

# Ethical Issues in Resource Triage

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**Mass-care events, such as pandemic influenza, could reach such devastating proportions that there will be the need to make difficult triage decisions that will ultimately result in the deaths or severe disability of patients in large numbers. The method by which we determine how triage of scarce health care resources will be performed must be clearly defined prior to a disaster event. This paper will discuss several of the ethical principles that must be weighed in developing a mass-care triage plan, as well as steps to facilitate its implementation. Development of triage polices in such an event should be developed in an open and transparent manner, be reasonable in design, include the views of the critical stakeholders, and be responsive to and provide a mechanism for accountability, with a clearly defined goal of the just triage of limited health care resources. Planning failure will result in increased deaths from poor triage processes and substantial mistrust of the health care system and its practitioners. Key words: triage, artificial respiration, disasters, clinical ethics. [Respir Care 2008;53(2):190–197. © 2008 Daedalus Enterprises]**

## Introduction

Planning for disasters, both natural and man-made, that become mass-care events is complex and requires health care

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systems to prepare response plans that are well thought out and developed in coordination with the communities they serve. Disasters have been defined by the American College of Emergency Physicians as situations in which "the destructive effects of an event provoked by nature or human beings overwhelm the ability of a given area or community to meet the demand for health care."<sup>1</sup> Medical resources available to manage an event that meets the definition of disaster differ substantially around the United States. A small hospital may find that 1 or 2 patients involved in a motor vehicle collision with serious traumatic injuries will meet the criteria for a

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disaster, whereas a large trauma center manages the exact same scenario several times a day without exceeding their resources. Disasters that require mass care are generally considered low-probability but high-impact events. In recent years, severe acute respiratory syndrome (SARS) and concern about the emergence of pandemic influenza have raised awareness among the health care industry, ethicists, governmental agencies, and the community at large of the need to develop a planning process that allows for the ethical triage of scarce resources that may occur during a disaster.

Various terms have been used to describe the management of medical resources when in limited supply. Although the terms “allocation,” “rationing,” and “triage” are often used interchangeably, distinct differences do exist.<sup>2,3</sup> Of these three, the term “triage” is most applicable in the setting of substantial scarcity of resources and the need for a health care worker to utilize a process to assign treatment resources. The first medical application of the triage concept is generally attributed to the work of Jean-Dominique Larrey, the chief surgeon for Napoleon’s Imperial Guard in the 18th century, to determine which soldiers were to be prioritized for treatment.<sup>2</sup>

Triage of health care resources occurs daily, not just in the emergency department, but also within the intensive care unit and elsewhere.<sup>4-6</sup> Critical care resources in the United States are at a premium on a regular basis, with critical care units operating at or near capacity. This will probably substantially hinder the availability of such resources during a mass-care event.<sup>7-10</sup> Surge capacity may be improved by utilizing the concepts of substitution, conservation, adaptation, re-use, and re-allocation. Although modification and substitutions in critical care can be made with some success (eg, antibiotics, vasopressor agents, vascular access devices), thereby increasing critical care surge capacity, mechanical ventilation equipment is in more limited quantities and few substitutions exist.<sup>7,10-13</sup> Nearly 30% of hospitals in the United States are operating at a loss, and those that are profitable have an operating margin that averages 1.9%.<sup>14</sup> It is thus financially unrealistic for the majority of hospitals in the United States to purchase and store excess ventilators in the quantities required to prevent the need for triage during a pandemic.

Despite the substantial financial challenges of emergency preparedness planning for hospitals, it must remain a primary goal to develop plans and resources to augment the capacity and capabilities of our health care systems before we initiate triage protocols. Of course, financial resources are not infinite and must be utilized in a prioritized manner, but this will always be so, and failure to prioritize emergency preparedness is unacceptable. Even if equipment could be purchased, stored, and appropriately maintained to be ready on short notice, we currently have substantial shortages of trained staff to appropriately operate these machines. Augmentation of these specialized

Table 1. Assumptions and Projections

HHS Pandemic Planning Assumptions for a 1918-Like Scenario		FluSurge* Projections for Hospital Impact
Condition	Number	
Infected	90 million	
Need medical care	45 million	191% of available beds
Hospitalized	9.9 million	461% of available beds
ICU level care needed	1.5 million	198% of available ventilators
Ventilator needed	743,000	
Deaths	1.9 million	

HHS = United States Department of Health & Human Services

\* Calculated with the Centers for Disease Control and Prevention FluSurge software, available at <http://www.cdc.gov/flu/tools/flusurge>.

