

## Implementing a Point-of-Care Ultrasound Curriculum for Pediatric Resident Physicians

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Point-of-care ultrasound (POCUS) is the utilization of ultrasound imaging at the patient's bedside. POCUS has been shown to improve outcomes in both adult and pediatric populations, particularly in the critically ill (3, 4). Emergency medicine residencies have largely pioneered ultrasound education over the past decade (5). Despite its far reaching benefits, POCUS has not been widely implemented in pediatrics (1, 2). There is a need for an effective POCUS curriculum within pediatric residency programs. We developed and implemented a POCUS curriculum for pediatric residents at our institution. Primary endpoints include resident comfort, confidence, and competence in interpreting and performing POCUS imaging. Secondary endpoints include resident-reported frequency of POCUS utilization in clinical practice. Residents' knowledge was assessed via pre- and post-tests. Lectures and hands-on training sessions were provided to pediatric residents in the hospital setting. Training was provided to POCUS educators to standardize learning. Preliminary findings show improvement in pediatric resident comfort, confidence, and competence in performing and interpreting POCUS imaging. The next steps may include 1) forming an ultrasound track for highly motivated pediatric residents to provide longitudinal educational experiences and 2) assimilating image portfolios to be able to better assess and provide feedback on image quality and interpretation.

### References:

1. Bhargava, V., Haileselassie, B., Rosenblatt, S., Baker, M., Kuo, K., & Su, E. (2022). A point-of-care ultrasound education curriculum for pediatric critical care medicine. *The Ultrasound Journal*, 14(1). <https://doi.org/10.1186/s13089-022-00290-6>
2. Burton, L., Bhargava, V., & Kong, M. (2022). Point-of-Care Ultrasound in the Pediatric Intensive Care Unit. *Frontiers in Pediatrics*, 9. <https://doi.org/10.3389/fped.2021.830160>
3. Ruscica, A., Chen, C., & Ng, L. (2023). Updates in pediatric ultrasound. *Current Opinion in Pediatrics*, 35(3), 324. <https://doi.org/10.1097/MOP.0000000000001244>
4. Gergő Vilmos Szabó, Csenge Szigetváry, László Szabó, Fanni Dembrovsky, Rottler, M., Klemetina Ocskay, Madzsar, S., Hegyi, P., & Zsolt Molnár. (2022). *Point-of-care ultrasound improves clinical outcomes in patients with acute onset dyspnea: a systematic review and meta-analysis*. 18(2), 639–653. <https://doi.org/10.1007/s11739-022-03126-2>
5. Scheier E. (2023). Cardiac POCUS in Pediatric Emergency Medicine: A Narrative Review. *Journal of clinical medicine*, 12(17), 5666. <https://doi.org/10.3390/jcm12175666>



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