

Reflections on Haiti: The Role of Hospitalists in Disaster Response

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In the last decade, natural disasters such as the Indonesian tsunami of 2004, Hurricane Katrina in 2004, and the Pakistani earthquake of 2005 have brought attention to the importance of diverse but complementary medical professional roles in humanitarian medical aid.^{1–4} Natural disasters that cause significant physical trauma to large populations often necessitate initial multidisciplinary responder teams comprised of surgeons, anesthesiologists, emergency medicine physicians, surgical technologists, nurses, psychiatrists, and public health specialists. Their roles are to manage life-threatening injuries, provide immediate triage, help affected individuals deal with intense psychological shock, and address critical population-based needs such as water, food, and sanitation. Meanwhile, general medical, pediatric, rehabilitative, and long-term psychiatric services often constitute a secondary tier of disaster response, providing postsurgical care, managing acute medical illnesses, mitigating psychological trauma, rehabilitating injuries, and providing vaccinations to at-risk individuals. Hospitalists can play an important role in postcatastrophe recovery services as experts in acute care, stewards of care transitions, and drivers of systems improvement.

The earthquake that occurred January 12, 2010 in Haiti is a dramatic illustration of the importance of a multidisciplinary approach to disaster relief. The 7.0-magnitude earthquake near Port-au-Prince ravaged an already crippled health care system, severely damaging the country's primary academic medical center, and killed the entire class of second-year nursing students. The death toll has been estimated to be nearly one-quarter of a million people.⁵ Victims awaiting surgery, recovering from surgery, or in need of other immediate medical attention quickly inundated any existing health facilities. The following stories describe the authors' respective experiences in Haiti after the earthquake.

JC: I arrived 4 days after the earthquake to a hospital outside of Port-au-Prince, spared from destruction, but filled with hundreds of patients with crush injuries and severe fractures. On rounds with the surgical team, I observed that venous thromboembolism (VTE) prophylaxis had not yet been initiated, and I was concerned that patients might die from pulmonary embolism. In the overwhelming urgency of

providing life-saving surgery to as many patients as possible, this simple measure had been overlooked. After discussion with our team and our Haitian medical colleagues, we initiated subcutaneous heparin on all eligible patients and made arrangements to receive further shipments of heparin to accommodate the influx of patients.

A nearby school and church had been annexed into makeshift extensions of the hospital wards. The volume and pace of incoming injuries was such that as soon as a patient was taken to surgery, another patient would often take his or her place in the bed. The rapid movement of patients to and from x-ray, surgery, and postsurgical care created challenges around effective and accurate communication among multiple care providers. We decided that nonsurgical personnel would triage newly arriving patients and round on patients daily. Each nonsurgical physician was responsible for staffing a particular location. This "zone-defense" approach ensured that the surgeons maximized their time in the operating rooms. We also instituted a basic system of portable medical records kept with each patient at all times, allowing personnel to easily and quickly assess care given to date, and to write notes and orders.

Presurgical and postsurgical wound infections became a common event, with the risk of ensuing sepsis. Antibiotic use was dependent on the preferences of individual surgeons and also on the available supply. As a result, antimicrobial treatments were highly variable and sometimes inadequate. The internists on the team proposed standard antibiotic guidelines for open fractures, for contaminated wounds, and for postoperative wounds; these regimens were approved and implemented by Haitian staff and the rest of the team.

Internists recognized the first complications of rhabdomyolysis from crush injuries and delays in receiving medical attention. Malaise, oliguria, and volume overload were often the only clues we had for severe renal failure. We had a functional lab capable of checking complete blood counts, urinalysis and creatinine, but we had a limited supply of serum potassium assays. We only used the latter in confirmed cases of rhabdomyolysis, and on several occasions we diagnosed severe hyperkalemia. Using bedside automated

electrical defibrillation devices for monitoring, we sustained these patients on calcium gluconate until they could be transferred to an external dialysis unit run by Médecins Sans Frontières in Port-au-Prince.⁶ As the number of rhabdomyolysis cases increased, we instigated “creatinine rounds” on patients arriving with large crush injuries, and we evaluated urine output daily until patients were clinically stable from this threat. We also helped the Haitian staff treat the omnipresent problem of pain and advised renal dosing of medications in renal failure and elderly patients.

GH: The situation 3 months after the earthquake was medically less dire but highlights the evolving importance of generalists in the aftermath of the quake.^{7–10} For many Haitian patients, the earthquake had become a universal point of reference for their symptomatology. Anorexia, amenorrhea, headaches, epigastric pain, even fungating soft tissue masses, were all reported to be “*depi tranbleman té a*” (since the earthquake) and were often somatic manifestations of a psychologically devastating event. At a hospital in Carrefour, I cared for patients presenting with dramatic sequelae of chronic diseases that had been undertreated due to the destruction of the Haitian medical infrastructure—hypertensive coma, diabetic ketoacidosis, cerebral malaria, decompensated liver disease, and severe chronic anemia (including a patient with a hemoglobin of 3 mg/dL). I encountered many patients with infections exacerbated by excessive crowding in tent communities, such as typhoid and tuberculosis. At this particular hospital, priorities appropriately placed on surgical and postsurgical care required the team to devise creative solutions for the care and placement of medical patients, such as restructuring the emergency department and creating a “rehabilitation tent” on the hospital grounds. While few Haitian internists were present, a number of Haitian obstetricians were on site and helped manage medical conditions within the scope of their experience, such as hypertension, abdominal pain, and genitourinary infections. The expatriate orthopedic surgeons on site sought the consultative skills of hospitalists for preoperative management, postoperative complications, and comorbid conditions.

This hospital was largely sustained by rotating teams of volunteers, which underscored the importance of establishing a flexible system that would accommodate the turnover of personnel and fluctuating levels of professional expertise. The team used a tiered model for acute care delivery designating responsibilities based on the number of nurses, physicians, and other providers available. We collaborated with Haitian physicians to establish a routine of handoff rounds. Finally, we created and centralized documentation such as clinical protocols, contact numbers, and “helpful tips” for our successors.

Hospitalists have valuable skills to offer in medical responses to natural catastrophes.⁵ Our fluency with acute care environments becomes a pluripotent asset in disaster relief. Our experiences in assessing acuity are vital in assisting with inpatient triage. Our familiarity with the comanage-

ment model facilitates partnership with other disciplines to optimize the distribution of skill sets without neglecting the overall well-being of patients. Our clinical expertise in treating the vulnerable elderly, VTE, renal failure, pain management, postoperative infections, sepsis, and many other conditions can bolster medical relief efforts, even when the foremost need is surgical. The hospitalist's core competencies in healthcare systems¹¹ can support recovery initiatives in medical facilities, particularly in the domains of drug safety, resource allocation, information management, team-based methods, and care transitions. Our respective experiences also suggest the potential value of hospitalists in domestic, in addition to international, disaster response initiatives. Since large-scale calamities may result in the hospitalization of overwhelming numbers of victims,¹² hospitalists may be well-positioned to assist our emergency medicine and public health colleagues, who currently (and fittingly) lead domestic efforts in disaster relief.

Tragedies like the earthquake in Haiti serve as a sobering reminder that a comprehensive multidisciplinary approach is required as medical disaster relief shifts from a life-saving focus to one of life-preserving care.^{13,14} Hospitalists can play a vital role in these restorative efforts.

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