

Traumatic or Adverse Perinatal Outcomes and
Midwifery Care in the Postpartum Period:
A Quality Improvement Project
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Postpartum is characterized as the recovery period after birth and is also an important time for family bonding, which is critical for the physical, mental, emotional and spiritual wellbeing of the birthing person. However, many perinatal complications manifest in the postpartum period such as infection, anemia, incontinence, pituitary failure, infertility and depression; including severe postpartum depression or PTSD. Lactation, bonding with the newborn, perineal or incisional pain or sub-optimal healing can be worsened by a traumatic perinatal experience (Rodriguez-Almagro, R., et al. 2019).

Traumatic perinatal experiences are defined as perceived or actual harm to the birthing patient or the infant (Rodriguez-Almagro et al., 2019). Trauma is subjectively and personally defined; providers should be aware that a patient can experience a birth as traumatic even if they and their infant are healthy (Rodriguez-Almagro et al., 2019). Recently, researchers have estimated that 1/3 of individuals experience some perceived trauma around the time of their delivery (Reed, R., Sharman, R. & Inglis, C. 2017). A traumatic birth experience can also contribute to postpartum post-traumatic stress disorder, which affects 3–16% of postpartum patients (ACOG, 2018). More research is needed to assess the impact of adverse or traumatic perinatal experiences on the birthing dyad's health outcomes, both short term and long term, to implement tools to accurately screen for those at risk for perinatal trauma or PTSD.

Recently, a number of studies and reviews have explored the missed opportunities in postnatal care in the U.S. Experts now recognize that preventative healthcare for people following childbirth is focused on the health and well-being of the infant, minimizing care of the postpartum parent (Hamilton, Stevens, Lillis & Adams, 2018). Most recently, ACOG (2018) released a committee opinion outlining a postpartum care plan addressing these issues. Furthermore, the World Health Organization (WHO) has identified improving the quality of life of the parent and child as a global health priority and recommends that it begin in the postpartum

period (Ricchi et al, 2019). Identifying and acting on gaps in care between pregnancy and postpartum is critical for improving long-term outcomes and quality of life in this country.

The purpose of this project was to create a screening tool that identified people at possible higher risk of postpartum morbidities due to a traumatic or adverse perinatal outcome which would then prompt early outreach by the midwifery team. In this paper, the terms birthing person, postpartum parent and perinatal period are used to be gender inclusive.

Available Knowledge

Midwifery Model of Care

Midwives have been caring for families throughout human existence and are experts in normal, physiologic birth, postpartum healing, well newborn and wellness care. The American College of Nurse Midwives (ACNM) philosophy of care includes promotion of continuity of care by;

- Promoting a continuous and compassionate partnership
- Acknowledging a person's life experiences and knowledge
- Including individualized methods of care and healing guided by the best evidence available
- Involving therapeutic use of human presence and skillful communication

(American College of Nurse Midwives, 2020).

The World Health Organization recommendations include a midwife-led continuity-of-care model,

“in which a known midwife or small group of known midwives support a woman throughout the antenatal, intrapartum and postnatal continuum, and are recommended for pregnant women in settings with well-functioning midwifery programs” (World Health Organization, 2016).

Postpartum Care in the U.S.

Various stakeholders define the postpartum period differently. American College of Obstetricians and Gynecologists (2018) define the postpartum period as 4-6 weeks after delivery. Other experts extend the

postpartum period up to 1 year post birth (Hamilton, Stevens, Lillis & Adams, 2018; Walker, Murphey & Nichols, 2015). Late perinatal death surveillance monitors pregnancy/postpartum associated mortality between 42 days and 1 year after childbirth (Walker, Murphey & Nichols, 2015).

Within the current obstetric system in the U.S., patients often face fragmented care, with multiple providers for antepartum, intrapartum and postpartum care, and juggle several providers for both themselves and their infant. Postpartum care can be further divided between perinatal care providers, lactation support and pediatricians and the communication from inpatient to outpatient is often incomplete and inconsistent (ACOG, 2018; Tully, Stuebe & Verbiest, 2017). In one study evaluating the postpartum period, it was found that clinicians were more concerned about complications such as infection or bleeding, whereas patients reported more concern with physical discomfort, fatigue and emotional lability (Tully, Stuebe & Verbiest, 2017).

The World Health Organization recommends a best practice approach of evaluation of all postnatal dyads within 24 hours, regardless of the place of birth with a follow up on day 3, again at 7-10 days and at 6 weeks (World Health Organization, 2015). To optimize the health of postpartum parents and infants as a dyad, care should be an ongoing process with services and support tailored to the individual needs of the patient (ACOG, 2018). ACOG guidelines recommend an initial visit, either by phone or in person within the first 3 weeks postpartum rather than the historically recommended 6-week visit (ACOG, 2018).

Importance of the Postpartum Period

Postpartum adaptation influences a parent's functional status (physically and psychologically) and future decisions regarding where, how and with whom they receive reproductive and birth care (Walker, Murphey & Nichols, 2015; Reed, R, Sharman, R & Inglis, C., 2017). Midwives are well positioned to address and help influence positive outcomes with knowledge of importance of postpartum care and by incorporating a continuity of care model or implementing strong communication and follow up with patients regarding their overall wellness.

