Information Seeking Behavior and Viewpoints of Emergency Preparedness and Management Professionals Concerned with Health and Medicine

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EXTENDED ABSTRACT

Introduction

A study for the National Library of Medicine (NLM) was conducted to assess the information requirements for health-related issues in emergency preparedness and response. The overall goal was to identify the most significant knowledge, information, and services that users are seeking, some of which might be incorporated into a Disaster Information Management Research Center (DIMRC) planned by NLM.

The emphasis was on determining the current information seeking behavior, existing preferred sources of information, and unmet information needs of professionals involved with the medical and public health aspects of emergency planning, preparedness, and response. The report summarizes responses to questions around the following topics: current sources, desired sources, organizing the information, examples of important materials and missing materials on the Web, librarian roles, information needs in extreme events, methods for dealing with information overload and organizing information, international issues, and level of experience with NLM resources. Detailed appendices include examples of grass roots efforts to mitigate information overload, a copy of the self-report guide, a complete compilation of responses organized by type of respondent, and a list of international websites compiled by one of the respondents.

Methodology

Data collection took place during the period September to December 2007. Beginning with an initial list of expert informants identified by NLM and the study investigators, a "snowball" sampling technique was used, in which each expert was asked to suggest other appropriate participants in the study. Approximately 100 professionals involved in emergency preparedness and management were invited to participate. From this pool, there were 34 respondents representing emergency practitioners (7), health-related professionals (10), academics (7), librarians (3), and international professionals (7). Data was collected through written self-reports in response to a set of questions. The methodology is thus most like the first round of a Delphi study, which uses written responses from groups of experts representing different stakeholders or roles. Like a Delphi, the objective of this study is "collective intelligence," a body of knowledge and ideas that are richer than any that could be obtained from a single expert or a group of a single type of experts.

Findings and Observations

Currently used sources:

Respondents reported use of a diverse range of sources. Current sources included primarily websites and journals, but other types of print resources were also identified. With the journal literature, there is a tremendous scattering of the literature over many different sources. Hundreds of web sites were mentioned, with little overlap. The most frequently mentioned was the CDC's http://emergency.cdc.gov/ site, with eleven mentions. The next most

frequently cited was the Department of Homeland Security general site or its Lessons Learned Information Sharing (LLIS) site, followed by Relief Web. The FEMA and Radiation Event Medical Management (REMM) sites were next, with three mentions each.

What's missing?

Users were also asked about desired resources that are currently lacking or are difficult to use. The practitioners were especially dissatisfied with their ability to get the current information they need, when they need it, and with the ability to know which resources are authoritative. In addition, practitioners, medical professionals, and academic researchers alike expressed the need for more practical, easy to understand information – "useful, real data on real-life emergency situations." Examples included the need for more logistics and management information and for implementation information such as Standard Operating Guidelines and equipment lists. There were also requests for more websites similar to REMM, an "Event Type Information Portal" for radiation events, extended to other types of threats, for best practices summaries to inform about the best way to handle an event, for disaster related assessment instruments, protocols and intervention plans, and for disaster drill data. Other suggestions included more disaster planning and recovery information in the Go Local component of NLM's MedlinePlus consumer health service, an all-hazard core Emergency Operations Plan (EOP) template for public health, and a coherent journal pulling together selected articles that focus on emergency preparedness and response.

Other needed resources deal with the "gray" literature that is not formally published and can exist in either print or web-based form, or both. Many respondents believe this type of literature often contains the most up-to-date and most relevant content. Examples include forms, procedures reports or assessments, operations plans, databases of personnel and other resources, and "best practices" and case reports.

With respect to Web resources, again the responses were diverse, but there was a general feeling that there should be less guidance-related information and more information related to hands on assistance. Needed materials included online training materials and courses; specific compilations of local best practices; actual plans for organizations such as hospitals and community service organizations, schools, and local agencies; and access to information on local response efforts, such as a list of shelters and first responders (with a role for NLM's GoLocal mentioned). The need for "new media" typical of Web 2.0 and for cell phones to reach isolated, deep field populations was also mentioned.

Participants provided examples of information that was needed but difficult to obtain in actual emergency situations. One example dealt with displaced persons standing around the emergency room and not knowing where to go, another described people wading through inches of ash with no information about toxicity and use of safety equipment such as respirators, and a third dealt with physicians caring for people outside their areas of specialty and needing access to medical records as well as quality information health care information.

To deal with extreme emergencies and crisis situations, the need for focused background information in advance of disasters was mentioned in terms of minimizing mortality and morbidity. This information includes baseline health indices, disease prevalence and vaccination coverage, ethnographic data on populations at risk, information on in-country NGOs and UN agencies, the country's disaster plan, logistics information, and in-country capacity for food, drugs, and supplies. Due to the unpredictability of emergency situations, respondents also noted the need for flexibility and consideration of physical communications infrastructure.

