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Title:

Insitu Simulation of Obstetrical Emergencies: An Interprofessional Approach

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ACCEPTED

Session Title:

Maternal-Child Health Nurse Leadership Academy (MCHNLA)

Slot:

MCH: Sunday, 17 November 2019: 11:45 AM-12:15 PM

Applicable Category:

Leaders

Keywords:

Interprofessional Insitu Simulation, Latent Safety Threats and Maternal Child Health

References:

Adams, J. H., Baker, L., Cepeda, J., Hughes, P., Silber, A., & Ahmed, R. (2016). Management of Maternal Cardiac Arrest in the Third Trimester of Pregnancy. *Obstetrics & Gynecology*, 127. doi:10.1097/01.aog.0000483420.62655.81

Deutsch, E. S., & Patterson, M. D. (2019). Simulation Saves the Day (and Patient). *Otolaryngologic Clinics of North America*, 52(1), 115-121. doi:10.1016/j.otc.2018.08.005

Kaplan, E. K. (2019, March 5). Reducing Maternal Mortality. *The New York Times*.

Kouzes, J./M. & Posner, B.Z. (2017). *The leadership challenge* (6th ed.), Hoboken, NJ: John Wiley & Sons

Wetzel, E. A., Lang, T. R., Pendergrass, T. L., Taylor, R. G., & Geis, G. L. (2013). Identification of Latent Safety Threats Using High-Fidelity Simulation-Based Training with Multidisciplinary Neonatology Teams. *The Joint Commission Journal on Quality and Patient Safety*, 39(6). doi:10.1016/s1553-7250(13)39037-0

Abstract Summary:

The purpose of this quality improvement project was to engage an interprofessional team to implement an insitu simulation program on a Maternal Service unit using the foundation of an established program to improve comfort with responding to obstetrical emergencies while reducing latent safety threats through an Interprofessional education feedback committee.

Content Outline:

<p>Objective 1: Engage an Interprofessional Team to Implement In Situ Obstetrical Emergency Simulation Program in the Maternal Services area.</p>	<ol style="list-style-type: none">1. Identify key stakeholders to support the obstetrical simulation project and participate in the interdisciplinary team.2. Utilize philosophy and framework of a successful, established neonatal emergency simulation program in hospital to develop and implement an obstetrical emergency simulation program.3. Implemented ten in situ simulations between May-Oct 2018 on the LDR and PP unit: 2=Apneic Baby, 7=Hypertensive(HTN) Crisis, 1=Shoulder Dystocia.
<p>Objective 2: Improve Staff Comfort with Response to Obstetrical Emergencies thereby Fostering a Culture of Safety.</p>	<ol style="list-style-type: none">1. Empower the interprofessional team to address and remove identified obstacles to staff and patient safety in a timely manner.2. Examine latent safety threats and utilize a change management process to mitigate these threats and improve safety culture.3. Support staff input with creative feedback mechanisms and formalized communication process.

Objective 3: Illustrate How these Activities Fostered Personal Leadership Development.	Use of the Kouzes and Posner leadership practices: Model the Way, Inspire Shared vision, Challenge the Process, Enable others to Act, and Encourage the Heart.
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Topic Selection:

Maternal-Child Health Nurse Leadership Academy (MCHNLA) (25199)

Abstract Text:

Riley Children’s Hospital had been performing neonatal emergency simulations on the Neonatal Intensive Care Units for years with success in bringing interprofessional teams together for a realistic simulation. As a result of this program, simple and complex interventions alike have improved patient safety by improvement technical and non-technical skills of healthcare professionals while promoting a coordinated response to neonatal emergencies. For example, during a period of 19 months, 99 Latent Safety Threats (LSTs) were reported to the neonatal intensive care leadership; leading to 19 documented improvements (Wetzel, Lang, Pendergrass, Taylor, & Geis, 2013). Therefore, we believed that an obstetrical simulation program could have similar results.