In the U.S., a lack of support and ritual with the postnatal period contributes to isolation, depression, self-doubt and disrupt family relationships (Reed, R, Sharman, R & Inglis, C., 2017). In many cultures, there is a 40-day postpartum period of rest and recovery when the dyad is often supported by family, friends and their communities (ACOG, 2018). The traditional 6-week postpartum visit in the U.S is focused on specific physical vital sign parameters and misses an opportunity for holistic care and education for this new transition (ACOG, 2018).

An alternative fourth trimester perspective views the birthing parent and the infant “as a mutually dependent unit, behaviorally and physically intertwined” (Tully, Stuebe & Verbiest, 2017). The care provider must attend to the interrelated health domains of the fourth trimester which include; mood and emotional well-being, infant care and feeding, sexuality, contraception and birth spacing, physical recovery from childbirth and medications and substances and exposures (Tully, Stuebe & Verbiest, 2017).

Traumatic/Adverse Perinatal Events

Childbirth is a critical transition in people’s lives when they undergo physical, physiological and sociocultural changes that may affect their and their infant’s health and well-being (Rodriguez-Almagro, et al., 2019). Many birthing people experience some unplanned or physical/emotional difficulties during delivery that may influence their perception of traumatic birth or ongoing symptoms of PTSD. A traumatic or adverse birth experience is considered an event with increased levels of stress or fear that often involves injury, danger or death to the infant or the parent (Rodriguez-Almagro et al., 2019).

Anderson et al (2012) performed a systematic review of 27 observational studies and four reviews as the primary literature in identifying factors that contribute to postpartum PTSD and morbidities. One top risk factor was subjective distress in labor, including feelings of loss of control or fearing for one’s own life or the life of the infant. Another risk factor is experiencing an obstetric emergency, most notably emergency cesarean section or instrumental vaginal delivery (Anderson et al, 2012; Rodriguez-Almagro et al, 2019). Complications of the

birthing parent such as preeclampsia, hyperemesis, preterm labor, uterine infection or retained placenta also contribute to postpartum trauma (Anderson et al, 2012). Infant complications were strongly associated with later development of PTSD including preterm labor, asphyxia, low birthweight, medical complications, anomalies, NICU admission, demise and a low APGAR (Anderson et al, 2012).

A personal history of depression or depression or anxiety during pregnancy is also a strong predictor for postpartum PTSD (Anderson et al, 2012). Furthermore, the level of support from their partner, doula or staff may be a moderating factor on perinatal trauma. Low support during childbirth has a higher correlation of experiencing trauma or PTSD. Birthing people with a personal history of psychological, physical or sexual trauma are also shown to be very high risk for developing PTSD in the postpartum (Anderson et al, 2012; Rodriguez-Almagro et al, 2019). Other factors that may influence future development of PTSD include episiotomy, perineal lacerations, duration of labor, socioeconomic status or variables associated with age, parity, education level, race or ethnicity (Anderson et al, 2012).

To best address and help prevent traumatic birth, Anderson et al. (2012) suggested a 3-step approach for including: 1) improved information regarding obstetrical procedures to all patients and detection of patients at risk of PTSD prior to labor 2) screening patients postpartum and offering follow up therapies for those who have experienced trauma or are diagnosed with PTSD 3) detection of patients who develop chronic PTSD and offer therapy.

Anxiety/depression in the Postpartum Period

The most common complication of childbirth is postpartum depression according to Hamilton et al. (2018), which can persist up to 12 months postpartum. Depressive symptoms affect more than 25% of perinatal people, with major depressive symptoms ranging from 10–15%(Gavin et al, 2005). Postpartum depression is associated with relationship problems, such as difficulty bonding with the infant and intimacy or discord with a partner (Anderson, L., Melvaer, L., Videbech, P., Lamont, R. & Joergense, J. 2012). Postpartum depression is

also associated with reduced likelihood of attending routine postpartum visits, well child visits and timely immunizations for their infant (Haran, van Driel, Mitchell & Brodribb, 2014). Researchers have shown that infants cared for by depressed individuals negatively influences the social, emotional and mental development of the infant in addition to the child having higher odds for delayed language and behavioral issues at three years of age (Anderson et al, 2012; Haran, van Driel, Mitchell & Brodribb, 2014).

In a national survey carried out by the Childbirth Connection, Declercq et al. (2014) found that when asked at 2 weeks postpartum; 35% of patients reported “feeling down, depressed or hopeless”, 36% reported “having little interest or pleasure in doing things”, 6% reported “feeling down” and 7 % had “little interest” nearly every day. The authors also found that 63% of patients screened with indicators for depression did not consult with professional mental health.

In a national survey of 2,400 people who gave birth in U.S. hospitals, less than one half of participants who attended a postnatal visit reported that they received enough information to educate themselves about the signs and symptoms of postpartum depression and when to seek help (Hamilton et al, 2018). The National Institute of Health and Care Excellence Guidelines recommends screening all postpartum patients for the resolution of baby blues at 10-14 days to facilitate early identification and treatment of postpartum depression (ACOG, 2018).