(Adapted from Reference 16.)

staff to provide support with less technical duties may be possible but will require a combination of pre-event and just-in-time training, as well as determining which of the less technical duties may be performed by staff with just-in-time training and allow the more skilled staff to focus their attention on more complex tasks.<sup>10,15</sup>

Based on projections developed by the Centers for Disease Control and Prevention and the United States Department of Health and Human Services, a severe pandemic, such as the 1918 pandemic, would result in hospitals becoming completely overwhelmed with patients who require care (Table 1).<sup>16</sup> Many of the patients who present for care will require mechanical ventilation, which will be in very limited supply and therefore require the triage of this resource.

Discussions of ethics in disaster events generally, but not exclusively, revolve around 2 classic ethical theories. The first theory is that of utilitarianism, also referred to as consequentialism. In general, the utilitarian theory is often referenced with the statement of “the greatest good for the greatest number.” In his 1863 essay *Utilitarianism*, John Stuart Mill wrote, “The creed which accepts as the foundation of morals, Utility, or the Greatest Happiness Principle, holds that actions are right in proportion as they tend to promote happiness, wrong as they tend to produce the reverse of happiness.”<sup>17</sup> Mill further defined that happiness “is not the agent’s own greatest happiness, but the greatest amount of happiness altogether.”<sup>17</sup> This principle is often used in descriptions of disaster and mass-care planning, although “good” is generally used rather than “happiness.” The abstract concept is one that appears appropriate for disaster planning.

However, how a society defines “greatest good” is where the challenges begin. Will “greatest good” be defined by the number of lives saved, total years of life, quality-adjusted years of life, or by some other measure? One of the other challenges with this approach involves how we as a society apply the term “greatest.” For example, let us

assume that a therapy was available in a limited quantity for an illness that would otherwise cause the death of the patient. If given in a single treatment, this therapy would provide a partial cure for the illness, but would usually leave the treated individuals with some level of chronic disability that would allow them to live and function, but with limitations. Now if the same limited therapy delivered in 3 doses to a single patient would result in a complete cure without any chronic disability; how would we as a society apply this resource? In our society, to how much “good” does one individual have the right?

Some of the criticisms of the utilitarian approach include the fact that the impartial application of this principle could lead to the rights of the individual being severely trampled as the interests of the majority override those of the minority. Utilitarian theory also does not factor into account the methods by which a goal is met, even if morally unacceptable. In a pure utilitarian approach, “the end does justify the means.”

The other main theory that is often discussed relative to disaster planning and triage is egalitarianism, which involves the concept of equality among persons as well as equal distribution of resources. John Rawls, one of the well known contemporary supporters of egalitarianism, is known for his work on the principles of equality, fair opportunity, and justice. Norman Daniels, another contemporary philosopher, has also written extensively on principles of justice and fairness within the health care system. Daniels’s work is of particular relevance to this discussion as it relates to rationing of scarce health care resources. In 1994 Daniels outlined 4 problem areas (Table 2) that need to be considered in times of resource rationing.<sup>18,19</sup>

Neither consequentialism/utilitarianism nor egalitarian theory fully addresses the issues encountered in disaster planning within our society. Components of both of these broad theories, as well as other theories and principles, are needed if we are to develop a sound ethical framework for disaster planning.

**Ethical Framework**

The debates that develop over planning efforts for mass-care events often come down to the rights of the individual versus the rights of the group/society. Planners at all levels must have a fundamental understanding of the basic ethical principles involved and how they apply to mass-care planning. More important is the need for a public discussion of how we as a society will define the ethical framework that will be applied during times of scarce resources, in particular, pandemic influenza.

Several authors and groups have worked to define some of the values and principles involved.<sup>20-23</sup> In the publication *Stand On Guard For Thee*, the University of Toronto Joint Centre for Bioethics Workgroup outlined 10 substan-

Table 2. Problem Areas That Need to Be Considered in Times of Resource Triage

Type of Problem	Description
The fair chances/best outcome problem	How much should we favor producing the best outcome with our limited resources?
The priorities problem	How much priority should we give to treating the sickest or the most disabled patients?
The aggregation problem	When should we allow an aggregation of modest benefits to larger numbers of people to outweigh more substantial benefits to fewer people?
The democracy problem	When must we rely on a fair democratic process as the only way to determine what constitutes a fair rationing outcome?

