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Quality Improvement Project: Communication Guidance During and Following Maternal Hemorrhage

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QUALITY IMPROVEMENT PROJECT: COMMUNICATION GUIDANCE DURING AND
FOLLOWING MATERNAL HEMORRHAGE

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Kathleen Giramur

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Abstract

Background. Maternal hemorrhage is a significant cause of worsening maternal morbidity and mortality in the U.S. If timely, effective, and compassionate communication is not provided during and following traumatic birth events, negative mental health problems may result that affect maternal well-being, bonding with the baby, and family relationships. A gap analysis carried out at the clinical site showed that a written, evidence-based guidance on communication with patients and families during and after a maternal hemorrhage event was needed. Compliance through documentation is required by the Joint Commission. Trauma-Informed Care is an evidence-based communication approach that incorporates principles of safety, choice, collaboration, trustworthiness, empowerment, cultural/historical/gender that can address traumatic stress developed during or following traumatic events (Morton et al., 2020). **Purpose.** The aim is to implement best practice for addressing the psychological aspect of maternal hemorrhage events and to meet Joint Commission safety and communication requirements. **Goals.** Develop and implement communication guidance with greater than 50% documentation adherence. **Methods.** Using a quality improvement approach, maternal patients meeting hemorrhage criteria received timely communication developed in collaboration with an interprofessional healthcare team. Obstetric staff was educated on the communication approach and a process to prompt obstetric providers to document communication in the medical record was instituted. **Results.** A post-intervention review of 36 records of maternal hemorrhage patients occurring over an 8-week period revealed 52% documentation of the communication. **Implications.** An evidence-based communication approach can be implemented to avoid retraumatizing maternal patients and potentially decrease the incidence of future psychological issues.

Keywords: maternal hemorrhage, intervention, guidance, Trauma-Informed Care

Quality Improvement Project: Communication Guidance During and Following Maternal Hemorrhage

Maternal hemorrhage is a significant cause of worsening maternal morbidity and mortality in the United States, placing it 65th for maternal deaths among modern countries worldwide [The Joint Commission (TJC), 2019]. In 2019, TJC attempted to reduce two of the highest contributors to maternal morbidity and mortality, maternal hemorrhage, and severe hypertension, by adding 13 new elements of performance (EPs). The first EP (EP1) is to complete a maternal hemorrhage assessment using an evidence-based tool to determine hemorrhage risk on admission to the labor and delivery department and following post-partum. The second EP (EP2), which is the focus of the QI project, includes guidance on how to communicate with patients and families, during and after maternal hemorrhage event, to prevent mental anguish and possible future negative mental health symptoms (The Joint Commission, 2019).

Globally and nationally, there has been an increase in post-partum hemorrhage, as well as gestational diabetes and preeclampsia, over the past 2 decades (MacDorman et al., 2016). According to the American College of Gynecology and Obstetrics (ACOG), 11% of maternal deaths are due to maternal hemorrhage. Of importance is that 54%-93% of these maternal deaths from maternal hemorrhage were preventable (Committee on Obstetric Practice, 2019). In 2017, ACOG defined severe maternal hemorrhage as blood loss $\geq 1,000$ ml or signs and symptoms of hypovolemia within 24 hours after delivery (Committee on Obstetric Practice, 2017). The specific type of delivery (vaginal or cesarean section) was not associated with the blood loss volume.

Factors related to identification and treatment of maternal hemorrhage, such as imprecise

estimation of maternal blood loss by obstetric staff, is a chief cause of delayed response to hemorrhage. Interdisciplinary team-based guidelines that foster effective communication, early identification, and early treatment are also vital for successful improvement in addressing physical and psychological sequelae related to maternal hemorrhage. Therefore, effective communication, not just amongst the healthcare team, but with the obstetric patient and her family are critical components of comprehensive handling of a hemorrhagic event (Committee on Obstetric Practice, 2019).

Problem

In 2020, a gap analysis was carried out at the clinical site. For the sake of anonymity, the clinical site will be referred to as the Clinic Site Hospital (CSH). There were approximately 3,200 deliveries that year, of which there was a recorded amount of severe maternal hemorrhages that met ACOG criteria. The communication between health care providers and the maternal patient and her family was the focus of the QI project and percentage rates of documentation in the EMR will be reported for the specific pre and post intervention period as it relates to compliance with communication. The gap analysis demonstrated the need for the development of a written, evidence-based guideline on communication with patients and families during and after a maternal hemorrhage event, and documentation verifying the communication (M. G. Smith, personal communication, July 20, 2020). This finding is in alignment with TJC new safety and communication requirements (The Joint Commission, 2019).

Moreover, if timely, effective, and compassionate communication is not provided during and following traumatic birth events, such as maternal hemorrhage, there may be resulting negative mental health problems (e.g., depression, anxiety, post-traumatic stress) which may affect maternal well-being, bonding with the baby, and family relationships (Furuta et al., 2016;

Reed et al., 2017; Sperlich et al., 2017). It is important to note that the two criteria defining qualifying maternal hemorrhages changed in the Fall of 2020. First, qualitative blood loss (QBL) replaced estimated blood loss (EBL). Second, the clinical site adopted the stricter definition of maternal hemorrhage to be $\geq 1,000$ ml QBL for all types of deliveries (Obstetric Workgroup, 2020b). This resulted in an increase reporting of overall total for maternal hemorrhages. Moreover, the clinical site receives referrals for many high-risk maternal conditions, such as placenta accreta, which will contribute to rates of obstetric hemorrhage.

Assessment of Organization

The Health System

The CSH where the quality improvement project was set is in a Health System (HS) located within a large metropolitan city comprised of a major teaching hospital and more than 20 additional outpatient healthcare centers, such as a diabetes institute and numerous primary care clinics (CSH, 2020a). The HS serves a large county in the southwestern United States and 22 surrounding counties. The Health System's mission and purpose are to improve community health by delivering high quality compassionate patient care, innovation, education, and discovery. Values esteemed by the HS are compassionate, high quality, attentive, kind, helpful healthcare that is delivered by prudent use of resources (CSH, 2020b).

