Disaster Management and the Surgeon: A Practical Look

Jeffrey Hammond MD, MPH
Chief, Trauma/Surgical Critical Care
Robert Wood Johnson Medical School
New Brunswick, NJ
hammond@umdnj.edu
Disaster: Definition

- Mass Casualty Incident vs. Disaster
  - Disaster: overwhelm resources of institution or community

- Paradigm shift: Philosophy of care no longer focuses on the individual

- It is too late to plan a response once a disaster has occurred
  - Best you can hope for: controlled chaos
Disaster: Axioms

- We live in an age of terrorism
- The likelihood of a disaster is now more of a probability
- While a “conventional” disaster is still most likely, every disaster now has a WMD potential
- Healthcare providers are busy and have little time for “optional” training
- Healthcare providers and institutions are recalcitrant to spend money for disaster medical training
**Why Surgeons Should Be Involved**

- Q: This isn’t a surgical problem, is it?
  - Ans: It is now.

- Q: Why should I care?
  - Ans: Who do you want to make decisions that will affect you and your community?

- Q: What will trauma surgeons bring to the table?
“All-Hazards”:
Questions You Need to Address

- What are the credible threats that my facility must respond to?
- Who needs to be involved in this response, both inside and outside my facility?
- What response services must my facility provide?
- What is the “big picture” response system, and where does my facility fit in?
- How do we “practice?”
- How do we assess my facility’s state of readiness?
- Who is in charge, and of what?
What Surgeons Will Contribute

- Disaster experience
- Aggressiveness
- Daring
- Flexibility
- Courage
- Decisiveness
- Attention to detail
- Attitude
What Are the Issues?

- Detection and Surveillance
- Access and Triage
- Training and Education
  - Public and Professional
- Communication
- Facility Issues
  - Security
  - Supply and Resupply
- Personal Protection
- Post-Disaster
  - CISM
Triage

- Goal: identify minority of critically injured casualties requiring immediate treatment
- 2° goal: prevent overwhelming primary receiving hospitals with minor injuries (overtriage)
- Frykberg and Tepas, 1988 J.Trauma
  - Review of 14 bombings
  - Inverse relationship between triage discrimination and critical mortality
## Triage: Definitions

NATO War Surgery Handbook - 1988

<table>
<thead>
<tr>
<th>Category</th>
<th>Definition</th>
<th>Examples</th>
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<tbody>
<tr>
<td>Expectant</td>
<td>Death expected even if unlimited resources</td>
<td>GSW head</td>
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<tr>
<td></td>
<td></td>
<td>Profound shock</td>
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<tr>
<td></td>
<td></td>
<td>Large burns + injuries</td>
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<tr>
<td>Urgent</td>
<td>Will result in death unless urgently Rx’d</td>
<td>Tension PTX</td>
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<tr>
<td></td>
<td></td>
<td>Cardiac tamponade</td>
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<tr>
<td>Immediate</td>
<td>Life threatening but can survive if Rx’d</td>
<td>Open Fx’s</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vascular inj + ischemia</td>
</tr>
<tr>
<td>Delayed</td>
<td>Injuries will tolerate a reasonable delay</td>
<td>Abdom inj (-) hemorrhage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vascular inj w/o ischemia</td>
</tr>
<tr>
<td>Minimal/Ambulatory</td>
<td>Minor, superficial wounds; can be treated w/o GA</td>
<td>Burns &lt; 15% TBSA</td>
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<tr>
<td></td>
<td></td>
<td>Superficial lacerations</td>
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Triage: Methodology

- Goal: triage accuracy
- 1° triage: Institute near scene of disaster
- Reinforce initial sorting at a second designated triage area
- Triage areas should be separated from the hospital providing definitive care
Casualty Collection Site

- Safe from hazards
- **Upwind** and **Uphill** from contaminated environment
- Protected from climatic conditions
- Easy visibility for victims
- Convenient exit routes for evacuation
START
(Simple Triage and Rapid Transport)

- Taught to EMS for Prehospital Mass Casualty Incidents (MCI)
- Looks at 3 Parameters:
  - Neurological
  - Respiratory
  - Perfusion

- Advantage: Triage numbers of Casualties quickly
- Disadvantages: Not reliable
START - Respiratory Status

- No Respiratory Effort: Expectant
- Respirations > 30: Immediate
- Normal Respirations: Go to Next Step
Triage: The Tag System

