Emergency Medicine Systems Advancement through Community-based Development

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Abbreviations:
EMEDEX: Emergency Medicine Educational Exchange
MSPP: Ministère de la Santè Publique et de la Population
NGO: non-governmental organization
PAHO: Pan American Health Organization
SUNY: State University of New York
WHO: World Health Organization

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Abstract

Humanitarian health programs frequently focus on immediate relief and are supply side oriented or donor driven. More emphasis should be placed on long-term development projects that engage local community leaders to ensure sustainable change in health care systems. With the Emergency Medicine Educational Exchange (EMEDEX) International *Rescue, Recover, Rebuild* initiative in Northeast Haiti as a model, this paper discusses the opportunities and challenges in using community-based development to establish emergency medical systems in resource-limited settings.

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Introduction

There exists a human resources crisis as well as a lack of data in humanitarian health. The skill and resource deficit is especially acute in the international development context, and even greater during humanitarian emergencies.[1] Most humanitarian health programs occur in these types of resource-poor environments, and inevitably become supply-side focused rather than also emphasizing the need to contribute to sustainable human and resource capacity building.[1-3] Because these programs operate in emergent situations with time and budget constraints, coupled with little to no human or material resources, program delivery focuses on immediate relief to a population at risk, rather than development and response to the needs of the beneficiaries while also contributing to the availability of skilled health care workers in these types of regions.[1,3] Greater emphasis is needed on the beneficiary population's level of acceptance and involvement, as well as choosing interventions that meet the needs of the various stakeholders, such as the population, the health care providers, and the program funders.[2,3]

Using the Emergency Medicine Educational Exchange (EMEDEX) International *Rescue, Recover, Rebuild* initiative in Northeast Haiti as a model, this paper will discuss the opportunities and challenges in using community-based development to establish emergency medical systems in countries that may lack regular access to the necessary human, material, and financial resources to build such systems. The paper will examine the work of EMEDEX in Haiti to date, focusing on the organization's and the Northeast region's first health care stakeholders conference, held in May 2011, entitled *Progress through Cooperation*.

Report

Health Profile of Haiti

Located in the Atlantic Ocean between Cuba and Puerto Rico, and sharing a border with the Dominican Republic, Haiti is one of the poorest countries in the world and is known for severe challenges to development. In 2008, the country (which ranks 158 out of 187 countries on the United Nations Development Programme Human Development Index) endured the combined effects of a food crisis and four successive hurricanes and tropical storms.[4] Comparatively, Haiti reports the second largest population density in the Western Hemisphere,[5] with more than 50% of that population living below the severe

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poverty line.[4] The country's under-five mortality rate is 165 per 1,000 births,[6] compared to 27 per 1,000 births in the neighboring Dominican Republic[7] and eight per 1,000 births in the US.[8]

According to the most recent data from the Pan American Health Organization (PAHO), Haiti's health care workforce consists of 2.4 physicians and one nurse per 10,000 population.[9] Forty percent of the population lacks access to basic health care. The uneven geographical distribution of health centers and their health care professionals further exacerbates unequal access to health care. Three-quarters of all physicians and half of all hospital beds are in the West Department and provide services to only 33% of the total population. People in need of medical attention often have to travel long distances, making it much less likely to get the treatment they need in an appropriate window of time.[10]

While the government controls the administration of the health sector through the *Ministère de la Santé Publique et de la Population* (MSPP), a lack of financial and human resources prohibit its function and growth. Thus, while the Ministry of Health has the governmental right to make most of the decisions about the health system, Haiti depends on international aid from nongovernmental organizations (NGOs) to maintain it.[10]

To respond to the pre-existing lack of available human and material resources, as well as the need for a more robust knowledge base in medical care and disaster preparedness/response, Emergency Medicine Educational Exchange (EMEDEX International) is leading a humanitarian assistance program called *Rescue, Recover, Rebuild*, in the Northeast Region of the country. EMEDEX International is a nonprofit organization founded in 2006 by a group of emergency physicians to strengthen systems of emergency medical care globally. EMEDEX works in partnership with staff from SUNY (State University of New York) Downstate Medical Center and Kings County Hospital in Brooklyn, which serve the second-largest Haitian community in the US. The organization's commitment to establishing programs and initiatives in Northeast Haiti goes beyond responding to the country's immediate needs; the physicians, nurses, and staff contributing to the projects also have a vested interest in the population being served.