(Adapted from Reference 18.)

Table 3. Substantive and Procedural Values Relevant to Resource Triage

Substantive Values
Duty to provide care
Equity
Trust
Stewardship
Solidarity
Individual liberty
Protection of the public from harm
Proportionality
Privacy
Reciprocity
Procedural Values
Reasonable
Open and Transparent
Inclusive
Responsive
Accountable

(Adapted from Reference 20.)

tive values and 5 procedural values that are of relevance (Table 3).<sup>20</sup> The values outlined by the Toronto group have substantial applicability for pandemic planning, and public health planning in particular. Many of these values will also have applicability to the ethical problems of triage of scarce resources at the institutional level.

Beauchamp and Childress have outlined 4 key moral principles that provide a starting framework for ethical debate at the societal level but also have substantial applicability at the institutional level. The principles are: (1) respect for autonomy, (2) nonmaleficence, (3) beneficence, and (4) justice.<sup>3</sup> A general overview of this frame-

work follows, but a detailed discussion of these principles is beyond the scope of this article.

### Respect for Autonomy

The concept of autonomy is the basis for the practice of “informed consent” in medicine. Respect for autonomy is, at a minimum, “to acknowledge that person’s right to hold views, to make choices, and to take actions based on personal values and beliefs.”<sup>23</sup> During triage situations the concept of respect for autonomy must be considered in relation to the situation at hand. The act of triage during a disaster necessitates that the patient’s autonomy become secondary to the greater good of the group and is therefore relative to the situation. Health care professionals working during a disaster may be unfamiliar with the concepts surrounding triage and have difficulty setting aside this principle. Patients and their families may be more willing to set aside their autonomy if there is a belief that the distribution of the resources is being applied in a fair manner.<sup>24</sup> In order for this to occur successfully, education of the public regarding the general principles would need to be performed in advance. There would also be need for continued education of the public on specific triage criteria as protocols are developed.

### Nonmaleficence

*Primum non nocere*—“Above all (or first) do no harm”—has been an ancient maxim frequently invoked by health care professionals since the time of Hippocrates. The principle of nonmaleficence does not imply the maintenance of biological life, nor does it require the initiation or continuation of treatment without regard to the patient’s pain, suffering, and discomfort.<sup>3</sup> Violation of this principle to not cause harm in the service of the “greater good” will probably generate some of the greatest debate within an institution during a mass-care event if the triage of mechanical ventilators results in the removal of a patient from the ventilator and the patient’s death.

### Beneficence

This principle identifies the need to provide benefit and to weigh the risks versus benefits to provide the best outcome for the patient. This is more than the avoidance of causing harm to a patient, but taking action to help others. The principle of beneficence is also relative to the situation.

### Justice

The principle of justice applies to both justice for an individual, but also social justice/distributive justice. The basic foundation of the principle of justice is generally credited to Aristotle: equals must be treated equally, and

unequals must be treated unequally. Distributive justice refers to fair, equitable, and appropriate distribution based on the norms of social cooperation.<sup>3</sup>

### Ethical Dilemmas

Mass-care events that are prolonged will generate a multitude of ethical dilemmas. Ethical debates that occur in health care, often around withholding or withdrawing care, generate strong feelings on both sides of the debate. Several factors need to be considered and are mentioned for illustration and initial discussion, but are beyond the scope of this article to discuss in the level of detail warranted.

**Doctor-Patient Relationship.** Triage of resources can be an extremely daunting duty to perform and should be performed by a physician who is not directly involved in the care of the patient and ideally is aware only of the data that are needed to make an objective assessment for triage. The bedside physician would probably have substantial difficulties performing this function and should therefore remain an advocate for the patient, and although he has a responsibility to be a steward of the limited resources, his primary responsibility should be to the patient.

