

**CENTRAL OHIO TRAUMA SYSTEM
ETHICS COMMITTEE**

ETHICS & MEDICAL RESPONSE IN A MASS CASUALTY EVENT

PREAMBLE

Appropriate disaster response involves a number of ethical considerations. The basic disaster response principle of *doing the greatest good for the greatest number of people* is the foundation for the guidelines contained within this document. In addition ethical responsibilities will extend beyond commitment to the individual patient. The primacy of *community need* may supersede an individual's choices or needs in a disaster. The community as a whole becomes the patient in a large-scale disaster. Furthermore it must be understood that the medical standard of care in a large-scale disaster event may differ from non-disaster situations, dependent upon available resources to treat the masses. Medical decisions and care during a mass casualty event will not be perfect. Every effort must be made to provide the optimal resources to care for the populace in such an event. Ethical criteria considered for this document are listed in *Appendix A*.

DUTY OF PHYSICIANS AND NURSES TO REPORT TO WORK IN A DISASTER

The World Medical Association holds that physicians and nurses must address the health and life of patients above other considerations.¹ Consideration of one's own personal safety as the overriding determinant for response by physicians and nurses during a disaster is not supported in professional codes of ethics. Healthcare workers and support staff have an ethical duty to report to work during a disaster situation, even if their own lives are threatened by doing so. Upon reporting to the workplace, healthcare providers have the ethical obligation to provide competent care without prejudice based on age, race, ethnicity, religion, affliction, or disease to the patients they care for.

Physicians. The medical profession has long subscribed to a body of ethical statements developed primarily for the benefit of the patient. As a member of this profession, a physician must recognize responsibility to patients first and foremost, as well as to society, to other health professionals, and to self.² The American Medical Association's *Declaration of Professional Responsibility* commits physicians to applying knowledge and skills when needed, even in the face of personal risk.³ The American College of Emergency Physicians maintains that emergency physicians should assume a primary role in patient care during a disaster.⁴ The American College of Surgeons states that surgeons are obligated to respond to care for victims in all disasters.⁵

Nurses. The nurse's primary commitment is to the patient, whether that patient is an individual, family, group, or a community.⁶ According to the American Nurses Association, a fear of personal risk is not justification for failure to respond to care for patients.⁷

DUTY OF HEALTH CARE AND COMMUNITY AGENCIES TO MEDICAL STAFF IN A DISASTER

To support and strengthen the obligation of physicians, nurses, and other healthcare staff to respond in a disaster, healthcare institutions including hospitals, clinics, private practices, and public health agencies have an obligation to provide the safest possible working environment. Special efforts must be made to ensure that health professionals work in secure locations with all reasonable personal protective equipment and patient treatment modalities available. In addition, the community at-large has the responsibility to ensure that healthcare staff can travel to and from work in the safest possible conditions.

Documented impediments to local disaster response by healthcare professionals include concerns over the well being of family and pets.⁸ Consideration should be given to dependents of healthcare staff to promote healthcare worker response; however healthcare workers also have the responsibility to establish plans for care of dependent household members in the event of a disaster. Additionally, healthcare personnel should have emergency plans to provide for the care of pets in the event that the healthcare workers may be needed at the hospital for a prolonged period during a disaster. Local public disaster operations plans and neighborhood pet shelters may provide medical personnel with options for emergent housing of pets in the event of a community disaster.⁹ Hospitals may also elect to establish emergency day care and/or pet care centers to further encourage response by employees.⁸

DISASTER TRIAGE CONCEPTS

When considering limited resource availability and allocation in a mass casualty event, it is understood that victims must be sorted (triaged) in part based on the urgency of the victim's condition or injuries. With appropriate triage, immediate medical intervention is delivered to those with treatable, life threatening injuries, and delayed or minimal care is delivered to those with less threatening injuries or less immediate needs. Medical care (other than comfort care when appropriate) may be withheld from victims with terminal injuries or conditions and to those who are apneic or pulseless, especially if the number of victims far exceeds the number of rescuers. However triage personnel should not be placed in the position of individually deciding to deny treatment to patients without the guidance of pre-determined written protocols.¹¹

Triage decisions are in part based on the natural course of an injury or condition. These decisions are also based on the experience and expertise of the triage officer and other community resources. Disaster triage decisions are agent (biologic, chemical, or

radiologic) and event specific. Disaster triage may be modified based on the presenting severity of illness; the need for decontamination; the necessity for quarantine or isolation; and the expected morbidity and mortality in light of inordinate casualties with limited resources. Expert consultation should be obtained regarding critical triage decisions when possible.

