

History of Disaster Medicine

Selim SUNER

*Department of Emergency Medicine, Division of Disaster Medicine and Emergency Preparedness,
The Warren Alpert Medical School of Brown University, USA*

SUMMARY

Erik Noji, mentioned, tongue in cheek, Noah as the first disaster manager during a lecture in 2005. The canonical description of “The Genesis Flood” does describe Noah as a master planner and executer of an evacuation of biblical proportions. After gaining knowledge of a potential catastrophic disaster he planned and executed an evacuation to mitigate the effects of the “Genesis Flood” by building the Ark and organizing a mass exodus. He had to plan for food, water, shelter, medical care, waste disposal and other needs of all the evacuees. Throughout history, management of large disasters was conducted by the military. Indeed, the military still plays a large role in disaster response in many countries, particularly if the response is overseas and prolonged. The histories of emergency preparedness, disaster management and disaster medicine have coevolved and are inextricably intertwined. While disaster management in one form or another existed as long as people started living together in communities, the development of disaster medicine took off with the emergence of modern medicine. Similar to disaster management, disaster medicine also has roots in military organizations.

Keywords: History; disaster; medicine.

It is perhaps as difficult to trace a history of Disaster Medicine as it is to define “disaster”. Following the theory of historical genealogy promulgated by Foucault, disaster medicine has multiple origins and a history of parallel development rather than a linear chronology.^[1] Erik Noji, mentioned, tongue in cheek, Noah as the first disaster manager during a lecture in 2005.^[2] The canonical description of “The Genesis Flood” does describe Noah as a master planner and executer of an evacuation of biblical proportions. After gaining knowledge of a potential catastrophic disaster he planned and executed an evacuation to mitigate the effects of the “Genesis Flood” by building the Ark and organizing a mass exodus. He had to plan for food, water, shelter, medical care, waste disposal and other needs of all the evacuees. Similar stories are present in the mythology of many cultures. In more recent

history, some inhabitants of Pompeii evacuated outside the city, when they noticed warning signs of an impending disaster, in the days prior to the massive eruption of Mount Vesuvius. Historical records are few, but one can surmise that these evacuations could have been organized by forward thinking “disaster managers”.^[3]

Throughout history, management of large disasters was conducted by the military. Indeed, the military still plays a large role in disaster response in many countries, particularly if the response is overseas and prolonged. Currently, there are civilian or governmental organizations, separate from military establishments, which conduct disaster response and medical care in most nations. Many of these organizations have sprouted from military roots.

Correspondence: Selim SUNER, M.D. 55 Claverick Street,
Providence, RI 02903, USA

e-mail: ssuner@brown.edu



Social scientists trace the modern history, in the western world, of disaster medicine to the works of Heinrich Zangger, on civilian mine explosions in the early 20th century.^[4] While many developments in military medicine informed medical care during disasters, with Zangger and others who started investigating epidemiology and care during specific disasters, a body of literature started to emerge defining a separate specialty.

The histories of emergency preparedness, disaster management and disaster medicine have coevolved and are inextricably intertwined. While disaster management in one form or another existed as long as people started living together in communities, the development of disaster medicine took off with the emergence of modern medicine. Similar to disaster management, disaster medicine also has roots in military organizations.^[5-9]

The development of triage in the 1790's, by Baron Dominique Jean Larrey, Surgeon in Chief to Napoleon's Imperial Guard¹⁰, rapid evacuation and field surgical care which started in WWII and was further refined in the Vietnam and Korean wars are important links in development of Disaster Medicine. In fact, the aerial view of the mobile army surgical hospital unit depicted in the opening credits of the US TV series *M*A*S*H*¹¹, closely resembles the layout of disaster medical assistance teams (DMAT) during current deployments. Large pandemics such as the 1918 influenza epidemic, the cold war with civil defense programs, ever increasing human impact of natural disasters (particularly earthquakes and hurricanes in the United States), development and use of chemical, biological, radiological, nuclear and explosive (CBRNE) agents and the evolution of humanitarian assistance are all interwoven into the fabric of disaster medicine.

There are certain tipping points in the development of disaster medicine in the United States, some of which are discussed (Table 1).

The Defense Against Weapons of Mass Destruction Act of 1996 (created by senators Nunn, Lugar and Domenici) which established first responder training for weapons of mass destruction (WMD) was an important turning point in disaster medicine after the use of Sarin by terrorists in the Tokyo subway system in 1995. The bombing of the Murrah federal building, killing and wounding scores including children, in the same year by a lone terrorist in the United States was another catalyst for this legislation. This program was the first to establish the education of the principles of medical care specific to WMD to large-scale, non-military audiences. These topics are widely covered in current textbooks on Disaster Medicine. Funding for these programs and the rapid promulgation of information particular to managing casualties from WMD events led to an increase in highly trained

Table 1. Milestones in the development of Disaster Medicine in the United States

1803	Congressional Fire Disaster Relief Legislation
1964	Great Alaskan Earthquake
1974	Disaster Relief Act
1977	Natural Earthquake Hazard Reduction Program
1979	Formation of FEMA
1980	Civilian Military Contingency Hospital system
1980	Mount St. Helens Volcanic Eruption
1984	NDMS
1985	DMATs
1989	Hurricane Hugo and Loma Prieta Earthquake
1990	Stafford Act
1992	Federal Response Plan
1996	The Defense Against Weapons of Mass Destruction Act
2001	September 11 attacks and the Homeland Security Act of 2002
2005	Hurricane Katrina

medical personnel with an interest in disaster medicine.

With the Congressional Fire Disaster Relief legislation of 1803, the United States federal government provided federal aid to New Hampshire after a series of fires devastated the town of Portsmouth, setting a precedent, which informed future disaster assistance programs. As the population of the United States grew into tighter urban communities and disasters affected larger numbers of people, the need was born for consolidation of programs, which led to the formation of the Federal Emergency Management Agency (FEMA) with President Carter's executive order 12127 in 1974.^[12]

Although the Civilian Military Contingency Hospital System was in place, the National Disaster Medical System (NDMS) was formed in 1984 with the cooperation of the departments of Health and Human Services, Defense, Federal Emergency Management Agency (FEMA) and the Department of Veterans Affairs, with the anticipated need for large numbers of beds outside of the assets held by the military and Veterans Affairs (VA) systems to accommodate casualties from wars. The system relied on civilian cooperation from the private sector, medical community and State governments. The initial Disaster Medical Assistance Teams (DMAT) were formed to receive casualties of war which were transported to the US and distribute them to the network of NDMS hospital beds.^[13,14] These team members trained on military aircraft using equipment and supplies from military surplus stores. Many teams were based on military installations and trained closely with military personnel. DMAT's consisted of civilian volunteers with medi-

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