Management Aspects of Planning Mass Casualty Medical Responses—The “4 Cs + 1”

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Major Caution!

- Review your and your facility’s role in disaster response on arrival!
- Occur without warning
- Response can “make or break” reputation and effectiveness of medical unit
- Colleague had Mass Casualty Incident (MCI) two days after arrival as medical director
Responses to Mass Casualty Incidents
Part I--The Threats

WMD
Major Accidents
Natural Disasters
Pandemics
The Threats (Continued)

- Mass casualty incidents
  - May occur with little or no warning
  - Essential to have prepared before the event
  - WMD and Terrorism
Terrorism and Weapons of Mass Destruction

- “Weapons that are capable of a high order of destruction and/or being used in such a manner as to destroy large numbers of people”
- Includes CBRNE
Scope of the Problem

- Terrorists’ philosophy and doctrine justify efforts to produce maximum civilian casualties/fatalities
  - “Attack sites with ‘high human intensity’ such as skyscrapers, nuclear power plants, and football stadiums.” *al-Qaida training manual*

(Hendawi H. SL Trib. 2 Feb 2002, p.1.)
Unique Aspects of WMD Attacks

- May be covert or announced
- May produce mass casualties at once or only over time
  - Even effects of some chemical attacks may be delayed for hours
- If covert, event has to be rapidly recognized as a WMD attack
- Prompt recognition essential for response and control of the situation
How do Health Organizations Recognize and Respond? (Continued)

- All, especially Public Health and OM, must be able to react “instantly” to a terrorism mass casualty event in order to contain the hazard, e.g.
  - Smallpox—must immunize within 4 days of exposure
  - Chemical—must mobilize to provide antidotes to large numbers within minutes to hours
Smallpox: Note all lesions in one area have progressed to same stage

Source: CDC
Ionizing Radiation

- Two major concerns:
  - Nuclear detonation, e.g. “suitcase” weapon or more “classic” nuclear bomb? Increasing risk
  - “Dirty” bomb—spreads radiation but without the blast and high radiation levels of a nuclear detonation
    » Similar effects from attack on nuclear reactor
    » Used to think it was manageable
Ionizing Radiation (continued)

- Polonium 210—Demonstrated complexity of dealing with contamination
  - Aircraft
  - Restaurants
  - Other locations
Explosion

- Over 95% of recent terrorist events use explosives
  - Consider 9/11 as example
- Rapid recognition of event
- Concerns with “professional” terrorists
  - Multiple explosions
  - May use multiple agents
  - May target hospitals, command and control
Other Threats--Major Accidents

- Also without warning
- Week-ends seem to happen more than by chance in my experience, e.g. Vietnam
- Little/no warning
- Rail, auto, aircraft, hazardous manufacturing activities all set stage for MCI
- I-15 and I-80 in SLC
A canyon inferno

Salt Lake Tribune, 11 August 2005
Other Threats—Natural Disasters

- Severe weather, including tornados (even in Utah) and heavy snow
  - Potential loss of utilities, etc.
- Earthquakes, of course
- Floods
- Fortunately, now have Department of Homeland Security to “help”
- “Oddly”, JCAHO recommends preparing for longer than 72 hours “on your own”
Other Threats—Pandemics

- SARS demonstrated how rapidly agents can spread
- Per former Dr. Gerbeding, former CDC Director, not “if” but “when” we have a pandemic
Responses to Mass Casualty Incidents—Part II

Management Aspects of Planning to Respond to MCIs
Planning to Respond to an Event

- “No disaster will ever follow a plan”
  - True, but with planning can make a more organized, coordinated, effective response
- Without planning, disorganized response likely (Chicken)
- With planning, can more effectively respond to changing situations
Planning to Respond to an Event (Continued)

- Potential numbers require well-developed and **realistically** practiced plans in order to make effective response
- “Table tops” and “walk throughs” not sufficient and may be misleading
- Need involvement of all
- After-action report especially valuable (evaluator should not be a player)
Planning to Respond to an Event (Continued)

- Essential aspect: Should involve everyone in health organizations
  - Much more than “just” treatment
  - Need logistics, administration, housekeeping, transportation, security, and many other support players
  - Cross-training should be expected
Planning to Respond to an Event (Continued)

- Pandemic flu estimates for Utah underscore need to involve everyone in response planning
  - Recognize need to incorporate other agencies as discussed in Coordination section later
In addition to basic planning aspects, need particular attention to the 4 “C’s” + 1

- Command and Control
- Communication
- Coordination
- + 1: Contingencies
Command and Control

- Repeated demonstrations of need to have clear definitions of who’s in charge, who’s next, etc.
  - TOPOFF--50-100 persons on conference calls; decisions made, reversed, reversed again
  - Essential that all in command centers have clear-cut designations of responsibilities
  - “Table tops” have demonstrated concerns
Katrina
– “There were too many … cooks in the kitchen” (Mayor Nagin)
– “FEMA has been here three days, but there is no command and control” (New Orleans Homeland Security Chief)
Command and Control (Continued)