- **Priority 1** (Red)
  - Patients are salvageable and critically ill
- **Priority 2** (Yellow)
  - Live 24 hours w/o care
- **Priority 3** (Green)
  - Live w/o care
- **Priority 4** (Black)
  - “Expectant” or Deceased
Hospital Incident Command System

- Hospital Goal During a Disaster:
  - Protect the Facility
  - React to Community Needs
  - Continue to Provide Services
  - Safety

- HICS: Provide comprehensive resource management strategy
  - Evolved from California fire experience of 1970’s

- Can be viewed as a day-to-day tool
HICS: Command Structure

- **Command**: Sets Objectives
  - Chain of Command, Public Information

- **Planning**: Develops Action Plan
  - Workforce, Training and Drills, Info Sys

- **Operations**: Conducts Tactical Operations
  - Triage, Detection, PH Infrastructure, Mental Health

- **Logistics**: Provides Support
  - Decon/HAZMAT and PPE, Communications, Facility Issues, Inventory

- **Financial**: Provides Accounting and Procurement
  - Procurement Unit, Funding, Accounting
HICS - Operations

- Develops from bottom up
- Goal: keep organization simple and streamlined
  - avoid overextending span of control
- Established Divisions
  - Divide the incident geographically
  - By convention, labeled by letters of alphabet
    - Within a building, designated by floor numbers
- Groups describe functional areas of operation
  - Are not assigned to any specific division
HICS - Logistics

- Plan for How Long?
- HCW Access
- Credentialing
- Lockout and Lockdown
- Food/Water
- Quarantine
  - ?? Offsite facility for contaminated patients
- Bed reporting
- Surge Capacity
- Mortuary Issues
Freelancing → Don’t

- Acting Independently outside of an Organizational Structure.
- Mass Conversion
- Strips Resources from present Organizations
- Medical and Liability Issues
- Line of Duty Death
  - Oklahoma Bombing - Rebecca Anderson - RN
  - WTC - EMS personnel freelanced – Killed/Injured when towers collapsed. Difficulty in finding out who was lost.
- Stay Where You are Until Called Upon to Help
Disaster Drills Prior to 9/11

- Viewed as a JCAHO mandated formality
- Going through the motions
- Generally single institution, often single department
- Announced; and cancelled if inconvenient
- Key personnel exempted
  - Surgeons rarely represented on Disaster Committee
Disaster Drills Today

- Multidepartmental, multi-institutional
  - JCAHO requires one exercise/year
- Include Hazmat component
- Limited table top exercise
- Inconvenience accepted
- Unannounced
- Taken seriously
- JCAHO and AHA provide templates
  - Future: COT guidelines
Creating a Disaster Plan

- **Planning**
  - How many plans are operational? Who is in control?
  - What is the general knowledge? Are they practiced enough?
  - Designated areas for minimally injured and volunteers

- **Communication**
  - Can field triage communicate with command post?
  - Inter-hospital? With family members? With media?
  - Designated media area? How is information released?

- **Security**
  - Does security change with the nature of the disaster?
  - How are personnel identified?
Stress

- **General Stress**
  - A normal condition of life

- **Cumulative Stress**
  - Unresolved, becomes negative

- **Critical Incident Stress**
  - Normal response to an abnormal event, but may be painful

- **Post-traumatic Stress Disorder**
  - Caused by unresolved Critical Incident Stress
Factors Contributing to Worker Stress in Disasters

- Long work hours
- Time pressures
- Multiple or conflicting priorities
- Exposure to traumatic or grotesque events
- Unclear duration of event or deployment
- Fear of death, injury, illness
- Role conflict
- Reaction/response of those being helped
CISM

- A comprehensive, systematic, peer-based and multi-tactic approach to managing traumatic stress

- Tactics:
  - Debriefing, Defusing, Demobilizations
  - One-on-one support
  - Pre-event preparation and post-event follow-up
Ten Golden Rules for Urban Mass Casualty Management

1) Try to follow day-to-day routines
   - therefore, incorporate MCI terms and procedures into daily routines

2) Do what will save more lives in the long term
   - balance immediate needs with probability of survival

3) Quickly establish a centralized easy-to-identify command post and incident commander

4) Communicate succinctly in a Clear Zone
   - free from surrounding noise; allows a strong radio or phone signal

