

MamaNatalie® versus NOELLE®: A Randomized Controlled Trial of Birth Simulation for Medical Students
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ABSTRACT

Backgrounds: The cost of high fidelity models (\$4,000-50,000) and lack of easy portability has limited the use of birthing simulation in limited resource settings and during the OB/GYN clerkship. A lower cost (\$750), portable birth simulator, MamaNatalie® was designed to address these issues. The simulator is worn by an instructor who acts as the patient, thus providing person-to-person communication and fidelity to replicate real patient interactions.

Hypothesis: To evaluate the effectiveness of a high fidelity birth simulator (NOELLE®) compared to a lower cost, low-tech, birth simulator (MamaNatalie®) in teaching medical students how to perform a spontaneous vaginal delivery (SVD).

Study Methods: Prior to the OB/GYN clerkship, students were randomly assigned to two groups. The MamaNatalie® group (MG) completed 45 minutes of SVD simulation using an obstetrical abdominal-pelvic model worn by an OB/GYN faculty member. The NOELLE® group (NG) completed 45 minutes of SVD simulation using a high fidelity computer-controlled mannequin facilitated by an OB/GYN faculty member. The primary outcome was student performance during his or her first SVD as rated by supervising preceptors.

Results: One hundred ten medical students (95% of those eligible) participated in this research study. There were no significant differences in performance of SVD steps between MG and NG students as rated by preceptors. The SVD step with the least involvement by students was controlling the head (20.5% in MG, 23.3% in NG performed step with “hands-off supervision”). Delivery of the placenta was the SVD step with the most involvement (65.9% in MG, 52.3% in NG performed step with “hands-off supervision”). On the immediate post-simulation survey of confidence, MG students were significantly more confident in their ability to deliver the abdomen and legs and perform fundal massage with hands-off supervision ($p<0.05$) than NG students. Following the clerkship, MG students were significantly more confident in their ability to control the head and deliver the abdomen and legs ($p<0.05$) than NG students.

Conclusion: MamaNatalie® is as effective as NOELLE® in training medical students how to perform a SVD and may be a useful, lower cost alternative in teaching labor and delivery skills to novice learners.