The principal inpatient facility for the health system is an internationally recognized, major teaching hospital associated with a well-known, university. The hospital provides comprehensive care across all age groups, consisting of a sizeable trauma emergency department, numerous surgical suites and 650 patient rooms (CSH, 2018a). The hospital also has Level I trauma designation for both adults and pediatric patients. It is a single inpatient facility, amongst a network of community ambulatory clinics, that make up the health system within the

county. Currently, the HS is completing construction of a new women's and children's hospital which is being accomplished through use of existing funding sources and donations rather than through additional county taxes.

The HS is the only Magnet designated health system recognized by the American Nurses Credentialing Center (ANCC) in the city and the entire south-central Texas region (ANCC, 2020; CSH, 2020c). There are other hospitals in the city that are Magnet designated without health system designation. Magnet status is a highly esteemed award, given by the ANCC, signifying that a hospital has an environment that focuses on staff nurse involvement in evidence-based care, the delivery of excellence in patient care, and a process of decision making that supports optimal patient outcomes (Brennan, 2019). The communication incorporated into the QI project may play a part in sustaining Magnet designation. The CSH is also designated a Level IV (highest level) maternal as well as neonatal center by the State of Texas (CSH, 2020d). Because the maternal and neonatal centers at the clinical site are designated as a Level IV centers, specific requirements must be met to achieve and maintain those designations which demonstrate excellence in nursing and patient care that is innovative within professional nursing.

The Microsystem

The microsystem of focus for this paper is the inpatient department of the Women's Services, specifically those related to maternal health (obstetrics). Additionally, the Women's Services includes in-patient and outpatient departments, sub-specialties related to maternal health, multiple ambulatory facilities, and a single in-patient facility. The entire Women's and Children's Services is under the direction of an Associate Chief Nurse Officer (ACNO).

The specific population of interest within the microsystem is comprised of women, child-bearing age range between 15–50 years, within the obstetrics department of the Hospital's

Women's Services, who have experienced an adverse maternal event (e.g., severe hemorrhage) requiring communication guidance during or after the event. According to DataUSA (2018), the demographics of the city in which the hospital is located, is comprised of approximately 56.9% White (Hispanic), 24.8% White (Non-Hispanic), 6.18% Black or African American, 3.25% Asian (Non-Hispanic) and 4.49% other race (non-Hispanic). The HS staff and patients mirror the racial demographics of the surrounding population. The patients speak predominantly English or Spanish, and use Medicaid, private insurance, or grants as their main payor source (M. G. Smith, personal communication, July 20, 2020). Adult and pediatric trauma, obstetric, and neonatal patients come from the county that HS serves and the 22 surrounding counties (CSH, 2020a).

The clinical site maternal population was 76.4% Hispanic/Latino, mean age 29.5 with age range 15—47, 77.8% are English speakers, and had a mean of 3.2 pregnancies. The CSH is a growing accreta referral center for the region with specific statistical rates not shared publicly per request of the HS (M. G. Smith, personal communication, May 8, 2021). Placenta accreta is a spectrum describing the pathology of abnormal placenta adherence to the uterine wall. An accreta can result in a severe life-threatening maternal and hemorrhage can occur and lead to the need for blood transfusions (Committee on Obstetric Practice, 2018). Because this is a high-risk condition, it can result in an increased rate of maternal hemorrhage.

Purpose

The purpose of the intervention was development of a communication guidance in the delivery of communication during stressful events or delivering bad news to maternal hemorrhage patients and their families. The process of communication was to be compassionate, efficient, and timely, and to take place during or soon after a maternal hemorrhage event. Therefore, to demonstrate TJC's mandate that communication occurred, guidance for

communication and evidence of documented communication in the electronic medical record (EMR) following a maternal hemorrhagic event was evaluated.

After several months of deliberation, the Obstetric Workgroup ultimately determined that the person responsible for ensuring that documentation was entered in the EMR was the attending obstetrician in charge of the obstetric resident or the Certified Nurse Midwife (CNM). Also, the standardized location for documenting communication was determined to be placed in the labor and delivery note. Moreover, it was necessary that this process be in place before the 2021 Joint Commission survey. Therefore, specific, measurable, and feasible communication guidance goals were developed to address this issue. To accomplish this the key stakeholders were identified and interviewed to ascertain their perception of the issue. Although the individuals in the clinical site supported the reason for the QI communication project, knowing that TJC required EP2 to be met, there were delays due to the enormous requirements of documentation placed on the clinical site's providers and nurses.

Key Stakeholders

To accomplish the QI project aims, specific questions were developed and interviews with key stakeholders took place (see Table 1). The key stakeholders interviewed were the in-patient nursing staff on the women's floors, charge nurses, the labor and delivery/post-partum patient care coordinators, the VP/ACNO of the Women's and Children's Services, the maternal program manager, obstetric providers (attending and faculty physicians, OB Fellows, resident physicians, and certified nurse mid-wives), members of the Spiritual Care/Chaplain's Department, and social workers. Individuals involved in the development of the smart phrase, to be used as communication documentation in the EMR, was the Obstetric Work Group (maternal program manager, women's floor head nurse, and lead maternal fetal medicine physician).

This doctoral student, along with the VP/ACNO of the Women's Services, delivered a recommended communication guidance (see Appendix A) to the key stakeholders for their review and final approval. One of the most important resource personnel, who collaborated with the doctoral student, for procuring data and communicating with the nursing staff was the clinical site's maternal program manager because she was responsible to mine the de-identified data, tabulate results, and store the data in an encrypted and secure shared drive. The maternal program manager assisted the doctoral student and Women's VP/ACNO to report the findings from the EMR and research reports to the clinical site's Obstetric Workgroup. In addition to identifying key stakeholders, identification of the responsible individuals' roles for completing the project's purpose are in Table 1. Project goals, objectives, and outcomes are presented in Table 2.