**Withdrawal and Withholding of Care.** Although some authors identify an ethical distinction between these 2 points, Beauchamp and Childress have characterized the distinction between these two as “morally untenable and can be morally dangerous.”<sup>3</sup> The concept of withdrawal of a potentially life-sustaining treatment from one patient to give it to another will generate substantial debate. Truog discussed this issue in the context of extracorporeal membrane oxygenation (ECMO), but the argument is relevant to the broader discussion:

Just as respect for a patient’s autonomy requires consent before initiating therapy, so must we obtain consent before withdrawing it. In addition, the fiduciary relationship between physician and patient is commonly held to require physicians to be exclusively committed to the particular interests of their patients. In caring for an individual patient, the doctor must act solely as that patient’s advocate, against the apparent interests of society as a whole, if necessary. These considerations, however, are not absolute. The principle of respect for autonomy is only *prima facie*, and must be balanced against competing claims of justice. The mere fact that one patient needed ECMO sooner than another may not be a sufficient moral reason for giving it to that patient. ‘First come, first served’ has been advocated as a method for allocating scarce resources between patients with similar needs, but it is less useful when the claims are not equal. Even if we assume that all patients have an *a priori* equal right to

Table 4. Accountability for Reasonableness Conditions Related to Resource Triage

Publicity	Transparency regarding limit setting, including that grounds for decisions must be accessible to the public.
Relevance	Rationales based on evidence, reasons, and principles that fair-minded people can agree are relevant to decision-making.
Revisability/appeals	Mechanism to challenge resource triage decisions
Enforceability	There is either a voluntary or public regulation of the process to ensure that the other conditions are met.

(Adapted from References 34 and 35.)

a scarce resource, a patient with a poor prognosis who has already consumed an appreciable part of that resource has less right to the continued use of it than someone with a better prognosis who has had no use of it at all. Simply because a patient is already receiving a benefit does not give that patient an ironclad right to further use of that benefit, nor does it imply that the caregivers have made a morally binding commitment to giving that benefit exclusively to him.<sup>4</sup>

Patients and their families need to be made aware of the potential circumstances in which certain therapies may be discontinued prior to the initiation of the therapy. This allows patients and their families to understand that resource use should be considered a therapeutic trial rather than a resource “assignment.”

The response of patients and families to some of these triage decisions cannot be fully anticipated; however, their disagreement and frustration may be tempered by the fact that they viewed the underlying process as fair and understood it in advance: the so-called “fair process effect.”<sup>24</sup>

### Tools for Mass-Care Triage

A small number of recent publications have outlined some of the decision-making processes and possible decision tools for triage of mechanical ventilation and critical care resources in a pandemic influenza setting.<sup>25-29</sup> The efforts made thus far are limited by a general lack of useful clinical data regarding patients suffering from pandemic influenza in the age of modern intensive care unit level of care. Talmor et al recently published work on a simple triage scoring system to be used on patients entering the health care system, to assist in determining likelihood of death and need for critical care resources.<sup>27</sup> This work focused on the triage of patients at the

time of entry into the health care system or after initial stabilization (primary or secondary triage), but was not designed to be used as an ongoing tertiary triage tool for patients already admitted into the system. Challen et al recently published their work that outlined a scoring system that utilizes community-acquired pneumonia as a proxy for pandemic influenza.<sup>28</sup>

The work of both of these groups provides very good initial steps into developing simple initial triage tools for mass care in pandemic influenza events, but they are limited by the lack of available data specific to a pandemic influenza event. Both of the proposed scoring systems developed by these 2 groups were designed to be used to assign a score at the time of initial evaluation in an emergency department setting to determine need for admission<sup>28</sup> or need for admission to critical care (Talmor),<sup>27</sup> and are not designed for ongoing tertiary triage within a facility. Any scoring system developed that can be used for tertiary triage in a given mass-care event must be objective, accurate, and easy to use; it should utilize as few diagnostic tests as possible, be reproducible,<sup>29</sup> and be predictive of resource use, duration of resource use, and expected outcome.<sup>30</sup> It should not discriminate against vulnerable populations.

We believe that the Sequential Organ Failure Assessment (SOFA) score has the best utility as a starting point for triage decisions, until event-specific decision tools can be developed and prospectively validated. The SOFA scoring system’s advantages over other physiologic scoring tools include the limited need for laboratory results; it is non-proprietary and has general ease of use. Caution must be exercised, however, in making triage decisions based solely upon a numeric score, such as from SOFA and other scoring systems (eg, Acute Physiology and Chronic Health Evaluation or Mortality Probability Model II) that were derived from cohort analysis and are less accurate in predicting the response of an individual patient.<sup>31</sup> Thus, what constitutes a “significant” difference in survival between the scores of 2 patients would be open to considerable interpretation.

