Midwifery Management of Patients Presenting to Triage in Spontaneous Latent Labor: A Quality Improvement Project

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Abstract

Background

Labor assessment and timing of admission for individuals in spontaneous labor significantly impacts care management and birth outcomes. Admission of low-risk patients during the latent phase of labor is characterized by unpredictable and slower rates of cervical dilation and associated with increased risk of medical intervention and operative birth (Iobst et al., 2019; Miller et al., 2020; Neal et al., 2014; Tilden et al., 2023). Providing evidence-based options, labor support, and comfort measures can potentially reduce admission of patients in the latent phase of labor, therefore decreasing rates of medical intervention and operative birth.

Problem

Faculty midwives at a large urban academic teaching hospital identified a lack of resources and inconsistent processes for educating and managing low-risk term pregnant patients who present to triage in latent labor.

Methods and Interventions

Following review of baseline data of this hospital's midwifery practice's secure database, a latent labor education resource was developed for midwifery faculty and students to use when low-risk patients presented to triage in latent labor. Options included discharging home to self-care, ambulation and re-evaluation after a period of time, receiving therapeutic rest, and admission to the birthing unit. Applying the IHI Model for Improvement (MFI) and the SHARE approach, this QI project was conducted within the triage space of the labor and delivery unit over the course of two one-month Plan-Do-Study-Act (PDSA) cycles (October 2024 and November 2024). Midwives tracked each instance of the resource use. Pre and post-intervention surveys were administered to faculty and students and chart reviews of patient encounters were conducted following completion of both PDSA cycles.

Results

Pre-intervention surveys revealed mixed perceptions of the triage process. Six patients qualified to utilize the resource during the first PDSA cycle. Of the patients who presented to triage in spontaneous labor, 50% (n=3) were discharged home, and 66% (n=4) had a spontaneous progression of labor. One hundred percent (n=6) had a NSVD. Nine patients qualified to use the resource during PDSA cycle two, 66% (n=6) discharged home from triage, 22% (n=2) ambulated, and 11% (n=1) were directly admitted. Fifty-five percent (n=5) had a spontaneous progression of labor, and 77% (n=7) had a NSVD; 22% (n=2) had a cesarean birth. Post-intervention surveys showed that 83% of respondents (n=5) used the resource, with 66% (n=4) finding it helpful, and 83% (n=5) expressing interest in continued use of the resource.

Conclusions

This QI project highlights the benefits of incorporating a latent labor resource in triage to enhance patient education and promote low-intervention labor management. Collected data and positive feedback indicate the resource's potential value and sustainability. Future efforts should focus on improvement of data collection and expanding accessibility and integration of the resource into other contexts.

Keywords: Quality improvement, latent labor, low-risk pregnancy, labor and delivery, obstetrical triage, midwifery care

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Introduction

Problem Description

Labor assessment and timing of admission of patients in spontaneous labor can have a significant influence on care management and birth outcomes, notably for nulliparous patients. Labor consists of three stages, with cervical dilation from 0 to 10 centimeters occurring in the first stage, descent and delivery of the fetus in the second, and expulsion of the placenta in the third (King et al., 2019). The first stage of labor is further divided into two phases: latent (or early) and active (King et al., 2019). The latent phase of labor is often long and unpredictable, characterized by slower cervical dilation, and lasting on average 14 and 20 hours for multiparous and nulliparous women, respectively (Hutchison & Mahdy, 2023). Following landmark research by Zhang et al. (2010), 6 cm dilation has become the commonly accepted standard of determining active labor (Caughey et al., 2014). After 6 cm dilation, cervical dilation tends to occur at a more rapid and steady pace (Zhang et al., 2010). Because of the slower and variable rate of dilation during the latent phase, admission of low-risk term singleton vertex patients in spontaneous latent labor increases duration of hospital stays, likelihood of medical interventions and risk of cesarean delivery if labor dystocia is suspected (Iobst et al., 2019).

In 2021, 29.1% of women who gave birth in Oregon delivered via cesarean delivery (CDC, 2022). In 2022, over 32% of individuals in the US gave birth via cesarean delivery (Hamilton et al., 2023). A diagnosis of labor dystocia is the most common indication for cesarean delivery (ACOG, 2024).

Obstetrical triage is a routine practice in medical facilities and plays an important role in timely and efficient examination of patients, identifying acuity and needs of a patient and their fetus, decreasing unnecessary admissions to labor units, and improving utilization of resources (Jordan et al., 2019). Through informal stakeholder interviews, faculty midwives at a large urban academic teaching hospital identified an inconsistent process for assessing, educating, admitting, and/or discharging low-risk term pregnant patients who present to triage in latent labor. At this facility, midwifery patients are encouraged to call a 24hr

hospital operator line, who then connects them to the on-call midwife who will discuss their concerns, answer questions, and advise the patient on presenting to the hospital for in-person evaluation and monitoring. Upon a patient arriving to triage, faculty midwives and graduate student midwives triage all midwifery patients (following an initial assessment by the triage RN) and, based on their assessment, review and implement care plans which can include, but are not limited to, extended monitoring, comfort management, discharging home, or admission to the labor and delivery unit. The goal of this quality improvement project was to modify the midwifery triage workflow to educate patients about supportive modalities during latent phase of labor, thereby improving shared decision-making, promoting the physiologic labor process, and potentially reducing the rates of latent labor admission of low-risk, term (e.g. GBS negative, intact membranes, normotensive, etc.) midwifery patients who presented to the triage unit in spontaneous labor.