Table 1

Stakeholder Interviews on Communication Guidance: Patient/Family Maternal Hemorrhage & Documentation in the EMR

Stakeholder	Description of role in clinical setting	Why do you think communication does not occur?	What do you think needs to happen to improve communication and documentation?	What are your feelings about The Joint Commission - Evaluation Performance #2 Directive?
Vice-President/Associate Chief Nurse Officer Women's & Children's Services	Management	Staff is focusing on priority of patient's medical condition. Communication with patient & family, along with documentation gets overlooked.	Improve maternal morbidity and mortality rate. Consistent education and documentation following each hemorrhage event.	Communication guidance during and following post-partum hemorrhage & documentation in EMR is necessary.
Maternal Program Manager	Obstetric work group project manager	Medical priorities supersede communication with family and documentation in EMR.	Education of medical and nursing staff. Integration of annotation in the EMR progress notes. Ongoing training of new staff.	The action is needed to meet The Joint Commission Evaluation Performance #2 mandate.
Labor & Delivery Nurse Manager	Middle management obstetric in-patient floor	Staff is busy with emergent medical needs of the patient. Occasionally staff is short-handed.	Regular training of current and new staff in the guidance.	This is a required process by The Joint Commission Evaluation Performance #2 to meet standards.
Spiritual Care/Chaplain	Emotional and spiritual support for patients, family, and staff	Medical & nursing staff is overwhelmed with priority of patient's emergent symptoms.	Obstetric floor nursing staff need to notify chaplains as soon as possible regarding event.	This action is needed to improve the communication response time with patient & family.

Stakeholder	Description of role in clinical setting	Why do you think communication does not occur?	What do you think needs to happen to improve communication and documentation?	What are your feelings about The Joint Commission - Evaluation Performance #2 Directive?
In-patient Obstetric RNs	Bedside Obstetric nurse	Staff is busy with emergent medical needs of the patient. Occasionally staff is short-handed.	Regular training of current and new staff in the guidance. Allow time to chart.	This is a required process by The Joint Commission Evaluation Performance #2 to meet standards.
Social Worker	Psychosocial support for patients, family & staff throughout hospitalization through discharge	Medical and nursing staff are busy with emergent medical needs of patient and family communication needs are secondary.	Education of entire healthcare team for each other's roles and responsibilities, especially during emergent medical events, such as post-partum hemorrhage.	Addition of communication documentation in EMR needed to meet The Joint Commission requirements.
Obstetric Physician & Certified Nurse Mid-wife	Provider will guide healthcare team during and after medical emergent event.	Emergency medical situation at hand is highest priority. Not able to often leave bedside of patient due to high acuity.	Annotated place in EMR progress note in which to document that communication with patient/family took place.	Necessary action to meet The Joint Commission survey requirements.

Note. EMR = Electronic Medical Record

Table 2

Goals, Objectives, and Outcomes- Communication Guidance Maternal Hemorrhage Patients and Families

Goal	Date	Objective	Desired Outcome	Who will measure?	How will outcome be measured?
1	01-Jan-21	A written, evidenced-based, obstetric hemorrhage communication guidance will be developed in collaboration with healthcare providers at project site	Development of functional & sustainable guidance	Doctoral student, Preceptor & MPM	Approval by Key Stakeholders & IRB Committee
2	15-Mar-21	> 80% of the in-patient, obstetric staff will be educated in the written, developed guidance.	Documentation >80% staff training maintained	Doctoral student & MPM	As evidenced by documentation in EMR. De-identified data collected monthly.
3	01-Apr-21	Doctoral student will collaborate with MPM & Preceptor to manually audit verification of communication documentation in the clinical site's EMR.	Documentation of communication is annotated in EMR post-delivery progress note after all maternal hemorrhage events	Doctoral student & Maternal Program Manager (MPM)	As evidenced by documentation in EMR (Electronic Medical Record). De-identified data collected monthly.
4	15-May-21	≥ 50% of the obstetric staff will be adherent to the guidance, as evidenced by documentation in the EMR.	≥ 50% Obstetric staff adherent with communication & documentation	Doctoral student & MPM	As evidenced by documentation in EMR. De-identified data collected monthly.

Review of the Evidence

Research surrounding effective and therapeutic methods for communication with patients and their families during and after a maternal hemorrhage event, were not found in the literature so other related fields were explored. The National Partnership for Maternal Safety published an expert opinion looking at emotional support given to women, families, and clinicians after a severe maternal event. The committee concluded that research on specific interventions and tools were lacking. Therefore, further research into effective, evidence-based, structured communication is needed and a recommendation for a multidisciplinary approach to develop effective response during and following maternal severe events was made (Morton et al., 2021).

A review of several articles, published since 2015, predominantly used qualitative and mixed method approaches and showed information about patient and family communication during traumatic events. The majority of studies described psychological and emotional experiences of obstetric patients and their families primarily from the perspective of Trauma-Involved Care (TIC), Trauma-Informed Practice (TIP), and Post-Traumatic Stress Syndrome/Disorder (PTSS/PTSD). The studies did not define specific communication tools, methods, or approaches to be used during or after acute maternal hemorrhage events (Dunning et al., 2016; Furuta et al., 2016; Meaney et al., 2016; Reed et al., 2017; Sheen & Slade, 2015). The importance of targeting interventions, such as optimizing care provider interactions, with the maternal patient and her family, providing emotional support during the traumatic event, and debriefing with the patient and her family is vital for effective communication and prevention of future negative mental health outcomes (Morton et al., 2020; Reed et al., 2017; Sheen & Slade 2015; Sperlich et al., 2017).

There was an expert commentary, written by a panel of 11 authors from the Journal of

Obstetric, Gynecologic and Neonatal Nursing (JOGNN) for ACOG, which compiled findings from 17 clinical and public health organizations for recommendations (prenatal, intrapartum, post-natal, and into early infancy/parenthood) to promote maternal and child mental health during the Covid-19 pandemic. The authors recommended the potential use of these Trauma-Informed approaches for other future traumatic situations after the pandemic is over.

Furthermore, the Association of Women's Health, Obstetric, and Neonatal Nurses agreed with the JOGNN and recommended that the Trauma-Informed approach be used for prenatal care to address increased psychological concerns (e.g., anxiety, fear, stress, grief) during the Covid-19 pandemic and be implemented as an approach to recognize and respond to those individuals experiencing traumatic events (Choi et al., 2020).

