

Emergency health care workers' willingness to work during major emergencies and disasters

Through a comprehensive literature search, Erin Smith explores the factors that affect health care workers' willingness to work during major emergencies and disasters

Abstract

Current national and international emergency preparedness plans require emergency health care workers to play an integral role in responding to, and managing major emergencies and disasters. To understand whether emergency health care workers would be willing to work during these events, this study reviewed the international literature to identify studies that had addressed this topic. Research conducted in the United States, Canada, Asia, and Israel, all came to the same conclusion: the assumption that all emergency health care workers will be willing to work during a major emergency or disaster is not realistic. The impact of this should be considered in emergency preparedness and planning.

could be detrimental to the ability of the health care system to cope with the surge of demand on resources that is synonymous with major emergencies and disasters (Chua 2004, Verma 2004, Koh 2005).

This issue is of particular concern in highly populated urban areas (Qureshi 2005) where the majority of major trauma centres and hospitals equipped with isolation and negative-pressure facilities are located. In addition, the density of the population will encourage the rapid spread of infection or contamination in the event of health disasters and chemical, biological, radiological, and nuclear (CBRN) events.

Recent international experience with Hurricane Katrina in the United States illustrated how essential emergency health care workers are in both the initial response to an event, and the longer term management of the injured, ill, and displaced population. Indeed, it has been suggested that local emergency health services will bear the immediate brunt of any major emergency or disaster (Green 2003), and will be called upon to play a significant role in the ongoing response to such an event.

Given that a willing and able emergency health care workforce will be a vital component of any successful response to a disaster situation, an understanding of their willingness to work and barriers to willingness to work during major emergencies and disasters is needed. This paper reviews the international literature to identify studies that have addressed this issue, and reports on the results of relevant studies.

Methodology

A comprehensive electronic literature search was conducted using MEDLINE (1950 – February 2007) and CINAHL (1982 – February 2007) using the terms “disaster”, “emergency”, “mass-casualty”, “multi-casualty”, “catastrophe”, “emergency health care worker”, “paramedic”, “EMS”, and “emergency medical service”. Authors known to specialise in the field of disaster preparedness and disaster response were contacted, and relevant conference proceedings were reviewed.

Introduction

The potential for a major emergency or disaster to occur exists in all communities. The 2002 and 2005 Bali Bombings brought terrorism to Australia's doorstep, the 2004 Indian Ocean Tsunami and Cyclone Larry in 2006 reminded us that Australia's coastlines are vulnerable to natural disasters, and the annual threat of debilitating bushfires, drought, and extreme weather are constant concerns for Australian emergency planners and managers. Combine this with the ever-present threat of emerging infectious diseases such as Severe Acute Respiratory Syndrome (SARS) and “Bird Flu”, and we are reminded that Australia's border is not immune to devastating conventional and non-conventional disasters.

When these major emergencies and disasters occur, employers, emergency planners, and even the public may assume that emergency health care workers will be willing to work. In reality, emergency health care workers may be reluctant to work when the situation poses a possible threat to their own safety and health, or that of their co-workers and families. Such reluctance

Results

International Research

Reports from the USA, Canada, Asia and Israel highlight that during conventional and non-conventional disasters (such as hurricanes, outbreaks of infectious disease, warfare and terrorism) emergency health care workers will not always report to work. A study of Israeli health care workers reported that 58% of respondents were not willing to report to work during a non-conventional missile attack (Shapira 1991). A Hawaiian study which examined the willingness of doctors and nurses to work in field hospitals during mass casualty events identified that respondents were more likely to be willing to work during natural disasters, with willingness influenced by perception of risk, perceived knowledge, and self-perceived ability to provide the type of care required (Lanzilotti 2002).

A number of studies have been conducted in New York following the terrorist attacks of 9/11 and the subsequent anthrax outbreak. These studies investigated the willingness and ability of emergency health care workers to respond to work during catastrophic disasters and terrorist related events. Barriers to being willing and able to work during these events included childcare, transportation, personal and family health concerns, compensation, and pet issues (Qureshi 2002, Qureshi 2005). DiMaggio et al reported that emergency medical technicians were less willing than able to respond to terrorist related events, with reported fears for personal and family safety (DiMaggio 2005).

During the SARS outbreak of 2003, the infectiousness of SARS was substantially higher among health care workers than the general population, especially those working in hospitals and prehospital care (Maunder 2004). Following the SARS outbreak staff involved in the medical care of SARS patients reported being fatigued, concerned about their own health and the health of their family, and developed a fear of social contact (Chua 2003, Koh 2005). Health care workers believed that they were at high risk of becoming infected, with some refusing to care for the ill and imposing self-quarantine on themselves to protect family members from potential exposure (Stein 2004). These behaviours are reminiscent of the psychosocial reactions witnessed during the beginning of the AIDS epidemic, where healthcare workers refused to treat patients, avoided physical contact with potential AIDS patients, and self-imposed isolation and quarantine measures to prevent "spreading" the disease to loved ones (Stein 2004).

More recently, a survey of emergency personnel (physicians, nurses and paramedics) in Rochester, New York investigated whether staff would respond to mass casualty incidents involving the release of transmissible and non-transmissible biological agents. The study

reported that as an event develops, fewer health care providers will report to work, and at no time will 100% of all personnel rostered to work actually report for duty (Syrett 2007).

With risk of injury, infection, illness, and contamination being inherent in the provision of emergency health care, emergency health care workers need to find the balance between concerns for their own safety and the safety of their colleagues and family, and their duty to respond to work during a disaster situation (Singer 2003). Finding this "balance" will depend in part on the way that emergency health care workers perceive the risks involved with responding during disasters, and how these perceptions shape the subsequent risk assessments they make when deciding if they are willing to work or not.

