13 March 2018

https://doi.org/10.1016/j.ajem.2018.08.061

References

[1] Choi NG, Marti CNN, DiNitto DM, Choi BY. Alcohol use as risk factors for older adults' emergency department visits: a latent class analysis. West J Emerg Med 2015;16(7):1146–58.
[2] Kuerbis A, Sacco P. A review of exiting treatments for substance abuse among the elderly and recommendations for future directions. Subst Abus 2013;7:13–37.
[3] Saleh SS, Szebenyi SE. Resource use of elderly emergency department patients with alcohol-related diagnoses. J Subst Abus Treat 2005;29:313–9.
[4] -Hakki Onen S, Onene F, Mangeon J, et al. Alcohol abuse and dependence in elderly emergency department patients. Arch Gerontol Geriatr 2005;41:191–200.
[5] Wang Y, Andrade LH. Epidemiology of alcohol and drug use in the elderly. Curr Opin Psychiatry 2013;26(4):343–8.
[6] ClinicalTrials.gov. Study of an emergency department-based intervention to reduce alcohol misuse in older adults. https://clinicaltrials.gov/ct2/show/NCT02236494?term=elderly&cond=Alcohol+Abuse&rank=2; 2017, Accessed date: 7 August 2018.
[7] Andersen K, Bogenschutz MP, Buhringer G, et al. Outpatient treatment of alcohol use disorders among subjects 60+ years: design of a randomized clinical trial conducted in three countries (elderly study). BMC Psychiatry 2015;15:280.

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 midwifes 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 Vscan 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).

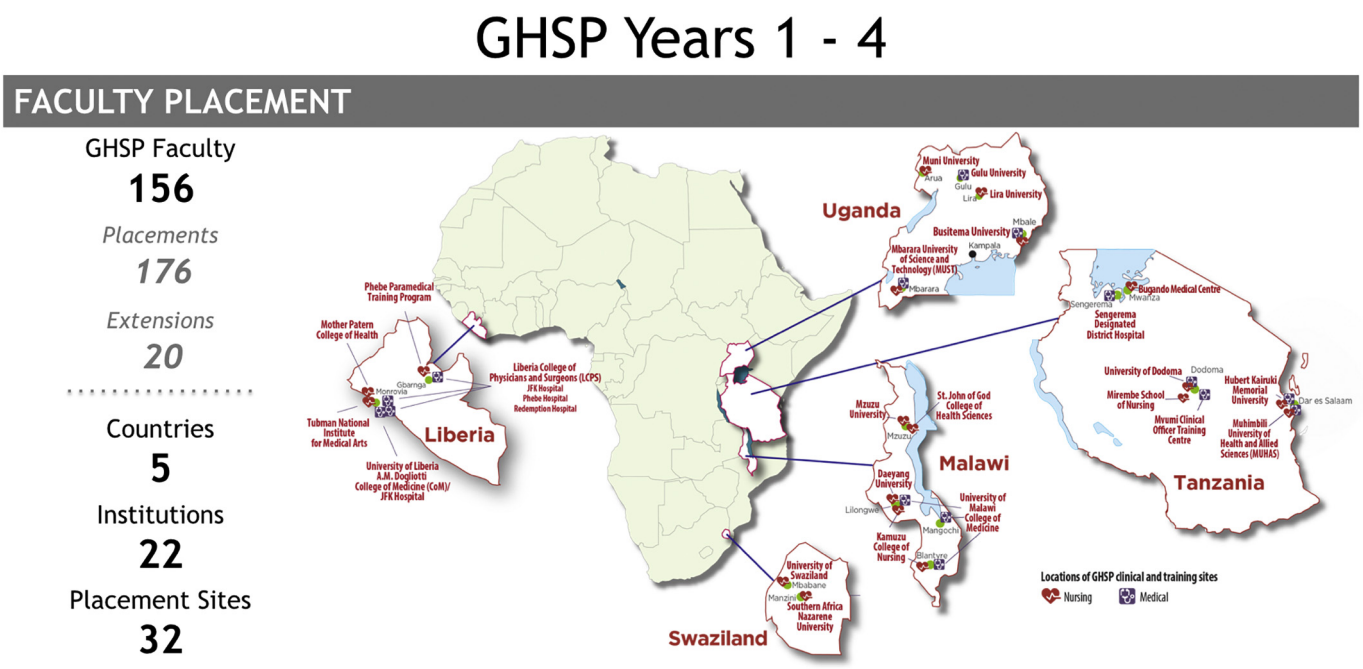

Fig. 1. Geographic distribution of GHSP clinical educators in the first four years of their deployments.

Table 1
Availability of different imaging modalities at the sites in host countries.

Imaging modality	Present and functional	Present but at times non-functional	Present but non-functional	Not present	Unsure
X-ray	46%	44%	2%	4%	4%
Ultrasound	58%	36%	0	6%	0
CT	12%	16%	8%	56%	6%
MRI	4%	16%	4%	66%	6%
Fluoroscopy	8%	10%	0	62%	16%