Healthcare teams are strongly encouraged to use a Trauma-Informed approach to care and practices that seek to understand a patient's life experience, both past and present, so that they can provide effective healthcare that fosters healing instead of inadvertently traumatizing or retraumatizing a patient. Recognized core principles of TIC/TIP approaches are safety, trustworthiness with transparency, peer support, collaboration, empowerment, and humility with responsiveness (Center for Health Care Strategies, 2019). Other TIC frameworks add cultural, historical, and gender issues to round out the key principles to promote increased inclusiveness (Sperlich et al., 2017).

The term TIP has often been used interchangeably with TIC because both concepts involve providing care to patients undergoing stress; however, there are minor variations in their focus in being trauma informed. Trauma-informed practices, or trauma-specific services, address traumatic stress along with other concurring substance use or mental health disorders that developed during or following trauma. TIC involves healthcare institutional processes and

individual health provider/staff frameworks that might contribute to retraumatizing patients who have trauma histories (Trauma-Informed Oregon, 2016). Because the entire hospital system of the clinical site is in the process of implementing TIC as a framework for communicating care and healthcare delivery, it was therefore, logical to use a TIC a communication approach in the in-patient Obstetric floors.

Most maternal PTSS/PTSD studies focus on past medical history of depression (Reed et al., 2017; Sheen & Slade, 2015), childhood abuse, sexual assault, or traumatic birth (Meaney et al., 2016; Sheen & Slade, 2015), but there were two articles specifically on maternal hemorrhage (Dunning et al., 2016; Furuta et al., 2016). The Dunning et al. (2016) study did not perform any interventions, but qualitatively described four main themes (control, communication, consequence, and competence) stemming from the emotional experiences of 11 women and their birth partners who had suffered a severe post-partum hemorrhage. Furuta et al. (2016) was a protocol review which compared usual post-partum care, as a treatment for post-traumatic stress symptoms or PTSD with psychological interventions for common comorbid symptoms, e.g., depression, anxiety, or distress. From their literature review, the researchers concluded that trauma focused psychological therapies, such as cognitive behavioral therapy (CBT), are effective long-term treatments for PTSD in the general population, but CBT is not a practical method during acute traumatic events. Overall, the Furuta et al. (2016) protocol and Dunning et al. (2016) study showed that if effective communication is not given during or soon after a maternal hemorrhage event, harmful mental health symptoms may potentially result for the mother, the baby, and the family.

There are gaps in the research literature dealing with effective and therapeutic processes for guiding patients and their families who have experienced an adverse or traumatic event, such

as maternal hemorrhage. The primary deficiencies in the literature are identification of the optimal interventional approaches with the families during the acute event. Finding a realistic method and/or tool that is manageable for the staff and will meet the emotional needs of the patient and family is needed. Moreover, because this is a new TJC element of performance, it is relatively uncharted territory for hospitals as they search for evidence-based guidance (M. G. Smith, personal conversation on September 11, 2020).

There are several elements that can affect a quality improvement project, one of which includes the identification of benchmarks (Finkelman, 2018). In the case of the TJC EP 2 communication guidance mandate, there were no benchmark studies or intervention recommendations. Existing literature on obstetric communication with patient/family protocols, guidance, tools, surveys, and methods primarily focuses on gynecological palliative care and intensive care populations, not maternal hemorrhage events or communication guidance. Therefore, the development of a communication process that was compassionate, efficient, and timely in working with obstetric patients and families during and after a maternal event was warranted.

Given that proven communication tools and methods that include TIC for acute maternal hemorrhage events were nonexistent, an approach that utilized TIC principles for communication guidance was developed for use in training the obstetric in-patient staff at the clinical site. Chaghari et al. (2015) performed a structured review of literature finding that training models which focused on designated processes and functions, as well those strategies that stimulate nursing staff, were found to be characteristic of effective in-services.

A broad search of literature failed to unearth a tool or teaching method that was evidence-based and supported by research for TIC. Therefore, alternative options were investigated to help

train obstetric staff in TIC communication principles. An Australian emergency physician developed a mnemonic, PLIIE, that utilized key components of Trauma-Informed Care (refer to Appendix B). Unfortunately, PLIIE does not have any background research studies or references in other articles (Nickson, 2019). Another drawback to using PLIIE was that it was too lengthy to be used efficiently during a brief in-service training. In the final phases of the QI project, the decision was made to use a single page abbreviated handout of the 6 Principles of Trauma-Informed Care with brief examples (see Appendix C).

Methodology/Project Plan

Based on the available evidence, the doctoral student determined that TIC and TIP were the most pragmatic options amongst existing frameworks that might be amenable for use in obstetric patient and family guidance during and following postpartum hemorrhagic events. These approaches align with the clinical site and surrounding county which made a commitment in 2020 to pursue Trauma-Informed care practices and designation (South Texas Trauma-Informed Care Consortium, 2020).

Intervention Plan

As mentioned previously, the setting for the intervention was a 650-bed teaching hospital in South Texas. The proposed guidance intervention was founded in the Trauma-Informed Care framework (Champine et al., 2018) which used an abbreviated handout of the 6 Principles of Trauma-Informed Care with brief examples. The 6 Principles of TIC communication guidance were provided to the obstetric in-patient staff (providers, nursing, spiritual care/chaplains, social workers, and the child life specialist) for use during and after maternal hemorrhage events (see Appendix C).

The intervention guidance was extended to documentation of the communication in the

EMR. Training of obstetric in-patient providers, nursing, spiritual care/chaplains, social workers, and child life specialist in the guidance using TIC approach took place both in person and/or virtually. Equipment used were computers to give the presentations and/or hard copy communication information handouts were provided to attendees during the training sessions. Monetary compensation was not used for participants, but snacks were provided to encourage participation and to express appreciation of their attendance in the educational sessions. Lastly, a click box was integrated, by the IT Department, into the EMR post-partum hemorrhage progress note, to facilitate documentation of communication with the maternal patient and family. This electronic record will also serve to assist future tracking of compliance with TJC EP2.

