

ARTICLE BRIEF: BIOSECURITY AND BIOTERRORISM

The National Disaster Medical System: Past, Present, and Suggestions for the Future.

Franco C, Toner E, Waldhorn R, Inglesby TV, O'Toole T. *Biosecur Bioterror*. 2007;5(4):319-325.

Introduction

The National Disaster Medical System (NDMS), the federal government's primary response mechanism for mass casualty events, has 3 main components: deployable medical response teams, a patient evacuation system, and a definitive hospital care component. In this article, the authors review the structure and functions of NDMS, with a focus on its definitive care component. Potential limitations of the system are identified, and suggestions for improvement are offered.

NDMS Structure and Function

When established in 1984, the original purpose of NDMS was to supplement medical care capacity for evacuated military casualties from an overseas war. However, NDMS has never been used for this purpose, and the mission of the system has since evolved to focus more on provision of medical support for mass casualty disasters within the U.S.

Now considered the federal government's primary medical response asset for large mass casualty disasters, NDMS is responsible for providing emergency medical response, transport and evacuation, and coordination of patient distribution for definitive care in the federal medical response to disasters. NDMS is part of the Emergency Support Function #8 (ESF-8)—Public Health and Medical Services—within the National Response Framework (NRF).

Deployable Medical Response: NDMS can deploy a variety of medical response teams, with equipment and supplies, to a disaster site. Disaster Medical Assistance Teams (DMATs) account for the greatest number of response teams. A typical DMAT consists of 35 medical professional and support staff who are federalized and deployed to a disaster site for up to 2 weeks at a time. These teams take 1 to 2 days to deploy; they are trained and equipped to operate for 72 hours on their own without assistance or resupply. Federal Medical Stations (FMS) containing equipment, beds, medical supplies, and limited pharmaceuticals also can be deployed to the field.

Patient Evacuation: NDMS partners with the Department of Defense's U.S. Transportation Command (USTRANSCOM) to coordinate and execute patient evacuation and transport from an evacuation point near a disaster site to designated receiving points around the country. Patients are transported to an aeromedical evacuation center (usually at an airport) where DoD aircraft then evacuate them to receiving sites. Federal Coordinating Centers (FCCs) located at Veterans Administration hospitals and military bases coordinate the transport of patients from receiving sites to receiving hospitals.

Definitive Care: NDMS definitive care involves inpatient medical care following the emergency evaluation, stabilization of patients near the disaster site, and subsequent evacuation of patients out of the affected area. Approximately 2,000 hospitals around the country have agreed to offer a total of approximately 100,000 beds to accommodate NDMS-evacuated patients in an emergency.

Potential Limitations of NDMS in a Large-Scale Disaster

- **DMATs take time to deploy and have limited capacity.** The deployment of this fundamental NDMS response component relies on commercial air travel that may be difficult to arrange following a mass casualty disaster. In addition, DMATs are trained and equipped to provide only limited amounts and types of care.
- **Federal Medical Stations take longer to deploy.** FMSs take even longer to deploy than DMATs, and their usefulness is limited by the staffing available to run them.
- **The number of patients that can be transported by DoD is limited.** The military medical transportation system capacity for patient transport is limited by the availability of medical aircraft and trained aeromedical personnel.
- **The healthcare system has little incentive to participate in NDMS.** Most U.S. hospitals are private institutions that are unaware of the aims and goals of NDMS. Hospitals are not funded to enroll or train as participants in the NDMS definitive care system.

Suggestions for Improvement

The U.S. government should take the following actions to improve NDMS transportation, tracking, and definitive care capacity, and to build a national capacity to care for the sick or injured in mass casualty events:

- Foster an increased level of engagement with the private healthcare system in preparedness and response efforts.
- Encourage increased regional healthcare collaborative network building as part of the backbone of the NDMS system.
- Develop additional, alternative patient transport systems, linked to the overall NDMS patient tracking effort, to decrease the reliance on DoD long-haul air transport in medical evacuation.

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