

Emergency Medicine in Guyana: Lessons from Developing the Country's First Degree-conferring Residency Program

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Supervising Section Editor: Christopher N Mills, MD, MPH

Submission history: Submitted June 1, 2012; Revision received December 10, 2012; Accepted March 25, 2013

Full text available through open access at http://escholarship.org/uc/uciem_westjem

DOI: 10.5811/westjem.2013.3.12714

Introduction: Academic departments of emergency medicine are becoming increasingly involved in assisting with the development of long-term emergency medicine training programs in low and middle-income countries. This article presents our 10-year experience working with local partners to improve emergency medical care education in Guyana.

Methods: The Vanderbilt Department of Emergency Medicine has collaborated with the Georgetown Public Hospital Corporation on the development of Emergency Medicine skills followed by the implementation of an emergency medicine residency training program. Residency development included a needs assessment, proposed curriculum, internal and external partnerships, University of Guyana and Ministry of Health approval, and funding.

Results: In our experience, we have found that our successful program initiation was due in large part to the pre-existing interest of several local partners and followed by long-term involvement within the country. As a newer specialty without significant local expertise, resident educational needs mandated a locally present full time EM trained attending to serve as the program director. Both external and internal funding was required to achieve this goal. Local educational efforts were best supplemented by robust distance learning. The program was developed to conform to local academic standards and to train the residents to the level of consultant physicians. Despite the best preparations, future challenges remain.

Conclusion: While every program has unique challenges, it is likely many of the issues we have faced are generalizable to other settings and will be useful to other programs considering or currently conducting this type of collaborative project. [West J Emerg Med. 2013;14(5):477–481.]

INTRODUCTION

Guyana's residency program in emergency medicine (EM) began in October 2010. It is one of several EM training programs in low and middle-income (LMI) countries developed in collaboration with an international EM partner.¹⁻³ The Guyana EM residency stands out as the first postgraduate training program in that country to confer a university-accredited degree, putting EM at the forefront of the development of graduate medical education (GME) in Guyana. In this paper, we will discuss the development of this program, review some of the lessons learned, and anticipate

some of the challenges ahead that we believe will benefit the growing number of collaborative EM training programs.

GUYANA

Guyana is a former British colony of 751,000 persons bordered by Venezuela, Brazil and Suriname. Guyana is culturally and economically affiliated with the English-speaking Caribbean countries. The main population center is the coastal capital city of Georgetown. A significant minority of the population lives in small villages scattered across vast tracts of jungle and savannah. Major ethnic groups have

East Asian, African and Amerindian backgrounds. Guyana is among the poorer countries of the Americas and health status indicators lag behind most of the surrounding countries.^{4,5} Guyana has fewer than 5 physicians per 10,000 population with the majority not residency trained.⁶ The country has seen significant emigration, including a disproportionate number of healthcare providers.⁷⁻⁹ Georgetown Public Hospital Corporation (GPHC) is the national tertiary care teaching hospital while the Ministry of Health (MOH) runs 26 district and regional hospitals.⁶ Many hospitals are located in remote regions and some have significant accessibility limitations.

MEDICAL TRAINING IN GUYANA

Medical training follows the United Kingdom (UK) model with a 5-year undergraduate MBBS degree from the University of Guyana (UG) School of Medicine. This is followed by a rotating internship after which a physician may obtain a license and work as a government medical officer (GMO) or in private practice. Guyana and Cuba also sponsor a program allowing Guyanese students to study in Cuba for medical school and internship.^{6,7} These graduates have a 5-year service obligation to the Guyanese government, typically including rotations at GPHC followed by 4 years in a regional assignment.

Emigration of Guyanese healthcare professionals is a significant problem and is related to multiple factors. Relative political instability, a weak economy, and the lack of GME opportunities are among the likely contributors.⁷⁻¹⁰ A general surgery diploma program was implemented in 2006 in response to the national shortage of surgeons. This 2.5-year training program was developed in collaboration with the Canadian Association of General Surgeons (CAGS).^{7,8} While this and other diploma programs in anesthesia and orthopedics have had relative success, the fact that graduates require further training has led the leaders at GPHC and the MOH to call for the development of university-accredited GME within Guyana.⁷

INITIAL COLLABORATION AND RESIDENCY DEVELOPMENT

Faculty from the Vanderbilt Department of EM began the collaboration with GPHC in 2002 motivated by one of the author's (JPR) personal connections from growing up in Guyana. Based on a need for resuscitation training, as identified by GPHC's leadership, early efforts focused on life support courses for physicians and nurses. Within several years this led to the creation of GPHC's Emergency Cardiac Care program, which operates as a sustainable program under local leadership. Vanderbilt EM and the Institute of Health Science Education (IHSE) at GPHC have worked together to develop other short courses to meet specific training needs, including courses in triage, ultrasound, neonatal resuscitation, intimate partner violence, and wound care.