Obstetrical emergencies happen throughout the country in top hospitals, under the care of the best nurses, and to some of the seemingly healthiest patients. The CDC estimates that 60 percent of current maternal deaths in the United States are preventable (Kaplan, 2019). Obstetrical emergencies include but are not limited to: post-partum hemorrhage, hypertensive crisis, emergency cesarean section, and cardiac arrest. While not all emergencies can be prevented, healthcare professionals can ensure they are providing the safest, most efficient care by incorporating simulation into on-going education. In Akron, Ohio, an academic healthcare facility utilized simulation based education to demonstrate and improvement in OBGYN resident knowledge, confidence, and competence in the management of third trimester maternal cardiac arrest with success (Adams, et al., 2016).

Simulations can occur in labs or in actual patient rooms with interprofessional teams; they can be scheduled or unscheduled. The most important component to starting a simulation program is understanding its effectiveness. Research demonstrates that simulation is effective in improving in individual skills as well as maximizing interprofessional partnerships (Deutsch & Patterson, 2019). The effectiveness of previous programs and focus on interprofessional relationships necessary for simulation was a key driver in its implementation onto the maternity units.

The quality improvement project is part of the Maternal Child Health Nurse Leadership Academy (MCHNLA) sponsored by Sigma Theta Tau International Honor Society (Sigma) in partnership with Johnson and Johnson. Personal leadership growth was accomplished through the engagement of an interprofessional team to implement an obstetrical emergency simulation program on a Maternal Service unit.

Purpose/Aim/Goal:

The purpose of this project was to implement an obstetrical emergency simulation program to improve staff comfort with response to these emergencies and reduce the number of latent safety threats which has the potential to cause patient harm.

Methods:

Create an environment to support the practice change in the Maternal Services Department.

1. Developed an Interprofessional Education Subcommittee of key stakeholders which met monthly.
2. Completed a Stakeholder analysis to identify commitment and comfort with the change as well as ways to mitigate resistance.
3. During monthly meetings, committee members discussed upcoming simulation events as well as changes necessary from previous simulations based on latent safety threats provided from the simulation educators.
4. Committee members were responsible for taking the information from the meeting and making the necessary changes. Changes included items such as policy review, staff training and education, and equipment improvements. Not all LSTs were acted upon in the first few simulations in an effort to fully evaluate root cause and many LSTs, especially technical errors were discussed with the individual participants and did not require action.

Utilized the Interprofessional team to engage the staff

1. Developed a comprehensive communication plan for the staff and utilized the nursing unit results of the AHRQ Hospital Survey on Patient Safety Culture to inform the communication plan.
2. Empowered the maternal simulation educator to implement the comprehensive communication plan to include attending staff meetings to explain simulation, generate enthusiasm, and answer questions.
3. Engaged the staff through various methods: The staff was polled to determine best times for insitu simulations so that there were no conflicts. The simulations were scheduled around staff and resident's schedules as well as the unit's quiet hours. In an effort to be inclusive of all shifts, the education team completed a weekend night simulation. Charge nurse expertise was elicited to streamline the process of identifying participants for the simulation. Thank You cards were sent to early participants in simulation.

Defined data collection needs

1. The team reviewed different data points to collect in order to track improvement as a result of simulation.
2. Data points included: Categories of LSTs, Readmission for severe hypertension, transfer to high level of care, time to treatment, and eclampsia.

3. Integrated the data collection for the project with established quality improvement reporting systems within the facility.

Utilized national guidelines for established obstetrical emergency algorithms

1. The maternal simulation educator used material provided by The American College of Obstetricians and Gynecologists (ACOG) to inform the appropriate algorithm of care for each simulation. ACOG had already developed simulations and were providing them to members at no cost.
2. The education team was very creative in making the scenarios realistic. Simulated medications, embedded participants, medication pumps, mannequins, lab reports, and more contributed to the realistic environment.
3. Debriefing: A debrief occurs at the end of each simulation with the goal of staff leading a discussion around identifying the team’s opportunities for improvement as well as the celebratory moments where the simulation was a success. Debrief checklists were created to establish continuity of debriefing between groups.

