

Lecture 3

Medical Preparedness Approach of the United States*¹

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The National Disaster Medical System (NDMS)

Disaster medical care in the United States started as an augmentation to the Department of Defense's ability to provide medical services to the troops in the 1940s to 1950s. In the 60s, 70s, and 80s, it evolved into a process that supported disaster responses in the US, and the Federal Emergency Management Agency (FEMA) was created by then President Carter in 70s.

The FEMA is in charge of planning, coordinating, and operating emergency and disaster measures at the federal level. It belongs to the Department of Homeland Security. Of the FEMA responses to emergencies and disasters, the medical care activities are based on the Emergency Services Function (ESF) 8. For the purpose of providing emergency disaster medical care in disaster affected areas, which is the core activity of ESF 8, the National Disaster Medical System (NDMS) was developed.

The NDMS is a strong partnership between the Department of Health and Human Services, the Department of Defense, the Department of Veteran Affairs, and the Department of Homeland Security, and is coordinated by the FEMA (**Fig. 1**). It operates in a powerful partnership with three entities: the federal government, local jurisdictions and service providers, and non-governmental organizations.

Its commitment to disaster is made up of a cycle that progresses in the order of Prepare, Respond, Communicate, and Recover. The most

important is the phase between Communicate and Recover. This is where victims of a disaster can share the various lessons they learned in the disaster and regain their social life and health and make it work to prepare for the next disaster. For NDMS to provide a medical contribution in a disaster as an effective system, it constantly reviews and improves each phase of the cycle and responds adequately.

Ideal Management of a System of Systems

The medical system is complex on its own even in peace times and it becomes even more complex in the event of a disaster. Effective operation at the disaster area becomes difficult. It is necessary to create an environment of smooth activity in the medical field even in the middle of an emergency or disaster. What is most important here is to manage a System of Systems that organically combines multiple systems.

There are many processes that need to be completed from when the incident happens until full recovery including life-saving treatment, triage, family services, and rehabilitation (**Fig. 2**). The processes do not only involve members of the medical teams but also include mortuary teams and people in charge of identification and DNA analysis. The multidisciplinary staff members all take part in the assistance, collaborating and cooperating with each other until full recovery.

The amount of time needed for full recovery is never the same. In New Orleans, after Hurri-

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Fig. 1

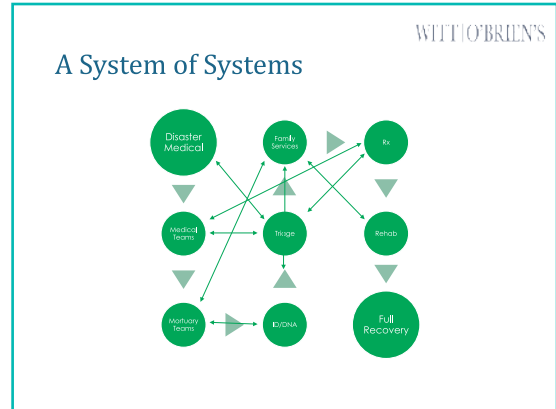


Fig. 2

cane Katrina struck the southeastern region of the US, it has taken ten years to rebuild the Charity Hospital, the largest hospital in the area. For a disaster area to rebuild a resilient community and regain a stable environment is much more difficult than one can imagine.

After the disaster, many people tend to focus their efforts on short-term disaster responses such as firefighting and first aid, and overlook this arduous process of recovery such as how to regain their previous living environments, medical care and the health of each individual. However, when you start managing the system of systems, an extremely wide range of support is required, from trauma surgery to family services, mental health issues and physical and emotional rehabilitation. It is important to enhance the mutual operability of the systems that are placed into the disaster medical system.

The complicating factors that you are faced with in these systems run from the lack of capacity in supply chain related to the procurement of pharmaceutical and medical supplies. In preparation for a breakdown of the regular logistics network for a few days or even up to weeks after the incident, a system should be developed for the speedy procurement of pharmaceutical and medical supplies to the disaster area by placing orders to federal materials storage plants and securing methods of transport. Also as another issue, sustained attention should be given to building and strengthening community resiliency (the ability to respond and to recover) while working towards a particular systematic approach and multifaceted solution.



Fig. 3

National and Local Roles during a Disaster

Funding by the federal government is an important base for disaster medicine in the United States. It is the funding that acquires capital assets that make the system work, to coordinate the disaster medicine training and exercises and the unification of command and control systems in the event of a disaster (Fig. 3).

A specific example of funding is the mobile disaster mortuary facility which was purchased by the federal government when Hurricane Katrina hit New Orleans. Approximately 50 million dollars was invested, and the facilities can be used anywhere inside and outside of the state of Louisiana. A local government would hesitate spending a great amount of money on a facility

with a low frequency of use, but having access to a national government-owned asset should be considered.

It should be noted that local physicians and members of medical teams dispatched from outside the affected area collaborate and respond with commitment to the cause. This is exactly the support provided in the medical surge during the Great East Japan Earthquake and thought to be the most important feature in disaster medical care.

ICS Command and Management System

In the United States, there is a standardized management system called the Incident Command System (ICS) that delineates the chain of command authority delegation rules, and coordination methods at the time of disasters. The ICS makes cooperation between different organizations easy and minimizes confusion and mistakes. In recent years, its use has been spreading to non-government areas as well and highly evaluated.

To build a collaborative system that can smoothly manage and operate the system of systems, the line of command and coordination needs to be clarified and all members involved

in disaster medical care should understand the ICS well.

What is unique in the US disaster medical system is that the coordinating agency, FEMA, deliberates the responses of the federal government and as the overall coordinator provides various types of assistance through local offices, while collaborating with federal ministries. Since the funding flows through FEMA, one cannot receive financial backup unless one cooperated with FEMA. So, the key drivers for success is this funding mechanism. A consistent and targeted funding is considered successful.

There is a mountain of other issues to consider as well, such as stockpiling and identifying a robust logistic systems of pharmaceuticals, overall training and exercises to obtain the commitment of members involved in disaster medical care. What is missing in the majority of time is the ability to paint your picture of what success looks like. Each member whether government, the private sector, or the medical association, needs to identify what success looks like in advance of the incident.

What is required of disaster medical care is to develop and implement plans while clarifying issues that need to be solved in order to reach that level of success imagined as the goal, thereby establishing preparedness.