Guidance Intervention Steps

The project leader:

1. Collaborated with an interprofessional team of stakeholders in the development of communication guidance (see Appendix A) for use when caring for a mother and family during and after a maternal hemorrhage event.
2. Developed evidence-based communication guidance based on Trauma-Informed Care framework principles and practices (Champine et al., 2018). A single page handout summarizing TIC key principles was developed with the assistance of the clinical site's Director of Trauma-Informed (Appendix C) for in-service trainings.
3. Provided education and resources for the obstetric in-patient providers, nursing, Spiritual Care/Chaplains, Social Workers, and Child Life Specialist on the process based upon evidence-based Trauma-Informed Care guidance (Champine et al., 2018; Sperlich et al., 2017). Provided training (a click box was inserted in the EMR, and a

- smart phrase was suggested to facilitate communication for obstetric providers) and an education poster on TIC was displayed during staff meetings (see Appendix C).
4. Educated obstetric staff on how to integrate EMR documentation guidance into an existing post-delivery, maternal hemorrhage note as evidence that communication with the patient/family took place. A click box documentation was developed by the clinical site hospital Obstetric Work Group. An obstetric attending physician trained the obstetric providers during Morbidity and Mortality rounds at the clinic site. Documentation in the EMR was done by an obstetric physician or a CNM after the acute maternal hemorrhage event had been medically stabilized.
 5. Reviewed de-identified data of communication documentation from the post-delivery progress (maternal hemorrhage) notes in conjunction with the DNP student's preceptor before and after commencement of the project intervention. The doctoral student coordinated with IT personnel, Maternal Program Manager, and Vice-President (VP)/Associate Chief Nurse Officer (ACNO) of the Women's and Children's Services, to audit click box documentation in the EMR of patient/family communication related to maternal hemorrhage events in existing post-delivery, maternal hemorrhage notes following the onset of the guidance intervention.
 6. Collaborated with obstetrical staff to develop a plan for sustainment of communication guidance implementation. The maternal program manager (MPM) and the Obstetric Workgroup will monitor the metrics on communication guidance documentation monthly.

Evaluation

The evaluation model used to address the formative and summative evaluation for each of

the following QI project outcome objectives was the Kellogg Logic Model (The Kellogg Foundation, 2004). The Kellogg Model has a strong reputation for linking short-term and long-term outcomes, within the greater picture of how a particular organization does its work, and it was conducive to making the TIC framework adaptable to best suit the needs of the QI project. Another characteristic to be appreciated of the Kellogg logic model was its usefulness as a management and learning tool in working with diverse populations by allowing a greater participatory role (The Kellogg Foundation, 2004).

A thorough review of the literature did not reveal existing maternal hemorrhage communication guidance, interview/survey instruments, or other tools. Consequently, calculations of reliability and validity of known communication instrument/tools were not indicated or applicable because the time required for the development of a vetted data measurement tools was beyond the scope of this QI project.

Given that a new written communication guidance was developed, internal operational processes within the greater clinical organization were evaluated because different stakeholders had varying viewpoints and interests that might be contradictory. Input from all key stakeholders were collected by the doctoral student because contributions of every stakeholder was viewed as valuable. Final communication guidance resulted from this collaborative process.

A thorough quality review of the QI process was accomplished by logically moving through short-term outcomes, e.g., meetings held with key stakeholders, written obstetric communication guidance was developed, education provided to in-patient, obstetric personnel in the written guidance, and the EMR was audited monthly to determine if documentation had been done. Table 3 reflects the timeline for activities related to the quality improvement project.

Protection of Human Subjects

This QI project was intended to enhance the interactions with maternal patients and family, a practice that currently exists, albeit in an informal process. Because the QI project did not generate new experimental research or directly involve an intervention that impacted patients, there are no major ethical considerations. Data for the QI project included deidentified aggregate data collected from the EMR on qualifying severe maternal hemorrhage events and compliance with documentation of communication with patients and families during and after an event. A waiver from the Institutional Review Board (IRB) from University of the Incarnate Word and the hospital system was approved in December 2020.

The purpose of the QI project was to implement best communication practice for addressing the emotional aspect of maternal hemorrhage using communication-based Trauma-Informed Care. The intervention was a formalized, structured, evidence-based guideline to assist the caregivers to provide compassionate, efficient, effective communication, with maternal patients/families during and following the maternal hemorrhage. Staff and participants were not put at risk physically or emotionally.

Table 3

Projected Proposal Timeline: Communication Guidance Maternal Hemorrhage Patients and Families

Activity	Dec-20					Jan-21					Feb-21					Mar-21					Apr-21					May-21					Jun-21				
	Week					Week					Week					Week					Week					Week									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28							
Hold meetings with Stake holders	x	x				x			x				x					x					x					x							
Educate Obstetric Staff																x	x	x																	
DNP student, MPM & Preceptor audit EMR data													x					x					x					x							
Data Collection									x				x					x					x					x							
Data Analysis																							x	x	x	x	x	x	x	x					
Share findings																																			

Note. EMR = Electronic Medical Record; MPM = Maternal Program Manager

Results and Findings

The results of the data were compiled and analyzed using the IBM Statistical Package for Social Sciences (Version 26) and descriptive statistics were computed on project variables using the mean, range, and percentages. Data was inspected for the presence of random or missing data, noteworthy lopsidedness, and outliers. A percentage change from the pre- to post intervention was calculated to analyze the outcome for communication documentation in the EMR.

For the QI project, aggregate demographic data on the number of deliveries that met criteria for severe maternal hemorrhage, and documented evidence that patient and family communication took place, were retrieved from the EMR for an eight-week period after the intervention was implemented. Aggregate demographic data on 72 patient medical records of women experiencing maternal hemorrhages at the clinical site were averaged for age, ethnicity, and parity. The sample characteristics of the maternal patient was a mean of 29.5 years, predominantly Hispanic/Latina (76.4%), and had an average number of 3.2 pregnancies (see Table 4).

All four of the project deadlines were delayed because of extenuating circumstances. The biggest factors that had impact were the Covid-19 pandemic, implementation of a new hospital system EMR, and competing priorities vying for the Obstetric Work Group's attention.

Goal 1 – Develop a written, evidence-based, maternal hemorrhage communication guideline by early 2021. This goal was partially met because other responsibilities and tasks required by the Obstetric Workgroup derailed the communication project deadlines as a priority.