Results:

From June to October, ten simulations were implemented (2-Apnic Baby, 7-Hypertensive Crisis, 1-Shoulder Dystocia) and 26 corresponding LSTs were identified on the maternity unit. The latent safety threats (LSTs) were divided into five categories: equipment, medication, personnel, resource, and technical. Concurrent tracking of the LSTs resulted in a gradual increase over time. LSTs were mitigated in real time through various approaches. Unit leadership and unit educator played important roles by filling equipment needs or evaluating the need for staff re-education. LSTs were continuously evaluated to determine root cause and best approach to improvement. Communication strategies with the staff included use of the debriefing and unit huddles.

Below is a list of LSTs identified in each of the five categories and associated actions taken:

Equipment
<ul style="list-style-type: none"> · No stethoscope in room and none arrived with NICU team. As a result, infant was never assessed for breath sounds or heart rate. o Action: Unit Leadership resolved. · No stool in patient room, making some pieces of patient assessment difficult. o Action: Unit Leadership resolved.
Medication

· **Team did not indicate need for initiation/administration of magnesium sulfate on symptomatic HTN crisis patient.**

Action: Re-education of staff.

Personnel

· **Delay in administering anti-HTN medications (35 minutes until first dose)**

· **Team unaware if Mother Baby nurses can initiate Magnesium Sulfate.**

o Action: Review and re-education of HTN Protocol as well as nursing competencies.

Resource

· **Labetalol algorithm missing from resource binder (pink binder in room)**

o Action: Unit Educator assigned to maintain resource binder and ensure accuracy of resource binders.

· **Pink binder missing initially (found by patient sink)**

· **Phone number for 3rd year resident not available**

o Action: Unit Manager assigned to validate accuracy of important contacts and associated phone numbers.

· **Baby not taken from mom when mom was presenting symptomatic**

· **Nursing unaware of utilization of order set.**

Action: Re-education of staff

Technical

· **Team initiated PPV to an apneic baby with suspected aspiration before using bulb suction to clear the airway**

· **Team initiated chest compressions in infant with low heart rate before ensuring effective PPV**

· **Delay in calling for help. New nurse/orientee not familiar with call system or location of code pink**

· **Team did not complete a HTN assessment on the patient. Misconception that HTN assessment only performed if mag sulfate is initiated; not performed for high blood pressures or with routine maternal assessment.**

o Action: Re-education program developed and implemented by Unit Educator.

- **Team did not complete appropriate blood pressure assessment.**
- **Delay in diagnosing/calling shoulder dystocia (unclear verbiage).**
- **Delay in performing McRoberts maneuver.**
- **Knowledge deficit in how suprapubic pressure is applied.**
- **Team did not introduce self to patient.**
- **Did not obtain labs with IV start. Required additional patient stick to obtain labs.**

Conclusion:

In five months, we saw an increase in the number of LSTs each month as the simulation program became more integrated into the unit. We considered principles of nursing quality and concluded this increase was a result of the continuous improvement cycle. As an example, with new parameters for hemorrhage, the number of reported hemorrhages increased significantly. It is believed that they had existing all along but were just now identifiable. An additional theory accounting for increased LSTs could be the nurses comfort level was increased with the exposure to insitu simulations, thereby they were more inclined to raise concerns with safety issues by honestly sharing safety threats during the debriefing. Overall, there were 8 improvements made after the threats were identified.

This evidence-based quality improvement project remains supported by senior leadership who are committed to high-quality care. Therefore, the insitu obstetrical emergency simulation program in maternal services will continue to expand. In time, we will evaluate the impact on safety culture on the unit by improving staff comfort and empowerment when responding to obstetrical emergencies, while reducing the potential of patient harm with declining latent safety threats.