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Program/Project Purpose: Clinician-performed point of care ultrasound (POCUS) can have a significant impact on patient management, especially in settings where other imaging is not readily available. Currently, widespread lack of training in low and middle income countries (LMICs) prevents ultrasound (US) from reaching its full potential as an effective diagnostic tool. We describe a pilot study of a novel, POCUS training curriculum, implementation program, and an assessment tool for POCUS knowledge.

Structure/Method/Design: This is a retrospective review of an educational intervention and curriculum description. 2 cohorts of physicians were trained using this curriculum, 10 in 2013 and 21 in 2014. Rwandan and Burundian Medical Directors selected physicians for the training based on a reported self-interest in ultrasound. Fellowship trained emergency physicians from the USA taught course participants the POCUS curriculum (Table 2) over a 70-hour period (Table 1). Course evaluation included pre and post training confidence surveys as well as pre and post training knowledge exams (multiple choice, image recognition and interpretation).

Outcomes & Evaluation: The unique curriculum increased participants' scores on a POCUS knowledge test (Figure 1). Confidence in performing several common POCUS applications also increased (Figure 2). Specifically, confidence increased greatly when performing POCUS 2nd and 3rd trimester OB/GYN exams, procedural evaluation for thoracentesis, DVT exams and skin/soft tissue ultrasound (Figure 2). Gains were also seen in understanding mechanics, physics and artifacts of ultrasound. Participants' confidence in teaching the exams they learned in this curriculum also increased, with the greatest gains in applications relating to thoracentesis and DVT (figure 3). Overall, on a 1-5 Likert Scale of agreement, participants reported an increase in feeling prepared to use US from 3 (SD=0.7) to 3.9 (SD=0.3) and an increase in preparedness to teach US from 2.4 (SD= 1) to 3.6 (SD =0.6).

Going Forward: This paper describes a novel curriculum and its efficacy in POCUS education for health care providers in a remote international setting. Our data suggest it is possible to improve provider confidence and POCUS knowledge through a focused educational intervention.

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Application of a systems thinking lens to the design of effective and sustainable scale-up of national community health programs

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Background: Community Health Worker (CHW) programs vary in terms of work environment, training scope and duration, remuneration level, supervision, tasks, and integration within the health system, but a defining characteristic of CHWs is their provision of services outside of health facilities, within homes, villages, and/or at community gatherings to serve as a bridge between the community and health facility. A fragmented system of NGO-funded, vertical, single-disease focused CHW programs exists in many countries, but there is renewed interest by some Ministries of Health and donors to formalize an integrated, national cadre of CHWs that functions across a wide spectrum of preventative and curative activities. There are no shortage of conceptual frameworks which describe various relationships between components of a CHW system; however, these

frameworks fail to capture the dynamism and complexity of these systems. Therefore, the aim of this research was to apply a systems thinking perspective to a hypothetical CHW program to understand the core dynamics driving the existing fragmented phenomena, and to identify sub-system areas of import for designing and implementing a national-level, integrated CHW program.

Methods: A causal loop diagram (CLD) is a tool used to qualitatively map out a mental model of a system, with a focus on interactions between actors and variables, including cause and effect mechanisms, feedback loops, and emerging relationships. Two CLDs for the fragmented and integrated CHW system were developed utilizing several static conceptual frameworks to identify relevant variables and relationships between the community, CHW performance and national integration of CHW programs within the health system. Directionality of relationships was confirmed by literature review, for example on the key drivers of CHW motivation, quality of care, and trust in the community.

Findings: A range of relationships at the community, programmatic implementation, and policy level were explored within the two CLDs (fragmented and integrated CHW systems). Several potential feedback loops were identified, including a reinforcing relationship between CHW motivation and community trust in CHWs, and a balancing relationship between donor financing, workload, and retention. CLDs applied in a real-world context may help decipher why some CHW programs stagnate despite ample donor funding and robust Ministry of Health commitment.

Interpretation: This research represents the first step in application of a systems thinking lens to facilitate understanding about the complex, dynamic nature of CHW programs. Further research using a participatory model building approach with key stakeholders is necessary to validate the CLD, followed by a quantitative adaptation using stock and flow diagramming.

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REW - re-entry workshops: Supporting students to integrate their global health experiences upon their return

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Program/Project Purpose: While global health placements are recognized to be a rich learning experience for students while they are on placement, there is also a rich learning experience to be had upon their return. Additionally, global health placements often generate ethical, social and emotional challenges for students upon their return. The importance of pre-departure training has been recognized, however the importance of supporting students upon their return from global health experiences has received little attention, despite the challenges faced by students. Re-integration learning and challenges may be enhanced through academic supervision and support. Aim: To share experiences with the introduction of re-entry workshops (REW) for students in healthcare disciplines.

Structure/Method/Design: Students within a Global Health Studies (GHS) concentration of a MSc. in nursing program work with vulnerable populations, both at home and abroad. These students were offered REW in addition to the usual pre-departure workshop and ongoing support while on placement. Participating students spent 3.5 months in a global health partnership site (Africa, SE-Asia, Caribbean, South America, and Canadian aboriginal