

Chicago Medical Response to the 2010 Earthquake in Haiti: Translating Academic Collaboration Into Direct Humanitarian Response

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ABSTRACT

On January 12, 2010, a major earthquake in Haiti resulted in approximately 212 000 deaths, 300 000 injuries, and more than 1.2 million internally displaced people, making it the most devastating disaster in Haiti's recorded history. Six academic medical centers from the city of Chicago established an interinstitutional collaborative initiative, the Chicago Medical Response, in partnership with nongovernmental organizations (NGOs) in Haiti that provided a sustainable response, sending medical teams to Haiti on a weekly basis for several months. More than 475 medical volunteers were identified, of whom 158 were deployed to Haiti by April 1, 2010. This article presents the shared experiences, observations, and lessons learned by all of the participating institutions. Specifically, it describes the factors that provided the framework for the collaborative initiative, the communication networks that contributed to the ongoing response, the operational aspects of deploying successive medical teams, and the benefits to the institutions as well as to the NGOs and Haitian medical system, along with the challenges facing those institutions individually and collectively. Academic medical institutions can provide a major reservoir of highly qualified volunteer medical personnel that complement the needs of NGOs in disasters for a sustainable medical response. Support of such collaborative initiatives is required to ensure generalizability and sustainability.

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On January 12, 2010, at 4:53 PM local time (21:53:09 Coordinated Universal Time), a magnitude 7.2 on the Richter scale earthquake hit Haiti near Leogane, 17 km west of the capital Port-au-Prince. The impact of the earthquake on already-vulnerable communities and fragile infrastructure was more than 200 000 deaths and 300 000 injuries.¹ More than 1.2 million people were displaced and in need of basic services such as shelter, water, food, and health care. The immediate medical needs were catastrophic. Search and rescue teams gained access to people affected by the quake in the first few days, and the need for acute trauma and orthopedic services was immense. In the many weeks since the initial earthquake, the needs have transitioned to ongoing public health issues, primary care, rehabilitation, reintegration, and repatriation, which will, it is hoped, lead to critically sustained redevelopment for Haiti. In response to this humanitarian emergency came a global outpouring of disaster relief efforts through various nongovernmental organizations (NGOs), monetary and in-kind donations, and volunteer medical professionals, including many from academic medical institutions in the United States. In Chicago, 6 institutions (Northwest-

ern University, Rush University, University of Chicago, University of Illinois at Chicago, Children's Memorial Hospital, and Cook County Hospital [Stroger]) formed a collaborative initiative, the Chicago Medical Response, to respond to the disaster. This initiative included gathering more than 475 medical volunteers, of whom 158 were deployed to Haiti with established NGOs by April 1, 2010. Of the 158 personnel deployed, 68 (including 42 physicians and 22 nurses) were sent through International Medical Corps, and 90 were sent through other NGOs. Physicians' specialties varied and included emergency medicine, trauma and orthopedic surgeons, family medicine, internal medicine, and pediatrics. Nursing specialties also varied from acute care to inpatient general medical, surgical, and pediatric care to outpatient services. This article describes the framework, implementation, and lessons learned from this academic collaborative initiative.

FACTORS PROVIDING THE FRAMEWORK FOR THE CHICAGO MEDICAL RESPONSE

The goal of the collaboration was for academic medical centers across Chicago to use local resources in ways that were organized, effective, efficient, and respon-

sive to the medical needs in Haiti. Several factors provided the groundwork for collaboration among these academic institutions in Chicago immediately after the January earthquake. The first feature was the presence of various global health initiatives and international emergency medicine programs at these institutions. Northwestern University Feinberg School of Medicine and the University of Chicago have recently established global health centers within their institutions, the Center for Global Health and the Global Health Initiative, respectively. At the University of Illinois at Chicago, both the School of Public Health and the College of Medicine have established centers (Global Health Initiative and Global Health Research Collaborative, respectively) to reinforce the university's commitment to global health research, teaching, and service. In addition, Rush University Medical Center, Cook County Hospital (Stroger), and the University of Illinois at Chicago have a long-standing history of providing fellowship training in international emergency medicine, enabling emergency clinicians with targeted skill sets to provide public health interventions and disaster response and to develop emergency medicine around the world.

Second, several of the institutions had preexisting relationships with established NGOs on the ground, such as the International Medical Corps. The third factor contributing to the collaboration was the support from the executive leadership at the participating institutions encouraging the disaster relief efforts. Finally, an important factor was the relationships among various global health and international emergency medicine leaders at these institutions that predated the earthquake. This link had been solidified in fall 2009, when the Chicago International Medical Society was established by a group of emergency physicians with extensive international experience to facilitate collaborative efforts, pool resources, and share ideas. All of these factors, combined with the onset of a major humanitarian disaster in Haiti, provided the impetus for a unique collaboration model among 6 US academic medical institutions.