As this educational collaboration matured, GPHC's leadership began to highlight the emerging priority of a GME program in EM as a step toward improving emergency patient care outcomes. Before the EM training program began, physicians working in the ED at GPHC were not residency trained. During 2009 and 2010 Vanderbilt faculty and fellows, in collaboration with GPHC colleagues, developed the residency curriculum. UG approved the 3-year curriculum leading to a Masters in Medicine degree (M.Med) in June 2010, and the first class of residents entered the program in October 2010. Eleven residents are enrolled in the program as of May 2012.

KEY LESSONS LEARNED

Impetus for Program Development Should Come from Local Leadership

The ultimate success of a program that is intended to introduce a new specialty into a healthcare system depends on the readiness of the system to support GME and accept the new program's graduates. Only the local leadership can adequately determine if the resources exist and the time is right for this type of project. While EM has grown into a worldwide specialty, the appropriate place for EM in the hierarchy of developmental priorities should be a local decision.¹¹ The Guyana MOH became an early supporter of the program. The Ministry's involvement combined with the support of the IHSE became instrumental in securing the buy-in of the GPHC executive leadership. By the curriculum development stage, UG had come on board as a full partner, ultimately accrediting our program to award the M.Med degree and setting a precedent in Guyana for the development of GME as a shared hospital and university responsibility.⁶ That our program was developed in response to a request from the leadership of the national teaching hospital and in collaboration with the national university has optimally positioned it to survive and succeed.

Patience is Vital to Program Implementation

Although the idea of an EM residency was first brought up in early meetings between GPHC and Vanderbilt faculty, it was 8 years before the program was launched. Earlier consideration was given to developing a residency program, but it was felt to be premature for several reasons. The relatively short history of interaction between the partners needed to mature in order to foster mutual trust. In addition, Vanderbilt did not have sufficient internal human resources or funding to devote to the task of residency program development. Nevertheless, Vanderbilt and GPHC continued to develop partnerships around smaller projects, and Vanderbilt accumulated expertise working in Guyana. The Vanderbilt Division of International Health itself matured, increasing its faculty and implementing a fellowship program, strengthening Vanderbilt's ability to engage in Guyana for the long term. The long-standing commitment to working

in Guyana was also recognized in our ability to obtain external funding for the program and played a key role in the willingness of GPHC and the MOH to invest funds in staffing for the EM residency. In retrospect, it is clear that patiently allowing the “pieces of the puzzle” to fall in place, while continuing to work together and build relationships, was key to the successful implementation of this program.

The Staffing Plan Is Key to a Successful Program

United States (U.S.)-based programs supporting international EM residencies use a variety of staffing models. One option is to support local EM faculty by providing curriculum components and augment teaching modules with periodic site visits. This approach depends heavily upon having local faculty to manage day-to-day teaching responsibilities.¹¹ While this model has been used with success by the CAGS-sponsored surgery residency in Guyana, it was determined that this would not be feasible as there were no trained EM physicians in Guyana to serve as teaching faculty.⁸

Another possible model is to use multiple visiting faculty who spend brief periods of time in the host country, providing a regular though intermittent faculty presence. This can be done with physicians from a single sponsoring department or through a consortium.¹² While this model may allow for flexibility of faculty scheduling, ensuring a continuous supply of teaching faculty can be difficult for supporting institutions. Importantly, this model may make it difficult to maintain effective teaching relationships with trainees and achieve credibility within the local institution to drive change. Additionally, this model did not fit with the vision of the IHSE leadership.

