The American Journal of Surgery 217 (2019) 566–567

Contents lists available at ScienceDirect

The American Journal of Surgery

journal homepage: www.americanjournalofsurgery.com

The emergency surgical airway: Bridging the gap from quality outcome to performance improvement through a novel simulation based curriculum☆

DR. MICHAEL A. VALENTE (Cleveland, Ohio): I would like to congratulate the authors on an important topic in surgical education and potentially patient safety. Whether or not anyone in the audience is a real believer in simulation or performance-based curricula, it's indeed definitely and likely to remain an important part of surgical education for the next generation of trainees. And this example of the emergency surgical airway is a very good example of a low frequency, high risk procedure where timely interaction coupled with experience may make a difference in life or death situations.

I do have a few comments and questions. You alluded to some of them in the presentation, but who and how were the proctors chosen for the simulation? What is their background? Were they trained in this preoperatively or preprocedurally, number one? And what is their overall experience with this?

Number two, for the global assessment tool that's used, was there any thought to performing a statistical analysis between the groups to see if any particular group faired better or not? And what do you think the likelihood or the chance that, you know, senior residents will continue to not participate or dismally participate in this situation, why is that? And those people are the ones who may be the most beneficial at using this, because they're the ones at the front lines.

Number three, and how can hospital systems, small community hospitals or places not like Rush University do this program? They don't have a comprehensive simulation-based curriculum implemented. It's very costly. I know your institution implemented one a few years back with a substantial cost in the millions of dollars. How can smaller programs without that infrastructure perform a similar experiment like you did here?

And the fourth and fifth question you alluded to, but is there any way to validate any of the information for future endeavors and future educational purposes? And, lastly, how can we use these data as any simulation data, and can we show any correlation to actual patient safety or improved outcomes? I know it's really hard to do. It's a typical question, but what is your thought process on actually performing better patient safety.

DR. VEENSTRA: So in addressing your first question, proctors. So our proctors were chosen basically out of the stimulation center bank, which included myself, our director of surgical simulation who has been a general surgeon for 30 plus years, and in the simulation line of work for the last probably ten with the American College of Surgeons, as well as our lead nurse and tech in the simulation. We developed this curriculum together at the request of our anesthesia department after that quality improvement came out, and we all went through and developed this curriculum. So we were all kind of versed with the proctoring and how to rate. All of us had at least probably two to three years of simulation-specific experience.

Your second question, we did run a statistical analysis. Not shockingly, nothing was statistically significant. We came close between the senior residents and the nurse anesthetist for the cricothyroidotomy. I think if we get more, we probably would see that. And that's not surprising. I would expect the surgical residents to be better at that than a nurse anesthetist student.

Your third question, how do you replicate this at other centers? I think this is a great question. I think one thing that we're starting to see, is you're right, not everyone puts a million dollars into these types of scenarios. So what we're starting to see more and more is, the centers that have invested heavily in simulation are providing classes or courses for those, you know, institutions that don't want to do that. They don't want to put up the money up front, so they put it through a class. So if you had a smaller institution, they're going to travel, do that curriculum and come back possibly better trained.

The last two questions kind of go hand in hand. The validation is difficult and that's what we struggled with. I think to answer your last question, the ideal situation is if we can get this curriculum in different institutions where we get enough of an end to compare outcomes at their institution of the emergency airway and see what survival is. I mean that would be kind of the holy grail and to see what things were post intervention, that would be ideal, but I think that's going to be a tall task.

DR. MELANIE LYDEN (Rochester, Minnesota): I commend you on doing this study. This is very fresh in my mind. I just had one two weeks ago and the second one in 20 years. So fresh in my mind in looking at a simulation, the thing that was most important that came up was communication. The trainee that was with me and myself, all that was in our head was making a hole somewhere and getting a tube in. How did you assess communication in your simulation?

DR. VEENSTRA: So these proctors, so that's a great question, and we just published on some of the non-technical skills with another curriculum that we've developed. We didn't directly look at communication. That's a great point, but in these proctored sessions, I look at simulation, the hands on. It's hard to get residents to get excited about cutting on a pig larynx or a piece of plastic. So we really focus on that checklist more on communication. We have them basically talk through this whole thing, so if they are not

☆ (Presentation given by Benjamin Veenstra, M.D.)

https://doi.org/10.1016/j.amjsurg.2018.12.030
0002-9610/

verbalizing all the things they're doing, they're really not hitting the critical points. So didn't really tease the two out, which was a very good point that you bring up.

DR. ANNA M. LEDGERWOOD (Detroit, Michigan): I'm curious, have you considered expanding this simulation to that one group of physicians who primarily have this problem, and that's emergency medicine; one, their attendings and then their residents?

DR. VEENSTRA: Yes. Part of my thought for validating was looking at who does this the most, whether it be emergency medicine or our critical care folks and seeing how well they do with this curriculum, kind of making it the baseline for training, but that's definitely on our mind as we go forward with our institution in trying to bridge that quality improvement gap.