

The Potential Role for Palliative Care in Mass Casualty Events

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We live in an increasingly industrializing and interdependent world where a wide range of manmade and natural disasters such as terrorism, epidemics, hurricanes, earthquakes, floods, and fires are all too possible. It has been estimated that at least one catastrophic disaster occurs somewhere in the world every week [1]. In 2010 alone, 373 natural disasters killed over 296,800 people and affected nearly 208 million others, making it the deadliest in at least two decades [2]. In the past 50 years, there have been over 10,000 reported natural disasters, affecting 12 billion people and resulting in 12 million deaths [3,4]. Events involving hundreds, thousands, or even tens of thousands of victims have been labelled “mass casualty events” (MCEs) and have been shown to compromise the ability of local or regional health systems to deliver services consistent with established standards of care [5]. In general, MCEs fall into two categories: “big bang” single incidents with immediate or sudden impact (e.g., earthquakes, tsunamis, hurricanes, tornadoes, terrorist bombings), and “rising tide” incidents with prolonged impact (e.g., extensive exposures to chemical, biological and nuclear agents, pandemic flu outbreaks). The first type yields large numbers of casualties at the outset of the event with fewer numbers added over time. The second type yields a gradual increase in the number of people affected, rising to catastrophic levels and necessitating a more prolonged response [6].

Since the 2004 Asia Tsunami disaster, planning for mass casualty events has increased worldwide. Even so, most national governments; state, regional and local jurisdictions; and professional advocacy groups continue to recommend preparedness plans that seek to stretch the surge capacity of the existing health care system rather than restructure the fundamental nature and interoperability of the system to address the unique demands of an MCE. That is, it is assumed that emergency and health care services will continue to be delivered according to established standards of care and that these health systems will have the resources and facilities needed to support these plans. However, MCE conditions will require a shift to ‘altered’ standards of medical care that will ration scarce personnel, equipment, and supplies in a way that saves the ‘maximum number of lives’ instead of the traditional focus of ‘doing everything possible to save every life’ [5,7-15]. Under such standards, MCE response could include applying the principles of field triage to determine who gets what kind of care, limiting the use of ventilators to surgical situations, changing infection control standards to enforce group isolation, creating alternative care sites from settings not designed to provide medical care. Intensive or critical care units may become surgical suites and regular medical care wards may become isolation or other specialized response units. Elective procedures may have to be cancelled and current inpatients may have to be discharged early or transferred to another setting. In addition, certain lifesaving efforts may have to be discontinued. Moreover, the usual scope of practice standards will not apply: nurses may function as physicians, and physicians may function outside their specialties, etc.

While different MCE scenarios (pandemic flu outbreak, bombings, etc.) will present different demands upon public health, disaster response and medical care systems, the alteration in standards of care will likely have to be implemented across the entire spectrum of health care settings, not just alternative care sites or hospitals. Thus, some patients will be provided life-support and definitive treatment where possible, while others will be allocated to standard care (if

available) or to a ‘non-savable’ category. This ‘non-savable’ category will include at least those who survived the onset of the disaster but with life-limiting critical new injury that could result in death within days, weeks or months [5-15]. However, there is a second group that is rarely acknowledge and should be included here; that is, those in the community who become gravely ill and need intensive medical assistance, either due to the MCE or from unrelated causes (e.g., heart attack), as well as those vulnerable populations unable to care for themselves and who are heavily dependent on the existing health care system to maintain and function in their setting (e.g., the frail elderly, children, the poor and homeless), those with pre-existing illness or disability, and those in institutions (e.g., nursing homes, mental health facilities, hospices) [14,15]. These individuals may not be able to seek help or pursue survival and recovery strategies and thus are at greater risk of suffering, injury and death because many of the resources that usually support them in the community will not be available or will be diverted to treat newly injured persons who are likely to survive [13-30].

Discussions of how to address situations where resources are limited and decisions about their allocation cannot be avoided raise significant questions about what types of, and how much, healthcare services are owed to people during a catastrophic and prolonged medical emergency [30]. However, few localities, public health, emergency response or hospitals have had any such debate or discussion about this issue and it has only recently begun being discussed in the disaster response and ethics literature [14,15]. Most discussions that do occur focus on how to fairly and justifiably distribute such supplies and resources (personnel, vaccines, ICU beds, ventilators, etc.) and rarely on the question of what to do for those who may not survive the effects of the event or the resultant scarcity of resources, or as one author has labelled it, “death by triage” [30]. What should emergency responders, disaster planning personnel, and medical care providers do when many affected people cannot reasonably survive due to the scope of their injuries, the magnitude of exposure, environmental circumstances, onset of life-threatening illness or pre-existing medical conditions that will be significantly affected by the MCE itself or the resulting scarce resources? While the primary goal of an organized and coordinated response to an MCE should be to maximize the number of lives saved, I would argue that a civil society demands a secondary goal of minimizing the physical and psychological suffering of those whose lives will be shortened by an MCE. These issues fall under the broad rubric of palliative care, which refers to the aggressive management of symptoms and relief of suffering [14,15].

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Palliative care uses the skills from multiple disciplines to enhance quality of life and address the needs of seriously ill patients and their families based on evidence-based medical treatment, vigorous symptom relief, and humanitarian care when there is nothing else to offer [31]. Palliative care respects the humanity of those who will die soon and assures their comfort while supporting their loved ones [32]. Under normal circumstances, palliative care plays a complementary role to comprehensive medical care focused on cure or control of an underlying life-threatening disease. Under the dire circumstances of an MCE, disaster-related palliative care would, at a minimum, involve the aggressive management of symptoms and the relief of patient suffering, including the obvious humanitarian call to relieve the psycho-social, spiritual, and religious suffering of patients likely to die. Unusually aggressive means of symptom management are, at times, appropriate at the end of life in the same way that extraordinary means of saving life are often appropriate during curative phases of medical therapy [33,34]. Moreover, the incorporation of palliative care into MCE disaster response may also greatly help reassure the public that society and its health care professionals will not “abandon” the patient or deliberately “cause death” under dire MCE circumstances, as was alleged during Hurricane Katrina [28,29].