National Research

A recent Australian study investigated the issue of paramedic's risk perception and assessment and the subsequent impact on willingness to work during conventional and non-conventional disasters (Smith 2006). A non-conventional disaster was defined as one which involved or potentially involved the use of CBRN, or naturally occurring infectious agents, resulting in the threat of exposure, infection, illness, or contamination to emergency health care workers.

Perception of risk and willingness to work differed for conventional and non-conventional disasters, however, the common "risks" associated with any disaster response were injury, illness, and infection. Paramedics were more willing to work during conventional disasters ("It's my job", "It's my responsibility"), and their perception of risk focused predominantly on injury ("I could get hurt", "My co-worker could get hurt") and safety ("Is this scene safe?"). Paramedics were less willing to work during non-conventional disasters ("I could get sick", "My family could get sick", "I could take something home with me") with threats to health and wellbeing of self and family (exposure, infection, and illness) the most frequently reported perceived risks of responding to non-conventional disasters.

Common themes for both conventional and non-conventional disasters were the need for current and reliable information, improved communication from employers and between responding agencies, and improved disaster focused education and training. Finally, perception of risk increased the longer that a disaster situation lasted for, resulting in fewer paramedics reporting willingness to work as non-conventional disasters develop. This issue is of particular concern when considering the required response to on-going health-related disasters.

This 2006 study reported on the generation of a “decision making hierarchy” used by paramedics in assessing the risk of injury, illness, and infection in disaster response. Paramedics assessed the issues of safety, professional responsibility, personal ability, and accurate scene knowledge respectively when conducting a risk assessment prior to responding to a disaster. Of note, this decision making hierarchy was largely influenced by the level of trust paramedics had in their employers, and the credibility given to the information provided from them.

A further Australian study is currently being funded by the National Health and Medical Research Council (NHMRC), with a team of researchers from the University of Queensland and Monash University, Melbourne investigating paramedic’s attitudes and beliefs towards working during an avian influenza pandemic. Information on this project can be obtained from the Chief Investigator, Ms Vivienne Tippett (VTIPPETT@emergency.qld.gov.au).

Discussion

The studies identified by this literature review all report a common result: the assumption that emergency health care workers will be willing to work during major emergencies and disasters is not a realistic one. No study reported 100% willingness to work among surveyed health care workers, with one study reporting a willingness to work rate as low as 18% (Syrett 2006). It appears that reported willingness to work is higher for “conventional” disasters — where infection and contamination are less likely to be issues, than for “non-conventional” disasters, where responders are at risk of becoming infected, ill, and may possibly in turn expose family members to infectious or contaminated agents.

Reports of actual willingness to work are harder to come by, however, one study that attempted to prospectively study this issue reported that only 42% of 2,650 Israeli hospital personnel surveyed on the eve of the first Gulf War were willing to respond to an unconventional missile attack (Shapira 1991). Of importance to emergency planners, 86% of the Israeli hospital personnel surveyed reported that their willingness to work during these situations would increase if they were provided with adequate “safety measures” and “protective equipment” (Shapira 1991). Koh et al (2005) noted a similar result in Singapore following the SARS outbreak, with a greater number of emergency health care workers being willing to work during a similar event if further safety measures were available to staff, such as protective equipment and education.

Emergency planners should take note of another recurring theme in the results from these studies — the impact of partner, childcare, and eldercare obligations. The need for emergency health care workers to provide

care and reassurance to family members needs to be recognised and addressed in emergency preparedness plans. The inability to fulfil these obligations may have a profound influence on willingness to report to work. Qureshi et al (2005) identified that emergency health care services can pre-plan the formation of emergency childcare and eldercare facilities that can be either on or off-site, or by facilitating the pre-planned formation of emergency childcare/eldercare “pools”, where health care workers can leave their family members in the custody of people that they already know and trust (Qureshi 2005).

Fears for personal safety and personal health issues were commonly reported by these studies, and need to be addressed by emergency planners. Whether this occurs in the form of further training, transparent protocols for the provision of vaccinations and/or anti-virals (in the case of non-conventional disasters), or by way of providing adequate protective equipment to all staff, this barrier is amenable to intervention by targeted preparedness initiatives. The findings of Shapira et al (1991) support this idea, where the provision of appropriate personal protective equipment to front line responders facilitated health care workers willingness to work during an unconventional missile attack. This is also consistent with the findings of DiMaggio et al (2005) that recent training and the provision of appropriate protective equipment was consistently associated with willingness to respond to potentially dangerous mass casualty incidents.

Conclusions

This paper demonstrates that emergency health care services should not rely on all personnel reporting to work during disasters. Of particular relevance to non-conventional and health related disasters, willingness to work appears to decrease with the involvement of CBRN agents and the threat of infection and illness. Specifically, if the threat of infection or illness extends to emergency health care workers family member, willingness to work decreases substantially. Finally, reported willingness to work decreased the longer that an event lasts. The impact of this on staffing and managing associated surges of demand on resources during a major emergency or disaster is obvious. Issues such as the provision of appropriate vaccinations and antivirals to emergency health care workers and their immediate family, financial support for childcare and eldercare, provision of communication channels dedicated to informing family members of the latest developments during an event, and the opportunity for voluntary isolation and quarantine should be considered by emergency managers and incorporated into emergency preparedness plans. A lack of planning now will inevitably result in a lack of emergency health care workers responding in the event of a major emergency or disaster in the future.

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