Emergency Medicine Systems in Northeast Haiti

Haiti's Northeast region, much like the rest of the country, is characterized by extreme poverty, high illiteracy, high mortality, and poor nutrition and health. Terrier Rouge, where EMEDEX is piloting its efforts, has two small health centers: a nonprofit-run primary care clinic called *Clinique Esperance et Vie*, and a public, government health center. The facilities have little to no access to the necessary resources for emergency or prehospital care, such as ambulances and trained paramedics. Similar to other rural development areas, heavy rainfalls may lead to land and mudslides, making it impossible to reach the injured and to give them appropriate medical attention in a timely manner. Haiti's six-month-long hurricane season puts its population at serious risk and makes having the necessary resources to respond to natural disasters especially important. Unfortunately, this lack of human and material resources is not uncommon in developing country settings; having skilled health care providers available is not a given.[2]

The EMEDEX *Rescue, Recover, Rebuild* initiative uses education as a primary driver for its activities to address the emergency health care needs of the population of Northeast Haiti. To achieve the organization's goals, measures such as the community's *perceived* health care problems as well as the community's *actual* health care problems must be taken into account. Often times, a community's willingness to participate and a program's effectiveness depend on addressing the perceived needs of the population; the organization must first address what the community deems most urgent in order to rely on its support for other aspects of the project.[11] Three reconnaissance trips were led by EMEDEX, in which the organization's physicians conducted over 100 household surveys in the Terrier Rouge community and approximately 50 patient interviews at *Clinique Esperance et Vie* during the *Rescue* portion of the project. Household surveys gathered information on the demographic and epidemiological profile of the population, the availability and strength of the existing health care infrastructure, the level of current health-related knowledge and the desire to gain new knowledge. Patient interviews helped to uncover any potential perceived health-related or disaster-related concerns amongst the population, as the population may attribute or prioritize its own health or preparedness differently than what EMEDEX might expect.[10] Patients revealed that they had a greater perceived concern with disasters and the need for disaster preparedness, rather than the mortality rate or other health indicators prevalent in the region. This process led EMEDEX to determine five distinct areas to address in the *Recover* and *Rebuild* stages: (1) community education; (2) disaster preparedness; (3) prehospital emergency medicine; (4) hospital emergency medicine; and (5) system reinforcement.

Community Education

Community education was chosen as the first intervention due to the community's lack of knowledge on the basics of leading a healthy lifestyle and on having a disaster preparedness plan. Survey results also indicated that they were keenly aware of the likelihood of future disasters and had a strong desire to learn to cope with them. The community education intervention was also the most accessible, given the available human, financial, and material resources. Over the course of two trips in August 2010 and May 2011, EMEDEX trained 200 community members and ten instructors in its train-the-trainer first aid courses at *Clinique Esperance et Vie*. The trainings followed the popular WHO model of task-shifting, where health workers with less experience and education take on new tasks that are usually done by people with more formal knowledge and training. This form of training and service provision increases the number of health care services provided without also increasing the need for more human and financial capital. Both health care providers and community members attended the EMEDEX trainings. Perhaps the most interesting participants were 26 of the community's tap-tap drivers, who recognized their important role as ambulatory care providers. A tap-tap is a truck or van that picks up and drops off multiple passengers for a small charge to each passenger as it drives along its route. It is a commonly used form of transportation for most Haitians who do not have personal vehicles and essentially the only form of available public transportation other than motorcycle taxis. With only one privately-run ambulance available in Terrier Rouge and most of the population commuting via tap-tap, motorcycle taxi, bike, or on foot, the community relies heavily on tap-taps and taxis in the case of an emergency. Few course participants had received first aid skills training and none had participated in simulated accident or disaster scenarios like those in the EMEDEX course.

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While both intended and accidental positive effects of task-shifting exist, international development groups must also take heed of its potential challenges in preserving health care quality and safety, tackling institutional resistance, and supporting long-term commitment among the workers.[12]

Needs assessments and experience of EMEDEX in working in the Northeast with providers from various facilities in different cities also revealed that communication across the region was lacking. Health care providers could not accurately describe where to find specific resources or specialty services in the region and they had no centralized method of obtaining this information. In such a poor region as the Northeast, resource sharing seemed imperative. From these observations, EMEDEX and its local Haitian partners hosted the first-ever health care stakeholders conference in the region. The conference aimed to use the community stakeholders' knowledge and expertise to lay the foundation for a comprehensive and self-sustaining regional prehospital and hospital emergency medical system in the Northeast region.

