Terrorism and the Ethics of Emergency Medical Care

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The threat of domestic and international terrorism involving weapons of mass destruction–terrorism (WMD-T) has become an increasing public health concern for US citizens. WMD-T events may have a major effect on many societal sectors but particularly on the health care delivery system. Anticipated medical problems might include the need for large quantities of medical equipment and supplies, as well as capable and unaffected health care providers. In the setting of WMD-T, triage may bear little resemblance to the standard approach to civilian triage. To address these issues to the maximum benefit of our patients, we must first develop collective forethought and a broad-based consensus that these decisions must reach beyond the hospital emergency department. Critical decisions like these should not be made on an individual case-by-case basis. Physicians should never be placed in a position of individually deciding to deny treatment to patients without the guidance of a policy or protocol. Emergency physicians, however, may easily find themselves in a situation in which the demand for resources clearly exceeds supply. It is for this reason that emergency care providers, personnel, hospital administrators, religious leaders, and medical ethics committees need to engage in bioethical decisionmaking before an acute bioterrorist event.

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BACKGROUND: THE THREAT

The threat of domestic and international terrorism involving weapons of mass destruction–terrorism (WMD-T) has become an increasing public health concern for US citizens.[1] Increasing concern over the potential for WMD-T has led numerous federal, state, and local agencies to address the response to such an event. Some of these efforts

include the following: (1) comprehensive planning that focuses on local preparedness and response[2]; (2) increasing public health infrastructure and capacity[2]; (3) increasing education for health care providers[3-5]; (4) bridging communication between agencies and institutions[6]; and (5) consequence management and development of medical stockpiles.[7]

A major effect on the health care delivery system by a WMD-T event will be the anticipated medical need for large quantities of medical supplies, such as antidotes, antibiotics, antitoxins, critical care supplies, and ventilators, as well as unaffected health care providers (hereafter referred to as resources). Individual hospitals have been encouraged to incorporate a means to procure needed medical supplies into their own disaster plans.[8,9] In the face of a WMD-T act (or threat), hospitals may face both overwhelming numbers of real casualties and multiple patients presenting with psychogenic symptoms.[10] They may also experience demands for preventive or prophylactic treatment from those who fear that sufficient resources for their treatment may not later be available. Although public panic is uncharacteristic after disasters, significant changes in social behavior have been proposed as unique to the setting of WMD-T.[11,12]

THE CHALLENGE OF RESOURCE ALLOCATION

After a WMD-T event, hospitals and emergency departments may have only enough resources available for patients that present relatively early after an event. Resource-allocation decisions will need to be made until additional resources become available. This means that some patients will receive treatment and others will not. The only option is to make hard resource-allocation decisions. The ethical decisions inherent in triage decisions should not be first considered during a real event. Rather, they should be rehearsed and discussed long before they are needed.[13]

UNIQUE CHALLENGES INVOLVING TRIAGE OF WMD CASUALTIES

Patients presenting to EDs after a WMD-T event may pose a unique set of challenges for clinicians. These challenges may include diagnostic, therapeutic, and occupational health issues.

In some cases, the diagnostic challenge of WMD-T may be much more difficult compared with that for other causes of mass casualties. Patients exposed to biologic agents, unlike most chemical agents, may experience a latency period during which they remain free of symptoms. In addition, large numbers of nonexposed, asymptomatic patients (ie, "the walking worried") may present for evaluation after an event of WMD-T.[14] It has also been postulated that WMD-T may create psychogenic illness among populations.[10,11] Consider an event involving radiologic, biologic, or chemical contamination of a public area. One may expect that a significant number of people who may or may not have recently visited the area will present as patients with requests to rule out hazardous exposure. Such would not likely be the case after an explosion, flood, or high wind condition within the same area. However, even in the absence of obvious physical injury, these patients have the potential to consume scarce human and material resources. During these situations, even patients who constitute the routine cases of ED care will need to fit into the triage protocol.

There may also be a therapeutic challenge that is unique to WMD-T events. In the case of some WMD agents, treatment is most efficacious when given very early in the course of illness, even before the onset of symptoms. However, currently held concepts now apply triage according to acutely obvious conditions. In addition, emergency care may also come under the rule of a higher forum for decisionmaking that will allocate resources according to a regional or national plan.[15] Care providers must then be capable of integrating with community and national assets.

WMD-T also offer an additional challenge to include occupational health concerns for care providers in the event of secondary exposure to threat agents. Resource allocations may then need to take into consideration the need for prophylaxis, personal protection, and/or immunization of clinical staff to preserve the multiplier effect of their ongoing ability to provide care.

ETHICAL CONSIDERATIONS OF TRIAGE AFTER WMD-T EVENTS

Although the term "triage" is commonly used for the prioritization of patients on the basis of their medical condition in normal emergency medicine practice, this triage differs markedly from that on battlefields or during civilian disasters. Under routine circumstances, ED triage takes the most urgent cases first and the less urgent on a first-come, first-served basis. Everyone receives necessary treatment, although the less ill must wait longer.