Goal 2 – Greater than 80% of the in-patient, obstetric staff was to be educated in the written, developed guidance by March 15, 2021. This goal was not met. Approximately 75%

Table 4*Sample Characteristics (N = 72)*

	M	SD
Age (range 15 – 47 years)	29.5	6.51
Number of pregnancies (range 1 – 12)	3.2	2.1
	#	(%)
Race/Ethnicity		
Hispanic/Latina	55	76.4
White (Non-Hispanic)	9	12.5
Black/African American	4	5.6
Asian/Pacific Islander	4	5.6
Type of delivery		
Vaginal	48	66.7
Cesarean section	24	33.3
Language		
English speaking	56	77.8
Non-English speaking	16	22.2

($n = 25$) of the medical providers (obstetric attendings, fellows, residents, Certified Nurse Midwives, and medical students) were educated during April-May 2021 Grand Round meetings (C. Johnson, personal communication, June 11, 2021). The start of the communication protocol training date was pushed beyond the original April 2021 goal because of the guideline development and EMR addition of the click box being delayed. Regarding the education of the nursing staff, other higher-priority clinical matters superseded maternal communication training and time conflicts in the training schedule. Hence, the in-patient obstetric nursing staff training was delayed until late June 2021.

Goal 3 – Collaborate with the MPM and preceptor with audit verification of communication documentation in the clinical site's EMR by April 1, 2021. This goal was met with 36 qualifying maternal hemorrhage charts reviewed during the pre-intervention phase of the project and 36 charts reviewed post-intervention. Seventy-two charts for women identified with maternal hemorrhage were reviewed. There was no documentation of communication present during the pre-intervention months of January through March 2021.

Goal 4 – Greater than or equal to 50% of the obstetric staff be adherent to the guidance, as evidenced by documentation in the EMR by May 15, 2021. Due to the delay in implementing this suspense date was not met. Retrieval of data documenting compliance with the recommended guidelines was extended to June 2021. Documentation of interactions between healthcare providers and maternal patients and their families was 52% in April ($n = 19$) and 50% in May ($n = 16$) which reflects that the goal was met. For a visual display of all four actual goal outcomes, see table 5. The interpretation of findings is limited due to the scope of this project and the short duration of data collection.

Table 5*Actual Outcomes and Goal Attainment - Communication Protocol Maternal Hemorrhage*

	Date	Objective	Actual Outcome	Goal Attainment
1	01-Jan-21	A written, evidenced-based, obstetric hemorrhage communication protocol will be developed in collaboration with healthcare providers at project site	Development of functional & sustainable protocol	Goal met March 2021
2	15-Mar-21	> 80% of the in-patient, obstetric staff will be educated in the written, developed protocol.	Documentation >50% trained	Goal not met by March 2021
3	01-Mar-21	Doctoral student will collaborate with MPM, Preceptor & Information Technology (IT) Department to manually audit verification of communication documentation into the clinical site's EMR.	Documentation of communication is annotated in EMR post-delivery progress note after all maternal hemorrhage events	Goal met March 2021
4	15-May-21	≥ 50% of the obstetric staff will be adherent to the protocol, as evidenced by documentation in the EMR.	≥ 50% Obstetric staff adherent with communication & documentation	Goal met April and May 2021

Discussion

The main findings of the QI project, implications for practice, and lessons learned are discussed below. The initial assessment of the clinic site found a lack of written communication in the obstetric EMR for maternal patients and their families associated with acute hemorrhage events. However, anecdotal reports from the maternal program manager reflected that obstetric staff consistently provided caring support of maternal patients and families, but a formalized compassionate, efficient, and timely communication was not documented.

The chaplains and social workers provided emotional support on an ad hoc basis to maternal patients and families upon request by the obstetric staff. An extensive review of literature confirmed that the maternal healthcare community was also struggling with lack of availability of evidence-based research, tools, materials, resources, and means of how to support this goal (Morton et al., 2021; Sperlich et al., 2017). Future efforts will require exploration of other fields outside obstetrics for a possible solution. Trauma-Informed Care will continue to provide a theoretical foundation with some evidence-based research from which to share ideas.

Implementation was hindered at the clinical site by 10 weeks for several reasons which included: (a) internal organizational changes experienced during adaptation of a new EMR roll out that began Summer 2020 (approximately 6 months prior to planned implementation start period); (b) the Covid-19 pandemic disrupted delivery of care at an unprecedented level; (c) Obstetric Workgroup and key stakeholders had difficulty coming to agreement on who would be responsible for communicating with the maternal patient and their family, who would document communication in the EMR, and where the documentation would be done; (d) the IT individual responsible for handling modifications to the EMR left before changes were made, related to the because other optimization priorities usurped the QI project's changes; and (e) the numerous

other high priority tasks faced by the Obstetric Workgroup that deterred the development of the communication guidance and EMR check box from being added. In summary, despite the recognized importance of maternal communication compliance with the TJC performance standards, there were several obstacles which delayed timely roll-out of the interventions and subsequent outcome attainment (M. G. Smith, personal communication, November 20, 2020).

Findings revealed that only one of the charts showed documentation of communication with the maternal patient/family during the preintervention period. However, after addition of the communication click box in the EMR, which facilitated access to the documentation site and served as a reminder to the obstetric providers, data collection began to improve. Documentation dipped slightly the second month of data collection, May 2021, during the post-intervention from 52% to 50% (Obstetric Workgroup, 2021). The slight decline in adherence during the month of May might be a result of new obstetric physicians coming into the hospital residency program who had not fully received training in the maternal communication protocol (C. Johnson, personal communication, June 11, 2021). Further data collection beyond the eight weeks might show an improvement in documentation because the new obstetric residents were trained in June 2021.

Another occurrence during the project implementation period was a change in criteria to validate or accurately capture cumulative blood loss using QBL criteria for severe maternal hemorrhage. At the start of the project the clinical site's documented blood loss at delivery and around the immediate time of delivery, but WHO and ACOG revised the criteria to include blood loss at the delivery and the following 24-hour period. The criteria set for a healthcare team debrief at the clinical site was a QBL of $\geq 1,000$ ml for vaginal delivery and $\geq 1,500$ ml for cesarean section (Obstetric Work Group, 2020a). The number of maternal hemorrhages that met

the ACOG and World Health Organization definition of a severe hemorrhage ($\geq 1,000$ ml QBL within 24 hours of delivery) were counted and then documentation of communication was tracked in the EMR.