If we are to generate a valid and specific triage tool for a pandemic influenza event, we will need to develop the research infrastructure at multiple institutions that will allow for the rapid collection of data sets that have been agreed upon prior to an event. We would also require a centralized hub for data analysis to allow for the development of validated tools during a pandemic influenza event. Just as developing initial disaster plans during an event is not appropriate, the development of research protocols and data-collection processes is not appropriate during an event, given that the staff who provide the expertise in these areas will already be tasked extensively. Without the rapid development of valid decision-making tools, medical professionals will face substantial difficulty determining which patients will benefit the most from the scarce resources available.

Table 5. Sample Process for Facility Response\*

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Incident commander recognizes that systematic changes are or will be required to allocate scarce facility resources and that no regional resources are available to offset demand.

The planning chief gathers any guidelines, epidemiologic information, resource information, and regional hospital information.

Clinical care committee reviews facility/regional situation and examines:

- Alternate care sites. Can additional areas of the building be used for patient care? (Should be planned in advance.)
- Medical care adaptations (eg, noninvasive ventilation, changes in medicine administration techniques, use of oral medications and fluids instead of intravenous).
- Changes in staff responsibilities, to allow specialized staff to redistribute workload (eg, floor nurses provide basic intensive care unit patient care while critical care nurses “float” and troubleshoot) and/or incorporate other health care providers, lay providers, or family members where practical.
- Triage plan describes how use of scarce resources at the facility (emergency department beds, operating rooms, ventilators) will be allocated: What level of severity will receive care? What tool or process will be used to make decisions when there are competing demands for the same resource?
- Community/regional strategies to cope with the situation and how the institutional response contributes to those efforts.
- Committee summarizes recommendations for care for next operational period and determines meeting and review cycles for subsequent periods (may involve conference calls or similar to avoid face-to-face meetings during a pandemic).

Incident commander approves committee recommendations as part of incident action plan. Plan is operationalized. Public information officer communicates updates to staff, patients, families, and the public.

Current in-patients, patients presenting to the hospital, and their family members are given verbal and printed information (ideally by the triage nurse in the emergency department, for in-patients their primary nurse or physician) that explains the situation and that resources may have to be re-allocated, even once assigned, in order to provide care to those who will most benefit. A mechanism for responding to patient/family questions and concerns should also be detailed.

Security and behavioral health response plans should be implemented.

Triage plan (which may affect all units equally, or some more than others) implemented:

- Emergency department/out-patient screening of patients (and denial of service to patients either too sick or too well to be benefited by evaluation/admission) based on guidance disseminated by the clinical care team.
- Tertiary triage team (may consist of a few critical care or infectious disease physicians, ideally *not* the physicians directly providing the patient’s care and ideally 2 physicians of equal “rank” in the institution) considers situations in which there are competing patient demands for a scarce resource. The resource should be assigned as follows:

When 2 patients have essentially equal claim to the resource, a “first-come, first-served” policy should be used.

When, according to guidelines or the triage team’s clinical experience, the claim to the resource is clearly not equal, the patient with a more favorable prognosis/prediction shall receive the resource.

The triage team should ask for and receive whatever patient information is necessary to make a decision but should *not* consider subjective assessments of the quality of the patient’s life or value to society, and, in fact, should ideally be blinded to such information when possible.

A “bed czar” (under the hospital incident command system in-patient unit leader) should be appointed to make final decisions on bed assignments. This individual should have access to real-time in-patient and out-patient system status and, when needed, patient clinical information.

Whenever a decision is made to re-allocate a ventilator or similar critical resource, the treating physician and family should be provided with the grounds for the decision (which should be documented for the record at the facility) and a rapid appeals process if there is additional or new information that the family or treating physician(s) think(s) would affect the decision.

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\*Adapted from work developed as a discussion draft for the Minnesota Department of Health.

### Operational Implementation

Implementation of any decision tools for resource triage will occur at the facility level, regardless of source (federal, state, professional society, et cetera). At the facility level, priority should be given to development of the process by which decisions will be ethically made and how any clinical decision tools will be incorporated into that process. Although implementation is at the facility level, it is essential that similar processes, triage protocols, and standards of care are congruous across appropriate geographic regions. This can be achieved only by prioritizing

resource allocation and cooperatively working with local public health and other agencies in an incident command structure.<sup>25,32,33</sup> There are many practical challenges to implementing a regional approach, but failure to coordinate response efforts across a region will probably result in the inefficient use of resources, unacceptable variations in level of available care at institutions, public confusion, and the loss of public trust that a just allocation of the scarce resources will occur. Facilities should develop processes that adhere to the procedural values outlined in Table 3, which overlap with those described by Norman Daniels as “accountability for reasonableness” (Table 4).<sup>34,35</sup>

Table 6. Clinical Care Committee

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Clinical care committee members (pre-determine members for toxic, infectious, trauma situations) are convened. For example, at a large facility, a committee formed during a pandemic might consist of some or all of the following:
Administrator or designee
Medical director
Infection control
Infectious disease
Critical care
Emergency medicine
Pediatrics
Nursing supervisor
Respiratory care supervisor
Hospital ethicist (if possible)
Legal counsel
Community representative (if possible; similar to institutional review board role)
Other (may include laboratory, radiology, bioelectronics, pharmacy)

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(Adapted from Reference 25.)

