Simulation Study Uses Gaumard’s NOELLE®

Dr. Shelly Holmstrom was not new to the advantages of simulation. She has used Gaumard’s NOELLE® on the labor and delivery floor with nurses. “She is a very sophisticated tool,” Dr. Holmstrom said, “If you suspend your disbelief and treat it like a real situation – you can really get caught up in the scenarios.”

After being selected as a participant in a study called American Professor of Gynecology and Obstetrics (APGO) Leaders and Scholars, Dr. Holmstrom learned about how far educational projects could reach.

During the fifteen-month study, she developed a project centered on medical simulation and how it could benefit the medical students she teaches at the University of South Florida (USF) in Tampa, Florida.

Dr. Holmstrom’s project turned into a first-of-its-kind study involving 113 USF medical students and Gaumard’s NOELLE®. The 113 USF students consisted of 3rd year medical students in the monthlong Newborn and Maternal Health clerkship. The study followed these medical students from February 1, 2010 to January 31, 2011.

Medical students were then randomly assigned to two different groups; one group involved “the traditional lecture on performing a vaginal delivery” and the other with the same traditional lecture but with “hands-on vaginal delivery simulation” using Gaumard’s NOELLE.

Prior studies had followed the benefits of medical simulation in an academic setting; the results from those studies continuously showed that students were much more confident in several common obstetric procedures after simulation scenarios.

Dr. Holmstrom’s study took it one step further – to “evaluate the effect of simulation on the students’ final examination and evaluation scores.”

During the simulation session, Dr. Holmstrom demonstrated a simulated vaginal delivery on NOELLE. The students were then supervised as they went through the simulated scenario.
and all were given “corrective feedback on their maneuvers.” The key was to “make them more comfortable with the steps that were involved with a delivery.”

None of the students participating in the simulation part of the study had any prior real-life or simulated experience with delivery so Dr. Holmstrom decided to start “with the basics” and after doing a normal, vaginal delivery on NOELLE, the students said they felt confident when they went onto the real-life labor floor for the first time.

The students were then asked, after the lecture or lecture with simulated scenario with NOELLE, to rate their confidence on being able “to define the stages of labor, to deliver the fetal head, shoulders, and body, to deliver and examine the placenta, to determine the extent of lacerations,” and on whether they felt ready to attempt a delivery with assistance.

While both study groups “were equally confident on vaginal delivery maneuvers” at “baseline” (before lecture and simulation), once the simulator-trained group performed a normal, vaginal delivery on NOELLE, they became significantly more confident than the non-simulator-trained students.

For example, asked if they felt confident about delivering the head of a neonate immediately following the lecture or lecture with simulation, twenty-two of the simulator-trained students felt confident compared to three non-simulator-trained students; asked if they felt comfortable with delivery after shoulders, thirty-three of the simulator-trained students felt confident compared to eight non-simulator-trained students.

In addition, thirty simulator-trained students were more confident in attempting a delivery with attending assistance compared to nine students in the non-simulator-trained group.

The study also showed, according to the subsequent article reporting on the study, that the “simulator-trained students scored significantly higher on their oral and written examinations” at the end of their Newborn and Maternal Health clerkship.

“One of the theories behind [the higher test scores] was that they were engaged in the material quicker and absorbed it better,” said Dr. Holmstrom.

Dr. Holmstrom hopes that simulation will be incorporated into medical education. Her hope is that medical students would be able to perform a spontaneous vaginal delivery on NOELLE; “something relatively normal and uncomplicated,” said Holmstrom, while the residents perform the more complicated scenarios, i.e. shoulder dystocia, post-partum hemorrhage, and seizures.

“During a normal delivery you have to wait for the patient to deliver and that can be a variable amount of time,” Dr. Holmstrom said, “and if your shift ends you have to leave; but in simulation you have a more controlled setting, you can make [Noelle’s] delivery fast, that way you can practice in a rapid way.”

Dr. Holmstrom, along with her colleagues, Katheryne Downes, Dr. James Mayer, and Dr. Lee Learman co-authored the study’s findings in an article entitled, “Simulation Training in an Obstetric Clerkship, A Randomized Controlled Trial.”
It appeared in the September 2011 issue of Obstetrics and Gynecology.

Click here to read an abstract of the article and for more information on the University of South Florida's College of Medicine, please visit www.health.usf.edu.