric, burn, long term care patients)  
- Inpatient Unit Leader  
  - In consultation with the Medical Care Branch Director, prepare the various inpatient units by making prompt disposition decisions: discharge to home, or admission to hospital or secondary distribution to another facility for continued care (e.g., pediatric, burn, long term care patients)  
  - Implement internal surge plans as necessary |
| **R** | Recovery |  
- Mental Health Unit Leader  
  - Aid recovery by addressing the behavioral health needs of patients, visitors, and health-care personnel (see Behavioral Health EOP). If needed, enlist the services of social services, pastoral care, psychiatry, child life, employee assistance services, and external behavioral health services  
- Casualty Care Unit Leader  
  - Relieve staff showing signs of excessive fatigue or stress  
  - Ensure all unneeded equipment is cleaned and returned to the staging area, or returned to its original location  
- Section Chiefs  
  - Maintain a continuous level of readiness by monitoring staffing patterns, relieving staff showing signs of excessive fatigue or stress, directing unneeded equipment and supplies to be cleaned and returned to original location, and maintaining an accurate accounting of all staff time and other expenses |
Blast Injuries

Pearls for Clinical Practice

- Expect an “upside-down” triage - the most severely injured arrive after the less injured, who by-pass EMS triage and go directly to the closest hospitals
- If structural collapse occurs, expect increased severity and delayed arrival of casualties
- Clinical signs of blast-related abdominal injuries can be initially silent until signs of acute abdomen or sepsis are advanced.
- Standard penetrating and blunt trauma to anybody surface is the most common injury seen among survivors. Primary blast lung and blast abdomen are associated with a high mortality rate. “Blast Lung” is the most common fatal injury among initial survivors
- Isolated tympanic membrane rupture is not a marker of morbidity; however, traumatic amputation of any limb is a marker for multi-system injuries.
- Air embolism is common, and can present as stroke, MI, acute abdomen, blindness, deafness, spinal cord injury, or claudication. Hyperbaric oxygen therapy may be effective in some cases.
- Determinants of Injury from Blasts
  - Size of the explosion – larger blasts create a larger pressure differential which cause injury and structural damage
  - The initial pressure wave from a high energy explosive is a sharp overpressure, followed by a slight negative pressure before returning to baseline
  - Distance from the blast – the further the victim from the center of the blast, the less injury they might experience
  - Protection – solid walls can provide protection from the pressure wave, shrapnel, and heat
    - If the victim is in front of the wall, the pressure wave will hit them in the front, bounce off the wall and hit them again in the back
    - If in a corner of two walls, the pressure wave may hit the victim three times
  - Casualties may have increased chances of survival if they are in an open field, rather than being in a confined room
Body armor may increase the amount of trauma to lungs

Parkland Formula

**IV fluid**
Lactated Ringer’s Solution

**Fluid calculation:**
- 4 x weight in kg x %TBSA burn
- Give 1/2 of that volume in the first 8 hours
- Give other 1/2 over next 16 hours

**Warning:** Despite the formula suggesting cutting the fluid rate in half at 8 hours, the fluid rate should be gradually reduced throughout the resuscitation to maintain the targeted urine output, i.e., do not follow the second part of the formula that says to reduce the rate at 8 hours, adjust the rate based on the urine output.

**Example of Fluid Calculation**
- 100-kg man with 80% TBSA burn
- Parkland formula:
  - 4 x 100 x 80 = 32,000 ml
  - Give 1/2 in first 8 hours = 16,000 ml in first 8 hours
  - Starting rate = 2,000 ml/hour

**Rule of Nines**

![Rule of Nines Diagram](image)

© Yale New Haven Health System Center for Emergency Preparedness and Disaster Response • (203) 688-5000 • center@ynhhs.org • www.ynhhs.org/cepdr