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The process a facility utilizes should be planned in advance (Table 5 shows a sample process). Facilities should utilize an incident management system, such as the Hospital Incident Command System,<sup>36</sup> that is compliant with the National Incident Management System,<sup>37</sup> to facilitate command and communication within their facility as well with outside entities and to efficiently manage any limited-resource issues. As a prolonged mass-care event unfolds and it becomes clear that resources are becoming or will become limited without the ability to resupply to a sufficient level to meet the current demand or anticipated future needs, the incident command team should identify changes to the level of care that provide *sufficient* medical care relative to the resources available and the patient demand. The goal should be to make the minimum adaptive changes necessary to meet the current health care demands.

Facility planning should also include the formation of a multidisciplinary clinical care committee (Table 6) that would be responsible for establishing a set of mass-care practices that could be implemented in a disaster event that would address issues of the level of care that will be provided with the available resources, including which critical care interventions should be provided, who will receive these services, and by what triage process these decisions will be made.<sup>10,30</sup> The clinical care committee would need to regularly reassess the level of care that can be provided with the resources available and continue to proceed with the gradual degradation in care, with the goal of returning to the normal community standard of care for all patients as quickly as possible. Coordination regionally to determine level of care available across the area is essential to justly distribute the limited care resources to patients.

## Summary

There is no single moral theory that is able to successfully address every moral dilemma that is posed, and many will be posed during any mass-care events when resources are scarce. Community-wide education regarding the realistic resources that are available for mass care, and broad community discussions that identify how we, as a society, would like to best apply those resources will alleviate some of the difficulties that may arise during a mass-care event, but it will not eliminate them. There are far too many examples in our recent history of disasters that demonstrate how fast our society can experience a moral breakdown when there is a loss of critical infrastructure, such as health care. These discussions must occur prior to events and be open to critical evaluation.

With regards to pandemic planning, Gostin has described what he termed the “public health paradox,” which states:

There is no way to avoid the dilemmas posed by acting without full scientific knowledge. Failure to move aggressively in the early stages of pandemic influenza can have catastrophic consequences. Actions that prove to have been unnecessary will be viewed as draconian and based on hysteria. The only safeguard is the adoption of ethical values in formulating and implementing public health decisions. Public health policy will reflect in a profound way the manner in which humane societies both implicitly and explicitly balance the common good with respect for personal rights.<sup>38</sup>

This paradox applies equally well to hospital planning.

Certain mass-care events (pandemic influenza, for example) may be so devastating in their scope that no amount of surge capacity or capability planning and preparedness at an institutional or regional level will be sufficient to prevent the need to make difficult triage decisions that will ultimately result in the deaths or severe disability of patients in our care on a scale that has never before been witnessed in the era of modern medicine. How we manage ourselves as professionals and how we make decisions regarding resource triage will be reviewed by many as an event unfolds, but, most certainly, in extreme detail following an event. Failure to develop and utilize a sound ethical framework and decision-making tools based on that framework, which have been discussed openly and accepted within the general community, will ultimately be to our personal, professional, and societal detriment.

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## Discussion

**Hanley:** In a contagious mass-casualty event you'll quickly be

overwhelmed by a majority of patients who have the disease, but you'll also be getting your usual supply of other types of patients. How

do you make sure that the triage process doesn't just focus on the pandemic patients but also fairly triages other patients?

**O’Laughlin:** Yes, you need to consider organ score, duration of need, et cetera. Let’s say you have a multiple trauma patient from a car accident who requires short-term use of a ventilator and they’re probably going to do fairly well. The short-term benefit of a ventilator for that person may be a very appropriate use rather than using the ventilator for a pandemic patient. You need to factor in the mechanism of illness and the overall patient situation and fairly allocate the resources. Lewis [Rubinson] mentioned yesterday the draft proposals on the EMCC [emergency mass critical care] tiers, and that at the third-tier, where we’re extremely overwhelmed, triage becomes an abstract process. If you have no resources, it’s really hard to triage. If you’re completely overwhelmed, you may have to ask, “Should we offer critical care?” You might decide that the resources would be more appropriately used elsewhere.

