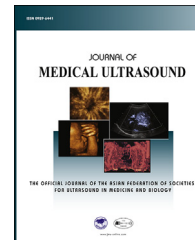


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ORIGINAL ARTICLE

Toward an Appropriate Point-of-Care Ultrasound Curriculum: A Reflection of the Clinical Practice in South Africa



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Abstract *Background:* Point-of-care ultrasound has become an essential skill in the armory of modern physicians. The South African point-of-care ultrasound curriculum reflects that of the United Kingdom by including five module applications, namely, extended focused assessment of sonography in trauma (eFAST), abdominal aorta aneurysm, central and peripheral venous access, focused emergency echocardiography in resuscitation (FEER), and deep venous thrombosis (DVT). A recent descriptive study demonstrated marked discrepancies between the current five point-of-care ultrasound curriculum application modules trained and the disease burden faced by doctors within Cape Town Emergency Centers during their daily clinical practice. The motivation for conducting this study is to extend the study location beyond Cape Town. The objective was to establish whether the clinical practice exposure of South African certified point-of-care ultrasound providers reflects the current curriculum content.

Methods: An online survey was conducted. All South African certified emergency medicine point-of-care ultrasound providers were eligible for inclusion. Cases with incomplete data and providers practicing outside South Africa were excluded. Summary statistics were used to describe all variables.

Results: Forty-four providers completed the survey (52.4% response rate), but only 37 responses were analyzed [currently working outside South Africa ($n = 5$); incomplete responses ($n = 2$)]. Most respondents were female ($n = 20$, 54.1%); aged > 35 years ($n = 22$, 59.5%); working in the Western Cape Province ($n = 29$, 78.4%); and emergency medicine specialists ($n = 22$, 59.5%). The eFAST (35.9%), DVT (24.4%), and FEER (14.3%) application modules were the most frequently used. The top five modules selected that best match the participants' perceived burden of disease were eFAST (89.2%), DVT (86.5%), FEER (64.9%), first-trimester pregnancy (56.8%), and focused assessment with sonography for human immunodeficiency virus/tuberculosis (43.2%). Most respondents ($n = 27$, 73%) indicated that the curriculum should be expanded to include more than five application modules.

Conflicts of interest: All contributing authors declare no conflicts of interest.

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Conclusions: This study indicates a mismatch between the current point-of-care ultrasound curriculum and the clinical burden of disease experienced. Disease burden, disease impact, technical difficulty of ultrasound applications, and logistical barriers need to be incorporated when considering a change in the curriculum to make it more appropriate for the South African setting.

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Introduction

Point of care ultrasound (POCUS) benefits both patients and doctors. It provides additional clinical data for doctors for both expediting diagnoses and reducing diagnostic errors [1,2], while patients are subjected to less procedural complications [3]. Competency is vital for any POCUS provider to assure they practice safely and benefit from all the advantages [4,5]. Many formal international POCUS training programs currently exist that train doctors to become competent in its use [5].

South Africa has a POCUS curriculum that is very similar to the United Kingdom's with regard to both curriculum content and method of delivery. Trainees enter the training program by attending a 1-day introductory course, followed by completion of an online assessment. Trainees then need to complete a proctored scan list of five module applications, namely, extended focused assessment of sonography in trauma (eFAST), abdominal aorta aneurysm (AAA), central and peripheral venous access, focused emergency echocardiography in resuscitation (FEER), and deep venous thrombosis (DVT). Upon completion of the scan list they qualify to challenge the exit competency assessment, which is an objective simulated clinical examination using real patient models. Successful candidates subsequently receive competency certification and POCUS provider status. POCUS providers who excel in their newly acquired skill can be invited to become POCUS trainers. The training program is accredited by the Emergency Medicine Society of South Africa and the College of Emergency Medicine of South Africa which, in combination, fulfils a similar governance role as the Royal College of Emergency Medicine in the United Kingdom [6].

All five application modules used in training were adopted directly from peer curricula without much oversight and not considering whether the content is applicable to the vastly different disease burden exposure. A recent study described discrepancies between the South African POCUS curriculum content and Cape Town emergency departments' disease burden [7]. The application modules required by the patient burden were very different from the current curriculum content. The study was only limited to Cape Town and was not representative of the South African population with varied disease burdens in different parts of the country. This study aimed to establish whether the perceived burden of disease as experienced by South African certified point-of-care ultrasound providers in their day-to-day practice reflects the current POCUS curriculum content.

Methods

Study design

An online survey was conducted from February 2, 2015, to March 3, 2015.

Study setting and population

There are three regional POCUS training centers in South Africa (Gauteng, KwaZulu/Natal, and Western Cape) through which candidates can obtain certification by completing the credentialing process. Each of these centers keeps a database of successful candidates.

All South African certified emergency medicine POCUS providers were eligible for inclusion in the study. Cases with incomplete data and providers practicing outside South Africa were excluded.

Data collection and management

All potential participants were contacted via e-mail with an explanation and invitation to complete an online questionnaire (Appendix 1). Participants had 4 weeks to complete the survey; all nonresponders were reminded weekly by e-mail until they responded or the deadline expired.

The data were collected in such a way as to protect participants' confidentiality. No personal or identifying information was collected. The online survey platform de-identified all responses before converting the data into a password-protected electronic spreadsheet (Microsoft Excel; Microsoft Corporation, Redmond, WA, USA).

Statistical analysis

Summary statistics were used to describe all variables.

Results

Eighty-four invitations were sent to POCUS providers who trained at either the KwaZulu/Natal or the Western Cape training sites (the Gauteng trainees were excluded as their facilitator failed to respond). Overall, 44 providers completed the survey (52.4% response rate); however, only 37 responses were analyzed (total excluded = 7; responders currently working outside South Africa = 5, incomplete responses = 2).

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