- Absolutely essential that decision-makers be clearly designated and all recognize who is responsible for decisions, command, control and who are replacements
  - Ways to test
  - Must be trained for the position
- Important to make decisions—”not deciding now” during an MCI is typically worse possible decision (e.g. NAPE)
Command and Control (Continued)

- Recognize need for 24/7 operations
  - Determine whether modular unites or “everyone” recalled
- Hopefully have pre-designated “overflow” locations
- Include plans to deal with “worried well”
  - 74% of 5,000 people reporting to ERs after Sarin attack in Tokyo had no clinical findings
- Multiple other decisions to be made
Command and Control (Continued)

- Particularly important: Contain the hazard
  - Tokyo example
  - Hospital example
  - Ordnance, other explosive hazards after an explosion or fire (e.g. Whiteman AFB, MO)

- Essential to include this aspect in planning, training, and practice
**Communication**

- **The essential aspect of mass casualty response**
  - Police helicopter 1, 9/11/2001 “About 15 floors down from the top, it looks like it’s glowing red. It’s inevitable.”
  - Helicopter 2, “I don’t think this has too much longer to go, I would evacuate all people…”
  - North tower fell **21 minutes** later

- Dwyer, Flynn, and Fessenden, NY Times, 7 July 2002, page 1
Communication (Continued)

- Warning relayed to police, many of whom escaped
- Most firefighters never heard the warnings due to radio problems and the fact that the police net was not linked to the fire department’s system
- As a result ~200 died (of total of 343) when tower collapsed*
  - Resting in the stair well on way down
  - 20 to 50 in lobby “milling about”

*Dwyer & O’Donnel, *NY Times*, 9 Sept 2005
Communication (Continued)

- Cell phones, telephones rapidly overwhelmed
  - Photo phones may be an asset (Katrina)
- TOPOFF--exchanging fax and phone numbers during the event too late
- Dedicated, secure radio channels, amateur radio (HAM), satellite phones, and computer notification offer assistance
  - Radio, other communication discipline essential
Communication (Continued)

- Media interactions—reporters typically want more than PIO handouts/sessions
- Difficult to control media access
- Consider identifying and training key people
  - May help avoid “Brain-Camera” syndrome
Communication (Continued)

Know the “jargon” of the ICS (Incident Command System), e.g.

- NIMS (National Incident Management System)
- JIC (Joint Information Center)
- JOC (Joint Operations Center)
- DMORT (Disaster Mortuary Assistance Team)
- EOC (Emergency Operations Center)
- ECC (Emergency Coordination Center) DOH
- Other, agency specific, acronyms
Coordination

- With multiple agencies involved and needed by medical facilities, need established coordination procedures before the event—e.g. calling PD when crowds arrive too late.

- In addition to public safety, FBI, FEMA and others will be important players—again, important to coordinate before the event.
Coordination (continued)

- National guard, other military may not be available
- Logistics crucial: e.g. 60-100 days of Cipro for 5,000 exposed—State and Strategic National Stockpile may help
- Resupply of other “routine” materials required
- Recognizing 24/7 potential, provision for staff relief/rotations essential, including outside assistance
4 Cs + 1: Contingency

- Need to include this aspect in planning
- Opportunities to consider “What if's”
  - What if routes to hospitals are not passable due to earthquake, explosion, crowds of people?
  - What if weather prevents arrival of resupply from SNS?
  - What if utilities are destroyed or disrupted?
“What ifs” (Continued)

– What if workforce is reduced by disease outbreak?
– What if workforce is reduced by concern for families?

In essence, considering contingencies in planning should result in better response to those ‘glitches’ that are bound to occur during an event.
Summary

- WMD threat real and increasing, with North Korea and Iran as latest examples
- MCIs due to other causes likely
- Essential for all concerned with medical response to be aware of threats and response approaches
Planning, realistic practice, and after-action reviews crucial in preparing for MCI event

Past experience emphasizes importance of 4 Cs plus 1 in planning
QUESTIONS, COMMENTS?
For Further Information

- CDC, e.g. [www.bt.cdc.gov/](http://www.bt.cdc.gov/)
  - Summarizes CDC’s bioterrorism initiatives
  - Includes notification procedures for state and local public health officials
  - Links for response to all other hazards

- Search link will find most items regarding a specific disease
Public health agencies—local, state, and national, especially


- Summarizes treatment recommendations of consensus groups. Also reviews clinical courses of the 2001 anthrax patients and discusses mass quarantine concerns
For Further Information (Continued)

- Some sources for response planning:
For Further Information (Continued)

- Miller J, Engelberg S, Broad W. *Germs*
  - Excellent review of events since 50’s and discussion of future potentials