Breastfeeding Support

Many birthing families spend time on birth preparation and labor support classes but few utilize prenatal lactation education, which may partly explain why many postnatal dyads have trouble with feeding in the first few weeks. In a recent national survey (n=2,400) called *Listening to Mothers*, among the participants that stopped breastfeeding after the first week postpartum, seventeen percent (n= 408) stated that “I didn’t get enough support to get breastfeeding going”. Furthermore, 31 % stated that the “baby had difficulty nursing” and 23 % stating that it was “too hard to get breastfeeding going” (Declercq et al., 2014). Among patients with

early undesired weaning, 20% had discontinued prior to 6 weeks, due to lack of knowledge, support or pain and difficulty (Forster et al, 2016). Early postnatal contact in the first 3 weeks could aid with lactation support (ACOG, 2018).

Framework

The framework for this quality improvement project was the Johns Hopkins Nursing Evidence Based Practice Model (Dudley-Brown, Sharon, et al., 2015). This model was developed for nurses to evaluate evidence and translate it into patient care. It is defined as a problem-solving approach to clinical decision-making within the health care system by integrating current evidence, influences, critical thinking and application of individualized care. This framework is well suited for this project as it emphasizes individualized care, addresses health care resources (time and finances). Evidence Based Practice framework guides this project through three focused phases including a practice question, evidence and translation. See Appendix A for a figure of the framework.

Global and Specific Aims

This project had a global aim to positively enhance Oregon Health and Science University's midwifery patients postpartum care experience and recovery, via early identification of potential maternal trauma and outreach to patients identified in the early postpartum period. The specific aim for this project was to identify patients with risk factors for birth trauma or adverse perinatal outcomes within the Oregon Health and Science University Midwifery Faculty Practice by applying a computerized and automated screening tool within the existing quality assessment data repository. During the months of January, February and March 2021, 100% of midwifery patients were attempted to be screened. A follow up phone call or MyChart message was to be attempted by 10 days postpartum for all screen-positive patients.

Methods

Context

This quality improvement project took place in the Faculty Midwifery Practice at Oregon Health and Science University in Portland, Oregon. OHSU is an urban, tertiary, critical access, academic teaching hospital. There are four care teams offering perinatal care at OHSU including the maternal fetal medicine practice, generalist obstetrician practice, the family medicine practice and the midwifery practice. All include resident and/or student involvement. Each team has their own patient panel, but share resources, hospital staff and often consult and collaborate.

The midwifery service consists of 14 primary faculty midwives, several per diem midwives and student midwives. The midwives triage, admit, deliver and give postpartum care to their patients on the labor and delivery and mother baby unit. Approximately 40 births per month are attended by the midwives and they continue care through 6 weeks postpartum and offer ongoing gynecological and wellness care. The midwifery faculty often have other institutional commitments such as teaching, research, advising students which makes the clinical continuity more difficult. The participants in this project were the postpartum patients who delivered with the OHSU midwifery practice or with the obstetrics team (eg. vaginal assisted operative birth, cesarean birth, or intrapartum transfer of care due to complication) after receiving antepartum or intrapartum care from the midwives and who were identified through a screening tool as having a risk factor or factors indicating the potential need for early postpartum follow up.

Measures

The primary outcome measure for this project was the development and application of the screening tool to identify potential traumatic perinatal events. This tool was applied to all patients that delivered in the OHSU midwifery practice in the months of January, February and March. This measure allowed evaluation of the amount of patients within this practice that may have experienced a traumatic perinatal event. The secondary

outcome measure for this project was whether the recommended postpartum follow up phone call or MyChart message was made in the designated time period. This measure allowed for evaluation of the process and workflow of this intervention. Process measures for this project included the number of patients screened positive with this tool, and the number of those patients who received follow up phone calls or MyChart messages.

There were several balancing measures to consider in this project. These measures include increased burden of work on the midwives making the phone calls or MyChart messages and the inaccuracy of screening patients due to the subjective nature and perceptions of trauma. This intervention was not anticipated to increase the cost for the midwifery practice.

The data for this project were retrieved from the Research Electronic Data Capture or REDCap, which is a HIPAA- and IRB-compliant online survey and database collection system that is used by the OHSU midwifery practice to track delivery and perinatal statistics on all patients in their service and is used for ACNM benchmarking as well as potential research. It is password protected, cloud-based data capture for which all members of the OHSU midwifery division and students utilize for ensuring accurate record keeping.

In fall 2020, REDCap was mined for data to identify the volume of patients who would qualify for this intervention. Based on that data, the screening criteria were evaluated and adjusted as needed. This information was reported to the OHSU midwifery practice during the fall proposal presentation. The participants involved in this project included the midwife who identified the patients in need of the intervention and the midwife who initiated the postpartum follow up. For the initial PDSA cycle, a designated faculty midwife used the tool and attempted to make the follow up phone call. In the second PDSA cycle, I identified and attempted to call the patients that met criteria and in the final PDSA cycle, it was decided that the discharging midwife would apply the tool using the REDCap generated report and send a follow up MyChart message for those patients that

qualified. A post implementation survey was sent to faculty midwives to assess if they were able to access the tool and understood the process in the workflow change. See Appendix C for the survey.

