

Disaster: world preparedness with one voice

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In less than a year, the world has witnessed two notable acute disasters, namely: the Indian Ocean tsunami⁽¹⁾ and hurricane Katrina⁽²⁾. Both resulted in large losses of life, unimaginable human suffering and economic chaos. Certainly the loss of life overall was much greater in the Indian Ocean tsunami than what has occurred in the north-central Gulf Coast region of the United States from hurricane Katrina. The greater loss of life (estimated at over 200,000 killed and more than 100,000 missing as of February, 2005)⁽³⁾ from the tsunami is probably more related to the geographical nature of the event, its sudden occurrence and the magnitude. Initially it was estimated that 10,000 people lost their lives during hurricane Katrina; although the most current estimate places that number to be much lower. As of October 10, 2005, the number killed in hurricane Katrina exceeds 1,300⁽⁴⁾.

However, this number alone cannot judge and measure the suffering and misery that occurred in either event. Recent estimates have placed the cost of replacement for hurricane Katrina at 150 billion US dollars and the amount for the Indian Ocean tsunami probably will never be accurately estimated, but is likely to be similar. These costs do not include the secondary financial losses that have and are resulting from these events and will continue for decades. In many ways, both events become major medical and public health problems, which include both acute and chronic health issues.

In both the tsunami and hurricane Katrina, common characterisers have become apparent. First is the urgent need for potable water and basic food supplies. This became an important need in both natural disasters, and from the literature, appears to be a common characteristic among most if not all disaster events⁽³⁾. The lack of potable water and edible food, which can in many ways be directly related to unsanitary conditions caused by these events, became a viable and primary issue in disease occurrence and prevention. Overall, the lack of basic necessities

is in part the backbone of public health and preventative medicine.

The second major concern is access to primary medical care, especially in its most basic form. Basic medical care can be identified as vaccination and acute care. The first criterion probably falls into the general realm of public health, while the second is more in the area of preventative medicine, although the overlap makes the two inseparable. Unfortunately, past experiences with natural disasters, even in the United States, have suggested that neither the public at large nor agencies responsible for preparation and coordination of these disasters are well prepared⁽⁵⁻⁷⁾.

There are other secondary hazards that result from natural as well as man-made disasters. Few are aware of such hazards and they need to be considered in preparedness and planning. For example, during the hurricanes that hit Florida in 2004 there were a large number of people treated for carbon monoxide poisoning (CO) (167 cases) as a result of using portable generators⁽⁸⁾. A similar occurrence was seen after the hurricane Katrina disaster. Here, during the time period from August 29 to September 24, 2005, 51 cases of CO poisoning were reported by hyperbaric chamber facilities in the states of Alabama, Louisiana and Mississippi⁽⁹⁾.

The numbers reported are probably only a small fraction of the number that actually occurred and represents only one specific hazard. As with many studies that count numbers of disease cases or events, the actual reported count or number is most likely underestimated; although a technique like the capture-recapture method has been used to better "determine" the true number of cases⁽¹⁰⁾. This method has been indicated to be the "gold" standard in counting populations and disease cases⁽¹⁰⁾.

Natural and man-made disasters and the combination will continue to occur, as they have throughout history. The issue of how to respond and react to such events can be said to be at the core of the problem. In many cases, especially those

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that are more man-made, such as that seen in the Sudan^(11,12), response is timid at best, until the extent of the disaster creates a political and economic crisis. Even natural disasters that occur in politically undesirable locations of the world receive a lower level of attention and response, and by some could be considered a secondary public health issue.

Medical and public health aspects in disease relief should first focus on the type of disaster that occurred specifically as this is related to the conditions (e.g. weather) that exist or will exist. This in itself may be the first consideration in determining the short-term measures that a disaster area needs. Obviously, in a warm weather climate, blankets and cold weather gear are not essential as compared to a location that has lower temperatures. However, not only do the natural conditions have to be considered and dealt with in any disaster that is of a large-scale, there are also political and economic factors – many of which are generated by man himself.

