The Need for a Global Health Disaster Network

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Abstract

When a disaster occurs, a major difficulty is knowing where to find accurate information, and how to help coordinate efforts to share accurate information in a quick and organized manner. The establishment of a global information network, that is in place before a disaster occurs, could link all the communication efforts for relief. We propose that a Global Health Unit for Disaster and Relief Coordination be set up as part of the Global Health Network, utilizing the Internet as its backbone. This Unit would establish the links for the disaster information mosaic.

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One of the major difficulties in a disaster is knowing where to find information and knowing if the information obtained is accurate. We propose that a low-bandwidth, Global Health Unit for Disaster and Relief Coordination be established as part of the Global Health Network. It would serve as the primary source of health information before, during, and after times of disaster.

Numerous authors have pointed-out the difficulty of communications during a disaster.[1,2] Quick coordination and communication are needed among the people who are part of the disaster, the government, and relief organizations. Often, this coordination is poorly organized on an *ad hoc* basis with limited accurate data and information available. This needs to change. If it changes, then lives and money could be saved, and uncertainty and anxiety could be reduced. Thus, there needs to be a global information network that can be used for disasters, and that could link all the efforts towards relief. It must be in place before such events occur. The system should be operational continuously and be immediately accessible to all parties who need the information.

The *Internet* is a logical vehicle for such a system. The Internet represents a meta-network joining together a large number of smaller networks interconnecting people, computers, devices, and organizations world-wide. Currently, the Internet reaches over 40,000,000 people, close to 0.5% of the world's population. It is expected that it will reach 200,000,000 by the year 2000.[3] For example, it connects all of the countries of the Americas, except Haiti. This inexpensive system is forming the backbone for the Global Health Network (GHNet),[4] and is part of the proposed Global Health Unit for Disaster and Relief Coordination. A primary

advantage of the Internet is that it is built with a mesh of connections. Thus, if a break or a disaster happens, connections automatically default to other routes, and the information continues to stream through the Internet.

During the Kobe Earthquake (1995), the value of using the Internet during disasters was realized. Although the initial flow of Kobe-related Internet messages was disorganized, it soon stabilized. Various mailing lists were created so that people in and outside of Kobe could find out what was happening. This use of the Internet, was only a grassroots effort. A more formally developed system would permit communication to be established instantly, with all the major participants communicating with each other through a low-bandwidth mechanism.

The information system should be available *before* the disaster occurs and, in terms of disaster preparedness, at least the key people who will coordinate a response should know how to use it. The first goal of the Global Health Network is *connectivity*. It is achieved in two steps: 1) accessing the Internet; and 2) localizing the electronic addresses of people in the areas of health and disaster relief. If people are not connected prior to the disaster event, the system will not work. Connectivity world-wide is progressing at a rapid pace, with a growth rate of 12% per month. However, it is essential that all people involved with disasters be encouraged to become connected to the Internet. Helping people to become connected, and teaching them how to use the Internet is essential. Many schools in the United States have access to the Internet; probably a greater percentage of children know how to use the Internet than do many individuals who might become involved with disasters.

The other initial step is the establishment of a *Global Disaster Directory*. This directory will include everyone worldwide who is involved in disaster relief who has an electronic mail (e-mail) address. Thus, if a disaster occurs in Los Angeles or Kobe, one would be able to obtain the directory on the Global Health Network and call any individual; name or a listing of everyone in the disaster area who has an Internet number and is engaged in disaster work. In this way, people will be contacted immediately to begin the coordination of the information flow to and from the area.

The second component of a Global Health Network is the establishment of disease telemonitoring capabilities. This too is very important in disasters. The development of a standardized procedure to identify deaths, injuries, and morbidity (e.g., infectious diseases) as consequences of a disaster, as well as to estimate the number of homeless people needs to be developed. More powerful estima-

tions of the morbidity and the number of homeless people should be available using epidemiological techniques such as capture-recapture.[5-6] Monitoring data on morbidity and other problems needs to flow up the system through the telecommunications infrastructure.

The third component of the Global Health Network is that of educational and training programs available through the Internet. There needs to be access to "just-in-time" knowledge. Education should be aimed not only at professionals, but courses in first-aid also should be developed, as the major loss of life will occur in the first few hours of an acute onset disaster before outside help can arrive. Nationally, we can establish an Internet-based training program for disaster relief, as well as globally before disasters occur. As a disaster evolves, training can continue including video interaction through programs such as CU-SEEME and MBONE.

The fourth component needed is to network all Non-Government Organizations (NGOs) and government agencies before a disaster occurs. Typically 50-100 large agencies are involved with a disaster, and many, many more small groups. The Global Health Unit for Disaster and Relief Coordination can aid in making the communication between these diverse groups more effectual.

The final component is the establishment of a *Disaster Information Server*. This repository of data and information would be where organizations and individuals would find disaster information. This information repository would be in multiple languages, would have different methods of operation that people could access immediately electronically from any place across the world, and would include all the knowledge associated with previous experiences. In this way, people would have access to "How To" knowledge at the time of a disaster that would be based on information accumulated at various disaster sites around the world and on the experiences by people who fought to overcome problems in the past. In addition, there would be national and global advisors whom people could contact. There would need to be a link to the lay press as well, as often some of the most relevant information is produced by them. Many other components could be included in this server. This model should be set up now.

The Global Health Network and the Global Health Unit for Disaster[7] and Relief Coordination are designed to establish the links for the disaster information mosaic. A disaster connotes a randomness, a breakdown of information systems, and this adds needlessly misery. Expansion of a low-bandwidth system that already exists for the area of disaster management certainly is one of the most important things that can be done for disasters today.

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