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Pediatric Ultrasound for Lumbar Puncture - A Simulated Task Trainer for Emergency Medicine Residents

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attaining a perfect score of 100%. Use of a nonfunctional transducer cuts costs by eliminating the need for sterilization and avoiding damage to active probes. The cadaveric model improves transducer placement and manipulation while approximating physiological observations more closely than manikins. This course aligns with ACEP guidelines, aiming to help more EPs gain credentialing with a cost-effective approach and enhance the use of TEE, ultimately striving to improve patient outcomes.

## 55 The ITE House Cup: A Game-Changing Approach to Resident Board Preparation

*Lauren Lamparte, Edward Ng, Shana Ross*

**Background/Objective:** The In-Training Examination (ITE) House Cup, an intra-residency competition, was designed to enhance morale, encourage study habits, and improve ITE scores. Based on a needs assessment, residents attributed their lower ITE scores to disengagement in studying, which we hypothesized was due to a mental health decline linked to cold winters leading up to the ITE. The majority of residents indicated they would be more inclined to study in groups, prompting the development of the ITE House Cup.

**Methods:** Residents were randomly divided into 6 “houses”, balanced across classes. Each house was paired with an Associate/Assistant Program Director (APD) “professor” for encouragement. The houses obtained points by engaging in study activities including: logging daily questions sets, participating as a house in attending led board review jeopardy, participating in “Board and Hungry” lunch sessions designed to teach test taking strategy, and participating in house study sessions outside of structured residency time. The competition was embraced by residents, APDs, and core faculty with strong participation. After the ITE exam, prizes were awarded and prestige was earned.

**Results:** As a result of this education innovation, 76% of residents reported an increase in prioritization of studying compared to only 39% in previous years. Almost 50% of residents attributed this increase in study habits directly to the ITE House Cup’s group study activities, and 88% stated they felt more supported by peers and faculty to do well on the ITE exam. Their satisfaction with the ITE House Cup was rated highly, with 73% stating that participation in the Cup improved their mental health. Despite these improvements, ITE exam scores remained largely unchanged, falling within one standard deviation of previous scores and close to national averages.

**Impact:** We believe that with the continued encouragement of collaborative studying, we will see exam scores trend upward. We plan to implement the ITE House Cup again and believe other residents would benefit from this gamified curriculum.

## 56 Pediatric Ultrasound for Lumbar Puncture - A Simulated Task Trainer for Emergency Medicine Residents

*Thomas Sanchez, Jaron Kurian, Edwin Davis, KeriAnne Brady, Hannah Park, Richard Shin*

**Background:** Pediatric patients, particularly neonates, are challenging procedures for emergency medicine residents due to anatomical differences, the need for precision, and perceived high stakes. Mastery of LP technique in this population is critical multiple attempts increase the risk of complications and leads to heightened stress for the patient, parents, and clinicians. Given the limited availability of real-time practice opportunities, an anatomically accurate training model offers a valuable solution. There are high cost/high fidelity simulated task trainers that are available commercially, but no low cost/high fidelity models. Creating this model allows residents to develop the tactile skills and spatial awareness necessary to improve procedural confidence. By reducing reliance on trial-and-error learning in real patients, this model can enhance first-attempt success rates.

**Objective:** Our aim was to develop a simulated model of pediatric spinal anatomy using inexpensive, readily available materials. By creating an open-source, reproducible, and durable model, we sought to provide an accessible tool for effective teaching and skill familiarization for all emergency medicine residents.

**Design:** We constructed the model using ballistic gel and corrugated tubing from standard Emergency Department nebulizer mask kits. The ribbed structure of the tubing effectively simulates vertebrae and intervertebral spaces. The tube was sealed and filled with a mixture of water, starch, and ultrasound gel. This prepared structure was then embedded within the ballistic gel, creating a realistic and ultrasound-compatible representation of pediatric spinal anatomy.

**Effectiveness/Impact:** The model was reviewed and approved by ultrasound faculty prior to integration into a scheduled resident conference day. Following the session, 100% of surveyed residents reported that the model was an effective teaching tool and that it improved their confidence in estimating distance, angle, and positioning for primary needle puncture. Our goal is to enable all emergency medicine educators to construct this model, enhancing resident education in evaluating pediatric spinal anatomy with POCUS and supporting first-attempt success in clinical settings.