Intervention

The intervention included designing a screening tool based on information found in the REDCap database collected on all patients in the OHSU midwifery practice. The screening tool was created based on evidence from the literature identifying risk factors for traumatic birth and postpartum PTSD. See table 1 for the screening criteria. Patients who had risk factors based on this screening tool were identified and contact was attempted via phone or MyChart between 3-10 days postpartum using a scripted template for follow-up, referral and other interventions as necessary.

The intervention included creating a new workflow for the practice identifying, contacting and referring as necessary, the patients that fit the listed criteria. Due to the subjective nature of trauma a screening criterion was added that allowed the delivering midwife to add if they perceived the birth as traumatic regardless of a healthy outcome. Based on the initial assessment of data that were collected using this screening tool, the tool was adjusted with evidence from the current literature and noted trends of this particular midwifery practice.

Table 1*REDCap Codebook Identifiers*

| |
|---|
| CNM/care team perceived this labor/birth experience as traumatic (or having potential for traumatic reactions postpartum) for the client/family or client states that it was traumatic (regardless of a healthy outcome). |
| APGAR < 7 |
| Gestational age at birth < 35 weeks |
| Instrumental delivery FAVD/VAVD |
| Primary or repeat cesarean |
| Episiotomy |
| 3 rd or 4 th degree laceration |
| Blood Transfusion |
| Serious Intrapartum Complications * |
| Postpartum complications * |
| NICU admission |
| Perinatal death |
| Newborn complications * |

*See Appendix B for list of potential complications captured in REDCap

Three PDSA cycles were conducted. The first cycle ran from 1/4/2021- 1/24/2021 to improve implementation of applying the screening tool and changing the workflow to include the postpartum phone call for those patients meeting screening criteria. A second PDSA cycle ran from 2/1/2021-2/21/202 and a third PDSA cycle ran from 3/3/2021-3/17/2021, with breaks between cycles allowing for analysis and adjustments as necessary. In the first PDSA cycle, I collected data from REDCap, applied the screening tool and notified the designated midwife that the patient needed a follow-up phone call. The designated midwife attempted to reach the patients and documented a telephone visit in Epic if contact was made. In the second PDSA cycle, I collected data from REDCap and attempted to reach out to patients for a follow up phone call, with a low threshold for faculty intervention if needed. In the third PDSA cycle, the hospital discharging midwife sent a MyChart message to any patients that screened for this intervention. See

appendix D for the message template.

Analysis

The analysis included the number of patients with risk factors that were identified through REDCap using the proposed screening tool. The goal was that 100% of identified patients would be screened in each cycle. A checklist was used to track the number of identified patients who were contacted by phone or MyChart message for follow up prior to the two-week visit. The screening tool criteria were developed based on evidence defining a traumatic perinatal event. The criteria were evaluated by the OHSU faculty midwives and tailored to their practice. Data were collected on how many patients had the qualifying events and the success of follow up outreach.

Ethical Considerations

The intervention screened all delivered midwifery patients over 3 intervention cycles for risk factors for traumatic or adverse birth outcomes. For those who screened positive, an attempt was made to provide a follow-up phone call from a designated midwife or a MyChart message. MyChart is a web portal that gives the patient access to their records and can act as a means of communication between patient and provider. Patients had the right to decline or refuse the follow up phone call. Patient information was reviewed retrospectively to extract data and apply the screening tool. A request for determination was submitted to the Institutional Review Board and it was determined that the project was not human subject research. The intervention did not compromise or inhibit the midwife- patient relationship and applied evidenced based, recommended practices.