There are 3 potential triage models. These models include those that are based on the following: (1) first-

come, first-served; (2) patient's best prognosis; and (3) patient's social worth.

All social systems for allocating scarce resources suffer from the presence of natural and social lotteries. Natural lotteries are the wide range of talents, abilities, disabilities, deformities, and illnesses among individuals. Social lotteries indicate the disparity in how individuals are chosen to be the recipients of attention, jobs, love, care, or other benefits.[16] Those who normally suffer in these lotteries include patients with multiple diseases, drug or alcohol abuse, or antisocial or aggressive behaviors and the homeless. Under normal circumstances, these patients should not receive a lower priority and access to scarce resources.[17] In catastrophic triage situations, however, they may also do poorly because the necessary additional time and normal medical resources may not be available to meet their needs.

Nondisaster triage systems work, in part, on a statistical lottery or first-come, first-served basis. Natural and social lotteries continue to operate in catastrophic situations. The statistical lottery may appear to have a lessor potential for bias; however, it does not achieve an equitable or utilitarian resource distribution in catastrophic situations.[18] Furthermore, a statistical lottery may favor a segment of the population that has access to media, transportation, or health care, while discriminating against those with physical and mental disabilities or financial hardships.

Triage according to the medical model of best prognosis is widely accepted and may be the most favorable model in the setting of WMD-T events. Under this model, rationing decisions must be made on the basis of patient survivability or best prognosis. The ethics involved in this type of triage follow from the idea that "ought" implies "can." If something cannot be accomplished (eg, saving all lives with the limited available resources), then there is no ethical obligation to do so. Rather, those responsible for triage in these circumstances must use their clinical skills to provide maximum benefit to the most people. Unaccustomed as they are to it, "the general public in Western society may find the consequences of triage in their own environment hard to accept."[19]

TRIAGE FACTORS

The ethical issues involving medical resource allocation during a mass casualty event are complex. What issues should emergency physicians consider in deciding to whom and how we distribute and use scarce resources? What criteria could help us determine the most ethical use of these resources? There are certain factors that should and should not be taken into consideration when making the decision for resource allocation. These factors are summarized in the Table.[20]

In the setting of a WMD-T event, the likelihood of benefit using minimal resources takes precedence to maximize the efficient use of scarce medical supplies. The problem with likelihood of benefit is in predicting medical outcomes of individual patients. In certain situations, the treatment will be equally effective for all patients if given early. For instance, if appropriate antibiotics are given before the onset of respiratory symptoms of inhalational anthrax or pneumonic plague, survival is markedly increased. Theoretically, symptomatic patients are less likely to benefit from treatment. Thus, the likelihood of benefit may be equal between patients when presenting early on in course of the disease, yet there may not be enough of the available resource. Ideally, treatment would be started before the onset of any symptoms. Because this may not be possible with limited resources, objective signs, such as fever, may be required before initiating treatment.

Resource allocation is always made on a utilitarian basis; those who will have the best chance of benefiting the most from the available resources get those resources first. In situations with limited resources, the decision algorithm changes. Practitioners must prioritize intervention to those who will benefit most from the fewest resources. This widens the scope of patients for whom medical intervention is deemed futile.

Should age be a triage factor in these cases? Not in itself, although the complexity of comorbid conditions in the elderly may make their treatment more resource intensive, limiting treatment options for some patients. For those without comorbid conditions, triage personnel

Table.
Factors involved in the allocation of scarce resources.

Should Consider	Should Not Consider
Likelihood of benefit	Age, ethnicity, or sex
Effect on improving quality of life	Talents, abilities, disabilities, or deformities
Duration of benefit	Socioeconomic status, social worth, or political position
Urgency of the patient's condition	Coexistent conditions that do not affect short-term prognosis
Direct multiplier effect among emergency caregivers	Drug or alcohol abuse
Amount of resources required for successful treatment	Antisocial or aggressive behaviors

will not be able to predict individual life expectancies, and therefore, the elderly should be considered in the same triage pool as all others.

