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Perceptions of Safety Improvement Among Clinicians Before and After Participation in a Multistate Postpartum Hemorrhage Project

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ABSTRACT

Objective: To measure whether implementation of a comprehensive, 18-month, multihospital, multiregion postpartum hemorrhage (PPH) project influenced intrapartum clinicians' perceptions of patient safety.

Design: Pre- and post-survey design.

Setting: Survey results from eight hospitals in Georgia, New Jersey, and Washington that participated in the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) PPH Project were included in the final analysis. The number of annual births at the hospitals ranged from 1,290 to 3,567.

Participants: There were 473 respondents for the pre-implementation survey: 50.5% (239) were registered nurses, 27.1% (128) were physicians, and 22.4% (106) were other intrapartum clinicians. The post-implementation survey included 426 respondents: 62.9% (268) registered nurses, 18.5% (79) physicians, and 18.6% (79) other intrapartum clinicians.

Intervention/Measurements: A paired *t* test was used to compare Safety Attitudes Questionnaire (SAQ) domain scores. Pearson's chi-square test was used to analyze perceptions before and after the intervention.

Results: Baseline SAQ scores were high in all six domains. Improvements were noted in five of the six domains measured; none reached statistical significance. A significant improvement was found in reported perception of the quality of nursing care after implementation of the PPH Project.

Conclusion: SAQ scores remained high and showed some improvement among participating hospitals. Participation in the PPH Project increased overall perceptions of safety among the clinicians at these hospitals.

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Problem Description

Every woman who gives birth in the United States should, as a minimum standard, expect to receive safe care. However, since the 1990s, the rate of severe maternal morbidity has increased during childbirth hospitalization by 75%: from 73.82 per 10,000 hospitalizations in 1998–1999 to 129.08 per 10,000 hospitalizations in 2008–2009 (Callaghan, Creanga, & Kuklina, 2012). In the United States, the maternal mortality rate increased from 7.2 per 100,000 live births in 1987 to 17.3 per 100,000 live births in 2013 (Centers for Disease Control Prevention and Prevention, 2016). Transfusion rates during birth hospitalizations significantly increased in the United States from 34.04 per 10,000 hospitalizations in the late 1990s to 96.38 per 10,000 hospitalizations in 2008–2009 (Callaghan et al., 2012). Hemorrhage was the fourth leading cause of pregnancy mortality in the United States from 2011 to 2013 (Centers for Disease Control Prevention and Prevention, 2016). Although the numbers are small, as many as 70% to 93% of pregnancy-related deaths from hemorrhage are likely preventable (Berg et al., 2005; Main, McCain, Morton, Holtby, & Lawton, 2015).

Available Knowledge

Using a cross-sectional survey of health care providers in three countries (United States, United Kingdom, and New Zealand), Sexton et al. (2006) developed the Safety Attitudes Questionnaire (SAQ), a validated tool used to measure how frontline workers perceive safety culture on their units. The SAQ includes six safety culture domains: Teamwork Climate, Safety Climate, Job

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Satisfaction, Stress Recognition, Perceptions of Management, and Working Conditions (Sexton et al., 2006). The SAQ has been used to measure unit safety culture before and after implementation of safety projects and single hospital improvement initiatives. For example, Pronovost et al. (2008) found that 60% or more of the perceptions of clinician respondents related to good teamwork improved from 17% to 46% 1 year after participation in a 72-hospital, statewide effort to improve clinical care and safety culture in intensive care units. Haynes et al. (2011) also found statistically significant improvement in Teamwork Climate and Safety Climate SAQ scores when they surveyed providers who worked in operating rooms from eight different hospitals whose leaders collaboratively implemented the World Health Organization surgical safety checklist. In another study, Teamwork Climate SAQ scores improved from 52.8% to 71.8% ($p = .003$) and Safety Climate scores increased from 54.6% to 63.4% ($p = .127$) after the implementation of a medication safety program in a children's hospital (Abstoss et al., 2011).

In three academic medical centers, scores on the SAQ Perceptions of Management domain increased from 29% to 46%, scores on the Teamwork Climate domain increased from 28% to 50%, and scores on the Safety Climate domain increased from 31% to 52% (Raab, Brown Will, Richards, & O'Mara, 2013). These improved SAQ scores occurred after each medical center hired perinatal safety nurses and implemented multiphased initiatives to improve knowledge of electronic fetal monitoring and team communication among the clinicians.

Rationale

In response to the rise in rates of maternal morbidity and mortality in the United States, action by leaders from multiple national organizations alerted key stakeholders of the need to improve the safety culture on labor and delivery units (Quality Patient Care, 2012). Representatives from 17 professional organizations joined together to form the Council on Patient Safety in Women's Health Care (Main, Goffman, et al., 2015). The council has since released multiple patient safety bundles, and one of the first bundles addressed obstetric hemorrhage (Main, Goffman, et al., 2015). Despite the fact that many of the bundle elements, such as risk assessment, simulation drills, and debriefing are often elements of hospital patient safety programs, no data are available to show whether the application of these elements as part of the implementation of the obstetric hemorrhage bundle improves the intrapartum safety culture. The preparation period for the launch of the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) Postpartum Hemorrhage (PPH) Project (AWHONN, 2015) in 2013 provided a timely and unique opportunity to measure whether the implementation of elements of the obstetric hemorrhage bundle affected clinician perception of intrapartum unit safety.

Severe morbidity rates associated with maternal hemorrhage continue to rise.

Specific Aim

The purpose of this quality improvement project was to measure whether implementation of the comprehensive, 18-month, multihospital, multiregion AWHONN PPH Project improved participating intrapartum clinicians' perceptions of patient safety.

Methods

Context

The AWHONN PPH collaborative is a multidisciplinary quality initiative to help improve the recognition, readiness, and response to PPH (AWHONN, 2015). The AWHONN 18-month quality improvement PPH collaborative was launched in July 2014 and included 58 of the 143 hospitals where births occur in Georgia, New Jersey, and Washington, DC. The goal of the AWHONN PPH Project was to support the implementation of essential process and structure elements of an obstetric hemorrhage safety bundle to increase evidence-based care, decrease hemorrhage-related morbidity and mortality, and improve patient safety.

Intervention

As part of the collaborative, hospital leaders and intrapartum teams were supported during implementation of the following process and structure changes: (a) performance of a hemorrhage risk assessment (on admission, before birth, and after birth), (b) quantification of cumulative blood loss, (c) performance of simulation drills, (d) adoption of debriefing sessions, and (e) update of general and massive obstetric hemorrhage transfusion protocols. Fifty-eight perinatal units from New Jersey, Georgia, and Washington, DC, participated in the PPH Project and implemented one or

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