

A Call for Point-of-Care Ultrasound Fellowship Training Programs for General Internal Medicine in Canada

Katie Wiskar, MD¹, Irene W. Y. Ma, MD, PhD², Shane Arishenkoff, MD¹, Robert Arntfield, MD³

¹Division of General Internal Medicine, University of British Columbia, Vancouver, BC, Canada; ²Division of General Internal Medicine, University of Calgary, Calgary, AB, Canada; ³Division of Critical Care Medicine, University of Western Ontario, London, ON, Canada

Author for correspondence: Katie Wiskar: katiewisgar@gmail.com

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Abstract

Point-of-care ultrasound (POCUS) offers numerous benefits and is recognized as an important competency within Internal Medicine (IM). Despite this, a significant educational gap exists, owing in large part to a lack of expertly trained faculty and structured training opportunities. A robust POCUS training program requires not only technical excellence among faculty but also leadership with expertise in program creation and administration, quality assurance, medical education, and research. A dedicated 6- to 12-month POCUS fellowship model in programs with well-established infrastructure allows for the development of these competencies and the establishment of a network of key POCUS contacts, and prepares trainees to create or expand POCUS programs at their centers. We propose that the expansion of dedicated General IM POCUS fellowships in Canada is imperative to addressing this educational bottleneck and shaping the future leaders of Canadian IM POCUS.

Résumé

L'échographie au point d'intervention (POCUS) offre de nombreux avantages et est considérée comme une compétence importante en médecine interne. Pourtant, il existe une lacune importante au chapitre de la formation, attribuable en grande partie au manque d'enseignants qualifiés et d'occasions de formation structurée. Un programme de formation solide sur la POCUS exige non seulement une excellence technique parmi le corps professoral, mais aussi un leadership démontrant une expertise dans la création et l'administration de programmes, l'assurance de la qualité, l'éducation médicale et la recherche. Un modèle de formation complémentaire de 6 à 12 mois consacrée à la POCUS dans des programmes dont l'infrastructure est bien établie permet d'acquérir ces compétences et d'établir un réseau de personnes-ressources clés sur la POCUS, et prépare les personnes en cours de formation à créer ou à élargir des programmes sur la POCUS dans leur centre. Nous proposons qu'il soit impératif d'élargir les formations complémentaires sur la POCUS en médecine interne générale au Canada pour remédier à ce goulot d'étranglement en matière de formation et façonner les futurs chefs de file de la POCUS en médecine interne au Canada.

Appropriate integration of point-of-care ultrasound (POCUS) into the practice of medicine has been shown to offer a multitude of benefits, including improved diagnostic accuracy, improved clinical outcomes, reduced procedural complications, and cost savings.¹⁻⁶ Given these potential benefits, POCUS is increasingly recognized and endorsed both nationally and internationally as an important Internal Medicine (IM) competency.⁷⁻¹²

POCUS presents a unique educational challenge. POCUS expertise encompasses not only technical proficiency but also a deep understanding of test characteristics, Bayesian reasoning, clinical integration, scalability, and an awareness of potential pitfalls and limitations of each scan. It is recognized that appropriate training is necessary to achieve and maintain proficiency in POCUS, and that this may mitigate any potential harms.¹³⁻¹⁵ A well-supported POCUS training program, therefore, requires program infrastructure and support for quality assurance activities and medical education in addition to technical expertise and scanning instruction.¹⁶ A recent scoping review identified longitudinal curricula, continued feedback/quality assurance, and expert instruction as key tools for optimal POCUS education across levels and specialties.¹⁷

There is currently a significant and ongoing gap in IM POCUS training needs. It is concerning that the majority of IM residents are already using POCUS in their clinical practice despite low self-reported skills and knowledge.¹⁸⁻²⁰ Appropriate educational leadership is urgently needed in IM programs across Canada and worldwide.

The fellowship model of POCUS training has been successfully employed in other disciplines to solve this educational bottleneck. Both Emergency Medicine and Critical Care now have many well-established POCUS fellowship programs.²¹⁻²³ The creation of dedicated General Internal Medicine (GIM) POCUS fellowships is a critical step and will help develop a cohort of national leaders within Canadian IM POCUS.

We propose that dedicated GIM POCUS fellowships should span at least 6, ideally 12, months. A high volume and variety of case exposure are necessary to develop the technical expertise in image acquisition, interpretation, and integration across a wide range of IM POCUS applications. Relevant applications include, but are not limited to, thoracic, abdominal, vascular, and musculoskeletal scanning; hemodynamics and focused cardiac ultrasound; and ultrasound for procedural guidance. The core deliverable from a fellowship, however, is not individual POCUS mastery but the skills to scale this mastery to the masses through POCUS program creation, predominantly in academic centers. Engaging in longitudinal training in a POCUS fellowship imparts fluency in the core infrastructure required of POCUS programs: quality assurance, administration and program management, hospital and interdisciplinary relations,

and medical education. As an example, quality assurance refers to processes set in place for an independent trained expert to review scans performed by learners in a timely fashion, so that both patient safety and education can be optimized. To do so requires technology that enables storing and reporting scans, a method for integrating POCUS reports with other clinical information, and expert faculty who can spend dedicated time reviewing images. Fellowship-trained POCUS experts are well-positioned to coordinate the multiple aspects of robust quality assurance programs in their own centers, a skill that may be lacking in those who have focused only on establishing personal expertise through stand-alone commercially available POCUS training courses. Finally, participation in a GIM POCUS fellowship will also offer the opportunity to connect with key players in POCUS from multiple specialties nationally and internationally and develop valuable professional relationships. Cross-disciplinary collaboration with specialties in which the POCUS fellowship model is well-established will be crucial as GIM programs evolve.²¹

We recognize that some trainees may want to pursue additional POCUS training targeted to personal mastery and enhancing their own practice in a community setting. In these cases, consideration may be given to a shorter timeline (1-3 months), with a focus on clinical and technical excellence and establishing ties to an expert POCUS community.

The 5-year timeline of Canadian GIM training lends itself exceptionally well to the POCUS fellowship model. Given the flexibility of the fifth year of training, there is an opportunity to dedicate significant time and energy for developing expertise in a niche area such as POCUS. The funding of the fifth year of training removes the financial barrier that is typically encountered by trainees in other disciplines who often must choose between juggling POCUS training with their base specialty training or doing a self-funded year of POCUS during their early practice.

Currently, to our knowledge, there are only two programs in Canada supporting exclusively GIM-focused POCUS fellowships, though other centers have provided excellent training to the current group of Canadian IM POCUS leaders via fellowships initially designed for other disciplines. One has been in place since 2017 (University of Calgary), and another is due to start in July 2020 (University of British Columbia). Graduates of these programs will possess not only expert technical skills but will also be equipped to disseminate IM POCUS and provide leadership in their respective institutions. Though these programs are still in their infancy, we can learn from the successes and struggles of POCUS fellowships in other disciplines to efficiently create robust training opportunities. However, further development of GIM POCUS fellowship across Canada is imperative, as the need for POCUS leaders far outstrips this capacity.

POCUS is a disruptive technology that has the power to profoundly alter and improve the way we take care of patients. Given the breadth and depth of the practice of IM, the potential applications for POCUS are many and are constrained primarily by a lack of expert faculty to provide training, leadership, and oversight.²⁴ By engaging in a GIM fellowship model of POCUS training, we can address the current educational bottleneck and create a strong group of national leaders. The time has come to mobilize the collective intellect and resourcefulness of the GIM community to bring the power of POCUS into the hands of IM trainees and clinicians across the country.

Conflicts of Interest and Disclosures

None.

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