During the middle of the intervention phase, clarification regarding the time collection parameters for post-partum bleeding was needed amongst the key stakeholders. The decision was made to include all blood loss volume at delivery and the immediate time span following, not a literal 24 hours. This decision is a different from the WHO and ACOG criteria which includes the 24 hours following delivery. As of this writing, the communication click box in the EMR is embedded in the Labor and Delivery note only. Consideration should be given to add the click box to follow-up obstetric progress notes. The qualifying EMR charts were manually audited, by the doctoral student and her preceptor, for the 12-week time-period prior to implementing the intervention to establish lack of communication documentation.

Conclusions

Based on findings from this project there were several lessons learned. The QI project was successful in implementing the overall goals which were as follows: (a) a written, evidence-based maternal hemorrhage guideline was developed collaboratively with the key stakeholders at the clinical site; (b) obstetric staff were educated in the written, developed guideline; (c) the communication guideline was integrated into the EMR by the IT department; and (d) adherence to documentation in the EMR by the obstetric staff occurred. However, several steps of the project did not work as planned. For instance, the number of barriers and delays in implementing the various goal objectives was underestimated. Also, the miscommunication in maternal hemorrhage criteria used to filter data at the beginning of the communication phase of the intervention, threatened to delay the project by several weeks. This situation may have happened

because of the increased time-pressure to get the communication guideline, amongst several other Elements of Performance mandates, in place before TJC inspection occurred. Multiple agendas were competing for attention during a limited time. Also, the obstetric staff had been overextended because of heavy workloads and additional hours required.

Fortunately, mutually agreed upon data filters were clarified between the key stakeholders and the QI project commenced in April 2021. The lesson learned from this matter was the importance of establishing a common definition of how maternal hemorrhage data for the project would be categorized and the sharing of that specific data file between the Obstetric Work Group, MPM, VP/ACNO of Women's and Children's Services, and the DNP student. Moreover, the collaboration between interdisciplinary team members was vital to making the development of this communication guideline since the TIC was borrowed from another field than that of obstetrics.

Recommendations for future endeavors are to carry out a research study or process improvement project, that will look at the short-term and long-term outcomes pertaining to the quality and effectiveness with maternal patient and family communication. Short-term outcome studies and projects might evaluate optimal approaches between discharge from the hospital and the initial postpartum visit. Interventions could include providing resources, such as informational handouts and contact numbers for mental health locations. Also, a follow-up process to telephone call or telehealth visit could be made to the maternal patient and her family inquiring about their well-being. Further QI projects or research studies to evaluate optimal communication between the in-patient and outpatient setting should be considered, such as a method to ensure maternal hemorrhage patient/families do not get lost to post-discharge follow-up care. An inquiry should be made at the initial postpartum visit to assess for signs and

symptoms of psychological trauma.

Long-term outcome research may include the impact of communication during (or soon after) the maternal hemorrhage event on the reduction of the psychological and emotional symptoms. Ensuring that TJC communication guidance is maintained, includes development of a sustainable Trauma-Informed Care training program for incoming obstetric providers and nursing staff. It is imperative that a click text box remain as a permanent part of the obstetric record to sustain long-term monitoring of communication metrics. It is impractical to expect that manual review of maternal hemorrhage records be evaluated monthly for postpartum hemorrhage communication documentation because it is exceedingly time consuming. Lingering challenges will be adherence of obstetric providers and staff to remember to communicate with maternal patients and their families during the chaos of a hemorrhage event or immediately after. Therefore, this is an especially important lesson to model in a teaching facility in which there are several health care providers who are learning the importance of providing emotional and psychological support to the patient and their family. The clinical site Obstetric Work Group will need to determine what can be done to remind staff to document and identify a mechanism to facilitate the process. A designated champion may be necessary to monitor adherence to the communication metrics. A systematic review which examined improving physician documentation in the emergency department revealed several promising methods. Some potential approaches to optimizing obstetric provider documentation might be to do audit/feedback, use of templates, and reminders at education sessions (Lorenzetti et al., 2018).

The Advanced Practice Nurse Role

The nurse with a Doctor of Nursing Practice (DNP) was poised to “contribute to nursing science by evaluating, translating, and disseminating research into practice” by synthesizing best

current evidence available on maternal hemorrhage patients and their families and then leading an interprofessional collaborative team improvement project to deliver this communication approach at the clinical site (AACN, 2006, pp. 10-14). The DNP student played a pivotal role in contributing to high-quality patient care by leading effective patient centered communication. The AACN and the National Organization of Nurse Practitioner Faculty fully support the DNP role in the development and sustainability of therapeutic relationships and partnerships, with patients and other professionals to facilitate optimal patient care outcomes (AACN, 2006; NONPF, 2015).

The Doctoral Nurse Practitioner (DNP) student demonstrated proficiency in several of the Essential Elements championed by the American Association of Colleges of Nursing (AACN, 2006). For example, the DNP student improved the clinical prevention and population health for the nation's health (Essential VII) by leading the development of a communication process improvement project at the clinic site. The resulting documentation guideline for Trauma-Informed communication delivered during an acute maternal hemorrhage event will help the clinical site obstetric key stakeholders to improve follow-up care for this population. For Essential VIII (Advanced Nursing Practice Skills in Clinical Judgment, Systems Thinking, and Delivery of Evidence-Based Care), the DNP student carried out an in-depth literature review of evidence-based research studies, models, methods, and approaches surrounding delivery for maternal hemorrhage communication which showed a lack of evidence regarding the topic. Moreover, evidence-based scientific concepts were used to evaluate presence of maternal communication tools, methods, and approaches related to obstetric hemorrhage events as outline in Essential I (Scientific Underpinnings for Practice).

