
Surging to the Right Standard of Care

We commend Hick and O’Laughlin for systematically addressing a difficult issue in their article entitled “Concept of Operations for Triage of Mechanical Ventilation in an Epidemic”¹ in this issue of *Academic Emergency Medicine*. Until Hurricane Katrina hit the Gulf Coast in 2005, the United States had been fortunate in not having to face the issue of health care resource triage on a large scale since the 1918 influenza pandemic. Unlike other countries where catastrophic tsunamis, earthquakes, and typhoons have produced tens of thousands of casualties, we have not really exceeded our health care resources to the point where patients are dying from lack of care. We remain at risk, however, for an event that could produce an even larger number of casualties, on the order of 100,000 victims or more, whether a catastrophic earthquake on the New Madrid fault in the central United States, a large-scale terrorist incident, or a naturally occurring influenza pandemic such as one that could occur from the H5N1 avian flu. The two main public health issues that need to be addressed are 1) a system for surge capacity and 2) a process to maximize patient outcomes in the face of health care needs that exceed available resources. We will refer to this process here as a medical and health-oriented emergency management program.

SURGE CAPACITY

As funding for our health care system has declined, facilities have closed, emergency departments have become more crowded,² and access to care has become more difficult. For the most part, under “normal” conditions, we are able to get by on fewer resources; however, with any appreciable increase in visits, even from a bad flu season, we are stretched too thin.³ This may be a particular problem in an acute disaster or public health emergency. Disasters are local, and up to 95% of survivors are rescued by local emergency responders or civilian volunteers within the first 24 hours. It takes time for outside resources to arrive, and local responders should expect to be on their own for the first 48–72 hours.⁴ Unfortunately, most planning beyond local response has assumed that a disaster will be a singular event in one area. There are systems in place for patient evacuation via the National Disaster Medical System,⁵ but in a widespread disaster such as an epidemic, where will evacuated patients go? If shrinking military assets are committed to traditional military missions overseas, where will we get the transport planes (the major projected type of vehicle for patient transport)? Furthermore, contaminated or contagious patients will likely be ineligible to be transported out of the incident region.

An incident (either with or without a discrete disaster scene) that results in a quantity or type (e.g., contagious or contaminated) of patients that exceeds a system’s health care capacity at a given time will require the system to build surge capacity. Surge capacity is the ability of the system to augment its health care resources to meet the current demand. The focus must be on “patient care capacity,” indeed on population health rather than individual health, because, by definition, the resources needed to care for every individual patient—as we would have under baseline conditions—have been exceeded.

What then is needed to care for an injured/ill population of patients under disaster circumstances? Although federal legislation requires us to count “beds” for the National Disaster Medical System, a “surge system” requires much more than simply beds. A useful model of a surge system consists of “Staff,” “Stuff,” and “Structure,” with “Structure” consisting of both the management infrastructure and the structure of a physical location.^{6–9} Using this model, personnel, supplies and equipment, physical space, and a management infrastructure consistent with the needs of the event would be identified and provided.

The topic of Hick and O’Laughlin’s article, triage of ventilators, is a test model, and their concept of operations can theoretically be applied to any resource in short supply. Withdrawal of resources from some patients to benefit other patients with a greater probability of survival during a disaster is an idea that is unfamiliar to most clinicians in that it looks at entire populations rather than individual victims directly affected by a disaster. If requirements exceed resources, we would need coordinated, integrated regional, state, and federal systems, so that we all work together instead of at cross-purposes. Without such a system, what hospital would give up a ventilator to a neighboring facility in the face of a respiratory pandemic when every hospital is likely to need that ventilator in the near term?

Although the jury is still out on Hurricane Katrina, to date, it is usually the management system to apply the right resources to the right place at the right time that has been lacking, rather than an actual shortage of resources. While we are at risk for actual shortages of personnel and supplies and have minimal surge capacity in our existing health care systems, we must also realize that even in a noncatastrophic disaster, there will likely be increased morbidity and mortality if we do not improve our incident management systems, particularly within health care facilities. The Joint Commission on Accreditation of Health Care Organizations standards that became effective in January 2001, coupled with the new National Incident Management System implemented

by the U.S. Department of Homeland Security, have gone a long way toward promoting such systems, although data regarding the effectiveness of these initiatives are lacking.

