

Point-of-care ultrasound for all – teaching, training and use at every opportunity

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Point-of-care ultrasound (POCUS) was used by a group of South African emergency unit doctors more than a decade ago, and the first publication came from a district hospital in rural KwaZulu-Natal, reporting on their experience using focused assessment with sonography in trauma (FAST).¹ The anaesthesiology fraternity have promised to research POCUS for the past 10 years. Certain goals in teaching, training and the use of perioperative ultrasound have been reached, and anecdotally POCUS is being used perioperatively by anaesthesia providers. However, relevant research is overdue.

In this edition of the journal, researchers asked three questions regarding perioperative ultrasound:

1. What is the necessary POCUS skill set needed by an anaesthetist?
2. Do South African providers possess the skill set to perform a POCUS examination?
3. What are barriers to the adoption of the use of ultrasound?²

A survey of this nature will inherently lead to some bias. Anaesthetists with a specific viewpoint or interest in the topic, will either participate or not, in a survey of this kind. The responses might only include anaesthesiologists interested in POCUS or trainees and academic specialists attentive to the specific topic. However, these surveys allow us an insight into the perioperative use of POCUS practice by a large group of practitioners. Providers were classified as specialists, trainees, or non-specialist providers. The results showed that a proportion (19%) of the respondents were non-SASA members. The researchers could have explored the total number of SASA and non-SASA member anaesthesia providers in South Africa, through HPCSA registration categories, although this would have made the survey substantially more difficult.

Five hundred and fifty-eight (97.7%) respondents work in hospitals that have ultrasound machines available, and 76.7% have ultrasound readily available after hours. This is valuable information, although multiple responses by different surveyed providers possibly refer to the same facility. In future, equipment accessibility should be surveyed or audited by facility and not by respondent. The non-availability after-hours in nearly a quarter of facilities should be addressed by anaesthetists and

administrators, as it is during these hours that availability of ultrasound equipment is of utmost importance.

The limited number of anaesthesia providers that use ultrasound for cardiovascular and lung assessment is concerning as this should be a skill obtained by all anaesthetists during their training as specialists. This knowledge and skill is now becoming part of undergraduate anaesthesia training curriculums around the world, although the reported practice does not appear to match the curriculum objectives.

About one-third of the respondents indicated that they had received no training in general perioperative ultrasound. In the survey, a positive answer to the use of POCUS could represent training in only one technique, for example, regional anaesthesia. Three hundred and eighty-two respondents (66.9%) had received ultrasound training, but only 198 (34.7%) felt confident in their ultrasound skills, and 482 (84.4%) indicated a desire for further ultrasound training. The two most important barriers, according to the authors, were lack of equipment and lack of training at the postgraduate level.

In summary, it can be concluded that South African anaesthetists are undertrained, and further training opportunities and programmes should be made available to the anaesthesia fraternity. The reviewed College of Anaesthetists of South Africa (CASA) Curriculum 2022 will clearly define the ultrasound, and specifically the perioperative POCUS skills and theoretical knowledge that are needed by the different levels of anaesthesia providers. The South African Society of Anaesthesiologists (SASA) general practice guidelines should state the proficiency level of ultrasound use that each level of anaesthetist should have. Undergraduate student teaching and training in ultrasound has started in South Africa and the recent pandemic cemented this process.³ Teaching and training should take place at every opportunity and should be supported by academic departments, societies and special interest groups. Simulation can play an important role in the training of both practitioners and medical students.⁴ Seventy per cent of the respondents in the survey² had five or more years of anaesthesia experience, supporting the need for teaching and training of POCUS to be included in continuous professional development programmes.

The discrepancy between availability of ultrasound equipment for difficult arterial and peripheral line placement by anaes-

thetists and the use of it by anaesthetists specifically for these two indications shows that there is room for improvement in best clinical practice. The use of ultrasound to perform neuro axial blocks should also be considered. The failure rate of the technique without ultrasound guidance in experienced hands is low, and it might never be deemed necessary by providers to perform it using ultrasound. In summary, the researchers only examined the most common uses of POCUS and did not include, for example, gastric ultrasound, which is another useful technique. These other indications should also be considered in POCUS training.⁵

In 2011, I indirectly asked at a SASA congress presentation publication, titled “Focused assessed transthoracic echocardiography (FATE): South Africa, 2011”, how many South African practitioners use FATE (including lung ultrasound)? This short article referred to the competency levels expected from different users and the message that ultrasound assessment should be used by every anaesthesia provider.⁶ My conclusion in 2011 on echocardiography, which is only a small part of perioperative POCUS was: “Perioperative emergency and standard/comprehensive echocardiography is a skill that can be mastered by all of us. The level of skill and competence will be determined by our working environment.”⁶ This statement is still valid for POCUS in 2021.

I do support the conclusion by the authors of the current research in their statement: “South African anaesthetists

(participants who took part in this survey) work in institutions where ultrasound equipment is generally available, and most would like to incorporate ultrasound in their practice. Anaesthetists feel uncertain with respect to their skills and indicated that they wish to receive further training. Some of the respondents have not received structured teaching and training in POCUS. Efforts should be made to formalise POCUS training in the CASA curriculum and make ultrasound training more accessible.”²

The publication by Kathrada and colleagues creates further awareness of POCUS in the perioperative period.² We need to ensure that we respond to the training and practice implications for anaesthesia and perioperative medicine highlighted in this survey.

References

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