

PROJECT AIM

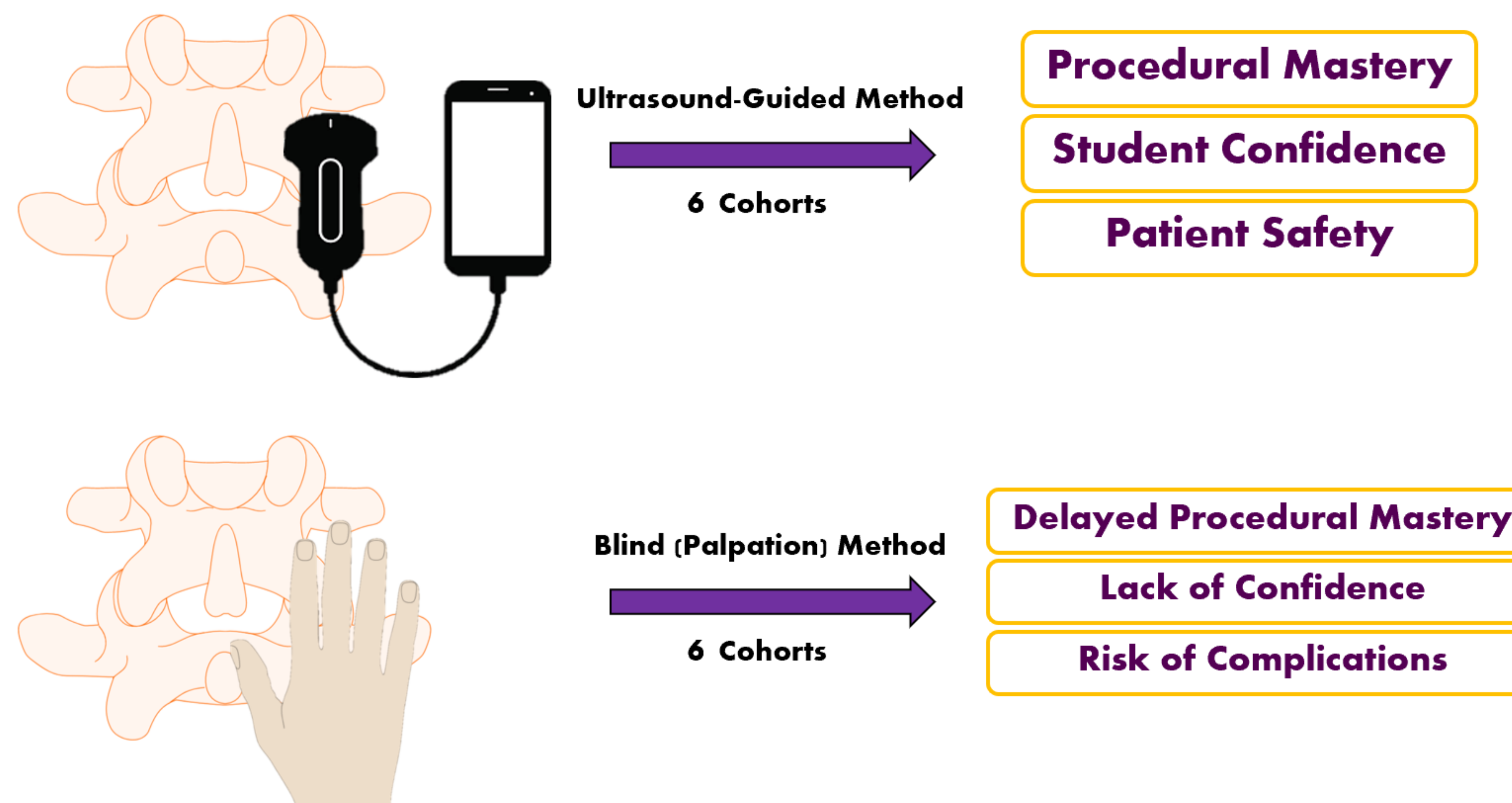
While learning to perform a lumbar puncture, medical students are traditionally taught to find the needle insertion site by palpation (blind method). However, student confidence and mastery of lumbar punctures will be improved by learning the procedure through ultrasound guidance.

NEED/RATIONALE

- ❖ 362,718 lumbar punctures were performed in the United States in 2010¹. This is a common procedure performed throughout the hospital as a diagnostic tool to determine cerebral spinal fluid pressure and the presence of infective agents.
- ❖ Injuries such as nerve palsy, herniation, hematoma, and hemorrhage occur due to improper lumbar puncture technique².
- ❖ Adverse effects can be exacerbated if a medical student is not competent or confident in the skill.
- ❖ A study by Coberly and Goldenhar (2007), states that a majority of fourth-year medical students surveyed do not feel competent or confident in performing a lumbar puncture³.
- ❖ As ultrasounds are gaining popularity, they can replace the need for fluoroscopy during a lumbar puncture, by providing visualization of spinal landmarks for the student⁴.

METHODS

- ❖ This study will take place during the Emergency Medicine clerkship for fourth-year Brody medical students.
- ❖ There are twelve cohorts of eight to ten students. Most students will be from Brody Medical school; however, a few students will be visiting from outside universities.
- ❖ Six cohorts will be taught the traditional method of performing a lumbar puncture (blind) while the other six cohorts will be taught ultrasound-guided lumbar punctures.
- ❖ Students will be taught by the same clinical professors, using the same models in the simulation lab.



POTENTIAL IMPACT

- ❖ This study will evaluate the effectiveness of the traditional method of teaching lumbar punctures using palpation.
- ❖ Medical schools can adapt curriculums if students have increased confidence and mastery when performing lumbar punctures using ultrasound guidance.

DATA COLLECTION

- ❖ This study will quantitatively measure student subjective confidence and objective procedural mastery. Data from ultrasound-guided cohorts will be compared to data from the traditional method.
- ❖ Fourth-year medical students will complete an anonymous questionnaire (below) to rate their confidence in performing lumbar punctures independently.
- ❖ At the end of the clerkship orientation, students will be assessed by a clinical professor, on the ability to perform a lumbar puncture independently using a simulation lab model.

Student Questionnaire

(1 being the lowest and 5 being the highest)



Rate your confidence about being able to independently perform a lumbar puncture independently.



Rate your anxiety when thinking about the results of having to independently perform a lumbar puncture.



Rate your subjective procedural proficiency.

REFERENCES

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2. Chordas C. (2001). Post-dural puncture headache and other complications after lumbar puncture. *Journal of pediatric oncology nursing: official journal of the Association of Pediatric Oncology Nurses*, 18(6), 244–259.
3. Coberly, LeAnn., Goldenhar, Linda. (2007). Ready or Not, Here They Come: Acting Interns' Experience and Perceived Competency Performing Basic Medical Procedures. *Journal of General Intern Medicine*. 491–494.
4. Stiffler, K. A., Jwayyed, S., Wilber, S. T., & Robinson, A. (2007). The use of ultrasound to identify pertinent landmarks for lumbar puncture. *The American journal of emergency medicine*, 25(3), 331–334.