Even with the best incident management and surge systems, we are unlikely to be able to adequately care for massive numbers of casualties in the ten thousands to hundred thousands range. Indeed, our nation's lack of extensive real-time experience with large-scale complex public health emergencies in the modern health care era explains, in part, our lack of good benchmarks to even measure preparedness. While large amounts of federal funding are being allocated to states and local entities, much of it is aimed at compliance with well-meaning but arbitrary and untested benchmarks that may not reflect real systems to limit morbidity and mortality. This has led to some discussion of using "altered standards of care"¹⁰ or even "reducing standards of care" during a disaster. Hick and O'Laughlin propose "adjusting standards of care during a disaster." We believe that all three of these concepts are inappropriate.

EMERGENCY MANAGEMENT PROGRAM AND THE STANDARD OF CARE

A comprehensive medical and health-oriented emergency management program is crucial to optimize outcomes in a catastrophic disaster. One key medical and public health issue is patient triage. Emergency department crowding is ever present, so triage systems are used to identify the sickest patients and mark them to receive care first. Under true disaster conditions, when available resources are exceeded, the literature discusses a shift from doing the best for the individual patient to the public health goal of doing the greatest good for the greatest number.¹¹⁻¹⁵ While this concept has not yet been adequately tested, it seems that there should be a consistent level of care across the affected community and/or region that is based on improving overall health outcomes for each patient as best as can be achieved with the limited resources, working toward returning to predisaster conditions as rapidly as possible. This applies whether we are discussing who gets seen next by a physician or who gets a scarce resource such as a medication or a ventilator.

While we agree that we "lack the capacity to provide intensive care to the large number of patients that may be generated in an epidemic and multisite bioterrorism event" and that "mechanical ventilation resources would very likely be quickly exceeded," we oppose the concept of "adjusting" standards of care during a disaster in which patient care resources are exceeded. Rather, we should develop a standard of care that has been shown to optimize patient outcomes in a given disaster scenario. This may sound like a semantic difference, but we believe it is not. We believe that there is sufficient information available on outcomes that a standard can be developed based on science rather than on panel consensus. It should be clear, for example, that a patient with severe acute respiratory distress syndrome, renal failure, and elevated lactate level will do worse than one without such findings, and while a consensus panel would likely

recognize this, the consensus panel process may lead to inclusion of less-relevant or even nonclinical variables in the determination of variables that have not been studied. Further, we believe that any formal outcome-based standard of care needs to be developed at a high level (e.g., federal standards) to preserve fairness and equity on the broadest sense, as well as removing any onus from beleaguered local responders.

What exactly is "standard of care"? Legal, medical, and ethical definitions exist. A legal definition for standard of care is "the degree of care a reasonable person would take to prevent an injury to another."¹⁶ Another way to phrase this would be "the level at which the average, prudent provider in a given community would practice." It is "how similarly qualified practitioners would have managed the patient's care under the same or similar circumstances." Medically, this can mean "diagnostic and treatment process that a clinician should follow for a certain type of patient, illness, or clinical circumstance."¹⁷ From the ethical perspective, we can turn to the Hippocratic Oath, which states, "I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients and abstain from whatever is deleterious and mischievous."

While the legal, medical, and ethical definitions of "standard of care" must all be considered, and the "standard" must not be diminished or altered, we do agree with Hick and O'Laughlin on the importance of legal protections for responders who follow the standard. We further concur with the concept that the guideline development group is focused on developing evidence-based recommendations for clinical care relative to resources available; we believe that this is the correct approach. By contrast, we are concerned that in the protocol proposed by Hick and O'Laughlin, the governor is the authority that issues an emergency order recommending standards of care. It should be physicians, not elected officials, who determine medical standards. Further, where science and knowledge exist, as we believe they do, the decisions should be driven by these factors. In addition, as we noted previously, the highest levels of societal authority need to develop these guidelines so as to maintain equity and trust while protecting local providers from undue and inappropriate pressures.

NONMEDICAL TRIAGE CONSIDERATIONS

While we can quantify disaster resource triage to a degree, we must also use common sense and judgment. There are nonmedical considerations, and also nonobvious medical circumstances, that would support the goal of doing the greatest good for the greatest number. These special cases include treatment of the following:

1. A health care provider who could then augment the overall response capacity¹⁸
2. A close relative of a health care provider, where overall response capacity would otherwise be decreased because the provider was caring for or worrying about that relative or grieving over his or her death
3. A critical health system leader such as a hospital chief executive officer or other person with unique skills that are important to the overall response.