Disaster triage is a fluid process and triage criteria may change throughout the continuum of the disaster. Medical care rendered during a mass casualty event may not be what would ordinarily be considered optimal given limited resources. The surge of patients in the initial stages of a disaster will be the first challenge in triage and the allocation of resources. The highest standard of care possible should be provided at all times.

Mass casualty triage and treatment priorities are typically denoted by one of four categories: *Immediate, Delayed, Minimal, or Expectant* as in Table 1.

TABLE 1: DISASTER TRIAGE CATEGORIES¹⁰

Immediate:	These patients require life saving care within a short time to reverse impending asphyxia or exsanguination. These patients may benefit from immediate surgery or a life saving procedure such as the establishment of airway, manual control of hemorrhage, fluid administration, needle decompression of a tension pneumothorax, etc. In short, the condition is such that without immediate intervention, death or permanent significant disability is likely, and with intervention death or permanent disability <i>may</i> be avoided.
Delayed:	These patients have an illness or injury that requires hospitalization or surgery. Definitive care is likely to prevent permanent significant disability and death. Short-term survival without immediate intervention is probable though not assured.
Minimal:	These patients have a minor illness or injury. Survival from these minor conditions is highly likely. Most of these patients are likely to be released to home or duty after treatment.
Expectant:	These victims present with severe and most likely, non-survivable illness or injury. Death is probable even with significant intervention. These patients ought to be considered for comfort measures only.

In a mass casualty situation with limited resources, the priority of care is: Immediate, Delayed, Minimal, Expectant. However if inordinate resources are used for the Immediate patient group to the extent that death of a larger number of patients in the Delayed group is likely, some patients in the Immediate group may need to be reclassified as Delayed or Expectant. Resources should still be allocated to the Expectant group but such intervention will emphasize comfort care. In instances of ambiguity, triage to provide the higher level of care.

Triage of victims subject to WMD agents including *biologic, chemical and radiologic exposures* is demonstrated in Table 2.

Table 2: EXAMPLES OF TRIAGE FOR WEAPONS OF MASS DESTRUCTION (WMD) EVENTS

<p><u>Biologic Agents (Example Anthrax):</u> Triage of victims involving biologic agents such as anthrax is dependent upon additional factors specific to the implicated organism including contagion and incubation period.</p>	
Immediate:	Patients with hypoxia, respiratory distress, and cardiovascular instability. Depending on numbers of casualties and availability of facilities and equipment (e.g. ventilators, endotracheal tubes, oxygen, intravenous fluids, antibiotics, etc), some or all of these patients may be changed to <i>Expectant</i> .
Delayed:	Patients with early symptoms of anthrax who were exposed more than two days prior. Depending on numbers of casualties, some or all of these patients may be changed to <i>Immediate</i> .
Minimal:	Patients with no symptoms of anthrax, but with possible exposure.
Expectant:	Patients with severe hypoxia, cardiovascular failure, altered mental status. Depending on numbers of casualties and availability of resources, some or all of these patients may be changed to <i>Immediate</i> .
<p><u>Chemical Agents (Example Nerve Agents):</u> Triage will be dependent on the nature of the chemical including time of expected onset of symptoms and the potential severity of symptoms. Triage categories can change during a chemical event, and are based on the best information available at the time of the incident. <i>All chemical casualties require decontamination.</i> The decontamination procedure must always be taken into account during the triage process. Decontamination and triage may be based on recommendations from local poison control officials.</p>	
Immediate:	Progression of respiratory distress or other systemic manifestations such as severe vomiting, muscular twitching, weakness, altered level of consciousness, or convulsions.
Delayed:	Patients with nausea, vomiting, salivation, and tearing, but no respiratory, neurologic, or hemodynamic compromise. However, because the condition of these patients may worsen to life-threatening within seconds, classifying victims of nerve agents to delayed category is risky. Frequent re-assessment of these patients is crucial.
Minimal:	Patient is walking and talking, conscious, breathing, has not convulsed, and can self administer antidote or have antidote administered to him.
Expectant:	Apnea, gasping for air, marked cyanosis, pulselessness, severe bradycardia, severe hypotension, convulsing or postictal, and no availability of antidote.

