

A Qualitative Study Assessing Haitian Pediatric Nursing Educational Needs in Port-au-Prince, Haiti

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Abstract. After Port-au-Prince's 2010 earthquake, Hospital Bernard Mevs (HBM) developed a collaboration with international medical volunteers to provide clinical care and medical resources; that evolved to include medical education as local Haitian staffing developed. There has been limited coordination among volunteers and local providers about ways in which volunteers can best serve the hospital, and literature that addresses how to coordinate volunteer efforts to support the educational needs of the local nursing staff is scant. Our objectives were to complete an educational needs assessment of the most common diagnoses encountered, requested topics for education, and preferred learning modalities as reported by Haitian pediatric nurses, and categorize the strengths of HBM and barriers to care to understand more fully the context within which nurses function, and how education and international volunteers may be related. In October 2019, 10 HBM pediatric nurses participated in small-group interviews. Questions were based on an interview guide and responses were coded and analyzed for recurring themes. The most common diagnoses were sepsis, hydrocephalus, and hypoxic ischemic encephalopathy. Topics for review included chest tubes, ventilator management, and ventriculoperitoneal shunts. Preferred learning modalities were didactics and hands-on workshops. Strengths of the hospital were team dynamics and education provided by HBM and international volunteers, whereas the most common barrier to care was lack of clinical supplies. This information is useful to guide future educational interventions, and this model may inform other programs with a volunteer presence in resource-limited settings to promote collaboration and self-directed learning.

INTRODUCTION

Provision of health care in Haiti, the poorest country in the western Hemisphere, faces many challenges, resulting in the highest neonatal, infant, and child mortality rates in the hemisphere.¹ There is a severe shortage of trained medical providers, with as few as four health-care providers per 10,000 people,² far below the minimum of 23 health-care workers per 10,000 people recommended by the World Health Organization for adequate health-care delivery. Of the already limited providers, a small percentage receive any specialized training in pediatrics.³ The complexity of challenges faced by Haiti's medical infrastructure is not only the result of economic constraints and the COVID-19 pandemic, but its exposure to several devastating natural disasters, a cholera epidemic, and prolonged political instability and civil unrest. These challenges have left Haiti's health-care system struggling to rebuild.

Evidence supports that when considering a path to strengthen an independent pediatric health-care system it is important to support capacity development, including its health-care workers. As low- and middle-income countries (LMICs), including Haiti, work to support independently the education and development of their health-care workers, institutions from high-income countries (HICs) and medical training facilities within LMICs may attempt to support such development through a variety of existing collaboration models. Data from HICs show the importance of health-care learner input regarding needs when implementing continuing medical education.^{4–6} However, when analyzing the framework of collaborations between educators from HICs and

learners from LMICs, these relationships are less likely to reflect the needs of LMICs and their health-care workers, and are more likely to be vertical relationships reliant on top-down approaches to health care and education dictated by the driving force of HIC interests.^{7–9} Vertical relationships are often the least effective at education, health-care delivery, and sustainability. And without consideration of LMIC needs, little lasting change is made as a result of the lack of capacity growth and buy-in from LMIC stakeholders.⁸ Collaborations between HIC and LMIC institutions, organized as discreet relationships between two groups or, more often, a consortium relationship between several HIC institutions and one LMIC, are becoming more common to support a more horizontal relationship, and have been shown to be beneficial for resource sharing, continuity of programming, and educational opportunities.^{10–13}

After the 2010 Haitian earthquake, the country was flooded with nongovernmental organizations that worked to meet the immediate critical healthcare needs of the country. However, without central oversight or long-term plans in place, many left after the acute crisis resolved, leaving Haiti with a decimated health-care system and poorly developed infrastructure. One program that has continued a lasting horizontal partnership successfully is that between Project Medishare and Hospital Bernard Mevs (HBM) in Port-au-Prince. The program consists of North American volunteers, supported through Project Medishare and other organizations, who rotate through the hospital to help provide both clinical care and staff education. As HBM has successfully built capacity, the role of volunteers has shifted to include and focus heavily on HBM medical staff education. Volunteers do not communicate with each other or with learners prior to arrival, resulting in no coordination of educational content or delivery. This leaves volunteers without an understanding of the medical or educational needs outside of basic hospital information, and the collaboration is being underused in this newer

