February 8, 2024

House Bill 7234 – Support
House Health and Human Services Committee

John Pawlowski, MD, PhD
Simulation Instructor, Simulation and Skills Center
Beth Israel Deaconess Medical Center
Assistant Professor
Harvard Medical School

David Feinstein, MD, MSBME
Simulation Instructor, Simulation and Skills Center
Beth Israel Deaconess Medical Center
Assistant Professor
Harvard Medical School

* * * * *

Dear Chairwoman Donovan and Members of the Committee:

We are writing as Assistant Professors of Anesthesiology at Harvard Medical School and former Co-Directors of the Shapiro Simulation & Skills Center at Beth Israel Deaconess Medical Center in Boston in strong support of House Bill 7234.

For more than 30 years we have been working to improve medical training and patient care through the use of human-modeled medical simulators. Over that time, an immense sea change has occurred in the way we train physicians. We no longer rely on using dogs or pigs to teach physiology or surgical skills. A large body of scientific evidence supports the shift away from using animals.

In 2020, faculty from Johns Hopkins University and the medical school of the Department of Defense published a study where they compared pigs to a commercially available simulator for teaching surgical airway. This is the same procedure, for which, Brown University and Rhode Island Hospital are using pigs. The authors measured performance and found that every student who trained on the simulator performed the surgical airway correctly. However, three of the students who trained on a pig inserted the airway tube in the wrong place. The authors wrote: "We believe that currently available simulation technology has the potential to vastly improve the training of both military and civilian medics to perform surgical [airway]…"[1]

Another study, conducted by the U.S. Air Force, found that trainees learning surgical airway techniques on a simulator were more successful, more accurate, and faster than their counterparts who trained on live animals. This procedure, though rare, can be necessary to save the life of a patient who cannot breathe, so it is crucial that it be done as fast as possible and as accurately as

possible. The authors of this study concluded: "For initial training, there is no objective benefit of animal training." [2]

Many studies also demonstrate that simulators can evoke equivalent, or greater, stress responses than animals when training. A 2018 study funded by the U.S. Army involved more than 200 combat medics and compared live goats to simulators when performing multiple procedures, including surgical airway. The authors wrote: "Synthetic models can produce a stress response equivalent to that of live [animals] during simulation training."[3]

There are many more studies to share, but we hope those examples impress upon you the capabilities of modern simulation technology. These publications beg the question: why would any medical center still harm animals to teach this procedure?

Thank you for your time and attention.

Sincerely,

John Pawlowski, MD, PhD

David Feinstein, MD, MSBME

References

1. Pandian V., et al. (2020) Comparison of surgical cricothyroidotomy Training: A Randomized Controlled Trial of a Swine Model Versus an Animated Robotic Manikin Model. Trauma Surg Acute Care Open.

2. Iverson, K., et al. (2015) Objective Comparison of Animal Training Versus Artificial Simulation for Initial Cricothyroidotomy Training. The American Surgeon.

3. Keller J., et al. (2018) The physiologic stress response of learners during critical care procedures, live tissue vs. synthetic models. CHEST Annual Meeting, San Antonio, Tex.