Table 2: EXAMPLES OF TRIAGE FOR WMD EVENTS, *continued*

<u>Radiologic Agents:</u>	Rapid consultation with a health physicist should be sought in order to estimate radiation exposure levels and subsequent outcome. Decontamination if indicated. The use of monitoring parameters such as lymphocyte count should be considered.
Immediate:	4-10 Gray*; severe gastrointestinal symptoms for 7 days; admit for reverse isolation, antibiotics, transfusions, consider bone marrow transplant.
Delayed:	2-4 Gray; Admit for supportive care and observation.
Minimal:	<2 Gray; mild gastrointestinal symptoms
Expectant:	>10 Gray; gastrointestinal and central nervous system symptoms within 30 minutes. Palliative care as death expected within 1 week.

* One Gray unit is a measure of radiation equivalent to 100 Rads

ALLOCATION OF RESOURCES

Resource availability significantly impacts the medical response to a disaster event. When considering which patients are allocated limited resources in a large-scale disaster, healthcare professionals must consider several factors.

Factors to be Considered in the Allocation of Resources.

- ***The number and severity of casualties.*** When a match exists between casualties and resources, all patients receive optimal medical care regardless of their condition. However in mass-casualty disasters with finite resources, uniform medical care of all victims may not be possible. Triage determines which patient will most likely benefit from immediate treatment resources and which patients will not.
- ***The resources that each patient will require for successful treatment.*** In general, resource allocation, like triage, seeks to provide the greatest good for the greatest numbers. If one critically injured patient can be saved but to save him would require so many resources that several less severely injured patients could die, then the resources should be preferentially directed to the less injured patients.
- ***The availability of resources, both human and material.*** Resource allocation, like triage, is a dynamic process. Large-scale disasters may deplete hospitals' resources early in the course of response. Later as help arrives from other regions, resources are enhanced. Victims may receive resources and care that in the initial period were not available. Constant monitoring and reallocation of resources is paramount during disaster management.

- ***Likelihood of benefit.*** Decisions on allocation of limited resources are based on which patients would most likely benefit from medical intervention. As a rule of thumb, those patients who benefit the most while utilizing the fewest resources represent the highest priority. Conversely, those patients who benefit the least while utilizing the most resources represent the lowest priority. Most patients will fall somewhere in between these two extremes. The healthcare provider must make triage decisions based on where limited resources will do the most good.
- ***Duration of benefit.*** Other things being equal, the duration of benefit is morally relevant. In general, the success of an intervention is in part defined by how long its benefits will last. The longer the duration of benefit, the more successful the responsible intervention. Thus, interventions that will have lasting positive effects should be prioritized over those whose positive effects are limited in duration.

Caution should be taken, however, when applying this principle. Assuming a normal and healthy lifespan among all beneficiaries of successful intervention, the duration of benefit principle could be construed as implying that the younger the patient, the longer the anticipated duration of benefit, and thus the higher their place in the triage hierarchy. This generalization should not be made. Rather, treatment decisions based on anticipated duration of benefit must be made with extreme care and foresight, and not be based on isolated factors such as age, prior medical history, or other issues.