**Talmor:** If somebody comes in with an MI [myocardial infarction] during an epidemic, if we devote the resources and take him to the catheterization laboratory and reperfuse him, he will probably do well, but providing the usual level of care for that patient would take 5 to 10 health care workers, and it might not be fair to treat him rather than perhaps saving other people who are less ill from avian influenza. In an epidemic these trauma patients will be triaged along with everybody else, based on some sort of standardized scoring scheme.

The SOFA [Sequential Organ Failure Assessment] triage system used in the emergency room has a strong disadvantage because it requires laboratory tests. In an epidemic we won’t have time to wait for those results to come back. That could lead to patients being intubated who are discovered to have no chance of survival and then extubating and providing expectant [palliative] care. Waiting for the lab results would also delay treatment. I think the subject of epidemic triage,

even in the ED [emergency department], is not yet settled, and we’re far from having the perfect system.

**O’Laughlin:** I couldn’t agree more. Any scoring system that relies on a laboratory test rather than clinical assessment is a poor tool for a mass-care triage environment. The assessment needs to be done clinically. There won’t be time or resources to run tests on everybody. Triage decisions will need to be made on the best clinical impression we can get.

With regard to how many resources you devote to somebody who would be a high resource utilizer, such as a cardiac or renal failure patient on hemodialysis—all of those issues need to be factored in when you’re making resource allocation decisions and in light of what you can realistically provide given the situation.

**Rubinson:** There’s no perfect scoring system. SOFA got played because it has been validated for multiple types of patients, trauma patients and medical patients, and allows comparison of patient groups that we aren’t otherwise able to compare. The reason we don’t use predictive scores to determine resource allocation every day is because, when you prospectively predict how someone is going to do, there’s always fuzziness in our confidence about the prognosis. In America the only time we don’t allocate something is if the treatment would be futile, but futility is in the eye of the beholder.

Scoring tests need to have high discrimination and calibration. The score needs to have very tight prediction of outcome. That’s part of why they’re not applied every day; it’s not because they don’t have some utility. For instance, we use them to compare units to benchmarks. There’s been so much focus on the SOFA score, which I think was a good movement forward in the triage discussion to look for objective criteria, but how do we get people to realize it’s not the score as much as

the decision-making process that’s key?

Because 3 days into an event, SOFA might go out the window as we add data, and then it would be whatever new scoring system we invent. And that might get changed 3 days later. How do we get people thinking about, just place protocol X in here and pay attention to building the system to implement triage with attention to the roles and responsibilities at all the different levels, such as hospital, local, state, et cetera?

**O’Laughlin:** That’s what I mentioned with regards to hospital implementation and not focusing on tool development. The tool is going to change, depending on the event and over the course of a prolonged event, so we need a strong ethical foundation and an absolutely open discussion at the facility level and the regional level.

In the Minneapolis/St Paul area I served as the co-chair of the Metropolitan Hospital Compact (what we refer to as our regional hospital coordination group), which assists in coordinating all disaster activities for 27 hospitals in that metro area, and we make sure that we have clear lines of communication for coordination and planning. It’s about building on regional philosophies and discussions and planning the regional application of whatever process you put in place. Whatever tool you put in place, the facilities still must have that ground work laid and have that discussion of triage ethics prior to an event.

**Branson:** Therapists have asked me whether ventilators in long-term-care facilities will be taken away from ventilator-dependent patients at those facilities who are never going to get better. Is there a possibility that we will be expected to take the ventilators from those patients and give them to people who have a better chance of survival? What are the ramifications for the respiratory therapist who actually does

it, even though it would be under the direction of a physician?

**O'Laughlin:** It's my understanding that, in general, if you reside in a long-term-care facility and you are on a ventilator, the state is not going to come and withdraw you from it at the long-term care facility. If that patient from the long-term-care facility arrives in the hospital for other reasons, that would change things. But this is an issue that needs to be discussed. If we have an open discussion within a society and we decide that those long-term-ventilation patients should not keep the ventilators, then that's a societal decision. But my impression is that there is no legal basis to do that.

