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Research Abstracts

1 3D-printed Larynx is A Cost Effective Substitute for Traditional Simulation Models to Teach EM Residents Cricothyrotomy

Ryan Spangler; Ali Aledhaim, PA-S1, MS, DrPH; Siamak Moayedi, MD

Learning Objectives: to compare the cost-effective and real-like experience of surgical cricothyrotomy between a 3D printed and prepared model compared to the (standard) trauma man simulator.

Methods: In a prospective crossover study, we compared the lifelike experience and cost effectiveness of surgical cricothyrotomy between a novice 3 Dimension (3D) trachea model and the trauma man simulator. The 3D model was prepared using silk tape and pig skin over the 3D model to create a cricothyroid membrane and skin. 27 emergency medicine residents and one medical student were recruited for participation. Each participant was randomly assigned to start with either the 3D model or the trauma man and then performed the procedure on the other simulated device. Participants filled out a survey post completion. Elements of interest were questions inquiring which device was most realistic and most useful. Cost analysis was based on the monetary value of each device for all participants. Pearson paired t-tests were used to compare the average realistic rating using STATA 15.1 (StataCorp LLC).

Results: The 3D model had a realist rating of 7.43 compared to 7.25 for the trauma man ($p = 0.57$). The average cost per participant was \$0.50 for the 3D model compared to \$100 for the trauma man ($p < 0.001$) with a total cost of \$14 and \$2,800 for each device, respectively.

Conclusion: Our study shows that the 3D tracheal model provides equivalent lifelike experience similar to the trauma man and is more cost-effective. It was associated with a cost reduction 99.5% (2800-14)/2800) compared to the trauma man utilization.

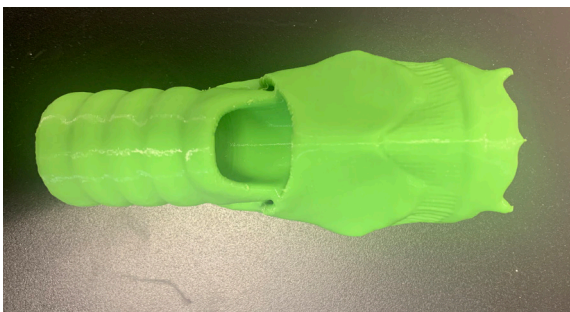


Figure 1.

2 A Geospatial Analysis of Gender Mobility in the Emergency Medicine Residency Match

Laura Hopson, MD; Meghan Mitchell, MD; Michelle Romeo, MD; Caroline Kayko, MLIS; Jeremy Branzetti, MD; Mike Gisondi, MD; Linda Regan, MD, MEHP

Learning Objectives: We compared movement between medical school and residency by gender. Our hypothesis was that women move a shorter distance than men.

Background: Women are underrepresented in EM leadership. Some evidence suggests geographic mobility improves career advancement.

Objectives: We compared movement between medical school and residency by gender. Our hypothesis was that women move a shorter distance than men.

Methods: We collected National Residency Matching Program (NRMP) lists of ranked applicants from 7 EM residency programs from the 2020 Main Residency Match. We added the gender expressed in interviews and left the Association of American Medical Colleges (AAMC) number as the unique identifier. Applicant data for matched osteopathic and allopathic seniors in the continental United States was included. We obtained street addresses for medical schools from an AAMC database and residency program addresses from the ACGME website. We performed geospatial analysis using ArcGIS pro and compared results by gender. NRMP approved the data use and our IRB granted exempt status.

Results: 881 of 944 unique applicants met inclusion criteria (830/1713 (48.5%) matched allopaths; 37% of all matched seniors); 420 (48%) were female. There was no significant difference between genders for distance moved ($p=0.31$). Women moved a mean 619 miles (SD=698, median 341, range 0-2679); men a mean 641 miles (SD=717, median 315, range 0-2671). Further analysis of applicants travelling less than 50 miles (49 women, 51 men) showed no significant frequency differences.

Discussion: Women and men travel similar distances for EM residency with the majority staying within geographic proximity to their medical school. This suggests that professional mobility at this stage is not a constraint for the majority of women. Our study findings are limited by lack of knowledge of factors informing relocation decisions such as location of family and couples matching.

Conclusion: Gender does not appear to affect decisions to relocate for residency training. This finding may have implications for resident selection.