As seen in the Indian Ocean tsunami, hostility of the governments in the region was an obstacle in bringing in relief⁽¹³⁾. It seems unbelievable that a similar condition, although a bit different, appeared to exist for hurricane Katrina, although there was not blatant hostility – the bureaucracy of the federal, state and local governments impeded progress in getting help to those that were in the greatest need. In both cases, which involved water-related events, it appears that many of the initial causes of death were a result of drowning and blunt trauma injuries, followed by short-term public health problems associated with sanitation, food, shelter, distribution of supplies (medical, shelter, potable water and food). In many ways, these are common characteristics of the medical needs for hurricanes and water-related disasters⁽¹³⁾. These problems are magnified by loss of the local infrastructure, preventing access to the regions and areas of the disaster.

In the United States,⁽¹⁴⁾ as well as in other locations of the world⁽¹⁵⁾, the lack of electrical power in a disaster magnifies the problems along with bureaucracy and shortages of supplies. Some⁽¹³⁾ have suggested that the loss of electrical power is the primary cause of many medical problems. Such a loss would prevent the functioning of sanitary systems and related activities that help prevent the spread of disease, along with aiding in medical support (e.g. refrigeration). Besides the medical aspects discussed, communication is also of great importance. In some cases, the local population and local officials do not even know that

planning exists for a disaster, thus compounding problems⁽¹⁶⁾.

Determination of the type of medical care that is required for any disaster will depend much on the type of disaster and the time period of occurrence. Even in the tsunami, there appears to be large differences in the types of medical requirements from location to location^(17,18). Certainly, the need for clean drinking water (potable water) is often one of the most pressing requirements in both the initial and later stages of an event⁽¹⁹⁾. There was one estimate that there should be 20 litres of water per person per day available⁽¹³⁾. Whereas in other disasters, as that which occurred in Pakistan on October 8, 2005 resulting from an earthquake, there appear to have different medical requirements, due to the type of disaster that occurred and that it was at the beginning of the winter season.


Based on reports from the hurricane Katrina event, there appears to be two phases with regard to examining medical aspects/requirements. The first, which was the initial phase, required treatment of acute injuries (e.g. trauma events), non-acute injuries (e.g. refills of medication, wound checks), and prevention of the spread of disease (e.g. sanitation, food, potable water). During the second phase, which occurred several days after the event, there appeared to be more of a chronic disease problem. Here, acute respiratory illnesses, rashes, acute gastrointestinal diseases and dermatological problems, began to appear^(3,5,18,19). Much of this is likely a result of the sanitary conditions and in many ways can be related to the lack of electrical power for operating and maintaining these systems.

Similar events were seen in the Indian Ocean tsunami disaster, in that after the initial phase, medical issues were not as much related to trauma events, but rather infected wounds, crush injuries and chest infections. Trauma events that did arise days after the initial event were likely a result of displaced persons that “were actually injured during the tsunami.”⁽¹⁷⁾ One report⁽¹⁷⁾ on the experience in the Sri Lanka area found that trauma to the skin (e.g. lacerations and abrasions) was particularly common. It should also be noted, especially in third-world countries, many of the medical aspects are results of the problems that existed before the disaster, which will often confound the problem of medical care^(17,18).

I would like to propose that a single international agency be established for managing these devastating events. This agency should not be one of a political entity, but one that has a focus on public health

and preventative medicine, as is often associated with the World Health Organisation. Within this organisation, regional centres can be established that have the capabilities of supplying necessary materials to a location that suffers an event. This operation would be for the immediate period after the event and could provide temporary support for a large number of people, say 150,000, involving a limited time period, like two weeks. Such an agency would allow a response to be initiated within 24 hours of occurrence, and could be staffed with a small group of professionals and with volunteers. This would make a worldwide response reliable and rapid.

However, there must be resistance to having this agency assume long-term management of such problems. The inclination of long-term management will be strong for those events that are man-made. This agency should be from the public health/medical community. Until such an agency is created, there will continue to be a slow and in some ways, tempered response to disasters. As with many disasters, as seen with hurricane Katrina, the response is in many ways initially haphazard, even though the United States had agencies that were designed for such responses. Thus, it is clear that a strong need exists for a less bureaucratic system in handling these disasters.

These issues associated with a disaster are within the realm of the medical community. This is where action is needed to formulate a more efficient and effective response to such events. Since the world is becoming a global community, it is now time for action. Consideration of a global response agency with regional centres should be given great thought, because the next disaster could be coming soon, perhaps to your neighbourhood. This will allow a response to be spoken with one voice. 

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