Local Healthcare Stakeholders Conference

The "Progress through Cooperation Conference" included two days of facilitated group discussions on the design and implementation of a new regional emergency medical system for the Northeast. Over 40 regional stakeholders from both the private and public sectors, including hospital administrators, physician and nursing directors, and community health organizers attended. *Clinique Esperance et Vie* and Bethlehem Ministries hosted the conference with the official invitation to attend coming from two local Haitian physician leaders and the local founder of Bethlehem Ministries, a minister who has done extensive work in the Northeast. Their leadership and involvement was critical in engaging community participation and gaining the support of local stakeholders.

While the stakeholders analyzed the pitfalls of the current emergency medical system, determined the goals of an ideal system for the region, and drafted a strategic plan for implementation of a new regional system, EMEDEX offered its international expertise in emergency medicine development, providing different country models as a stimulus for these discussions.

The conference discussions centered around topics related to health care systems development in the region—namely health education, resources for continuing education and health care provision, and regional infrastructure. All small groups required two facilitators, (one EMEDEX conference organizer and one Haitian health care provider),—a scribe to take notes and one speaker or group representative to report back to the group. Assigning group functions in advance allowed local participants to play important roles and ensured that the community members took ownership of the conference outcomes. The role of the facilitator was strictly to moderate the discussion so that it continued at a productive capacity, maintaining focus on the topic in question, ensuring that all participants contributed and listened to one another, and addressing any questions that arose. Having a Haitian facilitator guaranteed discussion flow in French or Creole while encouraging community buy-in and support. Organizers sought to ensure gender balance within the groups and interestingly found that, contrary to their expectations, there was a strong presence from the women in the community and at least one of the five small groups had a female majority.

All discussions explored the *actual* state of health care in the region, as well as the *ideal* state. In addition to determining what a realistic ideal state would be, given the existing resources, participants needed to identify the barriers or challenges to achieving those ideal states. While determining solutions is a useful exercise, it is perhaps more important to know what (eg, the lack or the availability of certain human, financial or material resources) might prevent or enable those solutions in a given community. Conference participants brought these issues to the larger group for discussion with the intention of identifying next steps for the community to strengthen its health care system.

Recognizing the important role of the *Ministère de la Santé Publique et de la Population* (MSPP) in policy change and implementation, EMEDEX invited the regional Minister of Health, Dr. Jean Denis Pierre. All programs, even those implemented by international NGOs, must receive MSPP approval. Due to the lack of government funding and a failure to retain stable leadership long enough to enact change, most policies that have been written have yet to be carried out. The Minister spoke to the group about the MSPP's goal to guarantee equal access to health care for all Haitians. In fact, in 1998, the MSPP published a national health policy that recognized an individual's fundamental right to health and the State's responsibility to all Haitians to defend that right. It ratified, but did not yet institutionalize, a reform designed to decentralize the health sector and guarantee equal access to a minimum number of health services. Those services include emergency medicine, surgical care, and public health education. Unfortunately, due to lacking financial and human resources, most of this written legislature has never been executed.[10]

Conference Results

Discussions revealed important factors about systems development in the region highlighting the importance of charging the community with identifying the next steps. Social, cultural, and economic factors play critical roles in how the community enacts change. The current, fragmented infrastructure, resource limitations, and unreliable communication methods are best understood by the community members who operate under these conditions daily. Conference members identified challenges and recommendations for three primary areas of initial focus for improving the provision of health care in the region: regional communication and networking; emergency response education; and an affordable and effective emergency first response transportation system (Table 1).

Discussion

The *Rescue, Recover, Rebuild* initiative has contributed important first steps toward emergency medical systems development in Haiti. Many humanitarian assistance projects do not have the desired outcomes because the actual needs of the population are surprisingly not taken into account.

EMEDEX conducted preliminary needs assessments in the early stages of the project; however, to effectively inform and focus future interventions in emergency medical education and emergency systems development during the long term *Rebuilding* phase of the initiative, EMEDEX recognizes the importance of more in-depth needs assessments and data collection. One such assessment has begun at the primary hospital in Fort Liberté, documenting the types of emergencies treated there, what forms of transportation patients use to get to the hospital, and what, if any, prehospital care they receive before arriving at the hospital. This kind of data is not available in this region and will serve a critical role in targeting the actual needs of the population.