In response to the challenge of staffing the program in Guyana without local physicians with formal EM training, it became a priority to place a fully trained emergency physician on site on a full-time basis to serve as the residency director.¹¹ Administrative leadership of the ED remained the responsibility of GPHC in order to allow the Vanderbilt physician to focus entirely on resident education. The residency director's continuous presence on site, supplemented at times by other visiting educators, created the consistency that was felt to be desirable for the creation of a maximally effective educational environment. This model's strength of fostering local relationship building and gaining a fully developed understanding of local systems may be outweighed in some contexts by the costs associated with finding salary support for an expatriate faculty member.

The Importance of an Effective Distance-Learning Platform

While internet teleconferencing may be a powerful tool in the exchange of educational products between international partners, the technical challenges associated with managing distance learning applications have been more difficult than

anticipated. Even with expert support staff on the Vanderbilt side, we have had limited success with regular webcasts of teaching modules. The primary limitation has been the variable availability of adequate bandwidth to support bidirectional transmission of audio, video, and graphic content. We have found that simple solutions have been the most effective, with Skype video conferencing yielding comparable results to more advanced and expensive modalities.

The Importance of Diversified Funding

With the substantial costs associated with faculty coverage, travel, and educational materials it would not have been feasible to undertake this kind of program without external funding. The usual funding sources for academic activities do not routinely grant funds for international GME development. In addition, government-funding sources that focus on international healthcare development tend to focus on infectious diseases or are limited to specific geographic regions.¹³ That our program was able to secure sufficient funding from a private foundation was critical to its successful implementation and created enough confidence in our local partners to allow them to make significant contributions as well. Ultimately, private foundations, GPHC, and the MOH have shared the program costs. As the residency program's graduates become its leaders, ongoing costs will progressively become the responsibility of local stakeholders.

The Importance of Adaptation to the Local System of Medical Education

In addition to working with a local university to accredit our program, it became apparent early in the process that it would be critically important to create a curriculum compatible with local and regional medical education systems.¹¹ A U.S.-style EM curriculum could not be transplanted and expected to be effective, given the British-based Guyanese medical education system. While we used Vanderbilt's residency curriculum as the foundation for the educational content, it was placed in the framework of Guyanese medical education. For example, following local practice, residents must have completed 1 year of internship and 1 year as a GMO before starting the program. Additionally, instead of program graduation leading to “board certification” as in the U.S., our graduates will receive the M.Med degree from UG. While not a specific guarantee of employment, the granting of the degree will make them eligible to apply for consultant positions within the Guyanese healthcare system. Furthermore, the content of the U.S. core curriculum was adapted to the local context. The core knowledge base was kept but additional emphasis on certain geographically relevant topics, such as tropical diseases and rural health, was provided. Procedural requirements were closely matched to the U.S. training standard. Thus, we strived for careful balance between the U.S. curriculum and adaptation to the local educational needs.

The Importance of a Degree Granting Program

When most physicians in the country have no post-graduate education, explaining the value of residency training may become a challenge. As was found with the surgery diploma program, some potential trainees viewed foreign-backed programs with suspicion.⁸ Early applicants had concerns about the sustainability of the program that resulted in doubts the program would exist long enough for them to complete their training. Potential applicants were also concerned that the medical system might not recognize their graduating qualifications and that they might not achieve access to improved salaries or professional advancement. These concerns highlight the importance of going beyond the awarding of a diploma to the conferring of the university-accredited M.Med degree.

FUTURE CHALLENGES

Plan the Transition of Leadership

While the Guyana program is still fairly new, we consider it a priority to transition its primary leadership and teaching responsibility to its graduates.¹¹ The early graduates will be expected to step into leadership roles, so several program features are intended to improve the chances of a successful transition and ensure the sustainability of the program:

- Graduated responsibility in teaching has been implemented, starting with case presentations, followed by informal didactics and finally full lectures. The goal is a transition to teaching the core curriculum locally and using distance education and visiting faculty for more in-depth topics.

- In parallel with core content curriculum components, we have designed a simultaneous educator development program. This program includes modules in team-based learning,¹⁴ lecture preparation, medical simulation, competency-based assessment, and techniques of effective feedback. This program is reinforced by a 1-month education immersion experience at Vanderbilt for Guyanese residents. Education techniques are modeled and practiced under the supervision of experienced teachers, including 3 faculty who are part of Vanderbilt's Master Clinical Teacher program.

- Early delegation of residency office tasks to the residents, such as scheduling, M&M's, journal club, and attendance of hospital committee meetings.

Continue to Develop Regional Collaboration.

