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Increasing Access to Obstetric Simulation to Improve the Quality of Clinical Practice for Maternal and Infant Health

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Learning Goals:

- Clarify the significance of simulation for obstetric training and continuing education as a way to improve the quality of clinical practice.
- Summarize current requirements and recommendations for obstetric simulation.
- Describe the role of simulation in quality clinical practice, including technical skills (e.g., clinical management of hemorrhage) and affective skills (e.g., communication with patients and families).
- Highlight selected innovative obstetric simulation offerings/ ongoing programs to inform approaches to strengthen systems for maternal and infant health.

Recommended Actions:

- Designate funding for obstetric simulation training.
- Apply lessons learned from obstetric simulation training and drills conducted in other fields, such as anesthesia and human factors psychology/ systems engineering, for translation to maternal and infant health care.

Background

Obstetric simulation provides unique opportunities to promote effective clinical practice, and thereby contribute to positive maternal and infant health outcomes.[1] Simulation is a part of pre-licensure training and interprofessional education. Findings from a recent systematic review suggest that simulation-based education with debrief/discussion is effective for members of the clinical team who actively participate in scenarios and for observers of healthcare simulations who participate in a directed manner either in real time or through video.[2]

In clinical practice, simulation for management of maternal hemorrhage is required by The Joint Commission (TJC) to be considered a TJC-accredited hospital as part of integrated efforts to promote patient safety.[3] TJC specifies that all health care team members undergo role-specific education to at orientation, when practice changes are implemented, or every 2 years. In addition, facilities are required to conduct emergency management simulation "drills" for hemorrhage at least annually. The purpose of these simulations is not to evaluate individual performance; rather, the goal is to identify and address systems-level issues that support or hinder patient care as part of continuous quality improvement efforts.

The simulation process entails making time and space to practice components of obstetric care in a laboratory (ex situ) or clinical setting (in situ) with a mannequin or Standardized Patient.* These strategies are important for closing the gap between "work as imagined" and "work as done."[4] The ways that health care services are envisioned do not always align in practice with the training, resources, or other contexts of clinical care. Identifying these issues is important for those participating in the simulation, to address with lower stakes than in clinical practice and with the psychological safety of a learning environment. Additionally, recommendations and can be disseminated locally and more broadly, for review and systems strengthening.

Because obstetric care is an inherently multidisciplinary field, TJC outlines that simulations are to be structured to "include representation from each discipline identified in the organization's hemorrhage response procedure."[2]

* Standardized Patients are independent specialists trained and funded to portray patient scenarios for the instruction and assessment of health care professionals' clinical skills. They receive rigorous training and have the capacity to give extensive feedback to trainees on their interpersonal communication skills. (*Source: Perelman School of Medicine. Standardized Patient Program. University of Pennsylvania.)*

Simulations involve planning for a particular clinical scenario in relation to various factors such as patient history, vital signs, escalation of symptoms, infant and companion/family involvement, patients' Limited English Proficiency, or other important considerations. The selected members of the health care team experience a scenario and strive to identify and implement appropriate responses by engaging in clinical workflow and communication as they would in real-life care. Although simulations may occur on an accelerated timeframe (such as 30 minutes for a drill), the order of management strategies, supplies used, communication, and documentation may be realistic.

A key part of obstetric simulation is the debrief, in which drill participants reflect on what worked well, as well as aspects of the clinical management that were unclear, incorrect, or missing. Open and honest sharing about patient/family and health care team interactions is critical so that the participants and the broader clinical community can be better equipped to provide quality care in the future.

Innovation

Increasing clinical access to simulation drills for maternal hemorrhage and other obstetric emergency scenarios is important because it enhances clinical skills, patient safety, and patient-centered care. Considerations for enabling these opportunities include structuring the timing of the sessions to maximize diverse participant attendance when they do not have clinical responsibilities; protecting health care team members' time to participate in the drills; bringing drills with experienced facilitators on site through mobile programs; establishing simulation participation as universally required and rewarded; and documenting and disseminating lessons learned for both those who participate and their clinical colleagues and healthcare system administrators. Establishing more opportunities for interprofessional learners and front-line health care professionals to offer insights into clinical strengths and gaps is important to support structural, team, and interpersonal competencies for maternal-infant health.

