

Disaster Management and Physician Preparedness

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Abstract: There are an increasing amount and variety of disasters occurring throughout the United States. Many of these disasters require physicians to provide medical assistance. This article provides a brief introduction to disaster preparedness and its recent history and physicians' obligations, role, education, preparation, and response. It is the intent of this article to increase awareness and provide pathways for physician education and involvement.

Key Words: disaster preparedness, disaster response, physician

There are numerous definitions of disaster¹⁻⁴; the one that is useful in the context of this article is "a sudden calamitous event bringing great damage, loss, or destruction."⁵ From 1953 to 2001, approximately 2064 major disaster declarations have been made in the United States.⁶ Many of these disaster declarations were made as the result of severe storms, flooding, tornadoes, straight-line winds, fires, hurricanes, earthquakes, and tsunamis. After September 11, 2001, however, everything changed. The United States was caught off guard as a small group of foreign nationals hijacked four commercial airplanes, resulting in the destruction of New York City's World Trade Center, a direct impact at the Pentagon in Washington, DC, and a crash near Shanksville, Pennsylvania precipitated by an aircraft's passengers' attempts to regain control of the fourth airplane (United Airlines flight 93). On November 25, 2002, the Homeland Security Act of 2002 (PL 107-296) was passed by the 107th Congress of the United States and signed into law by President George W. Bush.⁷ This law established the

Department of Homeland Security and its Directorates, along with other provisions that provided the US government with the means to fight and respond to terrorism. On February 28, 2003, Homeland Security Presidential Directive-5 (HSPD-5) was signed into law. HSPD-5 developed the National Incident Management System (NIMS) and the National Response Plan (NRP) and stated that the NRP would "integrate Federal Government domestic prevention, preparedness, response and recovery plans into one all-discipline, all-hazards plan."⁸ NIMS established the operations guidebook for the national-level response to domestic incidents, and the NRP provided policy guidance for the national-level response to domestic incidents.⁹ On December 17, 2003, Homeland Security Presidential Directive-8 (HSPD-8) was enacted and established the definition for all-hazards preparedness and set forth the development of the National Preparedness Goal and the National Preparedness Program.¹⁰ Within 2 years, the Homeland Security Council and the Department of Homeland Security's interagency Scenario Working Group developed 15 National Planning Scenarios (Table) to meet the National Preparedness Goal and comply with the National Preparedness Program.^{11,12} In January 2008, the NRP was updated to become the National Response Framework (NRF).¹³ The NRF provides policy guidance regarding how the federal government responds to all hazards that occur within the United States. Subsequently, state, local, and tribal responses were developed and implemented to work in concert with the NRF.

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Key Points

- Disasters can occur at any moment and can be any size or type.
- It is a physician's obligation to provide urgent care during disasters, assist in policy making relevant to disaster preparedness, and become educated in disaster preparedness and management.
- Numerous courses offered through the Federal Emergency Management Agency can help educate and prepare physicians in assuming an active response role.
- There are numerous disaster medical assistance teams that physicians may join.
- Physicians must prepare locally for disasters by preparing themselves, their families, their practices, and their patients.

Table. National Planning Scenarios

Scenario no.	Scenario
1	Improvised nuclear device
2	Aerosol anthrax
3	Pandemic influenza
4	Plague
5	Blister agent
6	Toxic industrial chemicals
7	Nerve agent
8	Chlorine tank explosion
9	Major earthquake
10	Major hurricane
11	Radiological dispersal device
12	Improvised explosive device
13	Food contamination
14	Foreign animal disease
15	Cyber attack

Broad Overview of Disaster Response

Whether it is an overturned school bus full of children, a hotel fire, or a cataclysmic electrical failure that affects wide swaths of land, all disasters are managed locally through the on-scene incident commander. Should control of the event escalate, overwhelm the immediate response, or both, the on-scene incident commander is required to request backup through his or her chain of command. If the incident is still not under control or escalates further, then the local emergency operations center (EOC) also increases its activities. As the incident expands and/or overwhelms the local response, the local EOC will enact certain memoranda of understanding among other surrounding regional EOCs to augment local response. If the incident continues to escalate or drains regional resources rapidly, then the state EOC may be required to step in and augment the local response. Should the state's resources become overwhelmed, it is at this point that the governor may request assistance from the federal government by declaring a state of emergency and requesting the federal government assist the state in disaster response and recovery. The President of the United States may then also declare a state of disaster or emergency with respect to the affected area, thereby enacting the provisions within the Robert T. Stafford Relief and Emergency Assistance Act (PL 100-707).^{14,15} This act allows the federal government to provide financial and material assistance to local and state systems that are overwhelmed by the disaster. Federal assets, through the Federal Emergency Management Agency (FEMA), then assist and augment the local and state systems with response and recovery efforts only until those systems are able to manage the disaster. Once the disaster has been contained and reduced to a level such that local responders can manage the disaster by themselves, FEMA and state and regional responders halt local operations and redeploy to other areas within the state or country.

