# The Impact of Utilizing Simulation in Teaching Obstetrics to Undergraduate Nursing Students


## Abstract

**The Bachelor of Nursing program at the ECU College of Nursing currently provides obstetrical clinical at four hospitals throughout eastern North Carolina accommodating an average of 120 clinical students per semester. The hospitals range from small community hospitals to a tertiary care medical center. The diverse locations offer students varied opportunities to immerse themselves in obstetrics. While these clinical rotations offer invaluable learning opportunities for the students, many students lack clinical exposure to many of the more complex intrapartum concepts and complications. To ensure students are able to apply these intrapartum concepts to real life patient care scenarios, a study is underway to assess the impact of a complex vaginal delivery simulation on the learning of the undergraduate nursing students in the obstetrics class. This initiative seeks to integrate critical thinking by utilizing feedback surveys from students to assess learning outcomes among undergraduate nursing students enrolled in obstetrics.**



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## Introduction

The use of simulation in student learning has become more prevalent and continuously emerging as a teaching methodology to offer an interactive format of material within the classroom. In this study, we explore more specifically complex vaginal delivery simulation in an undergraduate obstetrics nursing course at the East Carolina University College of Nursing. The simulation, conducted and led by Dr. Andrea Sessoms, utilizes various facets of intrapartum content covered in classroom lectures, including several complications and their interventions. The implantation of this format of teaching serves to enhance student's ability to critically think through complications and interventions introduced in lecture. Instructor led quizzing throughout the simulation is a teaching method that enables students to actively engage in a safe and potentially more effective learning environment compared to lecture-based instruction alone. To prepare nurses to provide safe and effective care in the current healthcare environment, it is essential to address the gap that exists between nursing education and nursing practice [2]. This approach of education enhances student confidence to provide competent care in their

own future practice. In this study, we explore the question of what implications OB simulations have on student learning.

## Background

The simulation research study came about to introduce alternate methods of teaching didactic content that increase student engagement for nursing students attending East Carolina University. It has also allowed active participation in real-life clinical scenarios to increase confidence, critical thinking, and clinical judgment. The lead obstetric faculty recognized a pattern of students not seeing clinical scenarios discussed in class while at clinical, however, still having the responsibility to understand and apply the management of care taught in lecture. Given the competition for clinical sites and the wide variety of patient conditions likely to be encountered, it is impossible to predict the quality of obstetric clinical experience. The use of effective simulation provides a mechanism to replace and/or augment traditional clinical practice for students so that the experience reinforces the objectives of the curriculum [1]. The simulation provides a live demonstration of all the integrating parts that come with the process of a vaginal birth, along with the interventions and complications nurses are expected to carry out. Students are active participants in discussion of the procedure in reference to monitoring, nurse role, stage of labor, identifying complications, interventions, and patient care management. This provides multiple opportunities for continuity of learning. Students who participate in the vaginal delivery simulation are given a distinctive chance to engage in the delivery process and reflect on their level of critical thinking in a safe and low-stress environment.

## Purpose of Study

The implementation of simulation serves the primary purpose of offering real-time, collaborative student education that emphasizes critical thinking and communication. Simulation prominence in nursing education methodology stems from its focus on fostering student analytical reasoning within a controlled environment, ultimately enhancing confidence in learning and engagement with the material. There is evidence that improved confidence gained through repetition in simulation develops critical thinking skills; these skills are especially helpful for clinical areas like obstetrics, where hands-on clinical practice may be limited [1]. To define the purpose of the study, the simulation learning objectives paint a concise picture of what knowledge students have prior to the simulation and the expansion of that knowledge through clinical practice. The specific objectives of the study are as follows:

- Identify potential side effects of epidural anesthesia, including hypotension and fetal heart rate abnormalities.
- Select appropriate nursing interventions to effectively address hypotension during epidural anesthesia.
- Distinguish between reassuring and non-reassuring electronic fetal heart rate monitoring tracings by analyzing key components.
- Identify potential causes of non-reassuring fetal heart rate monitoring, specifically the role of maternal hypotension in inadequate placental perfusion and fetal oxygenation.
- Choose appropriate interventions when faced with non-reassuring fetal heart rate monitoring,

including repositioning, fluid bolus, cessation of Pitocin, and ephedrine administration.

- Recognize risk factors for shoulder dystocia, identify the 'turtle' sign as a warning sign, and prepare to provide appropriate interventions when necessary.
- Prioritize nursing interventions promptly upon identifying shoulder dystocia, including lowering the head of the bed, obtaining a step stool, and initiating the McRoberts maneuver.
- Apply intrapartum concepts learned in class to real-life clinical scenarios, including assisting with epidural placement, performing cervical examinations, recognizing different stages of labor, identifying signs of placental detachment, and delivering supportive nursing care to clients.

## Methodology

The production of the simulation entails a blend of innovation and practicality, as well as an employment of resources to create a realistic learning experience for students. The lead obstetrics faculty, Dr. Andrea Sessoms, organizes and executes the simulation, working closely with the College of Nursing IT and Concepts Integration Lab staff. The format is presented so the students can view and actively participate in the delivery process through quizzing. The simulation equipment involves cameras, microphones, electronic fetal monitoring, and all necessary supplies typically utilized in a standard vaginal delivery. Essential items include a patient bed, IV pumps administering fluids and medication, a delivery cart stocked with needed instruments, patient records, and healthcare personnel to facilitate delivery. To assess student knowledge and understanding, student engagement throughout the simulation consists of answering questions from Dr. Sessoms in real time during the simulation. This encourages students to share their concept comprehension in a low-stress environment as well as allows faculty to identify gaps in student learning to be further reinforced. Each integral part of healthcare teamwork, intervention, and education is demonstrated to students by nurses and anesthesia personnel. Following the 30-minute simulation, students were asked to complete a 10- item survey comprised of eight 10-point Likert-type items and two free text prompts related to students' perceived strengths and weaknesses of the simulation experience.

## Closure

This study highlights the significance of simulation technology as an invaluable learning tool that bridges the gap between retaining classroom concepts and applying them to practice. By integrating concepts taught throughout the semester into a safe environment, simulation instills confidence in students and motivates them to apply their knowledge. Furthermore, given the variability of patient censuses in each clinical location, there is no guarantee for students to have the opportunity to experience an observation of a vaginal delivery. Simulation addresses this variance by providing all participating students with the chance to engage in questioning, interaction, and involvement, regardless of their clinical experiences. Student feedback thus far has proved the importance and appreciation of simulation for student learning, suggesting the potential long-term integration of simulation-style education methodologies in the future.

## References

[1] Guimond, M. E., Foreman, S. E., & Werb, M. (2019). Evaluation of an unfolding obstetric experience simulation in an undergraduate nursing program. *Nurse Education Today*, 79, 124–128. https://doi.org/10.1016/j.nedt.2019.05.003

[2] Powers K. (2020). Bringing simulation to the classroom using an unfolding video patient scenario: A quasi-experimental study to examine student satisfaction, self-confidence, and perceptions of simulation design. Nurse Edu