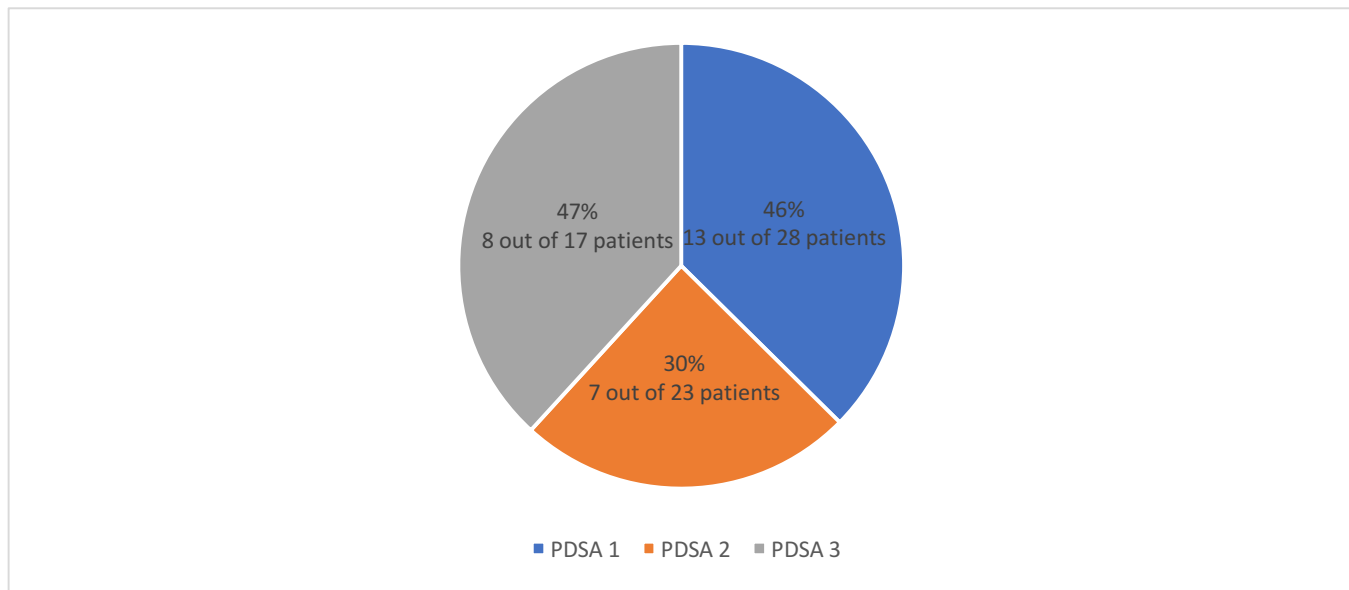
Results

During the project's 11-week period there were 68 midwifery deliveries during the three PDSA cycles, with a break between cycles for adjustments and improvements to the project. All deliveries were entered into REDCap and assessed for screening criteria. All deliveries in this time frame were screened using the tool created for the project. Of the 68 deliveries, 28 screened positive for a potential traumatic birth and an attempt

was made to reach out to the patients that screened positive.

FIGURE 1

Potential traumatic or adverse perinatal outcomes



PDSA Cycle 1

The 1st PDSA cycle ran January 4th, 2021- January 24, 2021. I monitored the REDCap data base for deliveries every 2-3 days and applied the screening criteria tool to each patient that delivered in this period to evaluate whether they qualified for the intervention. All patients who delivered in this time period were screened. There was a total of 28 deliveries, of which 13 met criteria for a potential traumatic birth. One designated midwife from the OHSU practice attempted to make the follow up phone call for this cycle. If a delivered patient screened positive for having a traumatic birth or adverse outcome, I notified the midwife via text that there was a patient that required a follow up phone call. The REDCap number was stored in a list in Box, a secure online platform. The midwife called the patient and, if there was no answer, left a voicemail, alerting the patient that the midwifery group was following up with them regarding their birth and to return the call if they desired. Six out of the thirteen patients were called; of these, four were available for a phone call after leaving a voicemail for follow-up and two were left voice mails with no return phone call. Of the ones that were reached, a review of the telephone encounter note showed that patients stated they felt grateful for the

follow up. The 7 patients that did not receive a phone call were missed due to human error in screening in a timely manner, scheduling issues with alerting the designated midwife or schedule they had already attended their 2-week postpartum visit.

Initially blood loss greater than 1000 ml was included as part of the screening tool due to the potential traumatic interventions and subsequent adverse outcomes in the postpartum period. After the first cycle, postpartum hemorrhage was removed from the screening tool unless there was a blood transfusion. However, in this PDSA cycle all patients who had a PPH also had other factors that qualified them for the intervention and per chart review, no patient in this cycle reported trauma from blood loss alone.

The intervention and process were reviewed at the OHSU midwifery faculty meeting. It was determined by both the designated midwife and I that the current system of both screening and contacting patients was not sustainable because of scheduling factors with both the designated midwife and the patient and the larger work load placed on a sole midwife. For an improvement in the screening process, a list was programmed into REDCap to automatically generate a list of patients that met the criteria for intervention. This eliminated human error and reduced the screening time. It was decided that for the second PDSA cycle, I would be responsible for screening and following up with the phone call for those that met criteria for intervention. The benefit of this was to provide an opportunity for the student to assess workflow and evaluate the amount of work for this intervention. The alterations described above were in place prior to the start of the second PDSA cycle.

PDSA Cycle 2

The 2nd PDSA cycle ran from February 1st, 2021-February 21st, 2021. I monitored the REDCap generated list every 2-3 days for patients that qualified for the intervention and attempted the follow up phone call interventions. All of the patients delivered during this time period were screened. There were 23 deliveries, of which 7 qualified for the proposed intervention. I attempted to make the follow-up phone call for this cycle for all patients who met criteria for intervention. Out of the 7 patients in this cycle, 5 were called; of the 5 called, 2

were available for phone follow up. The other 3 never returned the voicemail. The 2 patients that did not receive a phone call were missed due to scheduling and were not seen until the 10-day mark in which it was out of the scope for this project. After this cycle, it was deemed to be too time consuming for one midwife or student to take on this work and a different distribution was needed.

After review of this cycle with the OHSU faculty midwives, the decision was made to have the hospital discharging midwife follow up with qualifying patients with a MyChart message. If a per diem midwife was working the day of the discharge, the midwife manager of the week was notified to follow up with the MyChart message. A template was created and provided to the faculty midwives to assist with the creation of a standardized message via MyChart to the screen-positive patient. Instructions on how to access the list generated in REDCap were emailed to the faculty midwives.