Pepe at al., Prehosp & Disaster Management ,1989
10 Golden Rules – cont’d

- 5) Remember that fewer knowledgeable rescuers do better than many volunteers
  - corollary to #1

- 6) Emphasize centralized controlled evacuation
  - BLS: first aid and transport
  - ALS: secondary triage and accompany critical patients

- 7) Triage and evacuate all patients to the usual receiving facilities
  - send to trauma centers even if numbers are large
Golden Rules – cont’d

- 8) Log events chronologically and centralize the media
  - Use the media to notify public and dispel unnecessary fears; make requests of public

- 9) Always prepare to provide post-incident care for rescuers and victims
  - both immediate and subsequent debriefings

- 10) Train and test all potential rescuers

- [11] from JSH: Analyze the events and learn from others’ experience and mistakes
What Have I Learned from Miami 1980 and WTC 2001?

- Flexibility
- Communication is the second casualty
- Secure your lines of re-supply
  - Be ready for a prolonged event
- Prepare your disaster plan for the contingency that you are *part* of the disaster
  - Be self-contained
  - Protect your people
- Rumor control
  - Use in-house TV channel
- Address staff psychological needs (CISM)
What We Are Doing in NJ

- Current Situation: Home Rule
  - 550 municipalities, 550 BoH
  - 115 Local Health Units

- OEM
  - State police focus

- Domestic Preparedness TF

- MEDPREP
  - Medical Emergency and Disaster Prevention and Response Expert Panel
MEDPREP

- Hospital/Medical Focus
- Original N = 21
  - Trauma, Emergency Medicine, Infectious Disease, Prehospital, State Police, Nursing
  - Membership expanded to include local health officials
- Advisory to the Sec’y of Health and Governor
  - Report: Issues, Capabilities, Targets, Action Plan
- All-Hazards
- Incident Command approach
- Evolved into the NJ Health Emergency Preparedness and Response Network
NJ and WMD:
DoHSS Action Plan

☐ Create Office of Public Health Preparedness
☐ Re-establish BT Advisory Committee
☐ Initiate Regional Planning and Coordination
☐ More Effective 24/7 Notification
☐ Plan for National Pharma Stockpile Deployment
  ■ Develop plan for med-surg supplies
☐ Increase Statewide Surveillance
☐ Build Lab Surge Capacity
☐ Enhance Health Alert Network
  ■ LINCS, Internet, the “Communicator”
MEDPREP Trauma/Burns Subcommittee

- Charges/Priorities:
  - Recommendations for State stockpile
    - Include recommendations for blood banking system
  - State burn response plan
  - Develop policy for 800mHz radio communication
  - Recommendations for credentialing guidelines
    - Corollary to personnel and vehicle identification
  - Revision of “Trauma Triage & Transport” course
Health Emergency Preparedness and Response Triad

Theme: Prepare….Respond….Recover….Mitigate

Public Health

Emergency Management

competency

capability

capacity

Healthcare Delivery System
NJ Plan: Regionalization

- Division of state into geographic sub-areas
- Backbone: Medical Coordination Centers (MCC)
  - Means for intra- and inter-regional coordination
  - Mirrors trauma center distribution and needs based designation
- Current projects with surgeon involvement
  - EMS training with advanced mannequins
  - Strategic state stockpile
  - State burn treatment development
  - Credentialing issues
  - Expansion of 880mHz radio network
What Can Surgeons Do?

Review and revise your disaster plan

- Redundant communications
- Advise on inventory
- NBC component
- CISM

- Assist your county OEM
- Advise your municipal LEPC
- Join a DMAT, USAR, or CISM team
- Learn lessons from past disasters
Key Websites

- CDC/BT
  - www.bt.cdc.gov

- Civilian Biodefense
  - www.hopkins-biodefense.org

- HEICS
  - www.cahwnet.gov

- NDMS/DMAT
  - www.ndms.dhhs.gov
Core References

- Jacobs L, et al. The Role of a Trauma Center in Disaster Management. J. Trauma 1983; 23:697-701
Attitude

- “If you know neither the enemy nor yourself, you will succumb in every battle.”
  - Sun Tzu, axiom 18 (490 BC)

- “Failure to Plan is Planning to Fail.”
  - Art Cooper MD (ACS COT 4/02)