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Conference Results Summary		
Problem	**Challenges**	**Recommendations**
Regional communication & networking *Lack of communication between healthcare facilities for integrated patient care, knowledge of specialty services available in each facility, patient referrals for specialized care and emergency inter-facility transfers.*	• Differences in religious/denomination affiliations and public versus private ownership of health entities impede the sharing of resources and information • Lack of a specific designated phone number for healthcare facilities • Inability to reach hospital personnel after normal business hours, such as evenings and weekends • General lack of awareness by the public and health care providers of existing regional resources and capabilities	• Centralized information (webpage and printed directory for all healthcare institutions) • Inventory of services with quarterly updating of information • Specialty medical and preventative services available • Diagnostic services available • Inpatient services available • Costs of services • Days and hours of operation • Telephone/email directory of all health institutions in the regions • Single emergency dispatch call number for the region • System for resource allocation and specialty referrals • Regular meetings and interregional collaboration between regional hospital directors, religious and community leaders • Public/private partnerships to support an enhanced and effective communication system • Examples: Assistance from Digicel during cholera outbreak and presidential elections • Centralized governing body to oversee and ensure accountability of systems
Emergency Response Education *Includes community education on first aid, education of drivers currently transporting patients to healthcare facilities, and potential training for prehospital emergency care providers.*	• Lack of financial, material and human resources • Lack of community access to First Aid education	• Regulated and certified formal training for emergency first responders with continuing education enforced • Public health campaign to churches, schools, drivers, and general community, including rural areas, to promote the importance of First Aid education
Emergency First Response Transportation System *Current methods of transporting patients with emergencies to health care facilities and need to develop a more formalized ambulance system.*	• Relying on personal modes of transportation and a private system to transport patients to health care institutions • Lack of coordinated first aid response system, including human and material resources • Lack of regulated pre-hospital transportation cost • Fully-equipped ambulance vehicles are expensive • Poor road infrastructure and access to rural areas	• Comprehensive assessment of emergency health care needs • Public *Organized System for Emergency Transport* (OSET) • Coordination between Ministry of Health, police, civil protection service and emergency first responders • Allocation of financial resources toward *Organized System for Emergency Transport* (OSET) • Uniform map directory available to transporters and central dispatch • Designation of jurisdiction for ambulance services to identify where to pick up patients and where to take them

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Table 1. Emergency Medicine Systems Advancement through Community-based Development

Additionally, this baseline information will allow EMEDEX to objectively assess the impact of its future interventions. Data collection projects should be shared with local stakeholders, including the Ministry of Health, to enlist local ownership of health promotion and systems development. Ultimately, data collection should become a permanent, local process.

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Once more data is available and the group has a greater familiarity with the region, implementation evaluations of the programs should be conducted to measure their fidelity to the project designs. A cost-benefit analysis also should be conducted, though at this time completing it would prove challenging due to the current lack of data and the difficulty of quantifying the "quality of life" benefits of these interventions.[13] However, data collection over time would help to assign values to some of those benefits and would help to prioritize decisions on where to allocate human, financial, and material resources. Program implementation evaluations also provide an invaluable asset to other groups working in the field.[3]

Using its work in Terrier Rouge as a foundation, EMEDEX ultimately plans to scale its initiatives up to other cities of the Northeast Region that are in great need of emergency health care interventions for capacity building. Through adequate needs assessments, data collection, and impact evaluations, EMEDEX plans to establish a model that can be reproduced across the region. This model would include several important components to develop a comprehensive emergency medical system. Training of community members in first aid sets up a foundation of prehospital care, upon which formalized training programs should evolve. Dedicated vehicles for prehospital transport will eventually need to be designated. Dispatch and other communication methods should be elaborated. Ultimately, health care providers working in hospital emergency departments should also receive formalized, emergency medicine training. This multiphased development will be supported by EMEDEX in partnership with local process owners, already designated at the stakeholders conference.

Sustainability may perhaps represent the greatest challenge in international humanitarian programs. Continued support and presence by humanitarian organizations during program implementation is paramount; however, local ownership must be emphasized and promoted. Incentives to local leadership may include skills development programs, but also cannot ignore the need for financial support. EMEDEX has found difficulty in maintaining its trained first aid instructors because most cannot take time away from their regular jobs to teach courses. Particularly in Northeast Haiti, where employment opportunities are scarce, Haitians rarely can take on added responsibility on a volunteer basis. Project budgets should consider how to incorporate financial incentives for local leaders, and programming should support long term, local economic development. Further, lack of coordination between the multitude of humanitarian organizations working in Haiti promotes inefficiency, redundancy, and overstretches already limited funding. In its work in the Northeast, EMEDEX seeks to continue collaborating and creating synergy with other organizations working in the region. Pooling of knowledge and financial capital promises more sustainable implementation of projects.

Conclusion

In a country where the population relies heavily on international donor funding and human resources from the international nonprofit community, EMEDEX plans to effectively measure and improve the presence of local resources, skills, and strengths upon which the population can depend without external humanitarian support. The overall aim of its initiatives is to move the country's population from dependence on outside support to local autonomy in service delivery.

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