PDSA Cycle 3

The final PDSA cycle ran from March 3rd, 2021- March 17th, 2021. I screened all patients for this cycle. There were 17 deliveries in this cycle and 8 qualified for the intervention. Five patients received a MyChart message. One did not receive a MyChart message because the midwife that was at the delivery sent a personal MyChart message addressing the birth trauma; it was felt that a second message was not necessary by the discharging midwife. The remaining 2 patients did not receive a follow up MyChart message. No patient responded back with a subsequent MyChart message and one patient did not view the message. After this cycle, the data were analyzed and shared with the OHSU midwifery faculty; strengths and weaknesses of the project and suggestions for future actions and projects were discussed.

A survey was sent to the OHSU faculty midwives assessing their understanding of how to access the screening tool and when to implement the intervention. Three out of the 14 midwives replied. There was one follow-up reminder email. One of the three did not attend any of the deliveries during that time period and felt the survey was not applicable, 1 understood both access to the screening tool and timing of intervention and the

3rd did not have access to the REDCap screening tool.

Discussion

Summary

Overall, the potential for birth trauma occurred approximately 30-40% of the time, which is consistent with reports in the literature. Nearly all the patients that screened positive for a potential traumatic birth event met the criteria for more than one risk factor. The most common criterion was midwife-perceived trauma, which in all but 2 cases involved other adverse perinatal events on the screening tool. The other two leading causes were NICU admission and primary or repeat cesarean. See table 2 for a description of the frequency of patients screening positive for each PDSA cycle.

Table 2*Deliveries that met criteria for screening tool*

| REDCap Criteria | PDSA Cycle 1: 13/28 or 46% of deliveries | PDSA Cycle 2: 7/23 or 30 % of deliveries | PDSA Cycle 3: 8/17 or 47 % of deliveries |
|---|---|---|---|
| Midwife Perceived Trauma | 7 | 4 | 4 |
| APGAR < 7 | 5 | 0 | 4 |
| Gestational Age <35 weeks | 0 | 0 | 0 |
| Instrumental Delivery | 3 | 1 | 1 |
| Unscheduled Primary or Repeat Cesarean | 4 | 0 | 4 |
| Episiotomy | 0 | 0 | 0 |
| 3 rd or 4 th Degree Laceration | 2 | 0 | 1 |
| Blood Transfusion | 0 | 0 | 0 |
| Serious Intrapartum Complication *see Appendix B for definitions | 1 | 0 | 0 |
| Postpartum Complication | 0 | 0 | 1 |
| NICU Observation or Admission | 3 | 2 | 3 |
| Perinatal Death | 0 | 0 | 0 |
| Newborn Complications *see Appendix B for definitions | 2 | 1 | 2 |

The strengths of this project are that it demonstrates a clear need for providing trauma-informed care in the perinatal period, early identification of traumatic perinatal experiences and a shift in the frequency and intervals of postpartum care in the United States. This project, in alignment with reports in the literature shows a frequency of perinatal trauma or re-traumatization that is of importance for both the OHSU midwifery practice and the practice of obstetrics globally. Another strength in this project was the ability to generate and utilize a report from data that were already being collected via an existing database collection system. This provided an efficient way to identify patients that needed follow-up for a potential traumatic birth. This early screening could have potential positive effects on people experiencing trauma and early referral and connection to care.

This project not only showed a need for increased care or referral in the postpartum period, but a need for early identification of risk factors in the antenatal period such as screening for adverse childhood experiences or ACEs, identifying prior sexual or physical trauma and addressing these issues in the prenatal period.

Moving forward, the functionality and quality of the screening tool and the ability to generate a list of patients that meet the criteria are beneficial tools for this practice in identifying potential perinatal trauma. It was found that the midwives perceived trauma accurately, consistent with the criteria in the screening tool in most cases. More work is needed to understand midwife-perceived trauma and how it relates to actual or patient-perceived trauma and how bias or personal experience plays a role.

Interpretation

A successful screening tool was created based on current evidence and utilized an already existing data collection system to identify patients that would qualify for the intervention. The implementation process was unsuccessful and did not happen consistently or in the recommended 3 to 10 day postpartum window. Many adjustments occurred throughout the three PDSA cycles with the screening tool, such as how it was used, whether the I reviewed REDCap or the list was automatically generated, revisions to the qualifying events based on the literature and OHSU midwife input, and how and by whom the patient was contacted. Ultimately there is still work needed for this intervention to be successful, but it proved to be a preliminary attempt to address potential birth trauma. While all PDSA cycles were successful in screening 100 % of the patients that delivered in that time frame, PDSA cycle 3 spread the work-load throughout the midwifery practice and patients were reached with greater success. More work is needed to improve follow-up with the MyChart message if this practice continues the intervention. The continuation of the intervention by this midwifery practice has not yet been fully explored.