There are a number of significant issues that the incorporation of palliative care professionals in the planning, response and recovery of MCEs raises and that require serious thought and discussion [13-15]. I have listed a few of the most urgent areas of concern and tried to provide at least a modicum of contextualization for the issue presented but acknowledge that these issues require a much wider and more focused debate. Generally, the important issues include:

- **What should the triage and ensuing treatment decisions be for those non-savable and likely to die?**

There are at least a dozen mass-casualty triage systems that have been developed around the world but surprisingly little research has been conducted on the validation or even the evaluation of these systems [35]. Established triage schemes, such as the widely used ‘simple triage and rapid treatment’ (START) system, have substantial limitations when applied to the special circumstances of an MCE. For example, many of the most utilized triage schemes cannot calculate the likelihood of survival for patients with pre-existing medical critical illness with added disaster injury; it is unknown whether correctly sorting casualties into the categories set forth by any particular triage system results in improved outcomes; and one triage system may not handle all MCE events in all triage settings [35]. In addition, the usual triage schemes do not include palliative and comfort care measures as an alternative to curative treatment. An effective MCE triage system will function best if it is transparent, fair, valid, consistent across settings and events, dynamic (is conducted at multiple places and times), and flexible enough to react to changing circumstances, including responding when patients triaged as likely to die actually improve or when additional treatment resources become available. Future research will need to address triage applicability to sorting for palliative care [14,15]

- **What services (including personnel) and in what settings should MCE palliative care be provided?**

Under many MCE circumstances, palliative care services for those likely to die will fall mostly to first responders, palliative care site providers and often to people without substantial prior experience and expertise, such as laypersons and by-standers at the event or triage sites, especially if priority transport for ‘survivable’ patients delays other victim relocation [36]. Effective pain and other symptom management

should be a basic minimum of service delivery and training for MCE palliative care. Disaster response that includes palliative care will also need both a cadre of skilled professionals and laypersons and the necessary guidelines, procedures, and policies set in place to address the needs of those likely to die. At minimum, disaster response palliative care services should include aggressive relief of symptoms and, where possible, ensure that those likely to die are as comfortable as possible. In order to effectively provide palliative care services in an MCE, clearly articulated protocols will need to be established, palliative care supplies (including those necessary for appropriate pharmacologic treatment) will need to be stockpiled, trained staff (including mental health, spiritual counseling) will need to be recruited, and appropriate space will need to be identified and incorporated into response planning. Furthermore, where possible, triage should place expectant or likely-to-die victims at alternative care sites (ACS) with palliative care capacity rather than hospitals, which will be overwhelmed with the frightened well and victims most likely to survive the event.

- **What pragmatic plans should communities consider when making training, supplies, and organizational/jurisdictional arrangements?**

Education and training should be tailored to the individual’s role in emergency response and should cover, at a minimum, the basic philosophy and goals of palliative care (including the principle of double effect), basic symptom management; the use and titration of oral and injectable opioid medications in patients in pain and/or near death; symptom recognition in the case of pandemic flu or chemical or radiological attack; and basic psycho-social counseling and support. Basic disaster planning should also include stockpiling palliative care medications at accessible sites away from acute care hospitals (e.g., in nursing homes) and should train disaster responders as to how to locate, access and use them [14,15].

Conclusion

The inclusion of palliative care in the context of an MCE is a new component of disaster planning. Little research or thoughtfully developed model plans have been available to guide planners. Only recently have official scarce resource response recommendations explicitly advocated for the provision of palliative care. Disaster response planners and palliative care professionals have yet to fully comprehend the potential utility of incorporating hospital and community-based palliative care professionals into MCE response planning efforts. Developing, planning for, and implementing any system of mass casualty event response incorporating the delivery of palliative care services will be fraught with ethical, legal, social and political issues. Many of these issues are discussed at length in the AHRQ reports *Altered Standards of Care in Mass Casualty* [13] and *Mass Medical Care with Scarce Resources: A Community Planning Guide* [14,15]. I have identified two populations of MCE casualties for whom death can be expected within hours, days or weeks and for whom the provision of palliative care would be an appropriate and humane response. Those who are likely to die cannot simply be consigned to holding areas or body bags while still alive; nor should they and their family advocates overwhelm hospitals and EMS transport systems that could be addressing the needs of potential survivors. If or when a disaster occurs, communities must be prepared for the possibility that the deployment of medical assistance may be delayed or downgraded and that governmental assistance may be overstretched by multiple challenges and competing demands. Careful consideration of the special needs of those individuals who are at greatest risk of not surviving a catastrophic disaster will be challenging. The tough decisions that will

have to be made in an MCE must have an ethical foundation, sanctioned by the community as a whole as well as those communities most likely to be at risk under these circumstances, and must be understood to be fair and in the best interests of the community at large. Palliative care offers a humane, effective, and medically appropriate treatment choice when resources are scarce and an alternative to “doing nothing” or ineffectively utilizing scarce resources. For these services to be readily available and successfully integrated into MCE disaster response, hospice and palliative care providers and advocates must participate in the disaster planning and response process.

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