

Virtual Mentor

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CLINICAL CASES

Resource Allocation Shake-Up

Commentary by Damon Allen Darsey, MD, and Robert Galli, MD

Dr. Newell's first thought was that a delivery truck had slammed into the hospital. The subsequent rolling and shaking clued her into her own need to secure shelter in a doorway to ride out what ended up being a magnitude 7.8 earthquake. The hospital's generators quickly kicked in, and the lights came on to reveal a physical plant largely intact. The eerie radio silence terminated with widespread reports of collapsed buildings and associated prospects of mass casualty. Before anyone could do anything about it, patients with lacerations and broken bones began streaming into Dr. Newell's urban ED.

Thirty minutes later, EMS started delivering more critically ill patients. As the trauma team placed chest tubes for crush injuries and Dr. Newell was deciding which patients needed to be sent to the CT scanner, she and two fellow ED docs were joined by other hospital staff to help determine which patients would get immediate attention and which would have to wait.

When a group of paramedics who had been trapped in rubble arrived with sprains and lacerations, they were triaged to the ambulance bay outside, away from the treatment area and supplies.

Soon, the entire first floor of the hospital had stretchers full of patients. The critical care areas were full, but crush injuries continued to show up. A technician in the ED expressed his frustration that the newest patients were sicker than the initial walking wounded, but that treatment of the first comers was still in progress. Meanwhile, Dr. Newell saw the medics waiting in the ambulance bay and asked, "Why can't they get cleaned up and be put to work here?"

Commentary

Dr. Newell has an evolving and catastrophic situation on her hands. Limited resources, overwhelming patient population, damage to critical infrastructure, and impending extended rescue and medical operations have the makings for the perfect storm of disaster medical care. Furthermore, the clinical decisions she makes will be accompanied by difficult ethical dilemmas needing resolution in minutes. Is her primary role that of doctor, incident commander, triage officer, or a combination of all three? At what point will help arrive? When will the massive federal assistance show up? When should disaster or battlefield medicine replace traditional medicine? What ethical and moral constraints are associated with disaster triage? Will staff be able to pass over some patients because of the mortal nature of their injuries?

These ethical dilemmas are not often faced in daily medical operations. Placing tags on people who are living but will be passed over for care due to a triage decision designed to provide the most good for the most people flies in the face of traditional medical ethics principles of respect for patient autonomy and putting patients' interest first [1]. Triage officers violate both principles in managing scarce resources and overwhelming patient populations during disasters.

Joined in the ED by other physicians, Dr. Newell is faced with delegating tasks and roles to them that they may not be comfortable performing. It may be the case that a paramedic with military or disaster field training would be the best triage officer. It is possible that a retired fire department district chief working now, let's say, as a hospital electrician could better orchestrate the disaster response, freeing her to attend to acute medical problems. Such information should be part of the emergency staffing section of the institution's disaster plan. Recalling the advantages of performing prehospital triage outside of the hospital, Dr. Newell can recruit the paramedics with minor injuries who were out in the ambulance bay to sort and treat patients, including directing the walking wounded to an alternative safe location away from the concentrated lifesaving resources in the hospital. The stock cart from the wound care center can be moved to this area and the paramedics can encourage patients to help each other.

It is not long before the traditional emergency department triage system is discarded in favor of a simple, rapid system of classifying patients into four categories that identify what treatment they will receive. The four categories are: red triage tag, for immediate acute or lifesaving care; yellow triage tag for urgent care; green triage tag for nonurgent care of minor injuries; and black triage tag for no care—the patient is either already dead or cannot be saved with the limited resources available.

The most difficult decision for the triage officer is labeling as “black” or “expectant” patients who are still breathing but have injuries incompatible with life, given the available resources. On any other day, such a patient might have dozens of people dedicated to providing state-of-the-art care for very low chance of survival. But today, the personnel, diagnostics, blood, and equipment are already in use or are needed for patients with better prognoses. The importance of understanding and practicing disaster triage—often—cannot be overstated; once mastered, the decision making is logical and consistent, but it demands setting aside one's personal feelings, relationships, and opinions about the “survivability” of certain patients.