In addition to embedding simulation into ongoing practice and enhancing access to simulation drills in rural or lower-resourced obstetric facilities, innovation to enhance quality practice and maternal health includes expanding the drill scope. For example, simulations can include the utilization of cognitive aids, such as obstetric emergency management checklists, as a way to increase use of such checklists in clinical care.[5] The revision of checklist components is best performed after utilization in simulation.[6] Engagement with Standardized Patients can also explicitly address maternal health equity by incorporating patient race-ethnicity, language, and family dynamics as a part of the exercises.

Further, there is opportunity to intentionally integrate respectful maternity care practices into simulation, that is, to model and practice "words that work" and non-verbal forms of communication. As a part of a continual cycle toward respectful, equitable, and supportive care, a team at the University of North Carolina at Chapel Hill has integrated a patient-family communicator role into their compendium of obstetric emergency management checklists.[7] Additionally, simulation debriefs start with perspectives from the Standardized Patient, and the team reflection includes a review of how the management might have been different for a patient with Limited English Proficiency.

Simulations are a tool to strengthen both technical and affective skills for health care professionals. Nurturing this expertise is critical for maternal-infant survival, for birthing people and families to cope and heal from traumatic perinatal experiences, and as an integrated part of quality clinical practice.

Recommendations

- The Health Resources Services Administration (HRSA) and other organizations can consider designating funding for obstetric simulation training.
- HRSA can recommend that states applying for Maternal Health Innovation awards consider building on what has been working well from obstetric simulation and apply lessons learned from training and drills conducted

in other fields, such as anesthesia or human factors psychology/engineering, for translation to maternal and infant health care.

The following list offers selected highlights of obstetric simulation to inform future initiatives. Future work could expand upon these specific lines of work.

- At Kaiser Permanente in California, obstetric simulation is routine, required, and protected for all health care team members. Onboarding and continued support convey the organizational expectations and equip clinicians for success.
- In Iowa, a mobile simulation program supported by the state's HRSA-funded maternal health innovation award is strengthening structural competency in rural settings. The program includes simulation training on a variety of scenarios for very small labor and delivery teams (e.g. magnesium toxicity, postpartum hemorrhage) and a series of simulation trainings for emergency department staff. This approach is important for access, particularly given maternity deserts. The program is a partnership between Iowa's Department of Health and Human Services, the Iowa Maternity Care Collaborative and the University of Iowa Hospitals and Clinics.
- In Montana, team members have developed a train the trainer model that is supported by the state's HRSA-funded maternal health innovation award. The MOMS Simulation in Motion-Montana (SIM-MT) Training provides mobile high fidelity medical simulation training aimed at reducing medical errors, improving patient outcomes, increasing team performance, and more. Training is available for clinicians at both birthing and non-birthing healthcare centers. Such efforts to spread expertise is vital for program sustainability and allows spread to smaller community hospitals.
- At the University of North Carolina at Chapel Hill, the simulation team is investigating patient experiences of hemorrhage management through qualitative and observational techniques. Further, a research team is developing an interprofessional pre- and post-licensure curriculum with an "escape room" approach.[8] These patient-focused and co-designed insights are promising for addressing what people need to know, feel, and have happen to be safe and well.
- In New York City, the community-based maternal health organization *JustBirthSpace* is educating health care providers on patient priorities for clinicians to be aware and enact more respectful, equitable, and supportive care.[9] Opportunities for ongoing reflection and discussion are essential to improve ways of knowing and doing.
- At the Duke University School of Nursing (DUSON), simulation training for nursing students directly promotes anti-racist practice.[10] DUSON has a high annual volume of trainees, which offers an opportunity to shift the landscape for bedside practice and nurse-led models of care.
- Through Ariadne Labs at Harvard University, a low-barrier scalable simulation model has been used with the American Hospital Association and with the Agency for Healthcare Research and Quality TeamSTEPPS. The model supports effective teamwork and communication skills for safe and reliable health care.[11]

There are also opportunities to support a national-level simulation community of practice, which could be a catalyst for impact that is more than the sum of the parts. Instead of sites identifying opportunities on an individual basis, ongoing communication could address lessons learned. For example, researchers recently documented health care professionals' perspectives on simulation including that it advances preparation for quality maternal health care provision, promotes closed-loop communication, and flattens the power hierarchy within medical practice.[5] Improvements related to team dynamics across these levels is important for maternal-infant health outcomes and as part of caring for the workforce. Translating simulation expertise to practice may give sites the capacity needed to address their particular and layered challenges.

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