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role. To date, no needs assessment of pediatric medical staff at HBM has been completed. With literature supporting the need for this collaboration to create equitable, efficient relationships, we completed a pediatric nursing educational needs assessment to determine the most common diagnosis encountered, requested topics for educational review, and preferred learning modalities. In addition, strengths of the HBM program and perceived barriers to care were investigated to understand more fully the context in which nurses practiced and how international volunteers may best be involved.

MATERIALS AND METHODS

Setting. HBM, in Port au Prince, Haiti, is known within the city as the only major trauma center with pediatric services. Approximately 40 nurses work in pediatric inpatient areas including pediatric triage, a four-bed neonatal intensive care unit (NICU), a four-bed pediatric intensive care unit (PICU), and a 12-bed pediatric ward. There is 24-hour staffing by pediatric residents, with oversight by pediatric attending physicians, and limited access to some pediatric subspecialists. There is limited access to onsite ancillary radiology and laboratory services.

Participants. A convenience sampling¹⁴ of 10 nurses working in the NICU, PICU, and general pediatric ward were recruited by verbal request from their manager. They were asked to participate on a voluntary and confidential basis during their regularly scheduled shift with cross-coverage during interview times. Nurse involvement was maximized by seeking participation when nurses were onsite, as staff travel to HBM was often arduous, and travel offsite of HBM was not secure.

Conceptual frameworks and instrument development. The structured interview tool and small-group interview design was developed by the authors (S. S. and A. R.) and was loosely structured on the Provider Behavior Change Implementation Kit by the United States Agency for International Development.¹⁵ It was developed using investigative questions with the purpose of understanding clinical educational needs of the Haitian pediatric nurses, and potential avenues for how best to meet these needs. To understand the scope of needs more fully, questions were designed to understand the context in which the nurses practiced, including perceived strengths of the hospital and barriers to care. The tool was reviewed with the nurse manager (J. R.) to discuss completeness and relevance prior to implementation.

Data collection. In-person interviews were conducted during a 1-week period in October 2019 using a general qualitative inquiry approach.¹⁶ We completed four semistructured interviews that consisted of two to four interviewees at a time, one primary interviewer, one primary note taker, and a Haitian Creole interpreter. Interviews were conducted in small groups to allow for maximal nursing participation while onsite for shifts, with clinical staffing coverage provided, as well as to facilitate discussion among participants. Interviews were held in private rooms and were audio-recorded. Ample time and opportunity were provided to allow all interviewees to consider and answer all questions.

Data analysis. Interviews were approximately 60 minutes per group, totaling 360 minutes, and were recorded via the interviewer's mobile phone recording feature and transcribed

verbatim by two authors (A. R. and S. S.) in a cloud-based document application (Google Document), resulting in 27 pages of transcript. The transcript was analyzed and coded independently using NVivoTM¹² by two authors (A. R. and S. S.) who had received independent education on coding technique, and who then completed thematic content analysis of the data.

Ethical considerations. Internal review board approval was obtained by each participating U.S. program via expedited review (Children's National Hospital) and exempt status (Columbia University), and approval by hospital leadership at HBM was obtained. Verbal consent was obtained by all nurses and it was expressed by the interviewing team and the program director that participation was voluntary.

RESULTS

The study enrolled 10 nurses (four PICU nurses, four general pediatric ward nurses, and two NICU nurses, totaling 25% of HBM's pediatric nursing staff). All nurses were women, aligning with the all-female pediatric nursing staff, trained in Haiti, had pediatric focus, and often cross-covered within the pediatric wards. The majority spoke Haitian Creole, with two also fluent in English. Participants' careers ranged from newly employed with a few months of work experience to veteran nurses with more than 10 years of experience. Each small group contained nurses with a varied duration of clinical experience, with no one group composed primarily of veterans versus new hires. Investigators led discussions related to relevant training topics, including most common diagnoses encountered and requested topics for education, preferred learning modalities, hospital strengths, and perceived barriers to care. Several themes for each topic emerged during data analysis (Table 1).