The hospital's public affairs division has been notified of the disaster, according to the reporting system established prior to the annual hospital drills. The roles of operations chief, logistic officer, and liaison officer are assigned to the clinical staff and a few nonclinical staff who are assisting in patient care. But few of the administrators, clinical directors, and other hospital personnel who are always around during the annual drills can be found. Reports are coming in of massive infrastructure destruction and overwhelming building damage. Dr. Newell and her

staff realize that additional help is hours away. Some staff trickle in to assume their normal roles.

Searching through operations and procedures manuals for the policies that apply takes time that no one has. Why isn't there a simple plan, a checklist in which every key task is outlined? The four-inch-thick disaster plan should be shortened to a few pages of checklists. Dr. Newell swears she will see that this is done as soon as this particular disaster comes to an end.

Dr. Newell stands on the back of an ambulance using the public address system and announces that the hospital is overwhelmed and that she needs everyone to help. She provides basic first aid tips and asks that triage paramedics be notified of any patient who is unresponsive or has uncontrolled bleeding. But how does Dr. Newell give decision-making roles to those who have never been in management positions? What are the ethical implications of nurses temporarily operating outside of their scope of practice? There are state-specific provisions about the protection of medical professionals working in emergencies that Dr. Newell wishes she remembered. The off-duty charge nurse arrives and continues the grim report of what is happening just outside the emergency department doors.

The operations chief, a lab tech only hours before, has now made it to the "discharge as many inpatients as possible" section of the operations manual. After identifying about 10 patients that do not need ED care, she realizes that there is no place to send them. The emergency department flow is gridlocked. There are no beds upstairs, no beds in the ED. The next section refers to a number of proposed "alternative care locations" which, when the operations manual was drafted, were available for use. But those spaces are now filled with office cubicles. Her attempts to find a place to put the walking wounded and those with injuries that need pain control and stabilization for future operations lead to the auxiliary dining room and classrooms, where casts are applied, minor injuries seen to, and discharges handled. Staffed with a nurse and technician each, these rooms fill quickly.

The in-house mechanic become the liaison officer, a job, it turns out, that is the most critical and the one that proves to be the lifeline for Dr. Newell and her staff. After he reads the first few pages of the disaster manual, it is clear that his role is to determine what services and supplies the hospital has and what they need to sustain operations. How many patients? How much food? Is the water safe to drink? The liaison officer needs to ask for everything, and, using his cell phone, begins to call the numbers that are in the disaster plan. Most of the lines are busy and others are unanswered. When someone answers, he must be prepared to relay information and ask for what he needs before the cell service drops his call. After many failed or busy numbers, he gets through to the county's emergency operations center. He rolls off the current capacity, the status of utilities, the overwhelming patient population, the need for mass evacuation of hundreds of patients and the concern of the structural stability of some of the hospital buildings. Due to his preparation, he is able to relay the information in less than 2 minutes.

By 7-1/2 hours after the quake, three times the normal number of patients have been seen in the emergency department. The emergency operations center has recognized that Dr. Newell's institution was the hardest hit and most greatly affected of all the metro hospitals. As they prepare to send additional staff, her own hospital personnel have finally been able to negotiate the damaged roads and make it to work. She now has reinforcements in triage, emergency, and inpatient areas, and the hospital's official disaster coordination team is assessing the current situation. After one of her most hectic 19-hour shifts, Dr. Newell can finally stand down.

Most disaster planning centers on a typical external scenario—two school buses collide, a plane crashes. An earthquake is both an external and internal disaster; the hospital is inundated with patients, while its own physical plant is possibly broken and overwhelmed with insufficient staff. All hospital administration, chiefs, and heads should rethink their institutions' disaster plans if they are in an earthquake or hurricane zone. If you consider the consequences, being unprepared is unprofessional and unethical.

Dr. Newell and her staff faced many of the ethical questions and issues in the course of a 20-hour day, but the consequences of her decisions are far from over. The decisions that are made in seconds resonate throughout the bioethics and medical communities. How does one person have the power to make decisions about the life of patients and utilization of resources? Those that are tagged with a "red" tag get treatment and those with "black" get nothing, or at the best supportive care as they are dying. How does Dr. Newell care for staff who, themselves, may be traumatized by the decisions they recently made? What happens when families of those who died—and the media—begin to challenge the teams' decisions. This disaster is far from over.

References

1. Moskop JC, Iserson KV. Triage in medicine, part II: underlying values and principles. *Ann Emerg Med.* 2007;49(3):282-287.

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