COMMUNICATION NETWORKS THAT CONTRIBUTED TO THE SUSTAINABLE RESPONSE

One of the critical components that contributed to the success of the efforts of the Chicago Medical Response was the establishment and maintenance of a strong communications network among the institutional partners, medical volunteers, and implementing agencies in Chicago, Los Angeles, and Haiti. Conference calls scheduled 3 times per week were organized among the groups to provide updates and to address imminent issues and needs. Agendas, minutes, and results from the conference calls and meetings were circulated to participating academic institutions for comments and review. Information about partner activities and responses were shared with senior leadership within each of the institutions, thereby increasing the support to the relief efforts. Institutions had frequent contact with the volunteers in Haiti, including text messages, e-mails, and telephone calls, to provide and receive updated information on the constantly evolving situation. This high level of engagement

and interaction among the partner institutions ensured that communication remained active, current, and effective.

OPERATIONAL ASPECTS OF THE SUSTAINABLE MEDICAL RESPONSE

Coordinating joint efforts among various institutions requires a comprehensive approach that covers all operational aspects including finance, logistics, and program administration. Some of the activities remained decentralized (each institution maintaining their own volunteer roster, monitoring financial resources), whereas others were more centralized (working with the implementing agency on the ground to formulate team composition, developing strategic plans). Because this was a partnership, a formal command structure was not instituted for the consortium; however, a central communication point person for the consortium and a designated representative from each institution were identified to streamline the flow of information. Information about needs and challenges was communicated to the group and then each group responded according to internal capabilities and structure. Often, team members would jointly solve problems and collectively identify potential pitfalls and solutions. The joint coordination also allowed institutions with different financial and clinical resources to leverage their strengths and contribute to a comprehensive response. For example, some institutions had more nurse volunteers and others had more physicians, and still others could mobilize physical therapists. The presence of full-time global health programmatic staff without clinical duties within the institutions was critical to the communication coordination effort and allowed responses to be immediate.

Financial management of the disaster response varied based on institutional resources. Travel and lodging expenses in Haiti were funded by International Medical Corps for volunteers working at their site. Coverage of clinicians' salaries and of individual expenses such as recommended immunizations, personal travel supplies, and cost of malaria prophylaxis were provided by some but not all of the academic medical centers. Initially, all travel expenses were reimbursed for some volunteers, but later this was changed to include only essential travel costs as available funds were depleted. Flexibility and transparency in financial allocation are critical to an urgent humanitarian response. Resources also must be allocated for administrative and logistical support to ensure that the program can operate on all levels. Figure 1 illustrates the volunteer deployment categories and estimated expenses for the effort to date.

CHALLENGES AND SOLUTIONS PERTAINING TO THE COLLABORATION INITIATIVE

Although several academic medical centers in Chicago had existing institutional global health frameworks and preliminary discussions about cooperation on projects, there had been no prior interinstitutional plan established for "action in crisis." Thus, these institutions faced some initial challenges at both individual and collective levels. Initial ad hoc operations lacked a proper coordination channel, but as communication im-

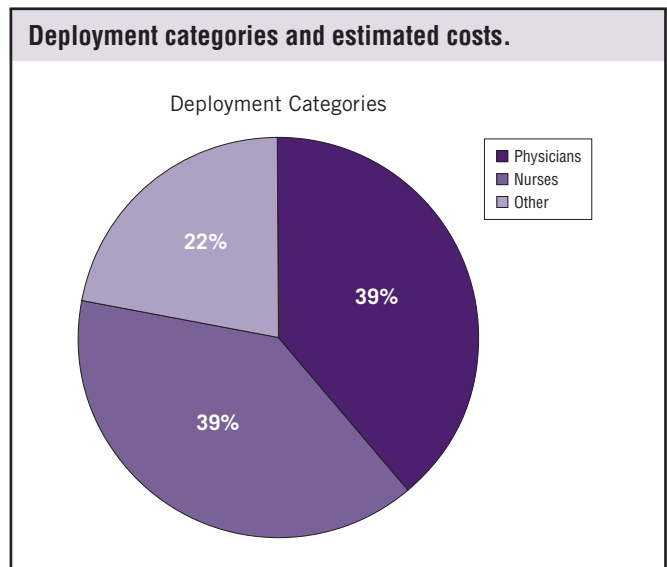
proved and became more centralized, the collaborative network was quickly established and operationalized. In addition, field-level information from networks of partners working on the ground was often incomplete, sporadic, and continually in flux, but the frequent communication among the partners helped the collaborative to build teams that matched the needs on the ground.