**Branson:** I have heard some people talk about buying a ventilator for everybody in their family and keeping them at home, and if there's avian flu they're going to take it to the hospital. I always recommend not to do that. Some people talk about trying to take care of people at home.

**O'Laughlin:** I think we have completely underestimated the importance of home care and home education in our communities. Much of the care in an influenza pandemic would happen at home, not in the hospitals. I think that's really not discussed enough. Many people seem to assume that it's all going to happen at the hospital, and I don't believe that's true.

With regard to the issue of wealthy versus poor patients and the equity of distribution and availability of health care resources in our society, we have a disproportionate distribution of health care in our country, with a large population that is uninsured and does not have easy access to medical care other than the emergency department. With that in mind, consider the issue of trust. Do you think that there's going to be any trust among the people about the distribution of health care resources if there is any hint that we are being unjust or unfair in our distribution? If we

play favorites in any way, we will have major problems.

Someone raised the prospect of guns in hospitals—people standing over their loved one with a gun in hand, saying “You're not disconnecting my wife.” If there's a perception that the resource allocation process is unfair, we will have major problems. That can't be emphasized enough; the decision-making process has to be open and transparent so that people truly believe the decisions are just and equitable.

**Rubinson:** Not only is the triage mechanism important; so is the location of the triage. I've seen plans in which EMS [emergency medical services] personnel are supposed to make decisions that we can't even make on the in-patient side without strong evidence. What are you doing in Minnesota? Have you changed the sensitivity and specificity of your triage based on location?

I've heard some people argue that EMS should not change their intubation criteria from normal, except in a clearly defined situation where a poor patient outcome is assured. It's OK to throw a tube in and bring them in to the ED; you can always take it out. That is, the EMS should bring in almost everyone, because not bringing them in would be a life-ending decision. Have you discussed what happens at the various triage sites: pre-hospital versus the ED versus the ICU [intensive care unit]?

**O'Laughlin:** I have not been involved in any discussions regarding pre-hospital versus ED triage. Whether somebody was intubated in the field and withdrawn in the ED versus not offered intubation at all, the ethical issues and background principles are the same. Withdrawing a ventilator has the same ethical basis as not offering it. That's not something that people think of intuitively, because you're taking something away from somebody, so it's much harder for the health care worker

who is working with these patients and their families to think about this.

**Rubinson:** Although they weren't necessarily given a ventilator on first presentation to the ED, they would just be getting positive-pressure ventilation, probably manual ventilation, within most of the EMS systems coming into the ED. But would you still say that people would feel more uncomfortable pulling out the tube?

**O'Laughlin:** On the pre-hospital, field side, I think this is going to have to be a systems-based discussion, because, let's say that we've gotten to the point where there is no space to put anybody in the hospital and your EMS resources are stretched very thin. They may have a protocol that anybody who is in respiratory arrest will be potentially talked to about limiting the resources and providing comfort-care measures only.

But we still need to recognize that care needs to be provided. Leaving someone at the house, for instance, is a situation I wouldn't promote at all, because they can't necessarily get palliative care, which I think we have a responsibility to deliver. We have a responsibility to deliver a basic level of care and that includes palliative care. But it's going to be an issue of what resources you have at the time, including EMS.

**Hanley:** In my hospital, a 75-year-old cancer patient with asystolic arrest would probably get about 5 minutes of ACLS [advanced cardiac life support], but a 25-year-old patient with metastatic cancer would get an hour of ACLS. Should we factor age into triage decisions?

**O'Laughlin:** Generally, age has not been recommended as a direct triage criteria. However, as we age, we are obviously more likely to have organ dysfunction to begin with, and that will factor into the triage process. Interestingly, when Ontario put out their draft

publication for comment,<sup>1</sup> there was strong feedback from the 150 critical care physicians from across the region who were asked to comment on the final protocols to include an age criteria. Their recommendation was that it requires further discussion and research.

So at this point, ethically, age is not thought to be an appropriate determi-

nant. That said, I think we unconsciously factor it in. Again, the triage decision-making process has to be separate; you can't be the bedside physician and the triage officer. The bedside physician sees the patients' sex, ethnicity, age, et cetera, and the discussion with the family can bias you in a decision-making process. It's not a conscious decision,

and that's why the triage team should make decisions on abstract patient data, so the bias is better controlled. But it's not going to be perfect.

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Triage-assorting patients tents  
U.S. Army Hospital, Justice Hospital Group  
Toul, France, World War I era, undated  
Courtesy National Library of Medicine