DEVELOPING A LOW-COST, LOW-TECHNOLOGY MALE CATHETER INSERTION SIMULATOR FOR UNDERGRADUATE MEDICAL STUDENTS

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ABSTRACT: Poster (1B)

Purpose: For novice learners, 3D printed simulation models can be just as effective as similar high-fidelity models, but have the benefits of being inexpensive, anatomically correct, portable, and rapidly produced as needed. In urinary catheter insertion, inexperienced users constitute a high percentage of urethral trauma in the hospital setting, with as high as 75% of comorbidities related to insertion performed by interns. Simulation training can help learners feel more confident, shorten the learning curve for difficult procedures, and provide a safe learning environment for novices to make and learn from mistakes. This project aims to involve two groups of students, medicine and nursing, to develop and refine a new catheter insertion model.

Methods: Undergraduate medical and nursing students will be asked to participate in the study during the fall semester of 2018. The simulation models will be included as part of existing nursing training in catheter insertion. The model will be set up in nursing practice labs along with the MM3D "Rapid Product Evaluation" surveys, designed to assess the realism and overall use of the simulator. This information is collected anonymously for the purposes of improving the existing iteration of the simulator, and provide some validation for the model itself. Medical students will assess the simulation model at a Surgery Interest Group simulation night, where students will be taught about the procedure and then have time to practice with the models. Surveys will be distributed and collected in the same fashion as the nursing curriculum.

Preliminary Findings: For an initial prototype catheter model, there was mostly positive feedback from 14 undergraduate medical trainees who tested the simulation and completed surveys. Most individuals felt that using the model would be beneficial to at least familiarize students with the steps of the procedure before the increased expectation to perform in a structured clinical setting. This was reflected in the feedback, as all 14 participants chose either "agree" or "strongly agree" for the following four statements: The simulation was an accurate anatomical representation, they would prefer learning on this simulation model before performing this procedure, they would recommend this model to other learners, and they found this model beneficial overall. As students currently receive no training in catheter insertion before performing this procedure, this model serves as an inexpensive, easily produced.

Next Steps: In evaluating students' responses to the use of this catheter simulation model, the results can be used to inform their future use in an undergraduate medical or nursing curriculum. This is an ideal project from an interprofessional educational perspective, as the development of 3D simulations for both nursing and medical undergraduate students facilitates a collaborative learning experience from one source. There is the potential for similar future simulation or 3D projects in the future, involving both the faculties of medicine and nursing, which would benefit from the results obtained in this study.