Because the Chicago Medical Response initiative was committed to deploying teams of 6 to 8 health care professionals weekly, staffing challenges were 2-fold. Medical centers had to remain prudent in maintaining their commitment to local patient populations by ensuring that internal staffing and supply needs were met. Deployments were voluntary and often required practitioners to reorganize schedules and find coverage for their primary clinical responsibilities. In addition, the lack of a previously established database of health care workers available for deployment for disaster relief from each institution stimulated collaboration and encouraged the establishment of a shared database. This interinstitutional commitment assisted in solving staffing challenges by assigning practitioners to teams based on availability, with institutions rotating the weekly lead coordination role.

The makeup of types and specialties of volunteers was directed by the needs and requests of the partners on the ground and changed during the course of the response. The duration of deployment required by International Medical Corps was a minimum of 2 weeks, although other partners on the ground were more flexible with time commitments. Volunteers were recruited by mass e-mail and internal information campaigns at each institution. In some cases, department heads of highly relevant specialties, such as emergency medicine and orthopedic surgery, were contacted directly to ensure departmental support. At certain institutions, a vetting committee was also established to review the volunteers' credentials, language proficiency, and experience in disaster response, and to select the best team to accomplish the tasks on the ground without disrupting care at the Chicago institutions. Volunteers then self-selected by responding to requests. The approval of the division chief or supervisor was a final requirement before deployment.

Initially, each institution developed its own predeparture briefing procedures. Subsequently, the consortium pooled information to develop documents that provided standard information, such as a personal equipment list, predeparture travel vaccines and prophylaxis needed, commonly asked questions about deployment, and commonly encountered medical conditions. In addition, the consortium members adopted a policy of postdeployment interviews conducted by each institution with their own employees, at least 2 weeks after their return, to gather feedback on both the activities on the ground and the coordination of the volunteer response. Volunteers were given information about symptoms of posttraumatic stress disorder and contact information for counselors. Eventually, returning volunteers

FIGURE



were able to attend predeparture briefings and answer questions for those about to deploy.

Institutional support for relief efforts was also challenging and variable. Although International Medical Corps generously provided logistical coordination, accommodation, food, and water, and covered transportation costs, academic medical centers were subject to the financial constraints of the 2-week deployments of staff central to their home operations. Some institutions provided time-limited comprehensive monetary backing in the form of salary support, supplies, immunizations, and coverage of clinical duties. Others were able to provide approval for unpaid time on short notice. The varied support strategies across institutions suggest the need to mutually identify appropriate resource requirements.

One significant limiting factor in sustaining this type of collaboration, however, is funding. Funding for global health initiatives in academic centers is often limited, which can severely constrain institutions in providing these types of responses. For example, several academic centers have started international emergency medicine and global health fellowships, but these valuable training programs often are difficult to sustain due to financial limitations. In our experience, administrative support alone for this citywide effort accounted for more than 1500 hours of staff and faculty time, excluding on-the-ground efforts. These costs were absorbed by the relevant institutional global health initiatives.

Despite these challenges, working within an interinstitutional collaboration model allowed us to optimize resources across the city of Chicago. This collaboration enabled institutions to overcome individual challenges and to complement respective needs, which ultimately provided an unprecedented response under the aegis of the Chicago Medical Response initiative.

BENEFITS AND VALUE OF THE COLLABORATION INITIATIVE

The benefits and values of the collaboration initiatives are multifaceted and have several recipients. In the United States, other than the military health system, health care is decentralized compared to many other countries in the developed world. As a result, the medical profession is not structurally integrated into disaster response.^{2,3} This has led to the development of multiple volunteer-based models for disaster relief. NGOs have logistical experience in managing team travel, training health care professionals, coordinating ground safety, creating communications networks, and ensuring housing and sanitation.^{4,5} In addition, although NGOs are well equipped, many of them could benefit from an expanded and more diverse pool of volunteer medical and public health professionals. The specialties of medical volunteers can be based mainly on the personnel needs assessment. Credentials can be verified at 2 check points: within the academic institutions and at the human resources and recruiting departments of the NGOs. Academic institutions can verify credentials for their staff volunteers in real time, and thus deployments can proceed efficiently. The overall objectives may be better charted by the leadership of the NGOs in collaboration with university-based technical consultants.