Unique contribution was made for nursing by evaluating, translating, and disseminating

gathered information into practice with the key stakeholders of the interprofessional team that was led by the DNP student as the development of the new communication Joint Commission guidance took shape (Essential II – Organizational and Systems Leadership for Quality Improvement; Essential III – Clinical Scholarship and Analytical Methods for Evidence-Based Practice; and Essential V – Health Care Policy for Advocacy in Health Care). Collaboration with the clinic site IT systems personnel and patient care technology improvement took place, with the addition of the click box documentation, that allowed better evaluation of healthcare care metrics (Essential IV – Information Systems/Technology and Patient Care Technology for the Improvement and Transformation of Health Care). There are numerous opportunities at the clinical site for a doctorally trained nurse to enhance nursing's role and delivery of patient care to the maternal population. For instance, the TIC approach used to communicate with postpartum hemorrhage patients to avoid trauma and/or retraumatizing can be applied to many other obstetrical situations, such as maternal eclampsia, shoulder dystocia of fetus, and fetal demise.

Despite many challenges encountered, the project which targeted maternal communication was successful. A written guidance was developed, incorporated into the clinical site's EMR, and implemented to improve maternal and family communication and to meet TJC's element of performance requirement for communication with maternal patients and their families who undergo a maternal hemorrhage event. The opportunity to work with the key stakeholders at the clinical site was valuable in the development as a DNP who may be charged with leading future interdisciplinary healthcare teams.

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Appendix A

Communication Guidance: Maternal Hemorrhage Patients/Families

1. Obstetric nursing and medical staff identify maternal hemorrhage event (post-partum quantitative blood loss of $\geq 1,000$ ml) is taking place and activate protocol.
2. Obstetric healthcare team assembles and handles medical intervention for patient.
3. Communication is provided as needed to patient concurrently by bedside nursing and medical staff during maternal hemorrhage.
4. Obstetrical provider (Physician or Certified Nurse Midwife) will communicate with family or assign another obstetrical staff member (e.g., nurse outside the patient room) to communicate with family and notify allied health team member (e.g., Chaplain or Social Worker) to come to obstetric floor and assist with communication needs of family.
5. Communication utilizing Trauma-Informed Care principles (Safety, Trustworthiness, Peer Support, Collaboration & Empowerment/Choice) are provided to patient and family during and following the maternal hemorrhage event (Champine et al., 2018).
6. Documentation of communication with patient and/or family will be completed by obstetrical provider in the postpartum hemorrhage note.
 - a. Option 1: click box with space available for free text.
 - b. Option 2: “Detailed/Relevant information on patient’s condition and progress was shared with patient and _____ (with a _____ translator) during and after the event. Will continue to provide clinical support and updates as they arise. Educated patient on further signs and symptoms of _____. Listened and welcomed questions from the patient and family, all questions answered. Patient states understanding and reassured on plan of care. Patient and support persons offered resources for emotional support and comfort. *Encouraged patient & family to request for nurse or provider for any concerns.*”

Appendix B

Communication Mnemonic: PLIE (Prepare, Location, Introduction, Information, End) (Nickson, 2019)

1. Prepare:

- Who needs to be there? (e.g., family support or other disciplines).
- Plan the meeting – people and correct names, content of message, know details well, what do I want to get across and how.
- Be aware of patient and family native language – Is translator needed?
- Be aware of patient and family religious preference.
- Culture – some cultures do not allow male staff to provide care for female patients.
- Talk to other staff members prior e.g., Chaplain, Social Worker.
- Seek advice if required – OB Attending instructions on what information to give.

2. Location:

- Provide safe environment (both physically and emotionally), private meeting area, and comfortable seating if possible.
- No disturbances (phones, pagers).
- Set aside sufficient time to allow for family questions.
- Support people (if required).

3. Introduction:

- Designate person to communicate with family (Nurse) to introduce their name and role.
- Introduce other staff members present (limit per site Pandemic protocol).
- Ask family to introduce self (so names can be used).
- Use appropriate language and body language (typically sitting down is best posture to assume with family).
- Start out by finding out what the family already knows.
- Warn about “bad” news before the “bad” news is broken (adjust wording for delivering negative news as per assessing the situation).

4. Information:

- Use understandable language (clear and simple. Translator should be present if needed by family).
- Deliver information in small bites (remember stressful events reduce a patient/family’s ability to take in information).
- No medical jargon.
- Tailor information (family’s education level)
- Give as much information as required by family.
- Monitor pace of information (slow delivery is better than speaking too fast.)

- Allow time for reflection (This may require 2 – 5 minutes or longer. If not able to stay very long, politely excuse oneself and estimate time when one can return for further update).
- Listen (Use silence, as warranted).
- Allow time for discussion.
- Convey respect and empathy.
- Elicit concerns (ask family if they have any concerns or questions).
- Open disclosure (okay to say that you do not know something but will try to find out).

5. End:

- Answer all questions.
- Offer support (allied health team members e.g., Chaplains and Social Workers can assist with needs of patient/family).
- Let family know when they can likely expect communication from healthcare team (Obstetric staff member interacting with family is responsible for this task).
- Debrief with healthcare staff involved in care of obstetric patient (optimal situation is to do as soon as possible after the event after things have settled down).
- Document that communication with patient/family took place (designated person per protocol): post-delivery note of the EMR within four hours of the maternal hemorrhage event.

Appendix C

6 Principles of Trauma-Informed Care

(Center for Health Care Strategies, 2019; Harris, M., & Fallot, R. D., 2006)

- Safety - Provide a safe environment (physically, psychologically, and emotionally), private meeting area, and comfortable seating if possible. Convey respect and empathy.
- Choice – Providing everyone clear and appropriate messages about their rights & responsibilities. Be aware of patient and family religious and cultural preferences.
- Collaboration – Strengthen patient & family coping resources. Convey message individuals are experts in their own lives. Short-term: Offer support (allied health team members e.g., Chaplains and Social Workers can assist with needs of patient/family). Long-term: offer PTSD or therapy.
- Trustworthiness – Providing clear information about what will be done, by whom, when, why, & under what circumstances. Let family know when they can likely expect communication from healthcare team. Be mindful of Health Insurance Portability and Accountability Act (HIPAA) when in hallways, at the desk, in elevators, etc.
- Empowerment – Communicating a realistic sense of hope for the future. Eliciting an individual's strengths to empower them in the development of their treatment. Adapt information to the patient and their family.
- Cultural, Historical and Gender Issues – Adapt information to the patient and their family.