Published in final edited form as:

Pediatr Crit Care Med. 2019 June ; 20(6): 592–593. doi:10.1097/PCC.0000000000001950.

Let's go!

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We read with interest the letter from Dr. Watkins (1) regarding our recent manuscript (2). We believe that the appropriate persons were invited to complete the questionnaire, with the obvious inherent limitations of survey design. We requested identification of the lead ultrasound educator within each academic pediatric intensive care unit. If none were identified, then the Fellowship Program Director or educational leader with greatest knowledge of educational platforms within each critical care division was requested to participate. There was an identified educator from 96% (64/67) of institutions via direct email communication (data not published), and 82% (55/67) overall response rate for the survey. A strength of this approach is that it is systematic and reproducible across populations. Table 2 in our manuscript highlights the success of this approach by demonstrating that only 46% of large ICU identified Fellowship Director or Associate Program Director as the lead ultrasound educator, suggesting that most Fellowship Directors appropriately contacted their lead ultrasound educator to be a respondent for the survey (or also served the role as lead ultrasound educator). We speculate that many smaller ICUs may not have a distinct ultrasound educator, which resulted in Fellowship Directors responding to the survey. This study approach is, however, vulnerable because we relied on faculty communication within each unit. This potentially resulted in missing individuals with expertise in critical care ultrasound within their division. Though Dr. Watkins raises an interesting idea in surveying multiple individuals in a division, this would raise thorny questions for interpreting the data with biases in responses (both information from responders and response rates). In other words, providers cannot often describe what they don't know. Also those providers with an interest in the content will likely respond more often to the survey. This would challenge the validity of our study results.

Developing a structurally sound ultrasound program takes significant *effort* (Table 1) (2) within already clinically and academically strained divisions. It is not surprising that the majority of respondents were Program Directors as often the “global” responsibility of education falls within their purview. Further, Program Directors are often most aware of infrastructural elements within a division and how fellows fit within those elements, thus the authors believe that they are good representatives if an ultrasound leader was not identified. The finding that 39% (21/54) of responding programs have a dedicated faculty member responsible for ultrasound was pleasantly unexpected.

The purpose of our survey was to explore the current infrastructure of ultrasound program development. Ultrasound guidance for *procedural* applications (applications intensivists are credentialed to perform as having mastered during fellowship) is practically the standard of care for a number of interventions. Training in *diagnostic* ultrasound applications requires learning a new technology to improve diagnostic acumen within domains of clinical expertise. To successfully translate this training to clinical practice, systems are needed to safeguard ourselves, our patients and our institutions (3). As Dr. Watkins would likely confirm, teaching an ultrasound course is enjoyable and rewarding but not the greatest challenge educators face. Adequate acquisition of basic focused ultrasound images and accurate interpretation of critical findings can be effectively taught to novice trainees in short periods of time (4–6). There is no greater frustration as an educator, though, to know that once learners leave a course that there is often little opportunity for them to translate education to clinical practice due to a lack of local critical care ultrasound resources (7–8).

Our study highlights that, in fact, diagnostic ultrasound is being used in the clinical setting. Dr. Watkins identifies that specific diagnostic applications being utilized are not described in our paper. We intended to limit the scope of our study to infrastructural elements rather than curriculum design. Currently, there are no “main core competencies” within pediatric critical care ultrasound, and recently published guidelines in *Critical Care Medicine* primarily focus on adult diagnostics (9–10). Defining core competencies for pediatric critical care ultrasound diagnostic applications should be undertaken by experts within the field.

Pediatric critical care is a small community and our ultrasound community is even smaller! One of the wonderful byproducts of this survey was the identification of individuals across the country who are doing interesting and impactful things within ultrasound education. The survey has allowed the authors to make important introductions between people with shared interests. We welcome your letter as one of the mechanisms of introduction, particularly given your important contributions within the field (11–12). This needs assessment survey is just the start. There are many steps yet to take to “do it right” and to realize the *impact* critical care ultrasound program development harbors. It is in our best interest (and those of our patients) to take such steps together, so let’s go!

Copyright form disclosure:

Dr. Conlon received funding from the Society of Critical Care Medicine (SCCM) Ultrasound Pediatric and Neonatal course (travel) and the Japanese Society of Intensive Care Medicine (JSICM) (travel and honorarium). Dr. Kantor received support for article research from the National Institutes of Health. Dr. Su received funding from the Society of Critical Care Medicine and the Children’s Hospital of Philadelphia. Dr. Nishisaki disclosed that he does not have any potential conflicts of interest.

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