- ***Direct multiplier effect.*** The *direct multiplier effect* refers to one's being valuable to the mission of the disaster response because of his/her ability to help others during the event at hand. Thus by placing this person at a higher triage priority than others, the mission of the response force to provide the most good to the greatest number of people is preserved. Keeping this one person healthy would be expected to result in multiple people being helped. Such responders may include (in no particular order) healthcare workers, police, fire, hospital administrators, community leaders, and others. When utilizing the direct multiplier effect, triage decisions are guided by the following:
 - Importance to the mission at hand
 - Potential for higher risk of illness/injury because of disaster response duty
 - Anticipation that the number of people saved would be multiplied by saving the one

Factors that in isolation are NOT to be Considered, but in Combination with Other Factors May be Considered in the Allocation of Resources

All patients deserve treatment in a disaster. When resources exceed demands, these factors may identify priorities or procedures for mass care.

- ***Age.*** Age may become a factor in conjunction with debilitating conditions or in illnesses or injuries where age is a reliable predictor of survivability (e.g. burns).

- ***Antisocial or aggressive behavior, or a history of such.***¹ All individuals should be treated regardless of history of antisocial or aggressive behavior. Active antisocial or aggressive behavior in and of itself should not be considered a factor unless there is an imminent threat from such behavior. If actual behavior or imminent threat from such behavior threatens the safety of patients, medical staff, disaster workers, or the community, or else interferes with the provision of care to others, steps may be taken to remove or contain the disruptive or aggressive person from the triage or treatment area. Treatment should be delivered as soon as it is determined to be safe for the patients, staff and/or general population.
- ***Uncooperative behavior to the degree that the behavior interferes with care required by other victims, or threatens the safety of people or staff.*** All individuals should be offered available and appropriate treatment in a disaster situation. Some patients may not fully cooperate with the treatment plans and options provided by health care personnel. Such behavior may range from delaying treatment by repeatedly asking questions; requesting family or friends' input in decision making; indecisiveness in providing consent; or actively and physically resisting treatment. Such lack of cooperation on the part of one patient could thus potentially hinder the care of many patients.

Normal standards for dealing with uncooperative patients are those standards that exist when resources and time are virtually unlimited. Thus health care providers can typically take the time to discuss various treatment options with patients and families, and the patients and families in turn may discuss among themselves before reaching a decision. On the other end of the spectrum, the patient who is a danger to himself/herself or staff may be physically and/or chemically restrained, sometimes to the point of requiring ventilatory assistance if it is determined to be medically necessary. However, in a mass casualty situation, such time and resources may not be available. Decisions must be made quickly, staff needs to attend to multiple patients, and specialized drugs and equipment must be reserved for only the sickest patients. While it is recognized that all patients in a disaster situation should be offered available and appropriate treatment, decisions to temporarily limit treatment to a patient may be necessary if it is determined that the resources needed to manage that patient would clearly prevent needed care for a larger number of other patients.

- ***Uncooperative behavior from patients who cannot independently cooperate.*** Some patients such as those with baseline mental disabilities, hearing impairments, illiteracy, or language barriers may lack the capability for cooperative behavior in a disaster. These patients may appear uncooperative simply because they are unable to understand instructions. Given available resources in a disaster, every effort should be made to communicate with patients. Under normal circumstances interpreters and telecommunications devices help convey information to non-English speaking patients or hearing-impaired patients respectively. In addition this standard holds that interpreters are not to be family members or friends. However “normal standards” may

¹ This group includes but is not limited to injured terrorists, inmates from correctional facilities, or combative intoxicated patients.

not apply during a disaster situation. Limited resources may necessitate using friends or family members as interpreters. Additionally under normal circumstances, patients consent for care personally, through an interpreter, or via power-of-attorney. In a mass casualty event in which people present for emergency care, the caregiver may need to assume implied consent to treat individuals who present but cannot verbalize or sign such consent.

MEDICAL STANDARDS OF CARE

Medical personnel face countless difficult challenges in mass casualty situations. By definition a true disaster means that victims' needs outweigh available resources. Prevailing medical standards of care in such situations may not be the same as during normal circumstances. In a mass casualty event, patient interventions are administered as expediently and efficiently as possible, but not necessarily to the same level as during normal operations. In some situations, treatment may appropriately be delayed, limited or withheld. As a result, outcomes for given injuries or illnesses may not be as favorable as during normal situations. Thus medical personnel responding to a mass casualty event must shift their focus from providing the best standard of care to individual patients sequentially to providing the best possible care to multiple patients simultaneously.