In addition, certain groups of patients who meet medical triage criteria for treatment might be relegated to receive comfort care only; for example, those with valid do-not-resuscitate orders.

STANDARDS VERSUS GUIDELINES

Hick and O'Laughlin appear to have skirted the issue of standards by using the concept of "guidelines." The idea that disaster resource triage criteria must be regarded as guidelines, and not standards, is problematic. Some people would consider a guideline to be an enforceable standard of care. As can be seen by litigation involving lack of use of the Advanced Cardiac Life Support "guidelines," it seems that there is little practical difference between labeling something as a standard or a guideline.

HEALTH RISK COMMUNICATIONS

A key concept in minimizing both medical and psychological casualties from an event is that of health risk communications. Once medical experts examine the available evidence and determine the standard of care, the public should be informed about what they can do to improve their chances of avoiding injury and illness.

The review group proposed by Hick and O'Laughlin consists of clinical and nonclinical members, and they state that their decisions should be made public, but it is unclear exactly what this means. Furthermore, their concept of operations tool has not been prospectively validated. If a situation is evolving, as was the case during the anthrax letter attacks in the United States in the fall of 2001, there needs to be a process for developing and implementing rapidly changing guidelines. Clearly, the goal set forth to increase public awareness of the issues involved when resources are exceeded is good. However, terms like "restrictions of care" and "rationing" have negative connotations and may not be the best way to describe the situation to the public. Policy makers and medical personnel must be honest, but people need to feel reassured that everything possible is being done under the circumstances. Therefore, speaking about "optimizing" or "maximizing" survival is likely better than telling the public that we are "restricting" care, as is providing a truthful description of the process we propose.

SURGING TO THE RIGHT STANDARD OF CARE

The bottom line is that we need to develop an evidence-based standard of care for situations in which health care resources are exceeded. This must include a surge system that incorporates staff, stuff, and structure. To help address these issues, *Academic Emergency Medicine* will host a consensus conference on the "Science of Surge" in conjunction with the Society for Academic Emergency Medicine annual meeting in May 2006 in San Francisco. At the end of the day, beds do not take care of patients and neither do ventilators. We need evidence-based surge systems that support the standard of care across the spectrum of public health emergencies and disaster scenarios.

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REFLECTIONS

Aphorisms in Medicine: The Collective Wisdom of Our Forefathers

Practicing good medicine is a lifelong journey and not a destination. It was proclaimed an art rather than a science when, millennia ago, Hippocrates enunciated, “The life is short and the Art long; occasion fleeting, experience fallacious and judgment difficult.” Today, medicine is practiced more scientifically than ever before. However, perhaps it will be long before we will be able to depart from what our ancestors had laid down for us. Modern-day medicine is decreed a science, but almost all involved in this profession would agree that “no doubt medicine is a science, but it is a science of uncertainty and an art of probability” (Sir William Osler).

“Establishing a clinical diagnosis is like recognizing an elephant after having seen one before” (Anonymous). Our quest to master the art and science of medicine begins by acquiring necessary knowledge from all the sources we can muster because we are taught by our mentors that “eyes cannot see what the mind doesn’t know” (Anonymous). We try to cram all the books to the best of our abilities only to realize at quite an early stage of our careers that “perfect health, like perfect beauty, is a rare thing and so is a perfect disease” (Peter Mere Latham).

We tread the difficult path of identifying our patients’ problems in light of the teaching imparted to us by our gurus. Recall how they never got tired of telling us that “common things are common” and that “when you hear hoof beats think horses not zebras” (Anonymous). This is not to say that rare diseases never occur; they do occur, but then it is worthwhile to remember that “rare manifestations of a common disease are more common than the common manifestations of a rare disease.”

We all have come across those select few doctors who are obsessed, to the extent of madness, with meticulous and diligent application of clinical methods. However, we all know that “though this be madness, yet there is a method in it” (Shakespeare). This is so true, and their point is proven when they establish a diagnosis that has eluded all others. After achieving the feat, they will turn around, beam with pride, and will declare with a knowing smile, “diagnosis is not the end, but the beginning of practice” (Martin H. Fischer).

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