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References


The Global Health Service Partnership’s point-of-care ultrasound initiatives in Malawi, Tanzania and Uganda

1. Introduction

The challenges of providing quality healthcare in resource-limited settings in sub-Saharan Africa have led to initiatives to increase the number of healthcare professionals, improve the relevance of training programs, and develop local leadership capacity, aiming to promote clinical outcomes [1-4]. Point-of-care ultrasound (POCUS) is a modality that can provide critical support in resource-limited settings. There have been several reports of its utility in such settings, but much remains to be learned about how to best train practitioners, optimize usage and ensure its continued applicability [5-7].

In this context, we report our experience with introducing POCUS as part of the Global Health Service Partnership (GHSP), a program that was established in 2012 as a collaboration between the President’s Emergency Plan for AIDS Relief (PEPFAR), Peace Corps, and Seed Global Health to provide medical and nursing education and training in resource-limited settings [2,8]. Since 2012, GHSP has placed U.S. volunteer physicians, midwives, and nurses in host institutions in several African countries with critical shortages of high level healthcare providers. Many of the educational sites lacked adequate imaging capabilities, so in 2013 GHSP engaged in an educational program focused on the use of POCUS to support GHSP volunteers’ educational activities in collaboration with host institutions in Malawi, Tanzania, and Uganda.

2. Ultrasound training program

A total of 156 GHSP clinical educators deployed between 2013 and 2017 across 5 countries (Malawi, Tanzania, Uganda, Swaziland, and Liberia) (Fig. 1). These clinical educators spent one year in the host countries, and twenty of the 156 GHSP clinical educators extended their mission for an additional year. While implementing POCUS program, only sites in Malawi, Tanzania, and Uganda had ultrasound equipment and participated in POCUS training, and from this initial group of 156 GHSP clinical educators, 63 physicians and midwives were assigned to sites with ultrasound equipment and participated in the POCUS training. GHSP nurses (with the exception of midwives) were not included in the POCUS training, nor were GHSP physicians at sites without ultrasound. The GHSP clinical educators in this study were placed at academic institutions in Malawi (n = 21), Tanzania (n = 24) and Uganda (n = 18).

GHSP clinical educators were equipped and trained in the use of hand-held ultrasound in a multifaceted approach. These initiatives included:

1. Ultrasound equipment: sixteen hand-held portable ultrasound devices (Vscan, GE, Wauwatosa, WI) with the support from the GE Foundation (Boston MA) provided to the host institutions.

2. Pre-departure training: Over the course of two days during their orientation in Washington DC, clinical educators were presented with lectures on ultrasound (US) application in limited-resource settings followed by hands-on POCUS training sessions in 3 to 5 stations with a volunteer to instructor ratio of 3 to 4:1.

3. Onsite training in the host institution: Two to four months after clinical educators’ arrival, two authors (KB and HS) individually conducted onsite US training in the host countries for GHSP clinical educators and local counterpart faculty. These onsite training sessions typically included a review of the concepts for clinician-performed US, introduction to the GE Vscans ultrasound and its controls, the FAST/FASH abdominal ultrasound exam [focused assessment with sonography for trauma/focused assessment with sonography for HIV/TB] [9], echocardiography, lung, renal/bladder, and abdominal ultrasound in the classroom followed by bedside ultrasound training and practice by clinical educators and their counterparts. Sites with midwives and obstetricians received focused training on gynecologic ultrasound and first- and third-trimester ultrasound as well as other relevant topics.

4. Self-study online modules and educational materials for clinical educators while they were in host countries.

5. Educational feedback on transmitted images: Images were sent in digital format to two authors (HS, KB) for review. Feedback was provided in order to improve quality of images and integrate ultrasound more fully in clinical decision making.

6. Training to local counterparts: The trainers also emphasized integration of local counterparts with POCUS training through didactic classroom instruction, hands on practice and bedside teaching.

3. What other imaging technologies were available at host institutions aside from POCUS?

POCUS can be of particular importance when other imaging modalities are not available. Less than 1/2 of clinical educators reported having consistent x-ray capability at their sites, which included large regional referral hospitals. Reasons for inconsistent availability ranged from lack of necessary film or chemicals needed for image development, equipment malfunction, and an unstable power grid with rolling brownouts/blackouts. Of the clinical educators with consistent x-ray capability, only 12% reported having CT capabilities, and only 4% reported having MRI capabilities with a wide variability in their consistency (Table 1).
4. What were the main challenges for the use of POCUS?

Surveying the clinical educators in identifying the top five barriers in utilizing POCUS, they reported the lack of US knowledge, lack of time to scan, equipment security, internet connection and technical assistance and equipment problems, as the greatest challenges to the use of POCUS (Fig. 2).

In conclusion, our model for training clinical educators in the use of POCUS in resource-limited settings and providing them with continuing oversight and practice-based improvement, can serve as a model for...
academic institutions and organizations participating in clinical care and education in resource-limited communities.

Reprints order

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Conflict of interest

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References


Patient perceptions of EMS provider attire

In a health-care landscape driven by patient satisfaction and quality assurance, preferences towards provider attire has become a topic of interest. Uniforms afford clues for personnel identification [9]; research demonstrates attire impacts patient preferences for both nurses and physicians in multiple settings [1–3,10]. One meta-analysis concluded that while patients do prefer formal physician attire, perceptions are influenced by location, setting and context of the care provided and recommends health systems study attire in specific care locations to better tailor provider attire to patient preference [4]. In emergency settings, some research has demonstrated preferences for certain attire worn by physicians [1,10]. Two other studies have examined patient’s perception of physician performance in an emergency department (ED) setting; both concluded patients did not have a preference between formal clothes and scrubs; patients did however express a belief that physician attire was important [6,8].

EMS personnel are the first points of contact with patients in need of intervention; EMS teams rely on trust for effective and successful responses. This prospective study addresses how EMS attire influences patient perception of care through five different variables: likeability, trust, confidence, willingness to confide, and intelligence. We hypothesized that uniforms lead to increased patient awareness and establishment of trust but should not influence perceived quality of care. This survey addresses how patients perceive EMS attire using an assessment of providers responding to a patient in video simulations.

Over six weeks in the fall of 2016, 165 surveys were completed evaluating a team of two EMS providers at the Penn State Hershey Emergency Room. Participants surveyed viewed one of three two-minute videos of an EMS team responding to a patient with chest pain. In each video EMS personnel wore one of three distinct outfits: a blue tee shirt, a white button-up shirt or turnout gear. These attires were selected as they were felt to be those most commonly worn by EMS staff at Penn State.

In each video, a paramedic and EMT responded to a standardized patient complaining of chest pain. In each video the setting, script, expressions and actions of the actors were standardized to the best of their abilities. In each script the EMS personnel attached an EKG, auscultated the patients’ heart and lungs and placed him on a nasal cannula.

After viewing one of the three videos, participants subsequently completed a five-question survey addressing the providers on a five-