Educational topics and modes of learning. In an effort to maximize the usefulness and applicability of future educational interventions, nurses were asked which diagnoses they encountered most commonly in the NICU, PICU, and pediatric wards. Because there are limited available hospital census data related to a lack of an electronic medical record, this was an approximation to determine common diagnoses subjectively. Responses regarding diagnoses encountered included sepsis, hydrocephalus, hypoxic ischemic encephalopathy, and trauma cases, with nurses highlighting diagnoses that align with known specialties at HBM. Participants spoke of the pediatric hydrocephalus program in pediatrics, and of being the only pediatric trauma center in Port-au-Prince as well as one of the few NICUs in a region with high home-birth rates.

After reviewing commonly encountered diagnoses, nurses were next asked on which topics they would like more education. They identified quickly and decisively topics of educational interest, including chest tubes, ventilator management, and ventriculoperitoneal shunts. These topics encompassed integral parts of their daily patient care, and they desired more knowledge in topics that would allow them to be better informed on topics related their patients. Nurses commented on wanting to know the physiology behind a diagnosis as well as hands-on skills related to caring for patients. An example of a pleural effusion was mentioned. One nurse commented that she wanted to know not only why the fluid was there and how it got there, but also how to keep the chest tube clean, at the

TABLE 1
Sample nursing quotes by theme

Theme	Quote
Education	
Most common diagnosis	<i>Hydrocephalus. Meningitis. Malnutrition.</i>
Preferred modes of education	<i>Practicing is better. When you put your hands on something, you already have the theory. You have that at home. But hands-on is better.</i>
Topics on which more education is requested	<i>She would like to practice ventilation and CPAP. . . the machines. When you were decreasing something. She was not a PICU nurse, she used to work in general peds. It's while the PICU nurses are gone, [but] she was not trained.</i>
Strengths of hospital	
Availability of doctors	<i>Now we have resident, we have more doctors that work overnight. Even when they have residents, they always have a senior doctor. And it's easy to find and the senior doctor is already present.</i>
Materials	<i>They [HBM] have syringe, IV, they have materials. A patient comes in shock; some die because they don't have materials for first aid [elsewhere]. Here they have materials for them to work.</i>
Outside support	<i>Sometimes we have patient without family here. They need diapers, everything. And when volunteers don't come, they don't have anything. When volunteers come, they usually bring stuff that is something helpful.</i>
Philanthropy	<i>Most of the patients cannot afford the care. But for the hydrocephaly kids, Miss Maggie has a program. Which is a free program. Not only for hydrocephaly, for any. Some of them can't afford the cost. Some of them can't afford the cost of the hospital.</i>
Team dynamics	<i>Yes, they do family center, and everyone works here as a team. Family center is doctors and everyone work together and talk and parents.</i>
Training	<i>Why did I choose in Haiti now to work at Bernard Mevs? Because it is one of the best hospitals we have, and with all the volunteers from different countries, they always come to do trainings . . . You know something and then you teach it . . . they come to teach, and we let them know what we want to learn.</i>
Barriers	
Bed capacity	<i>Imagine in neonatology, they only have four places. Sometimes a patient comes who is very sick and they don't have any space, and then just tell them to go away.</i>
Financial	<i>Sometimes if the doctor prescribes medication, what causes the delay, sometimes when we don't carry medications at the pharmacy. And we can [give] the prescription to the family member to go buy it elsewhere. Sometimes the family member cannot afford to purchase the medicine. It takes longer. Makes the procedure longer.</i>
Materials	<i>[The patient] come in the pediatric ward, the nurse has to run to ER to get a monitor so they can save the child's life. By the time that she goes and looks for materials, the child may pass away.</i>
Staffing	<i>NICU always needs extra nurse, but she end up not finding extra nurses.</i>
Subspecialist availability	<i>More training. It's been hard to be trained in Haiti because sometimes they work they need money . . . And any training, and even more education in other countries to see how things work—they need more specialty training, especially in any countries.</i>

