Data Needs for Situational Awareness in a Mass Casualty Disaster: Optimal and Minimal Data and Technology Requirements

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Overview

- National Mass Patient and Evacuee Movement, Regulating and Tracking System
- Partnership for Effective Emergency Response (PEER)
National Mass Patient and Evacuee Movement, Regulating and Tracking System

- **Problem:** Need to improve our ability to transport and track very large numbers of patients and evacuees during/after a catastrophic incident

- **Goals:**
  - 1) Develop a model to estimate transportation needs for such an event
  - 2) Outline a proposed strategy for development of a national patient and evacuee regulating and tracking system
Project Origin

- Proposed by DOD (2004), Requested DHS/FEMA funding
- DHS Priority (2004); Secretary Ridge's Homeland Security Interagency Security Planning Effort
- Included patient mobilization planning for catastrophic events as a long-term initiative and identified this effort as high-priority
Project Origin

- Led by HHS / Agency of Healthcare Research and Quality - DOD supported the Initiative
- Funded by DHS, HHS, DOD
- Supported by DOD Evacuee/Patient Tracking Initiative (interconnecting three existing DoD patient-evacuee IT systems)
Project Background

- Project Overview
  - AHRQ Project Officer: Dr. Sally Phillips
  - Project undertaken in collaboration with FEMA, DoD, and HHS
  - Co-led by AHRQ and DoD
  - Project steering committee

- Key project staff
  - Tom Rich (Abt Associates)
  - Dr. Paul Biddinger (Mass General Hospital and HSPH)
  - Dr. Richard Zane (Brigham and Women’s Hospital)
# Project Steering Committee

- HHS
- DOD
- FEMA
- DOT
- VA
- DHS
- HSC
- CDC
- State, Local, private industry representatives
Need for a National Tracking System

- **The Public**: Where is my loved one?
- **Incident Commanders**: How many victims are there? Where are they? Where are more response assets needed?
- **Emergency Operations Centers**: Where are the incident scenes? Where is there unused response capacity? Will I need outside assistance?
- **DOD & VA**: When will federal transportation, medical and other assets be needed to supplement local and state assets to transport patients and evacuees? Which assets?
- **Public Health Departments / Relief Organizations**: How many people are in shelters and what are their specific needs?
- **Remote Evacuation Sites**: Who exactly is coming on that plane of evacuees and patients?
System Concept

**Demand**
- Patient / evacuee location
- Health status
- Health needs

**Supply**
- Available transportation assets
- Available medical assets

**Asset requirements**

**Excess capacity / shortfall**
Trade-Offs Exist With Low-End, Mid-Range, and High-End Systems
Variables Distinguishing Low, Middle, and High-End Systems: Demand Side

- 24/7 vs. activated system
- Tracking vs. locating vs. aggregate location data
- Public use vs. emergency response
- Entry points
- Types of data collected
- Data collection and identification technology
- Integration with existing local systems
- Ease of use
- Levels of aggregation and access
- Technology sophistication and independence
Project Assumptions:

- Activated system
- Track both location and health status of each person as they encounter the system.
  - Track at “touch points”, which include overnight facilities, temporary staging areas/collection points, and (possibly) vehicles loading/unloading
  - Require minimum data elements to login or update, but build system to accept more detailed demographic and medical information
  - Build from person-level data, but accept aggregate (location-level) data
Project Assumptions (continued)

- System is accessible to both public and emergency responders/planners
  - Data access and reporting must be tightly controlled
- Build on existing systems as much as possible
- Build on daily-use systems as much as possible
Minimum Data Elements

- **Unique identifier** (a universal algorithm for assigning IDs would be ideal)
- **Name, gender, DOB** (if not available, substitute age range, race and notable physical characteristics to help identify the person)
- **Health Status**
  - Red, yellow, or green triage color
  - ICU, floor, or discharge ready/ not
  - Acutely ill, well with medical history (needing medical attention), healthy
- **Last updated location** (ID/ name/ type), date, time
Other Important Data

- Arrival or departure (arriving at hospital vs. departing from hospital)
- Language (English, other)
- Special transportation needs: ALS/BLS ambulance, wheelchair
- Special medical needs: ventilator, oxygen, dialysis, current medications, cardiac monitor
- Contamination/radiation/contagious status
- Security/supervision needs/status (psychiatric patients, prisoners)
- Family unification code (to link family members to each other)
- Final "exit" status (dead, left with relatives, went home)
- Attached files (medical records and images)
Key Recommendations

- Start with a Phase I system that is a platform for future growth
- Obtain patient / evacuee location and health status data from existing “feeder” systems
  - “Check in / check out” systems
  - Use local or agency-specific patient tracking systems
  - Begin with local and state entry, federal entry last
- Feeder systems only provide these data if the National System is “activated”
Key Recommendations

- Track at "touch points" (e.g. evacuation centers, overnight facilities, patient collection or staging areas, vehicle loading/unloading, hospitals, etc.)

- Use Data Mining:
  - Facilities with mandatory reporting
  - Facilities using common software platform
  - Facilities within an agency (e.g. VA hospitals, DOD MTFs, Indian Health, etc.)
  - Single facility (hospital with “homegrown” system)
Key Recommendations

- Require minimum data elements to enter patient/evacuee data
- Build system to accept more detailed demographic and medical info
- System accessible to public and emergency responders/planners
- Eventually include public – web based registration
Partnership for Effective Emergency Response (PEER)

- ASPR-funded project
- Began 2007
- Harold Cox at Boston University is the principal investigator
PEER Background

- The concept of a “response community” has broadened over the past several years
  - Now clearly includes the public health and healthcare sectors as integral responders
  - Recognizes the constraints on each and the need for:
    - Coordination
    - Mutual aid
    - Surge capacity
PEER Disciplines

- Public health
- Hospitals
- Health centers
- EMS
- Long-term care facilities
PEER Initiatives

- **Notification**
  - Broaden enrollment in HHAN
  - Develop protocols for use of HHAN notifications

- **Situational awareness**
  - Use of WebEOC
  - Increased access to site
  - Development of discipline-specific “boards”
  - Medical Intelligence Center (MIC)
Recent Local Tests

- Ice storms
- Boston Marathon
- H1N1
- T crash
Observations

- Work to date has been tremendously helpful
- Efforts to improve situational awareness can sometimes threaten command and control boundaries, especially on the supply side
- Challenges remain in the gaps between emergency management and public health
Questions?