

visual deficits

- Given the infrequency of RBH, trainer models must be explored to improve procedural confidence.
- Simulators offer a less-expensive and less logistically challenging alternative to traditional live tissue training

Objectives

- We seek to compare procedural confidence of emergency medicine residents performing LCC on a novel simulator to those using a traditional porcine model.
- We also compared the volunteers' reported usability of each model

Methods

- Randomized-controlled trial, single center study
- Emergency Medicine Resident Physicians and Physician Assistants were randomized to perform LCC on the LCC simulator or porcine model
- A standardized brief on recognition and treatment of RBH and an 11-question survey about ability to correctly identify and treat RBH and perform LCC was given to each resident prior to performance on respective models
- Following LCC performance on their respective models, the survey was repeated
- All volunteers additionally completed a 10-question survey utilizing a 5-point Likert scale on the usability of the model to which they were randomized



| | | |
|--|------|--------------|
| Porcine | 3.91 | 0.832 |
| LCC Simulator | 4.41 | |
| 4. I think that I would need the support of a technical person to be able to use this system | | |
| Porcine | 2.53 | |
| LCC Simulator | 1.56 | 0.005 |
| 5. I found the various functions in this system were well integrated. | | |
| Porcine | 3.91 | 0.063 |
| LCC Simulator | 4.28 | |
| 6. I thought there was too much inconsistency in this system. | | |
| Porcine | 2.44 | |
| LCC Simulator | 1.72 | 0.003 |
| 7. I would imagine that most people would learn to use this system very quickly. | | |
| Porcine | 4.00 | |
| LCC Simulator | 4.38 | 0.032 |
| 8. I found the system very awkward to use. | | |
| Porcine | 2.06 | |
| LCC Simulator | 1.44 | 0.002 |
| 9. I felt very confident using the system. | | |
| Porcine | 3.84 | |
| LCC Simulator | 4.34 | 0.011 |
| 10. I needed to learn a lot of things before I could get going with this system. | | |
| Porcine | 2.09 | |
| LCC Simulator | 1.47 | 0.003 |

| Confidence Survey Data Comparisons Between Arms | | | | |
|--|----------------|-------|-----------------------|-------|
| #1 – Confirm a retro-orbital hemorrhage with manual exam | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 67.76 | 0.556 | 13.28 | 0.643 |
| LCC Simulator | 64.11 | | 16.79 | |
| #2 – Cutting Tendons | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 66.94 | 0.815 | 14.44 | 0.786 |
| LCC Simulator | 65.18 | | 12.50 | |
| #3 – Visually differentiate between a normal and propotic eye | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 71.94 | 0.298 | 8.89 | 0.304 |
| LCC Simulator | 77.50 | | 2.14 | |
| #4 – Differentiate between a normal and propotic eye by touch (i.e. pressure) | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 68.33 | 0.870 | 14.44 | 0.848 |
| LCC Simulator | 69.29 | | 15.71 | |
| #5 – Perform a lateral canthotomy and cantholysis of the inferior canthal tendon | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 69.03 | 0.780 | 18.06 | 0.414 |
| LCC Simulator | 66.96 | | 11.79 | |
| #6 – Reassess intraocular pressure digitally | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 65.53 | 0.235 | 15.50 | 0.466 |
| LCC Simulator | 73.57 | | 8.57 | |
| #7 – If decompression is inadequate, proceed to cut superior canthal tendon | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 62.92 | 0.827 | 19.17 | 0.116 |
| LCC Simulator | 61.25 | | 7.50 | |
| #8 – Recognize a properly treated and decompressed eye | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 69.44 | 0.955 | 18.33 | 0.331 |
| LCC Simulator | 69.82 | | 11.07 | |
| #9 – Diagnose an ocular trauma that requires the LCC in the field | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 69.86 | 0.866 | 15.83 | 0.317 |
| LCC Simulator | 70.89 | | 9.64 | |
| #10 – Administer the LCC treatment in the field | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 67.50 | 0.850 | 16.67 | 0.972 |
| LCC Simulator | 66.07 | | 16.43 | |
| #11 – Determine whether decompression is adequately achieved | | | | |
| | Intra-Arm Mean | P | Pre- and Post-Model Δ | P |
| Porcine | 70.00 | 0.957 | 20.56 | 0.319 |
| LCC Simulator | 69.64 | | 13.57 | |