

Point of Care Obstetric Ultrasound Training for Midwives and Nurses to Improve Obstetric Care in Rural Settings: Experiences, Challenges and Lessons Learned from Uganda

Introduction

Low and moderate-income countries (LMICs) face numerous challenges in the provision of healthcare services to their populations including imaging services. Ultrasonography has demonstrated unique potential for developing health services in LMICs. It is affordable, accessible, portable and non-invasive. Several outcome studies have demonstrated the diagnostic utility of ultrasound in medical, surgical, and obstetric care settings.^(1,2) Recognizing this powerful clinical role of ultrasound, health care leaders have developed Point-of-Care Ultrasound (PoCUS) training programs that have become specifically useful in LMICs.⁽³⁾ These programs serve healthcare workers in diverse settings including district hospitals⁽⁴⁾, rural hospitals⁽⁵⁾, and refugee camps. (6) Newer approaches address the issue of limited equipment and experts by creating local experts who in turn train their peers. This ensures both sustainability and program expansion. Results from these programs have shown that non-traditional sonographers, e.g. generalist physicians, nurses/mid-wives, and mid-level healthcare providers, can demonstrate excellent diagnostic accuracy after short, focused training sessions combined with follow-up evaluation and re-training. Despite the fact that Uganda has started advocating for similar POCUS training programs to be introduced especially for rural-based nurses, mid-wives and clinical officers, there is a dearth of published literature from our settings reporting the design and implementation of such training programs.

The problem that was addressed

Maternal mortality due to pregnancy-related complications remains high in Uganda especially in rural communities despite the efforts by the Ugandan government to provide antenatal care services closer to rural communities. Many of these pregnancy-related complications can be detected early through the use of obstetric ultrasound. Indeed, the government of Uganda and her partners have tried to equip rural health facilities with ultrasound equipment to detect some of the life-threatening pregnancy-related complications that are not

easily physically detected by health workers. However, despite these efforts, the lack of skilled workers to utilize this equipment and provide the much-needed basic service is frustrating government's efforts, thus women still die due to undetected, but avoidable pregnancy-related complications. There are few professionally trained health workers (radiologists and sonographers) that can ably perform obstetric ultrasound however these are mainly based in private hospitals and large public hospitals in the urban centres. Thus, women in rural communities are not served. There is also no evidence of how focused training and role-extension of obstetric ultrasound services to other health workers can address this challenge in the setting of limited human resource.

The Intervention

In light of the above problem, a point of care obstetric ultrasound (POCUS) training package was designed targeting already in-service mid-wives and nurses at Kiwoko Hospital in rural Uganda. The obstetric ultrasound competencies targeted included:

- Identification of the number of fetuses
- Identification of a fetal heart beat
- Assessment of placenta position
- Assessment of adequacy of liquor
- Assessment of the presentation and lie of the fetus
- Evaluation of the maternal cervix

The midwives and nurses were trained for 4 weeks using both didactic lectures for the theoretical aspects as well as real practical demonstration and performing of the ultrasound scans on pregnant women. At the end of the training, a study was conducted to assess knowledge acquisition and retention among the trained midwives and nurses. Findings from this study have been published (7). The trainees demonstrated acceptable ability to perform the ultrasound on pregnant women in relation to the targeted competencies. They also reported that they would ably utilize the knowledge and skills gained to inform their routine work in the ANC clinics. Training midwives in POCUS may offer an opportunity to transfer some basic skills in obstetric ultrasound to them and eventually improve the management of pregnant women. This presents a great opportunity of scaling up some of the obstetric ultrasound services to other cadres of health workers to inform their management decision.

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This does not imply that the trained midwives/nurses displace radiologists and sonographers who do more extensive ultrasound examinations.

Challenges: The major challenge with POCUS training is likely to remain regulation and adequate supervision so as to minimize cases of abuse of the service. The midwives and other health workers who take on POCUS training might not be easily supervised due to lack of enough supervisors, but also due to a lack of a legal framework within which they should operate. Second, practicing beyond the scope of one's training is another potential challenge as people try to work beyond their competency.

Lessons learned: From this POCUS training, we draw valuable lessons. First, the need to start POCUS training across all areas is perhaps an urgent need. From this pilot study, it was realized that if other health workers are trained with well-defined competencies, they can ably practice these skills as part of their routine work. Subsequently, this aids in faster patient management. We also note that all people that undergo POCUS training need supervision and regulation and this is key to all countries planning to take on POCUS. A lack of a proper supervision mechanism may put patients at risk when people trained for only a few weeks take on more advanced ultrasound examinations.

Conclusion: Point of care Ultrasound (POCUS) is greatly needed in our settings where there are low numbers of imaging professionals especially in rural areas. Extending key basic obstetric ultrasound skills to midwives and nurses is likely to play a crucial role in the management of pregnant women.

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