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

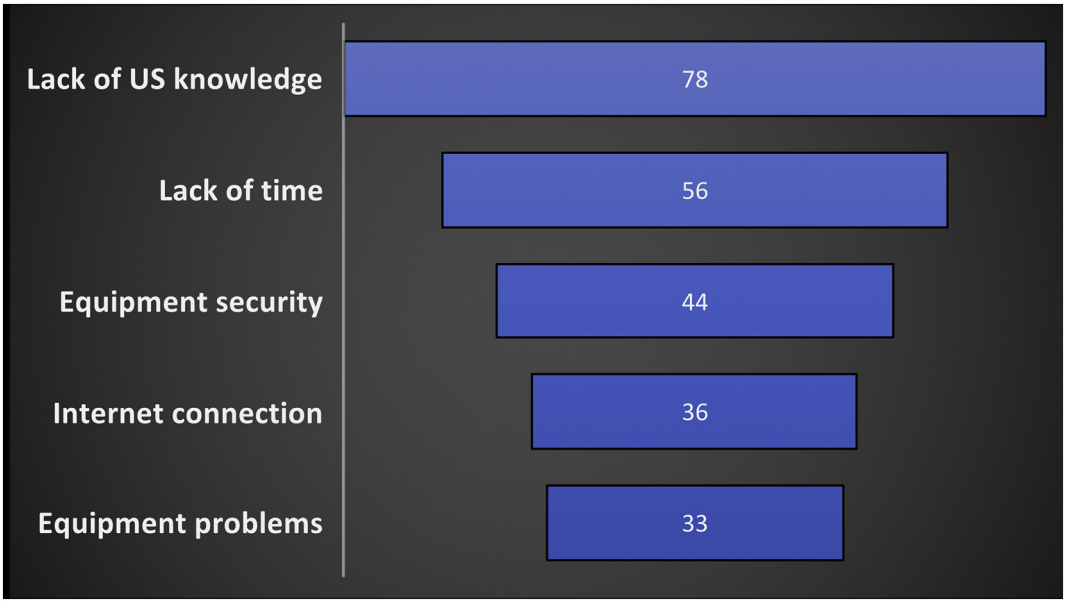

Fig. 2. Top five barriers for integration and use of POCUS.

academic institutions and organizations participating in clinical care and education in resource-limited communities.

Reprints order

No.

Financial support

This is a non-funded study, with no compensation or honoraria for participation, consulting or conducting the study. Resources required for this project was provided by institutional departmental funds at the George Washington University, Department of Emergency Medicine, with NO particular budgeting allocated to this project.

Conflict of interest

The authors do NOT have a financial interest or relationship to disclose regarding this research project.

Keith S. Boniface
Aislynn Raymond
James Scott
Tenagne Haile-Mariam
Department of Emergency Medicine, The George Washington University Medical Center, Washington DC, United States of America

Katelyn Fleming
Seed Global Health, Boston MA, United States of America

Vanessa B. Kerry
Center for Global Health, Massachusetts General Hospital, Boston MA; Department of Global Health and Social Medicine, Harvard Medical School, Boston, MA; Seed Global Health, Boston MA, United States of America

Sadath Sayeed
Department of Global Health and Social Meicine, Harvard Medical School, Boston MA; Department of Medicine, Boston Children's Hospital, Boston MA; Seed Global Health, Boston MA, United States of America

Hamid Shokoohi
Department of Emergency Medicine, Massachusetts General Hospital, Harvard Medical School, Boston MA; and The George Washington University Medical Center, Washington DC, United States of America
Corresponding author at: Center for Ultrasound Research and Education, 326 Cambridge Street, Suite 410, Boston, MA 02114, United States of America.
E-mail address: hshokoohi@mgh.harvard.edu.

18 August 2018

https://doi.org/10.1016/j.ajem.2018.08.065

References

[1] Mullan F, Kerry VB. The Global Health Service Partnership: teaching for the world. Acad Med 2014 Aug;89(8):1146–8.
[2] Kerry VB, Mullan F. Global Health Service Partnership: building health professional leadership. Lancet 2014 May 10;383(9929):1688–91.
[3] Valtis YK, Rosenberg J, Bhandari S, Wachter K, et al. Evidence-based medicine for all: what we can learn from a programme providing free access to an online clinical resource to health workers in resource-limited settings. BMJ Glob Health 2016 May 23;1(1):e000041.
[4] Salmon M, Landes M, Hunchak C, Paluku J, et al. Getting it right the first time: defining regionally relevant training curricula and provider core competencies for point-of-care ultrasound education on the African continent. Ann Emerg Med 2017 Feb;69(2):218–26.
[5] Becker TK, Tafoya CA, Osei-Ampofo M, Tafoya MJ, et al. Cardiopulmonary ultrasound for critically ill adults improves diagnostic accuracy in a resource-limited setting: the AFRICA trial. Trop Med Int Health 2017 Dec;22(12):1599–608.
[6] Henwood PC, Mackenzie DC, Liteplo AS, Rempell JS, et al. Point-of-care ultrasound use, accuracy, and impact on clinical decision making in Rwanda hospitals. J Ultrasound Med 2017 Jun;36(6):1189–94.
[7] Zaver F, Boniface K, Wachira B, Wanjiku G, Shokoohi H. International scope of emergency ultrasound: barriers in applying ultrasound to guide central line placement by providers in Nairobi, Kenya. Emerg Med Int 2018 May 7;7328465:2018.
[8] Stuart-Shor EM, Cunningham E, Foradori L, Hutchinson E, et al. The Global Health Service Partnership: an academic-clinical partnership to build nursing and medical capacity in Africa. Front Public Health 2017 Jul 24;5:174.
[9] Heller T, Wallrauch C, Goblirsch S, Brunetti E. Focused assessment with sonography for HIV-associated tuberculosis (FASH): a short protocol and a pictorial review. Crit Ultrasound J 2012 Nov 21;4(1):21.

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-