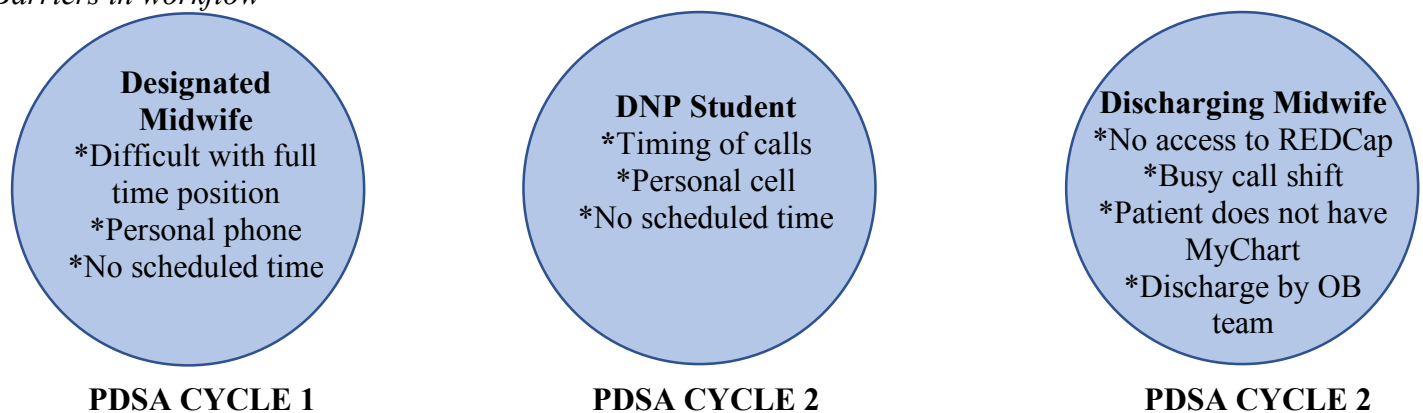
Limitations

The limitations of this project include many factors with the largest being the subjective nature of

trauma. While the literature supports the physical outcomes that were used in the screening tool, there is more to consider. People's histories that may or may not have been disclosed, their current sense of safety and the variable differences in providers and staff caring for the patient can all contribute to an experience being perceived as traumatic. What is traumatic for one person may not be experienced as traumatic for the next; the addition of the delivering midwives subjective view of a traumatic experience is variable and difficult to assess and reproduce. Some people experiencing a traumatic birth might be missed by this screening tool if it is not a physical trauma but emotional or due to a past, possibly undisclosed traumatic experience.

Figure 3

Barriers in workflow



The second largest limitation to this project is adding workflow to an already very busy midwifery practice. Three different strategies were attempted with unique challenges to each. In the first PDSA cycle, one midwife was assigned to make all the phone calls which was complicated by this midwife not having a scheduled time to call, calling from home on a personal cell phone which people were less likely to answer and leaving messages and missing return phone calls. In the second PDSA cycle I attempted to make the phone calls, facing the same challenges as the first cycle. In the third cycle, a MyChart message was sent by the discharging midwife.

A weakness of this project was that not all midwives had access or knew how to access the screening tool in REDCap. There was limited time to provide training in the 3rd PDSA cycle and more education could

have been provided for the midwives on how and when to implement this tool and intervention.

While the MyChart message proved to be a more straightforward method of contact, there were also limitations. It was the sole responsibility of the hospital discharging midwife to follow through with this intervention. The discharging midwife had to send a message to themselves or make a note to follow through with the MyChart message, which could easily be overlooked during a busy call shift. In some cases, the REDCap data base was not completed (most often the postpartum period and infant data) so certain factors pertaining to the infant or significant postpartum complications were missed in the screening.

Accessibility is another concern. Some patients may not use or have access to MyChart and did not receive the message. If there is a community birth transport, the patient may not have MyChart set up. The other obstacle to this final intervention that was not taken into consideration for the workflow change is that many patients had either primary cesareans or repeat cesareans after a desired trial of labor after cesarean (TOLAC). In this instance, the obstetrician team was responsible for discharging the patient and discharging midwife may have missed the opportunity for follow up.

Conclusions

I found that the potential for birth trauma is high with unknown, long-lasting affects for both the individual and the infant. This is supported in both the literature and the data gathered during this project from the OHSU midwifery practice. In the duration of the 11-week project, 28 out of the 68, or 41 % of deliveries screened-positive for potential birth trauma. These results prove a great need for increasing postpartum care in the United States as well as addressing additional screening in the antepartum period.

The screening tool is useful for identifying potential birth trauma and is unique to the OHSU midwifery faculty. Most other midwifery practices do not use REDCap as an online data collection, but the screening tool could be replicated in a different tracking method. For the OHSU midwifery practice, the screening may be sustainable, but the postpartum follow-up as performed in PDSA cycle 3 is not sustainable as a work flow

change and is not the most beneficial for patients for the reasons stated previously. More work is needed to develop a more sustainable and meaningful postpartum intervention.

To improve upon existing models, midwives in the U.S. could restructure the systems in which they provide care. For example, phone, tele-health visits or home visits have been shown to increase patient satisfaction, rates of breastfeeding success, postnatal education and decrease in perinatal morbidities (Forster et al, 2016). Using alternatives such as phone calls or MyChart messages in addition to the in-person office visit may help in addressing the larger social issues that impede postpartum attendance such as socioeconomic stressors, racial inequities and lack of understanding of importance are all important aspects to consider. This project demonstrated a need for continued work in addressing postpartum care in the United States.