Physician's Role in Disaster Preparedness

Allopathic and osteopathic physicians play an integral role as the treating physician within the aforementioned broad overview of disaster response; however, their greatest role may occur as it is related to disaster preparedness. The American Medical Association's E-9.067 Policy explains the physician's obligation in disaster preparedness and response¹⁶:

National, regional and local responses to epidemics, terrorist attacks and other disasters require extensive involvement of physicians. Because of their commitment to care for the sick and injured, individual physicians have an obligation to provide urgent medical care during disasters. This ethical obligation holds even in the face of greater than usual risks to their own safety, health or life. The physician workforce, however, is not an unlimited resource; therefore, when participating in disaster responses, physicians should balance immediate benefits to individual patients with ability to care for patients in the future.

In preparing for epidemics, terrorist attacks and other disasters, physicians as a profession must provide medical expertise and work with others to develop public health policies that are designed to improve the effectiveness and availability of medical care during such events. These policies must be based on sound science and respect for patients. Physicians also must advocate for and, when appropriate, participate in the conduct of ethically sound biomedical research to inform these policy decisions. Moreover, individual physicians should take appropriate advance measures to ensure their ability to provide medical services at the time of disasters, including the acquisition and maintenance of relevant knowledge. (V, VI, VII, VIII) Issued December 2004 based on the report *Physician Obligation in Disaster Preparedness and Response*, adopted June 2004.

The days of a physician arriving at a hospital or field response unit requesting to assist are over because of medicolegal issues surrounding proper credentialing, education, and training. Many physicians are now required to acquire more formal education and training in both preparedness and response to be credentialed to assist. This requirement stems from the medico-ethical-legal issues related to the health-care dilemmas faced by physicians during a time of scarce resources after Hurricanes Charlie and Katrina and the Joplin, Missouri EF5 tornado. There are many avenues for education and training. The Liaison Committee for Medical Education is the first entity in a physician's career that has a direct impact on physician education (ie, medical school) because it is related to disaster preparedness and response education. The next entity that has a direct impact on physician education (ie, residency training) related to disaster preparedness and response is the Accreditation Commission for Graduate Medical

Education; however, neither has direct prescribed pathways of education. Instead, both refer to teaching institutions to provide the education. There remains no consistent formalized training within and among institutions that integrates the elements of the NRF; however, the American Medical Association has developed Basic Disaster Life Support¹⁷ and Advanced Disaster Life Support courses¹⁸ to educate physicians and FEMA has developed a plethora of free online educational materials. Local Medical Reserve Corps, managed through county health departments, are yet another source of education. Many of these courses require tests and provide physicians with a certificate upon successful completion. Should a physician want to join a formal medical response team (eg, Disaster Medical Assistance Team, Medical Reserve Corps), it is highly recommended that he or she complete the following courses through FEMA:

- Introduction to Incident Command System (IS-100.b): <http://training.fema.gov/EMIWeb/IS/is100b.asp>
- Applying Incident Command System to Healthcare Organizations (IS-200.HCa): <http://training.fema.gov/emiweb/is/is200HCa.asp>
- Introduction to National Incident Management System (IS-700.a): <http://training.fema.gov/EMIWeb/is/is700a.asp>
- Introduction to the National Response Framework (IS-800.B): <http://training.fema.gov/EMIWeb/Is/is800b.asp>

Upon successful completion of the above courses, physicians can apply to one of several disaster response teams. These teams include the International Federation of Red Cross and Red Crescent Societies,¹⁹ the International Medical Surgical Response Team,²⁰ the federal disaster medical assistance team,²¹ a state medical response team, and the Medical Reserve Corps.²² Note that because of the sensitive nature of their work and their network, many of these teams conduct detailed background security checks; hence the credentialing process may become time-consuming. Following successful credentialing and acceptance by such a team, physicians will be “cleared” to assist in disaster response at the level of their training and to the extent of their medical expertise as needed. Questions related to payment for services rendered, medico-legal liability coverage, and avenues for further training may be best answered by the chief medical officer and/or administrative officer of the specific team. In addition, the Emergency System for Advance Registration of Volunteer Health Professionals is another resource for physicians for education, training, and registration to assist in disaster response.²³

Physician Preparedness

Regardless of whether the physician would like to assist, every physician should prepare himself or herself, family, his or her physician practice, and his or her patients. Self-preparedness begins with situational awareness, information management, and development of an evacuation plan.