INVOLUNTARY QUARANTINE & ISOLATION

Under certain situations, there may be an order of quarantine or isolation imposed by an authorized official. These situations may necessitate public constraint in order to protect caregivers, first responders, and the community at-large. Certain situations may mandate isolation of infectious patients, quarantine of exposed individuals, and restriction of the general public from dangerous areas or from hampering emergency response efforts. Quarantines, mandated inoculations and restrictions of movement, although an infringement on personal freedoms, make sense in relation to a “common good” or “best for most” ethic.^{12,13}

SUMMARY

During a mass-casualty situation, emergency physicians and nurses may be faced with many ethical decisions that require immediate judgment with little time for collective deliberation or consultation. Inadequate information and scarce time for reflection during mass chaos inevitably guarantee that some decisions may be flawed. Because early inaction and lack of planning will lead to failure, emergency responders must establish pre-determined protocols for the rapid and fair triage of victims in a mass casualty event based on the resources at hand. Triage must be a fluid process so that as the availability of resources fluctuates, optimal care can be provided to victims in need promoting that *the greatest good is done for the greatest numbers*.

REFERENCES

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- ¹² Ohio Administrative Code 3701-3-01, March 2003. Refer to Appendix A.
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GUIDING PRINCIPLES UTILIZED IN THIS PAPER

ETHICAL ASSUMPTIONS

Appropriate disaster response involves a number of ethical dimensions that apply to the guidelines contained within this document. Such criteria and methods include, when relevant, the use of the following.

- ◆ *Utilitarian* considerations encourage the production of the greatest good. Utilitarianism also entails preventing harm to the utmost extent for the greatest number possible.
- ◆ *Basic principles* (such as autonomy, beneficence, non-maleficence, and justice).
 - *'Autonomy'* is a word with a number of overlapping ethical meanings. These include the freedom of a particular choice from coercive or compulsive elements and the self-determined character of a person's basic values and actions. Autonomy can be thought of as a basic characteristic for a person's actions to be *that* person's and as an essential dimension of what it means to be a responsible moral agent.
 - *Beneficence* is the obligation to produce good.
 - *Non-maleficence* is the obligation to refrain from causing or producing harm.
 - *'Justice'* is another term with many meanings, given that there are different kinds of justice (for example, justice of distribution of benefits and burdens vs. justice in meting out rewards or punishments for behavior) and different theories about what justice consists of (examples: treating everyone exactly the same, treating people fairly, and allocating resources based on productivity, based on effort, or based on need).
- ◆ *Principlist* views in ethics determine the justification of actions or decisions by the application of several basic moral principles. These rules are often specified as Beneficence, Autonomy, and Justice. Several others principles are listed either as corollaries or as additional basic principles. These include Non-maleficence, Respect for Persons, Veracity (truthfulness), and Privacy.
- ◆ *Particularist* approaches consider the relevant facts of specific situations to constitute what makes actions right or wrong. These are contrasted with principlist views.

- ◆ *Deontological* factors consider actions as intrinsically right or wrong, in and of themselves.
- ◆ *Rights*-based perspectives focus on moral rights as basic for judging the morality of actions. Examples might include a right to live, a right to die, a right to be free from unnecessary suffering, and a right to an adequate level of care.)
- ◆ *Virtue*-based views interpret morality as primarily a function of the morality of people's character-traits. A few virtues are courage, compassion, and self-discipline.

PUBLIC HEALTH RESTRICTIONS

Epidemic or potentially epidemic situations may require limitations of public movement in order to minimize casualties in a given population. The term *quarantine* is often used broadly in these situations. For the purposes of this document, the following definitions apply^{12,13}

- ◆ *Quarantine*: restriction of the movements or activities of a **well individual** or animal that has been **exposed** to a communicable disease during the period of communicability, i.e. to prevent spread of the disease during the incubation period should infection occur.
- ◆ *Isolation*: separation of an **infected individual** from others during the period of disease communicability in such a way that prevents, as far as possible, the direct or indirect conveyance of an infectious agent to those who are susceptible to infection or who may spread the agent to others.

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