One recommendation for future similar doctoral projects would be to create a referral list for the faculty practice to use, using smart phrases including postpartum depression, PTSD, grief, anxiety or increased pain. This could also include patient education that can be sent through MyChart or mail. The patients who screened-positive for risk factors would benefit from scheduling a 1-week postpartum visit for those who desired follow-up and to explore the use of video visits since the topic would not be a physical concern. Creating a workflow that includes multiple ways to reach and follow-up with patients would allow for equitable outreach. Another recommendation would be to identify risk factors for adverse perinatal outcomes and implement an intervention in the prenatal period. Overall, the move to redesign the postpartum care system in the United States to better align with the World Health Organization's best practice recommendations of increased intervals and frequency of postpartum visits. These systems changes require not only altering the schedule and the way that perinatal care is billed, but ultimately shifting the way our society views and places value on the postpartum period.

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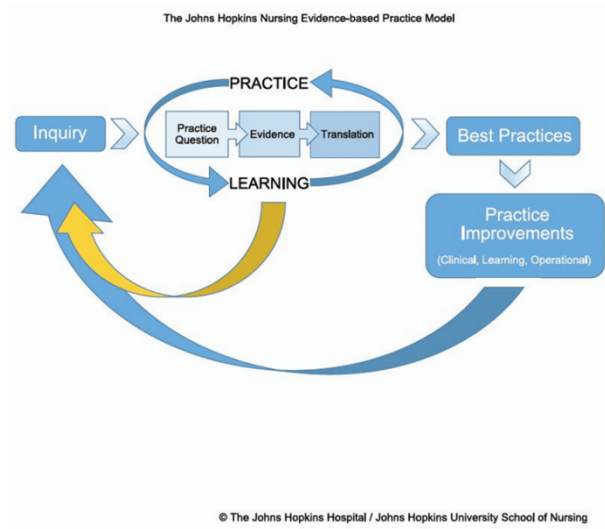
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Appendix A



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Appendix B

*Expansion of criteria from screening tool

Serious Intrapartum Complications *

Category 3 FHTs: NICHD Category III (CIII) fetal heart rate tracing (FHR) is defined as having either sinusoidal pattern or absent baseline variability plus recurrent late decelerations, recurrent variable decelerations, or bradycardia.

Cord Prolapse

Eclampsia

Intra-amniotic Infection (Chorio) - see notes below for definition (ACOG 2017)

Placental Abruption

Prolonged 2nd stage

Prolonged First Stage (active)

Prolonged First Stage (latent)

Shoulder dystocia

Postpartum complications *

DIC

Delayed PPH (occurring more than 2 hours or after transfer from L&D)

Maternal Fever after birth

Postpartum Preeclampsia (not present during pregnancy)

ICU admission

Blood transfusion - on MBU or ICU

Newborn complications *

BPD

Cardiac Failure

Congenital Anomaly

Hypoglycemia

Hypovolemia/hypotension/ shock

Intraventricular hemorrhage

Meconium Aspiration

Necrotizing enterocolitis

Persistent Pulmonary Hypertension

Pneumonia

RDS

Renal Failure

Rh Disease

Seizures

Sepsis

Stillborn

Appendix C

POST-IMPLEMENTATION SURVEY

This survey is part of the doctoral work being done at the OHSU midwifery practice by DNP student Sarah Barco Foster, CNM, IBCLC. The purpose of this survey is to assess knowledge of how to identify a traumatic birth event and how to implement the intervention and willingness to use.

| Were you able to access REDCap to find this patient list? | YES | NO | | | | |
|--|-------------|--------|----------|---------|------|--------|
| | | | | | | |
| Questions | Very strong | Strong | Moderate | Minimal | None | Unsure |
| Please rate your knowledge of how to identify a patient who may have experienced a traumatic birth using the online REDCap Data Base tool. | 5 | 4 | 3 | 2 | 1 | UN |
| Please rate your knowledge on how and when to follow up with a patient that qualified for this intervention. | 5 | 4 | 3 | 2 | 1 | UN |
| Do you feel the criteria listed in the tool is appropriate for that qualifying people for this intervention? | 5 | 4 | 3 | 2 | 1 | UN |
| How willing are you to continue to use this tool in your practice? | 5 | 4 | 3 | 2 | 1 | UN |
| If you used this tool and intervention, do you think it benefitted patients in the postpartum period? | 5 | 4 | 3 | 2 | 1 | UN |

Please add any additional feedback you would like to share about your experience using the REDCap tool to identify and follow up on a traumatic birth below:

Appendix D

MyChart Message Template

Hello,

I hope this message finds you well and adjusting to your newest family member. I am reaching out to connect about your recent birth experience at OHSU. I know things might not have gone as you had expected with the *** (repeat/primary c section, baby in NICU etc) and just wanted you to know we are thinking of you. As time goes by and you have more time to process your birth experience it is very normal to have a wide range of thoughts and feelings. We will plan to see you at your two and six-week postpartum visit but we want you to feel free to reach out sooner if we can support you in any way. I can be available for a phone call on *** or call the office at *** to schedule an appointment, if you feel like you need more support.

Take care,