Physicians should be made aware of a disaster through local news media outlets or receive emergency information via

text message from their local emergency management system. Many systems readily transmit messages via cellular telephone text messaging, Twitter messages, or Facebook posts. Physicians also should prepare their homes with adequate provisions for approximately 7 days (eg, water, food, medications). Important documents may need to be secured and scanned onto portable thumb drives or DVD-R/CD-Rs for easy transportation in case evacuation is necessary, although there may be some documents that may be prohibited from being scanned or copied. Should local emergency managers require evacuation, physicians would be wise to follow their recommendations. Also, it is important for physicians to know the local evacuation routes and have their vehicles prepared properly (eg, fuel, air in tires, “bug out bag”).

Each family member of the physician should have the same or similar self-preparedness items as the physician. Should an event occur during a time when the physician’s family is separated from the physician, he or she and family members should develop standard methods of communication (eg, telephone call, text, tweet, Facebook message) and a rendezvous/meeting place that is accessible and familiar to everyone. Each family member should have a bug out bag complete with clothes, tools, bedding, toiletries, water and food for 5 to 7 days, flashlight, batteries, battery charger, and medications for 30 days. Those medications should be available for pickup at national pharmacy chains in case immediate evacuation prevents one from picking up medications from home.

Preparing the physician’s office can be complex because it involves not only individual preparedness and that of colleagues and staff but also ensuring that scheduled patients are prepared. The physician and his or her office staff must develop a plan of disaster preparedness and response (Continuity of Operations; an excellent resource is FEMA’s Continuity of Operations Web site: <http://www.usfa.fema.gov/coop> physicians may also consider contacting local emergency management officials to assist them in preparedness). Regardless, communication is key. Developing ways of notifying both staff and patients before, during, and after a disaster has occurred is critical to successful continuity of operations. The use of social media such as Facebook and Twitter is becoming more common because many can be notified at the same time. Ready-Alert is similar in terms of mass distribution; however, it is used most often by large emergency management and hospital systems. Telephone call trees, secure e-mail, secure cellular telephone text messaging/calling, or the use of secure electronic medical record patient portal messaging services are other methods of communication. The message should be easy to read and understand, succinct, provide specific instructions, and be coordinated and completed in an efficient manner by one or two designated individuals. The office manager must work immediately with the scheduler to develop alternate patient appointment plans. In addition, the staff must work with scheduled patients who require additional assistance to develop alternative appointment dates. Furthermore, the office manager

and physician should ensure that there are electronic backups of all medical records, accounting records, tax records, and human resources records and that these backups exist offsite in multiple locations. Multiple storage sites located in different regions of the state or country may be required to maintain the safety and continuity of the aforementioned information. Physicians who store information on “the cloud” (use of computer resources that are delivered as a service over a network, typically the Internet) must keep in mind that people within and outside the United States who are able to gain access to protected health information (PHI) with astonishing ease. It would be wise for physicians to ensure that all cloud-based PHI is uploaded and stored by a reputable vendor and to understand the cyberprotection policies provided by the vendor. The physician and his or her practice may be held liable for all PHI data breaches if his or her PHI vendor has not been vetted properly. Patients should enroll in a nationwide pharmacy chain so that if they must evacuate, they can purchase their medications anywhere in the United States. Also, physicians should spend a few minutes during a patient’s office visit to discuss his or her disaster preparedness plans and guide the patient to sources that will assist in making preparations (eg, www.ready.gov).²⁴ Online guides are available from the American Academy of Pediatrics,²⁵ the American Academy of Family Physicians,²⁶ and the American Medical Association.²⁷

Conclusions

Many disasters are unforeseen. For those that are not, physicians must prepare themselves, their families, their office staff, and their patients. An axiom in disaster preparedness is that a successful response to a disaster is directly related to management of preparedness before the event and response after it. As such, if physicians are not prepared, they and their practices will fail and their patients may suffer as well. Learning about the NRF and the Incident Command System will allow physicians to understand the larger picture and perhaps play a role at the national, state, regional, or local levels within response teams; however, the more common role of a physician is that of a local leader. Physicians are leaders within their families, offices, and communities, and it is vital that they become actively engaged in the processes involving disaster preparedness and response.

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