Several groups maintain regional, national, or international rosters of volunteer clinicians. The Medical Reserve Corps is 1 such group, consisting of medical and nonmedical volunteers who respond to local and regional emergencies. These groups have responded to hurricane emergencies and support the American Red Cross, the Federal Emergency Management Administration, and the Department of Health and Human Services.⁶ The Center for International Disaster Information, supported by the US Agency for International Development, is a resource for interested volunteers, agencies, and corporations. It maintains a registry of medical and nonmedical volunteers who fit their missions and goals for international disaster response.⁷

The Chicago Medical Response collaboration successfully mobilized local resources to respond to the humanitarian emergency in Haiti. After earthquake disasters, highly specialized clinicians who can rapidly triage individuals and manage traumatic injuries are often needed. Local collaborations that can mobilize these types of health care providers and interact with international humanitarian agencies have the ability to expand the scope and mission of most local emergency response organizations. Locally organized efforts can target specific skill sets effectively through individual and institutional contacts. Local responses may be more sustainable in a collaborative effort, and the Chicago Medical Response has shown that they can still be comprehensive.

Academic institutions working individually can contribute to disaster response efforts but with a more limited scope. Collectively, they can respond in an expanded, better organized, structured, and more sustainable framework. Traditionally, each in-

stitution would mount a response requiring multiple redundant steps. Each institution would individually coordinate with separate NGOs, arrange for a single team to be deployed in a single time frame, and work in capacities that may be outside their natural scope of expertise (eg, logistics, security, interagency coordination). Within the collaborative model, the medical staff of any single institution is less likely to become exhausted. For example, it may not be feasible for a single department at 1 institution to send several medical volunteers concurrently. By distributing the need across institutions, teams can be organized on a rotating basis with an anticipated fixed schedule, allowing enough time for planning and preparation. Vacancies on each team can be filled by partner institutions to allow for fluid and rapid deployment of teams with collaborative staffing and cost sharing. Such a model can also help build partnerships on various levels: citywide, statewide, nationwide, and worldwide. Finally, departing teams can have realistic expectations based on the predeployment briefing regarding medical work environment, living conditions, and personal protection needs such as immunization and prophylaxis.

The Haitian medical system also benefited from such interinstitutional collaboration because both the public health and the hospital-based capacities were augmented by highly qualified medical volunteers whose skill sets met the specific needs on the ground. With International Medical Corps, medical volunteers worked in Port-au-Prince at l'Hôpital Universitaire de l'Etat Haitien and staffed several mobile and outreach clinics. Other teams supported the Fond Parisien Disaster Recovery Center, the largest acute-phase field hospital in Haiti, at the Love A Child compound. Successive teams also contributed equipment and supplies to the above hospitals based on the assessed needs.

This collaborative model not only applies to disaster relief scenarios but also could be used for global health development programs. Academic departments could collaborate by establishing academic medical partnerships working within a framework toward a comprehensive plan for rebuilding health care systems. They can collectively develop educational programs in the United States for medical students, residents, and fellows; support in-country medical care and education; assist in the design and implementation of national health policies and initiatives; and perform robust medical and public health assessments and analyses.

CONCLUSIONS

The Chicago Medical Response collaboration initiative is a valuable model both for humanitarian and disaster relief and for global health development. Pooling common resources and drawing upon each institution's natural strengths allow for a more seamless, sustainable, and comprehensive response to emergencies. Combining resources, maintaining communications, and committing to collaboration allows for a more flexible and dynamic response, one that can match quickly changing needs during disasters. Distributing the demands of rapidly deploy-

ing medical staff across multiple institutions alleviates some of the logistical burden that a sole responding institution may incur, allowing for a more sustainable response.

In the response to the Haitian earthquake, the greatest collective asset of these academic medical centers was human resources. Through coordination among institutions, selected volunteer teams were able to respond to needs on the ground in an inclusive manner that would not have been possible as separate entities. Factors contributing to the collaboration included existing global health initiatives, global health faculty with preexisting relationships with key implementing partners, and commitment from leadership from each medical institution, all factors that may not be present to such an extent in nonacademic settings.

Responding to disasters and humanitarian emergencies requires preparedness and planning. The participating Chicago medical institutions quickly overcame the initial challenges of coordinating deployments and communicating with partners and volunteers in the field. As a result of this collaborative effort, a roster of experienced clinicians can be used in future disasters. The 2010 Haitian earthquake experience has laid the foundation for administrators, global health faculty, and hospital leadership to formalize an interinstitutional plan for future "action in crisis."

Academic medical institutions with global health initiatives and international medicine fellowships provide ideal venues for international cooperative efforts, educational exchange programs, and research opportunities. Collectively, they leverage considerable resources, allowing for a large-scale response to humanitarian emergencies and for comprehensive health development programs that may follow.

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