Organization of information:

Regarding the issue of organization of information, respondents emphasized the need to obtain information that is relevant among an abundance of diverse and scattered resources. There is a general feeling that there is better information out there that they have not accessed -- information that would enable them to do better plans, improve training, and maker better decisions. A range of tactics to find useful, relevant material was reported, including restriction of inputs to limited sources with good filters; using material that has been vetted by trusted sources; relying on individual contacts; developing classification structures; and seeking specific types of information such as after action reports, reports of best practices, and specific plans. Trust in sources and lack of collaboration between different organizations or levels of government were reported as underlying problems. Many different sources are attempting to become the one source that everyone should go to for disaster information, and some felt this was not a worthy goal given the diversity of topics and problems that are involved.

Regarding ways to better organize resources to facilitate finding useful new material, suggestions included having information specialists retrieve and synthesize relevant information, establishing integrative portals to quality sites for each type of disaster, expanded indexing and classification systems with expert input, and community-based approaches to organizing material, including use of social tagging to create taxonomies.

Respondents were also asked what they would like to see in an index or ontology of disaster preparedness and response. Ideas about approaches to organization were offered, but the emphasis was less on the specific content, and more on the need for input from experts (including experienced emergency management practitioners) and for dynamic systems that can evolve to meet changing knowledge and needs.

Library roles:

When asked about current or potential roles of libraries, librarians, and information specialists, there was considerable support for the idea that librarians must become an integral part of the nation's emergency preparedness and response team. Among the suggestions for librarian roles were:

- creating and maintaining taxonomies with expert input;
- serving as a clearinghouse of knowledge concerning the different aspects of disasters;
- equipping libraries to access real-time emergency telemedicine networks;
- working with specialists to identify high-quality information;
- developing easy-to-use methods of delivering specific content;
- producing annotated bibliographies and syntheses;
- participating in call centers taking questions from the public;
- developing FAQs for local emergency preparedness and response and making them easy to locate;
- assisting in text and data mining,
- aggregating and compiling information to support public health decision-making;
- and sharing expertise with those in developing countries through an international network of librarians and archivists.

International issues:

Participants were also asked about international considerations relevant for NLM. Cultural and language diversity were cited in the context of not relying solely on high tech solutions and the need for culturally appropriate information. Creating an international network for librarians and archivists to share expertise with those in developing countries was also suggested. The need for a central point of decision support information was cited, as much of this is currently obtained in an ad hoc fashion from various international organizations when a disaster strikes. Examples of ways in which such a resource could facilitate international disaster relief included more targeted intervention; effective stockpiling; geographical pre-positioning; better strategic decision making by senior managers, and improved targeting of rapid health assessments.

Regarding contributions from other countries, respondents reported an abundance of information such as local contingency plans, lessons learned, case studies, and best practices. By providing an example of open document collection, NLM could encourage and assist other institutions in these countries to share more widely, thus building recognition for their contributions. Additional specific suggestions included analysis of UN data on medical and public health impacts of disasters, and providing expertise on how to respond when high tech solutions involving use of internet and advanced medical technology fail due to emergency conditions.

Experience with NLM Resources:

Respondents were also asked about their prior experience with MEDLINE/PubMed or other NLM systems (e.g. WISER, REMM, TOXNET) for emergency preparedness or management. Many had praise for NLM's current services, yet others had limited experience, especially among the emergency practitioners. One reason suggested for their more limited use was the lack of information for immediate practical use in emergency response. The

contributions and importance of NLM were acknowledged by one respondent in this way: "It would be wonderful if the NLM were to be asked to join DHS as a full partner in preparing America for future disasters."

Cooperation, Coordination, Integration:

Respondents were also offered the opportunity to provide additional information or comments not addressed by the study instrument. Responses primarily dealt with major process issues that, at least indirectly, lead to problems in the information functions that are necessary to carry out various phases of emergency preparedness and management. These include lack of communication and information exchange between the medical and the community service operations; unclear roles and responsibilities of the federal, state, and local agencies with respect to degree of aid and recovery of the public; the need for improved cooperation and coordination among the various agencies; and more explicit treatment of ethical issues. Though the focus of this needs assessment was in the areas of emergency medical response and public health, the investigators emphasize that the health and medical areas integrate with a great many other aspects of a disaster, making it difficult to consider issues in isolation from other concerns like infrastructure, living necessities, transportation, and logistics. At least half of the 34 respondents were involved in other areas of emergency preparedness and management.