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From the Field

Information and Readiness Build Resilience: The Role of the Disaster Information Management Research Center

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Abstract

The National Library of Medicine (NLM) established the Disaster Information Management Research Center (DIMRC) in 2008 based on its history of providing health information for disaster preparedness, response, and recovery. The NLM long-range plan (Charting a Course for the 21st Century: NLM's Long Range Plan 2006-2016) called for creation of a center to show "a strong commitment to disaster remediation and to provide a platform for demonstrating how libraries and librarians can be part of the solution to this national problem". NLM was urged to "ensure continuous access to health information and effective use of libraries and librarians when disasters occur." This article describes the efforts of DIMRC to ensure librarians have access to training to understand their roles in preparedness and response, online and mobile disaster medicine and public health emergency resources are available, and tools are developed to enhance the exchange of critical information during and following disasters.

Keywords: disasters, information management, public health emergencies, libraries

The red pickup anxiously plowed through the corn field, heading toward the dark, ominous funnel, an F5-class tornado. Despite their many failed attempts, Jo and Bill were ready this time. On the truck bed was "Dorothy IV," Jo and Bill's invention, carrying thousands of data-collecting sensors. As the truck plunged into the swirling monster, Dorothy IV released the sensors, twirling and blinking like pixie dust. Streams of data collected by the sensors started flowing into a computer designed to make sense of the millions of data points regarding wind speed, air temperature, rotational force, and other elements of the storm.

This scene from the 1996 movie "Twister," starring Helen Hunt and the late Bill Paxton, might have seemed a bit futuristic twenty-one years ago, but it was grounded in the science of the day. NASA and NOAA (National Oceanic and Atmospheric Administration) collected data, shared data, and used data to predict the weather and make meteorological discoveries for decades before "Twister" brought storm-chasing and the work of the National Severe Storms Lab (NSSL) to the public's attention.



Information and data are crucial to decision making during disaster preparedness and response. Having access to the right information at the right time can literally make the difference between life and death.

DIMRC: Mission, Background and Activities

Recognizing the untapped potential of libraries, librarians, and information services to aid in the nation's disaster and public health emergency management efforts, the National Library of Medicine *Charting a Course for the 21st Century: NLM's Long Range Plan 2006–2016* recommended that the National Library of Medicine (NLM) create a [Disaster Information Management Research Center](#) (DIMRC) to support national emergency preparedness and response efforts and DIMRC opened in 2008.

The creation of the center formalized NLM's commitment to providing disaster and public health emergency information for many years. From the methyl isocyanate gas leak in Bhopal India in 1984, hurricane Mitch in 1998, the terrorist attacks on the World Trade Center and the anthrax attacks in 2001 to hurricane Katrina in 2005, NLM provided much needed information and technical and financial assistance to affected regions in the United States and around the world.

The DIMRC mission is to develop and provide access to health information resources and technology for disaster preparedness, response, and recovery.



- Roles for librarians, information specialists and libraries
 - [NLM/MLA Disaster Information Specialization](#) certificate program
 - [Training](#) and supporting librarians to serve as Disaster Information Specialists in their communities through continuing education, social media, and networking
- Literature and terminology: supporting disaster-related research
 - Collecting, organizing, and disseminating health information for all stages of preparedness, response, and recovery to disasters including access to PubMed and Disaster Lit (non-journal (grey) literature and resources)
- Tools and resources for the disaster and public health emergency workforce
 - Develop innovative products and services to serve emergency responders
 - WISER
 - CHEMM
 - REMM
 - Develop disaster medicine and public health emergency resources (health information guides)
 - Awareness, promotion, and training in the use of NLMs disaster health resources
- Health information technology
 - Investigate innovative technology to support disaster and public health emergency information management and healthcare facility preparedness and response
- Outreach and partnerships
 - Collaborate with other federal agencies, local communities, public health officials and emergency managers in efforts to prevent, respond to, and reduce the adverse health effects of disasters and emergencies
 - Partner with other government agencies involved in disaster health to ensure information needs and information management receive adequate attention in planning for disasters
- Incident response resources
 - Provide guides to disaster medicine and public health emergency information resources for specific incidents
 - Collaborate across NLM and the National Network of Libraries of Medicine (NNLM)
 - planning and training for continuity of operations for library facilities, services, and staff
 - development and promotion of resources for specific incidents

Roles for Librarians, Information Specialists and Libraries

New Jersey State Librarian [Mary Chute](#) noted that disasters and other emergencies can turn a library into a “a safe haven where librarians, skilled in customer service and effective communications, can help those struggling to cope with unusual and stressful situations...and offer critical services to help support police, firefighters, and medical personnel.”

In 2011, that role played out in Springfield, Massachusetts where, following a tornado, the libraries offered a space where community members without electricity or with damaged homes could gather to connect with each other and with essential services. A year later, following Hurricane Sandy, [libraries were often the go-to place](#), and the New Jersey State Library created a Disaster Planning and Community Resiliency Guidebook and Workbook to prepare and respond to future emergencies. When Craig Fugate was FEMA Administrator, he tapped into the idea of library-as-community-builder by encouraging parents to read to anxious children. Readers tweeted their top picks using the hashtag #StormReads.

NLM DIMRC promotes the role of information specialists in the provision of disaster-related health information resources. The Program facilitates a network of information professionals and librarians ready to take on the role of "information responder" in their communities and organizations. It provides opportunities to enhance skills in supporting the disaster workforce through training classes, monthly webinars, and connections with others of similar interests. DIMRC encourages librarians to be more proactive in this field and to learn about the information tools, apps and other resources needed by the emergency/disaster workforce. DIMRC, in conjunction with the Medical Library Association, offers a Disaster Information Specialization

(DIS) certificate program through online training and webinars.

