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The Effects of Postpartum Hemorrhage Simulation

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Executive Summary

Introduction of the Problem

The World Health Organization Postpartum Haemorrhage Summit (2023) stated each year, about 14 million women experience postpartum hemorrhage (PPH) resulting in about 70,000 maternal deaths globally. Even when women survive, they often need urgent surgical interventions to control the bleeding and may be left with lifelong reproductive disability. Nurses who care for women in the obstetric setting should be prepared to identify and respond appropriately to PPH as it is a high-risk, potentially life-threatening emergency.

Current practices at a large medical facility in the St. Louis metropolitan area provide nurses working on a Mother-Baby unit with a case study, including written questions, on PPH. Greater than 20% of the nursing staff assigned to this unit are new graduate nurses or new employees who have not experienced caring for a client experiencing a postpartum hemorrhage. The Mother-Baby unit does not offer or require hands-on simulation for PPH. On the unit, an average of 1:30 mothers experience a postpartum hemorrhage ranging from moderate to small blood loss. Postpartum hemorrhages can occur at any time during a postpartum stay and nurses need to be readily prepared and act promptly and appropriately to ensure patient safety. Simulation experiences have been proven to ensure staff readiness to respond promptly and improve patient safety. A quality improvement project on postpartum hemorrhage simulation was implemented.

Literature Review

Prevention of adverse outcomes because of PPH is dependent on the ability of healthcare providers to recognize risk factors, identify abnormal bleeding, and initiate appropriate clinical interventions. The ability to recognize, intervene appropriately, and respond promptly during

PPH was identified as a critical learning need during shift huddles, staff meetings, and open forums with nurse leaders (Bittle, O'Rourke and Srinivas, 2018).

Clinical simulation can be used with any number of clinical situations and patient populations and allows educators to provide valuable clinical learning that may not be otherwise possible given the limited time and resources available for small-group, high-fidelity simulations scenarios (Trojan, Bertulfo and Kamp, 2020). The use of obstetric skills training and simulation drills can increase the confidence and competency of staff and improve response, assessment, and treatment of PPH (Bittle, O'Rourke and Srinivas, 2018).

Simulation experiences enable training to take place in a safe, realistic, and supportive environment. Simulation of obstetrical emergencies helps the clinical care team analyze their team performance and improve their interaction through practice in exchanging clear and accurate information among team members (Jacobs, 2017). Situ drills allow staff to familiarize themselves with the details of protocols, practices strategies that support effective teamwork, and discover issues that may prevent an efficient response in a critical patient care situation (Jacobs, 2017). Simulation training can be used to detect latent system errors and to identify knowledge gaps/performance deficits for enhanced patient safety. Simulation training is associated with positive patient outcomes (Egenberg, Oian, Eggebo, Arsenovi, and Bru, 2016).

Hands-on training helped familiarize trainees with each step of the current PPH procedure which may explain the positive change in perceived PPH-related self-efficacy (Egenberg et al, 2016). The simulation lets participants practice PPH management without harming patients, allowing participants to act without fear of negative consequences. Mastery experience can be obtained by artificial success in performance, such as controlling bleeding through uterine massage or bimanual compression. Watching colleagues manage a simulated

emergency is a vicarious experience, and the maternity staff identify with colleagues who are trying to control PPH, which is a common clinical challenge (Egenberg, et al 2016). Increasing knowledge and skills of nurses may contribute to the decrease of maternal mortality and morbidity rates and the improvement of maternal and neonatal health (Karadas and Terzioglu, 2019).

Simulation-based education has been shown to effectively increase the knowledge, skills, and confidence of healthcare workers and is intended to reduce maternal morbidity and mortality caused by PPH (Nelissen et al., 2017). Simulation-based medical education is recommended as it is a more effective learning method than traditional education for teaching medical technical skills (Fransen et al., 2017). Simulation is a safe and effective way to practice and improve patient safety and processes in a high-stakes environment (Lutgendorf et al., 2017).

Project Methods

The setting is a level 1 trauma center in the St. Louis Metropolitan area on the Mother-Baby unit. The purpose of this project on postpartum hemorrhage simulation is to assess the knowledge and preparedness of both experienced and non-experienced postpartum nurses during simulation with the intent to positively impact patient care. An email was sent to all Mother Baby staff, asking for participants to engage in a postpartum hemorrhage simulation. Those who were able to participate during their night shift came to an assigned room in the Mother Baby Unit.

