

The Women's Board of The Johns Hopkins Hospital
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Old Application

GRANT APPLICATION FOR FISCAL YEAR 2024

DIRECTIONS: Please complete the entire form. If appropriate, indicate "Not Applicable" and justify. The original application plus an electronic version is due in The Women's Board office on or before 4:00 pm on Friday, January 6, 2023. Only one (1) application from each department will be accepted. Late or incomplete applications will not be considered.

DATE: January 1, 2023

CLINICAL DEPARTMENT: Pediatrics

CONTACT PERSON: May W Chen; Michelle Gontasz Phone: 917-881-2511

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TITLE OF REQUEST: BabyWorks: neonatal and pediatric point-of-care ultrasound (POCUS) simulator to improve POCUS education and safety.

PHYSICAL LOCATION OF PROJECT: Johns Hopkins Simulation Center

ABSTRACT (Non-technical overview - 150 words or less):

Point-of-care ultrasound (POCUS) is a non-invasive bedside tool used to answer a specific diagnostic dilemma or for procedural guidance. POCUS use has become standard of care in many adult specialties. In pediatrics, POCUS has been slowly adopted; however, growing evidence recommends formal training for this essential tool. In the Johns Hopkins Children's Center (JHCC), a dedicated group of faculty with POCUS experience formed a workgroup to formalize education and training for trainees and providers in Pediatric Emergency Medicine, Pediatric Intensive Care, and Neonatology. Achieving proficiency in POCUS requires a high number of practice scans. Given the critical and sensitive nature of these patient populations, use of a high-fidelity simulator can significantly help a novice gain experience to use POCUS in the clinical realm. This proposal requests assistance to fund an infant-sized mannequin with pediatric physiology and pathophysiology to train pediatric providers across the JHCC.

SIGNATURE OF CLINICAL DEPARTMENT CHAIRPERSON:



(Please type) Chairperson Name: Margaret Moon, MD

Chairperson Title: Pediatrician-in-Chief and Co-Director, Johns Hopkins Children's Center

Chairperson Email: mmoon4@jhmi.edu

NOTE: Questions 1-6 must be answered. Please be thorough and concise.

1. Impact on patient care:

Implementation of the Babyworks POCUS mannequin will facilitate providers in performing an adequate number of practice scans to be able to use their POCUS skills for actual pediatric patients in the JHCC. There are many scenarios where POCUS use can lead providers to faster assessment for a critically ill patient and decreased number of attempts for procedural success. Some examples include assessing for pneumothorax for a patient with acute respiratory distress, assessing for free fluid in the lungs, heart, or abdomen for patients with critical illness, and assisting with placement and confirmation of appropriate positioning for IV access (peripheral and central IVs). POCUS is a critical

clinical tool; however, the acquisition of POCUS skills in pediatrics requires a thoughtful balance between hands-on practice and the safety of our most fragile patients.

2. Number and type of patient who will benefit annually from this award:

Annually, there are approximately 30,000 patient visits to the pediatric emergency department, 2,500 admissions to the pediatric intensive care unit, and 900 neonatal patients receiving care in the neonatal intensive care unit. The faculty members and fellowship trainees who will use the POCUS simulator on this project staff 3 regional neonatal intensive care units (NICU), the pediatric intensive care unit (PICU), and the pediatric emergency room within the Johns Hopkins Enterprise. The POCUS expertise obtained through this project will benefit this wide network of trainees, providers, and patients across the Johns Hopkins network.

3. Significance:

Traditionally POCUS programs teach their trainees through lectures given by their POCUS faculty followed by hands-on scanning sessions. This is possible in large adult programs with multiple POCUS trained educators and adult patients who may tolerate educational scans. However, in pediatrics and neonatal medicine, our fragile patients are suboptimal candidates for frequent ultrasounds. Simulation based training can alleviate this issue by providing a safe, low-stress environment while protecting our most vulnerable patients from unnecessary procedures. Use of this commercially available training platform will ensure consistent education, improved hands-on skills acquisition, and provide exposure to abnormal ultrasound pathologies that may be rarely seen in our pediatric patients or are difficult to scan in our unstable patients. The combination of simulation training with graded advancement to patient care ultrasound scans is the perfect balance for safe pediatric POCUS education.

4. Implications, if any, that this has to the Covid pandemic:

None.

5. Personnel (Please note that we cannot fund grants that incorporate any salaries.)

We are not requesting salary support through this grant. The pediatric POCUS committee with a multidisciplinary group of stakeholders from Pediatric Emergency Medicine, Neonatology, Pediatric Critical Care Medicine, and Pediatric Cardiology in collaboration with the Simulation Center will coordinate the purchase of this equipment and its use.

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Michelle Gontasz, MD

Instructor, Department of Pediatrics, Division of Neonatology

Kartikeya Makker, MBBS

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Amanda Levin, MD

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Dennis Delany, MD

Assistant Professor, Department of Anesthesiology and Critical Care Medicine, Division of Pediatric Critical Care

Melanie Nies, MD

Assistant Professor of Pediatrics, Department of Pediatrics, Division of Pediatric Cardiology

Eric Henderson

Simulation Operations Manager, Johns Hopkins Medicine Simulation Center

6. Budget: Total Request: \$59,930.

A. Equipment - price per item and discount if applicable for multiples. Please add compelling justification if multiples are requested. (Itemize and justify):

BabyWorks Package 6- Cardiac TTE and POCUS - Laptop PC with screen \$56,330 (at a 14% discount)

The BabyWorks package includes the realistic baby manikin with palpable anatomic landmarks and ultrasound data from the head to the pelvis as well as the ability to run active scenarios to test assessment and decision-making skills. The whole suite of ultrasound scenarios including their heartworks cardiac simulation system is included in this price.

Software Loading

\$650

US shipping

\$1750

Installation and training

\$1,200 (at a 25% discount)

B. Supplies (Itemize and justify):

None

C. What is the out-of-pocket cost to the patient? (Itemize and justify):

None

D. Other Expenses, Hidden Costs (Please consider whether your grant proposal contains other costs that would require hospital funding, such as structural modifications for equipment installation, operating costs such as additional FTEs, training costs, etc.)*

Johns Hopkins Simulation Center has agreed to house and maintain the equipment for use by the various departments.

7. Have you requested funds from any other source?

☐ Yes (What was the result?)

Click or tap here to enter text.

☒ No (Explain why)

The BabyWorks system is new on the market and we only recently had a demo of the system. The Women's Board grant is our first attempt for funding to support the purchase of this much needed equipment. If funds are not awarded for this request, we will seek support from alternative sources through grants such as the JHCC Innovation Grant or from the Society of Critical Care Medicine.

* If you have any concerns about additional costs of your grant to the hospital please feel free to contact the CFO Katina Williams @ kwil249@jhmi.edu. She is aware of our grant process. All grants selected for funding will eventually be submitted for final hospital approval by the Women's Board. It is not required for the departments to request approval from the hospital prior to submission on January 6, 2023.