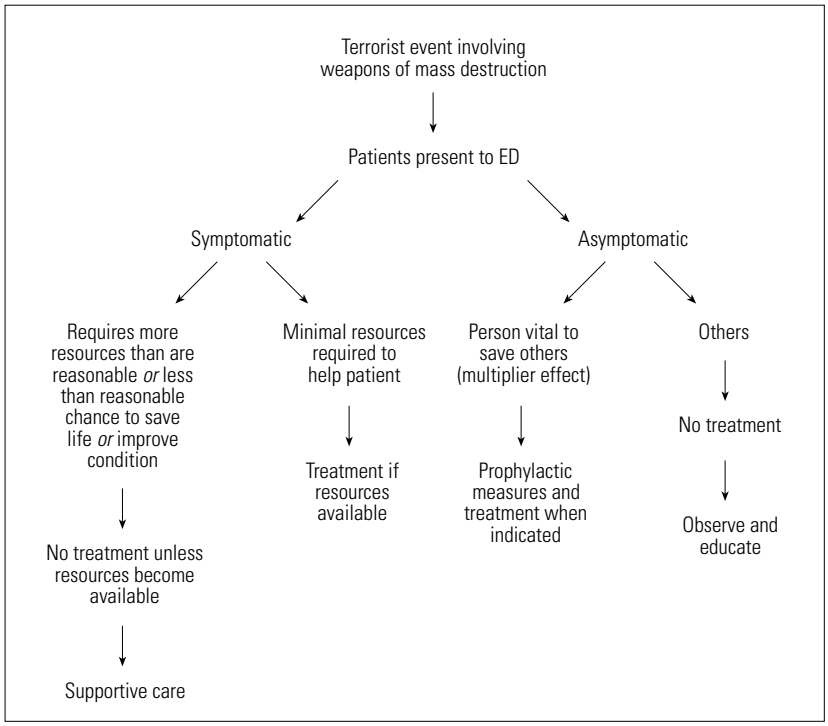
TRIAGING EMERGENCY PROVIDERS

Should emergency health care workers get priority treatment and prophylaxis? This is a question of individual social worth. When triage involves questions of social worth, these criteria need to be carefully examined because it could feasibly be used to discriminate against virtually any group in society and should generally not be factored into the allocation of scarce resources.[20,21] Yet this does not address the idea of those that put themselves at risk and are immediately valuable because of their ability to help others (ie, the multiplier effect).

The threat of terrorism has created a situation in which both patients and caregivers are potentially vulnerable. Health care providers, for example, may face personal risk if they provide aid during some disasters, such as WMD-T events. A well-established ethical principle is that health care providers should first look to their own safety, then their team's, and finally the patient's.[22] In fact, many key care providers would be expected to continue to function regardless of personal danger, even beyond the threshold of what may be considered accepted professional risk. However, if not given priority for treatment or prophylaxis, these health care and emergency responders would likely also become casualties, and this critical resource for emergency public health would cease to exist.[23] In this regard, these individuals should undergo triage according to a principle for preservation of a mission-critical resource.

Fortunately, only a few of the biologic warfare agents (smallpox/monkeypox, pneumonic plague, viral hemorrhagic fever viruses, ie, Ebola, Marburg) are considered contagious, thus necessitating prophylactic measures. Exposure to chemical agents often requires specific antidotes or treatment. The problem arises when a scarcity of appropriate resources occurs during a WMD-T event. With this in mind, the use of prophylactic antibiotics or vaccination should be based on strict guidelines. On both ethical and administrative levels, these guidelines should be planned and coordinated to provide the best protection for mission-critical providers while ensuring the maximal possible provisions of health care to the populace. This means, in part, ensuring that providers will be cared for. In addition, these guidelines should also prevent health care providers from preferentially treating themselves, family members, or friends.

Figure.
Algorithm for triage after a WMD-T event.



AN ALGORITHM

One method to analyze a practical and ethical response to triage after a WMD-T event is to use an algorithm (Figure). It follows utilitarian principles: the limited resources will be used to benefit the most people possible. The difference is that it also provides for prophylaxis of those individuals who, because of their position, need to have physical protection to greatly assist others (ie, the multiplier effect). To receive treatment, patients would exhibit early objective signs of illness. Asymptomatic patients would not initially receive treatment because it would be difficult to distinguish potential casualties, regardless of exposure history, from the worried well.

In summary, with many ethical decisions that arise in emergency medicine, those during mass-casualty situations require immediate decisions with little time for collective deliberation. Failing to act because of moral uncertainty is unacceptable because inaction is often the worst of the available options.[24]

When faced with this situation, emergency physicians must do the best they can with the available resources. Simultaneously, they should use every possible means to acquire additional resources. Available resources must be used to provide the most good to the most people. The definition of what may be a reasonable use of resources will also be extremely situation dependent and may vary according to the facility, the natural history of the event, the offending WMD agent, and the community standard of care.

Emergency physicians must be willing to make difficult triage decisions, knowing that some of their decisions, made without adequate information or the time for reflection, may not be perfect. Guidelines for decision-making should be developed in advance of an event in association with emergency medical personnel, hospital administrators, religious leaders, and medical ethics committees. As WMD-T readiness plans are developed, bioethics committees should be asked to work with health care providers to develop a plan to address the unique moral and ethical dilemmas that arise. Such plans should provide resource-allocation guidelines that are flexible enough to cover a myriad of scenarios with a consistency that allows equitable treatment for all patients and potential patients. Emergency physicians should now move to initiate the process of ethical consensus as leaders in the field of disaster medicine and emergency care.

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