ER = emergency room; HBM = Hospital Bernard Mevs; IV = intravenous; NICU = neonatal intensive care unit; PICU = pediatric intensive care unit.

appropriate level, and how to troubleshoot problems. In addition, nurses noted that with staffing shortages they were sometimes covering PICU-level patients without specific PICU training, and therefore were managing ventilated patients and would like more instruction on adjusting ventilator settings.

She would like to practice ventilation and CPAP. . . the machines. When you were decreasing something. She was not a PICU nurse, she used to work in general peds. It's while the PICU nurses are gone, [but] she was not trained.

Although the hydrocephalus program present at HBM is run by external volunteers and local neurosurgeons, many local nurses care for patients with externalized ventriculoperitoneal shunts. They expressed an understanding of the general sterile care needed to care for these specialized patients, but they wanted to know more about the mechanism of the shunt, the differences between externalized and internal shunts, and important markers to recognize changes in a patient's neurological status.

Nurses were then asked what their preferred learning modalities were, with responses focused heavily on interactive, hands-on sessions. Although some nurses highlighted the need for books and lectures as initial educational steps, many nurses felt practical application sessions were the most effective use of their time. Many commented that they come in on their day for education have significantly long,

and sometimes, dangerous commutes. They stressed the importance of hands-on practice to make the training worth the effort, and that it is the best educational mode to retain information. Many enjoyed simulation sessions and practicing skills on mannequins or simulators that may be onsite for limited amounts of time or in limited supply, available only through international donations or at times of internationally run education.

Practicing is better. When you put your hands on something, you already have the theory. You have that at home. But hands-on is better.

Strengths of the HBM pediatric program. Six themes emerged when asking about strengths of the pediatric nursing program and the hospital: 1) pediatrician availability, 2) team dynamics, 3) availability of materials when compared with other hospitals in Haiti, 4) hospital-initiated philanthropy, 5) education and training provided to staff, and 6) material support from international medical providers. Education and training provided to staff and team dynamics were the strengths that were mentioned most frequently by the majority of nurses interviewed.

The team dynamics among nurses, residents, and attending physicians at HBM was described as a strength of the program, with nurses feeling they were valued members of the team who contributed important insights into patient care and management.

One nurse noted, “[We] work together. If the patient needs [continuous positive airway pressure] . . . we communicate with the doctors. We work as a team.”

The education and training provided to nurses both by HBM staff, such as their nursing coordinator, as well as from international volunteers was described as a unique and highly valued opportunity for nurses working at HBM. Multiple nurses even described this education as a driving factor in their decision to work at HBM:

Why did I choose in Haiti now to work at Bernard Mevs? Because it is one of the best hospitals we have, and with all the volunteers from different countries, they always come to do trainings.

They like that HBM is one of the biggest hospitals that we have in Haiti, and she really tried hard to work at HBM, and we receive a lot of training from those volunteers from other countries . . . one of the best hospitals that we have where those volunteers will come and update them.

Interviewees expressed that these investments into their development were a major draw for employment at HBM as opposed to other health-care sites within Haiti where ongoing nursing education was not prioritized or available. One nurse noted, “When you practice . . . you get better. In the other hospital, nurses don’t do that.”

Nurses also commented on how the education and training they received translated into effective and improved care for their patients, which was consistent with their requested educational topics and clinical skills correlating with relevant, commonly seen diagnoses and expected management of their patients.

They love all the training because it increased the knowledge that they have. The last training that they did was about CPR . . . She really liked that because they can help somebody—save [a] life.