In 2011, the Robert T. Stafford Disaster Relief and Emergency Assistance Act was revised and now names libraries as providing essential community services and thus eligible for temporary relocation and funding if their facilities are affected by a disaster. This modification is not well known by public libraries, yet highlights the key role of libraries as contributors to community resiliency.

Literature and Terminology: Supporting Disaster-Related Research

DIMRC works to ensure that the disaster medicine and public health emergency workforce has access to the literature, both from peer-reviewed journals indexed in PubMed and to vital non-journal resources. PubMed includes over 70,000 references to disaster medicine and public health emergency articles and indexes 40+ disaster/emergency medicine journals. NLM periodically reviews and updated the Medical Subject Headings (MeSH) to enhance retrieval and improve standardization.

Much of the disaster health information is not published in journals. A survey of the workforce indicated that this grey literature is critical, yet diverse, not well organized, not easy to find, and perishable. NLM developed Disaster Lit: Database for Disaster Medicine and Public Health to index this information including reports from federal agencies and state health departments, publications by non-governmental organizations, guidelines, toolkits, evaluations, training classes, web sites, apps, and maps. Users may search Disaster Lit directly or subscribe to a daily/weekly email service with a list of all new resources added.



Tools and Resources for the Disaster Workforce

DIMRC developed several tools for preparing for and responding to hazardous materials (hazmat) and chemical, biological, radiological and nuclear (CBRN) events. WISER, launched in 2004, contains information on the handling and treatment of chemical, biological, and radiological incidents, including a decision support tool to aid in the identification of unknown chemicals. WISER is available as an app on Apple iOS, and Android, tablets and mobile devices, in addition to the Web and as downloaded files to PC-compatible computers. WISER has been downloaded to over 1.3 million devices.

Chemical Hazards Emergency Medical Management (CHEMM) debuted on the Web in the summer of 2011 and contains information for first responders, health care professionals, and emergency planners on mass casualty chemical incidents. At the request of users, CHEMM was incorporated into the WISER iOS and Android apps. CHEMM is built by NLM in conjunction with ASPR and subject matter experts from the Department of Homeland Security, emergency responders, and other healthcare providers.

A third tool, Radiation Emergency Medical Management (REMM), provides health care providers with guidance on the diagnosis and treatment of radiation injuries. REMM was developed in conjunction with ASPR, the Centers for Disease Control and Prevention (CDC), National Cancer Institute, and NLM, and became publicly available in 2007. Following the March 2011 Fukushima earthquake, REMM was used by HHS representatives assisting the Japanese government in the management of the radiation release from a damaged nuclear power plant, and portions of REMM were translated into Japanese. Like WISER and CHEMM, REMM is available on the Web, can be downloaded to desktop/laptop computers, and is a mobile app for iOS, Android and Blackberry devices.

Health Information Technology

DIMRC also explores the development of health information technology to support disaster preparedness training and enhance communications in times of disaster. As an early adopter of new technologies, DIMRC is exploring virtual reality tools to engage and train hospital personnel in an interactive, role playing Hospital Incident Command System. In addition, a prototype two-player simulation was developed to practice donning and doffing of personal protective equipment for highly infectious diseases such as Ebola.

DIMRC also pioneered and developed a redundant communication system leveraging amateur radio to provide resilient email service enabling those in a disaster zone with disrupted communications systems to reach intact communications networks outside the disaster zone.

Outreach and Partnerships

DIMRC works with a variety of governmental and non-governmental organizations. For example, NLM, together with the U.S. Health and Human Services Office of the Assistant Secretary for Preparedness and Response (ASPR), produce CHEMM and REMM. The U.S. Department of Transportation and NLM collaborate on incorporating the Emergency Response Guidebook (ERG) into CHEMM and in developing the Emergency Response Guidebook (ERG) app. NLM is also a founding member of the National Academies of Science, Engineering, and Medicine (NASEM) Forum on Medical and Public Health Preparedness for Disasters and Emergencies and the NASEM Action Collaborative on Disaster Research. NLM also partners with the World Health Organization/Pan American Health Organization to develop the Latin American Network for Disaster and Health Information. NLM's field force, the Regional Medical Libraries of the NNLM also work with DIMRC



to develop time-sensitive materials and to ensure healthcare providers, public health officials and emergency managers are aware of key resources from NLM and other authoritative sources.

Incident Response

In the aftermath of specific disasters, NLM is the only agency that is proactive in national distribution of relevant health information through pre-established channels. Federal agencies that also provide health information in response to an incident almost always concentrate on their own resources and do not aggregate the information from all appropriate sources for the primary benefit of emergency responders and health workers. DIMRC is unique in aggregating health information from a wide range of sources and in providing ready access (preformatted searches) to relevant materials from PubMed, Disaster Lit, TOXNET, and other NLM databases at the time of a disaster.

Conclusion

DIMRC aims to assist other government agencies in providing information in a coordinated, just-what-I-need, just-in-time fashion, and does not seek to duplicate efforts assigned to other agencies. The focus of these agencies is on the creation of the material and NLM has the expertise to provide assistance in organizing this information and making all related information easier to find; and to develop innovative tools for locating and presenting the information.

NLM has an excellent reputation in the medical community for developing high-quality, authoritative health information resources. With the formation of DIMRC, NLM continues to demonstrate its skill in providing a wealth of resources to serve multiple needs and users. We hope other libraries will join with NLM DIMRC and participate in the DIS certificate program and

look to serve their communities prepare for, respond to, and recover from disasters and public health emergencies.

Who knows? Maybe the sequel to “Twister” will have librarians in the lead. (*Hmmm, now we’re wondering who should play us.*)

NOTE: This article has been adapted from blog post that originally ran on [NLM Musings from the Mezzanine](#).