While Vanderbilt's support of the residency has been essential, building regional ties is key to long-term viability. Regional collaboration provides potential regional recognition of Guyana's M.Med program and integration in the soon-to-be-established Caribbean College of Emergency Physicians. Just as South Africa can be considered the driver of EM in Africa,¹⁵ the University of the West Indies (UWI) based EM residencies are the drivers of EM in the Caribbean.¹⁶ Two UWI EM residencies were visited and leaders from the UWI St. Augustine campus have participated as guest faculty in

Guyana. As a result, the Guyanese program was invited to participate in the monthly UWI webcast grand rounds and resident rotations at UWI are being planned.

Develop a Doctor of Medicine (DM) Degree in EM

Our program confers the M.Med degree and is the first M.Med conferring program in Guyana. The M.Med fits within the vision of the IHSE of a 3-year generalist degree, while a DM would be required for sub-specialists, such as cardiologists or neurosurgeons, and would involve 5 to 7 years of training. In the UWI system, however, the DM degree is the degree awarded to EM graduates and is arguably the current regional standard. As more GME programs are launched in Guyana and seek to achieve regional recognition, it is expected that most will seek a pathway to a DM. We envision adding a subspecialization in pediatric EM as a next step in that direction.

Retention of Graduates

Retention of graduates within Guyana is paramount to the sustainability of the residency and is probably the ultimate challenge for this program. Guyana suffers from a disproportionate emigration of its medical professionals.⁷⁻⁹ Lack of specialty training in Guyana has been cited as a driver of physician emigration.⁷ Approximately 75% of UG medical school graduates reportedly leave for their internship and do not return, but of the 13 graduates of the surgery diploma program, 10 remain in Guyana. Of the 3 surgery graduates who left Guyana, 2 stayed more than 1 year after the completion of their payback time. This early evidence seems to support the assertion that bona fide in-country GME has the potential to stem the brain drain. The EM residents appear committed to remaining in Guyana and there are contractual measures in place to try to reduce the number who may choose to emigrate. Specifically, each resident's training contract with GPHC includes a requirement for 1 year of service after program completion. Our longer-term goal is that residency training will address some of the push issues that promote migration.¹⁰ Residency training alone is viewed as only part of a meaningful solution. Access to professional advancement and enhanced compensation will also be critically important and new consultant positions for residency graduates will need to be created and adequately funded.¹⁷ Other nascent EM programs in developing countries are grappling with this issue and their progress will be closely followed.^{15,16}

DISCUSSION

While the establishment of an EM training program in a LMI country requires a unique approach each time, there are some lessons we have learned that may be generally instructive. The most unique feature of the EM residency in Guyana is that it is the first degree-granting GME training program in that country. As such, it is faced with significant challenges even as it realizes unusual rewards. The program continues

to evolve and a published update will be required as leaders developing EM internationally continue to learn from each other's experiences. The argument in favor of EM training in LMI countries has been well articulated. Indeed, half of the top 10 causes of death and half of the top 10 causes of disability-adjusted life years lost in these countries are diseases for which there is evidence for saving lives with early and appropriate intervention.^{18,19} Furthermore, where there is limited access to primary care, chronic diseases are often poorly controlled and tend to present emergently in a decompensated state.¹⁹

While training emergency physicians is likely to improve outcomes of patients who present to the ED, can such a new specialty thrive as the first training program in a country? While internal medicine, surgery, obstetrics, and pediatrics are often thought of as the core specialties of medicine, EM effectively overlaps with each of these specialties and EM graduates can initiate improved protocols for the treatment of many common ailments from acute asthma exacerbations and acute dehydration to directing the management of myocardial infarction and major trauma.

The argument to develop formal GME programs in LMI countries is compelling and offers the opportunity for improved health outcomes and the advancement of all healthcare workers. Indeed, the goal of the EM residency is to lift the quality of all emergency care personnel, including nurses and rural health workers.²⁰ Academic centers in LMI countries have an opportunity to be regional leaders of the development of EM, and EM may be a logical starting point for the creation of initial GME programs in some locations. Funding sources should begin to prioritize the support of formal GME programs in developing countries as a model of sustainable health education development.

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Conflicts of Interest: By the *WestJEM* article submission agreement, all authors are required to disclose all affiliations, funding sources and financial or management relationships that could be perceived as potential sources of bias. The authors disclosed none.

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