Barriers to care. Five themes emerged with regard to barriers to care: 1) financial constraints, 2) lack of consistent access to materials, 3) limited bed capacity, 4) nursing staffing needs, and 5) subspecialty availability. Financial constraints that were identified were 2-fold: families’ inability to pay for the cost of care, and the hospitals sometimes low revenue yield intermittently affecting nursing salaries and available services or supplies. The most common barrier identified by almost all participants was the lack of consistent access to materials.

A long time ago, they used to have more materials because volunteers used to come more frequently and they would bring a lot more materials. For now, in order for you to use the materials, they are controlling a pair of gloves that you are using. . . . [The patient] come in the pediatric ward, the nurse has to run to [the emergency room] to get a monitor so they can save the child’s life. By the time that she goes and looks for materials, the child may pass away.

DISCUSSION

We identified several themes related to educational topics, hospital strengths, and barriers to care for pediatric nursing

staff at HBM. The nurses highly valued the educational opportunities that HBM was uniquely poised to offer within the region based on HBM’s commitment to education, and education provided by international volunteers. The desired education included not only bedside skills, although those were stressed heavily, but also the breadth of each diagnosis—from pathophysiology to intervention and management. There was also consensus on how to learn best within their environment. They recognized that education in high-volume diagnoses would not only allow them to provide better care, but also that it would provide the biggest impact with the shortest amount of investment—a very real consideration in a high-volume, high-pressure job with external stressors and severely limited resources.

The findings of this needs assessment aligns with the general principle that adult learners are often self-directed, and education is most effective when educators involve the learner actively in the education process.¹⁷ The primary focus of the assessment was on the instructional preference model of learning, one of four learning style models described by Claxton and Murrell in Davis’ work,¹⁸ with emphasis on how students best acquire information: by listening, reading, visualizing, or experiencing. The nurses at HBM had a clearly delineated preference toward experiential learning. Simulation sessions, skills stations, and active engagement were highlighted repeatedly. The act of doing has been noted by past research as a specific, effective learning modality for young adults,^{19–21} and our nursing staff aligns well with this consensus. It is important to note, however, that although this was the preferred modality, nurses emphasized all learning modalities as important, with the summative reinforcing learning preference being experiential learning.

Although the COVID-19 pandemic and escalating sociopolitical situation has halted most volunteers since mid-2020, this information may be used when volunteers can return safely to HBM. Further progress in volunteer educational standardization will be made to guide educators with topics and learning modalities that meet the self-identified needs of the nursing staff. It would be especially useful for international volunteers to provide instruction on relevant, requested topics along with the provision of simulators, mannequins, or task trainers for continued hands-on learning. In addition, as Haiti struggles with in-country human resource retention, it is important to note how highly valued continuing medical education was regarded by the nursing staff. This suggests that an investment into ongoing education should be considered a priority when discussing nursing recruitment and retention.

Limitations to this work include a small sample size, even though it was inclusive of 25% of the pediatric nursing staff. Although the right to refuse participation was made clear, the nursing staff were aware that their director knew of this project and may have felt pressure to participate. It is also possible that there was selection bias, and nurses more invested in education participated. The interviewer’s presence and small-group format may have affected participant responses resulting from pressure to align responses with peers or with those of more experienced or outspoken colleagues. Last, the interpreter was an HBM interpreter and not trained professionally in research-level translation. A 100% translation accuracy from nurse to translator cannot be guaranteed.

CONCLUSION

This study aimed to understand pediatric nurses' medical educational needs and preferences, and their perceptions on the limitations and strengths of HBM. Preferred learning modalities, common diagnoses encountered, and requested topics of education were revealed. A variety of limitations were identified, many commonplace in hospitals throughout LMICs, whereas strengths of the hospital included the highly valued education provided to nurses from both HBM and international volunteers. The results of this study will guide future educational interventions, especially those by international volunteers, to meet the self-identified needs of the HBM nurses in the most impactful way, and may act as a model for other educational collaboratives to investigate and prioritize more fully the needs and preferences of their learners.

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