Participants were instructed this would not be an opportunity to better understand their knowledge and preparedness for a postpartum hemorrhage. Participants were made aware of where the hospital's postpartum hemorrhage policy and protocol could be located both in the simulation room and postpartum hemorrhage cart. A pre-survey of eight questions was given

before the start of the postpartum hemorrhage simulation. Each participant was given one of two postpartum hemorrhage simulations to engage in.

Groups of 2-3 nurses came at different intervals during their shifts and participated in the postpartum hemorrhage simulation scenarios. During these scenarios, nurses were given their roles and were expected to demonstrate and verbally instruct their actions to the mock patient and narrator of the simulation. A mock patient, which consisted of another staff member was the hemorrhage patient. This mock patient had pre-set statements to use during the hemorrhage which the nursing participant was to answer with their knowledge of care during a postpartum hemorrhage situation. Each simulation totaled 15-20 minutes. Following the simulation, participants engaged in debriefing and completed the post-survey questionnaire.

Evaluation

Pre surveys were distributed to volunteers before the simulation. A total of 11 participants completed the postpartum hemorrhage simulation. Questions on these surveys ask for years of experience, if the nurse had ever been in a simulation, a postpartum hemorrhage simulation, if they felt a postpartum hemorrhage simulation would be beneficial to their learning and following the simulation if they felt they learned, grew in knowledge and would benefit from more postpartum hemorrhage simulations offered on the unit. Two different postpartum hemorrhage simulations were used during the simulation experience. Before the start of the simulation's participants were instructed no education would be given, but this would be an evaluation of their preparedness and education currently on treating a patient with a postpartum hemorrhage emergency.

Of the participants included in this project, 9 had 0-5 years of postpartum experience, 1 had 11-15 years of postpartum experience and the last participant had 16-20 years of postpartum

experience. The nurses who participated expressed their desire to “come, see, and do” to better prepare for a postpartum hemorrhage should one occur with their patients. In the pre-survey, 70% of the nurses who participated in the simulation, did not feel prepared for a postpartum hemorrhage, 100% of the participants stated a postpartum hemorrhage simulation would benefit their learning and would help to impact patient safety.

Following the simulation, post-survey questions revealed 100% of the nurses felt the simulation prepared them for a postpartum hemorrhage by enhancing their learning, increasing their awareness of the postpartum hemorrhage protocol/policy, and overall their readiness for a postpartum hemorrhage. Nurses stated their perceived value and need for more postpartum hemorrhage education simulations. Participants reported that the simulation setting allowed them to make mistakes, reflect on practices, use hands-on skills, and improve their communication and teamwork with fellow staff.

Those assigned to the night shift were the only staff who completed the simulation, leaving a small sample population. Participants came during their shifts, and a time limit was in place for the nurses to get back to their patients. A minimal number of supplies were allowed to be opened for hands-on practice, hemorrhage cart was allowed to be opened but unable to use the supplies within.

Impact on Practice

Nurses stated they need more hands-on simulation practice to feel prepared for a postpartum hemorrhage. The participants, following the simulation, stated the hands-on practice and repetition of completing a postpartum hemorrhage would enhance their capability and know-how in taking care of a PPH emergency. In debriefing with nurses following participation in the simulation, additional training needs were noted including education related to skills to start IVs,

how to weigh a postpartum pad, where to find the supplies in the hemorrhage cart, and how to complete a thorough fundal massage for an atonic uterus. Participants recognized the value of the exercise and requested additional hands-on opportunities for continuing education for their unit educator.

Conclusion

Nurses need and want more postpartum hemorrhage simulations to feel better prepared in a PPH emergency. Staff who completed the simulation stated the need for more hands-on practice and hemorrhage protocol review. Hands-on PPH simulations can improve knowledge, increase awareness of symptoms, enhance skills, improve staff satisfaction, and act to enhance patient safety for PPH. From this project, it is suggested quarterly PPH simulations be implemented and provided to staff as part of quarterly learning and certification. Quarterly learning would be a suggestion to track overall response times, patient outcomes, and staff satisfaction and confidence. The necessity for postpartum hemorrhage simulations is needed to promptly recognize and act in a PPH.

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