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Editorial

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Role of Critical Care During Epidemics

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Editorial

We recommend several actions that might improve hospitals and communities abilities to deliver critical care during epidemics and bioterrorist attacks involving large numbers of victims with life-threatening illness. These recommendations are partially the results of deliberations by the multidisciplinary working group on Emergency Mass medical care, which comprises 33 professionals expertly in critical care medicine, biosecurity, disaster preparedness, and infection control.

In countries with widespread critical care capabilities few, if any, critically ill survivors of traumatic disasters have had to forgo acceptable critical care thanks to staff or resource shortages. In contrast, a gift disease outbreak or a deliberate epidemic resulting from a covert bioterrorist attack could generate critically ill victims in numbers that greatly exceed a hospital's or a region's capacity to deliver traditional critical care. Within the absence of careful pre-event planning, demand for critical care services may quickly exceed available medical aid unit (ICU) staff, beds and equipment, leaving the bulk of the infected populace without the advantage of probably life-saving critical care.

Emergency mass critical care requires modification to standards of critical care interventions, staffing, equipment, and triage to provide an appropriate level of take care of large numbers of critically ill victims. At a minimum, hospitals should plan to be able to deliver to critically ill patients a basic mode(s) of mechanical ventilation, hemodynamic support, antibiotic or other disease-specific countermeasure therapy, and a little set of prophylactic interventions that are recognized to reduce the extreme adverse consequences of critical illness. An thorough rationale for and specifics of these recommendations are getting to be provided during a publication from the working group on Emergency Mass Critical Care. We encourage the critical care community to review these recommendations, revise and modify them as deemed necessary, and prepare to implement rational, modified medical protocols within the wake of an enormous disease outbreak that overwhelms current capacities to deliver 'traditional' critical care.

Triage

During an outsized or sustained epidemic, even after modification of critical care standards, available resources will remain taxed. Priority should tend to people presumably to take advantage of modified critical care interventions. We encourage the critical care community to develop triage algorithms for clinical conditions that are likely to be seen in most outbreaks (e.g. severe sepsis, acute respiratory distress syndrome) that are supported physiologic parameters, which are sufficiently discriminating to identify which patients are presumably to take advantage of emergency mass critical care. We caution against unvalidated application of triage algorithms originally designed to be utilized in trauma casualties to victims with medical illnesses, because these algorithms won't accurately categorize survival for critically ill medical patients.

A major challenge during an epidemic or other mass casualty emergency are getting to be to figure out when, and on what basis, traditional standards of critical care are modified to accommodate emergency conditions, and when modified standards revert to traditional modes of care. Medical professionals, hospital staff, and thus the affected patient community should actively participate within the event and review of mass care triage standards and protocols. If engagement of care givers and thus the community is neglected, then mass casualty standards could be misinterpreted and generate distrust or fail to be implemented during a disaster. Medical personnel and community members must understand and accept as true with the triage plans and be assured that implementation are getting to be fairly applied to all or any or any victims. Extensive efforts must be undertaken to make sure that vulnerable populations will receive equal treatment.

Achieving Situational Awareness

In natural disasters or terrorist attacks resulting in traumatic injuries, a roughly accurate number of surviving casualties requiring medical care is usually quickly ascertained (within hours). Epidemics differ from other disasters therein they unfold over days or even months and years. The scope and impact of epidemics (whether natural or deliberate) aren't immediately apparent. If a bio attack is discovered to possess occurred (e.g. if several people within a community present with inhalational anthrax), then it's getting to be impossible to figure out quickly whether there has been one attack.

In an age of bioterrorism and epidemics of emerging infectious diseases, it'll be necessary to work out interconnected electronic health information technology systems with the capacity to trace patterns of disease in populations in near real time. Rapid learning within the face of a plague is getting to be essential. Health information technology systems that enable sharing and near real time analysis of aggregated data could be invaluable for illuminating the course of latest or unfamiliar diseases, improving clinical diagnostic accuracy and treatment efficacy, predicting disease outcome, and refining triage protocols. Early in a plague sort of treatments could even be used, but if they're administered in an uncontrolled manner at the whim of clinicians then determination of their effectiveness could even be difficult or impossible.

Protection of Health Care Workers and Disease Containment

Contagious pathogens present singular operational challenges that possesses to be anticipated in planning for mass casualty critical care. Hospitals are typically major sources of secondary transmission during outbreaks, and thus the SARS experience demonstrates that

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critical care units pose potentially high risks for disease transmission to health care workers and other patients. ICUs in Toronto cared for about 80 SARS patients over 4 months, and since of secondary transmission 73 ICU beds (nearly one-third of community and academic center ICU beds) were closed for a couple of period during the outbreak. The lesson is that secondary transmission of disease, even with modest numbers of contagious critically ill patients, may force closure of entire ICUs or compel isolation of hospital staff, thus decreasing the critical care capacity just when it's most needed.

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