Available Knowledge

Adequate education and availability of resources are essential when supporting a patient and their family during the latent labor process. Many factors contribute to the rate of cervical dilation in latent labor, including parity, engagement of the fetus, medical history, strength of contractions, maternal habitus, and maternal comfort (Kissler & Hurt, 2023; Weckend et al., 2022). A patient's ability to cope during latent labor is often dependent on adequate support, education, and resources. Without a systematic process for nurse-midwives and hospital staff to manage, support, and provide anticipatory guidance to patients in latent labor when they present to hospital triage, the chance of latent hospital admission, and thus medical intervention, increases (Phillips & Kantrowitz-Gordon, 2023). Nurse-midwives can implement a multifaceted approach to assisting individuals and families during the latent labor stage through utilizing emotional, physical, and pharmacological options (Jordan et al., 2019; Phillips & Kantrowitz-Gordon, 2023). Management of pain and fatigue in latent labor varies widely amongst different clinical environments and providers and can consist of discharge home with or without analgesia,

emotional and physical labor support (e.g. doula), or hospital admission for pain control (Bagger et al., 2023; Phillips & Kantrowitz-Gordon, 2023).

Throughout this paper, the term ‘women’ or ‘woman’ will be used alongside the terms ‘birthing people’, ‘patients’, and ‘pregnant individuals’ in the context of reviewing current literature and discussing interventions. In the context of obstetrical care, the term 'women' has traditionally been used to refer to individuals who are pregnant and giving birth; this terminology is often aligned with the reproductive and biological roles commonly associated with cisgender women. It is important to acknowledge that not all individuals who seek and receive obstetrical care identify as women and patients can include transgender men, non-binary individuals, and those who do not conform to traditional gender categories.

Pre-active Labor Admission

The timing of admission of a pregnant person for care following the onset of spontaneous contractions can greatly influence the occurrence and use of intrapartum interventions (Iobst et al., 2019; Miller et al., 2020; Neal et al., 2014). Four identified studies found an increased risk of interventions associated with the admission of low-risk nulliparous, singleton, term individuals in latent labor (<6 cm dilation), including higher rates of oxytocin use, amniotomy, epidurals, and cesarean delivery (Iobst et al., 2019; Miller et al., 2020; Neal et al., 2014; Tilden et al., 2023). In their 2014 comparative study of 216 low-risk nulliparous women, Neal et al. found that patients cared for by both OB/GYNs and midwives at three large academic medical facilities in the Midwest who were admitted in pre-active labor had hospital labor durations lasting an average of 4 hours longer and were more likely to have their labor augmented with oxytocin compared to patients admitted in the active labor group (95% CI 3.43–12.27, *p-value* <0.001). Additionally, 18 (15.8%) women in the pre-active labor group and 7 (6.9%) of the women in the active labor group delivered via cesarean and all cesarean deliveries performed for the diagnosis of “arrest of dilation” occurred in the pre-active labor group (*p-value* < 0.05) (Neal et al., 2014). Similarly, in their cross-sectional observational study of 21,858 nulliparous women who gave birth between 2002 and 2007 across nine

hospitals in the Consortium on Safe Labor, Iobst et al. (2019) found that those who were admitted between 0-5 cm dilation had more than twice the likelihood of undergoing amniotomy, oxytocin use, or epidural analgesia compared to those who were admitted at ≥6 cm dilation and those who were admitted between 0-3 cm dilation had a five times greater likelihood of cesarean delivery compared to those admitted in active labor (95% CI 4.36-6.34).

In their 2020 retrospective cohort study reviewing 697 births >37 weeks gestation in Australia between July 2013 and December 2015, Miller et al. found that women who were admitted in early labor (<5cm dilation) had longer hospital stays, a higher likelihood of labor augmentation with oxytocin (*p-value* <0.001), epidural use (*p-value* <0.001), cesarean birth (*p-value* <0.001), operative vaginal birth (*p-value* <0.018), and NICU admission (*p-value* <0.024). A 2023 population cohort study (Tilden, et al., 2023) analyzed 67,267 deliveries in the Stockholm-Gotland region of Sweden between 2008 and 2020 with the aim of studying associations between the duration of the latent stage of labor, labor interventions, and birth outcomes. Nulliparous and parous women over 37 weeks of gestation, with singleton, and vertex fetus were included. Key findings of this study included longer durations of latent labor (defined as beginning when individuals reported onset of painful contractions and ending at 5cm dilation) than previously identified in similar studies. Additionally, Tilden et al. (2023) identified a connection between longer duration of latent labor and increased incidence of interventions. Limitations of these 4 studies include the inability to control the various factors that can influence labor progression and outcomes such as practice differences between providers and timing of interventions. Strengths include the larger population size in the Iobst et al. (2019) and Tilden et al. (2023) studies and Iobst et al. (2019) focus on delineating between single and multiple labor interventions.

The latent phase of labor is often a time of great uncertainty and anxiety for pregnant individuals and the people supporting them, often prompting them to seek evaluation, guidance, and reassurance from their providers. Phillips & Kantrowitz-Gordon (2023) cite the importance of anticipatory guidance,

education, and normalization of latent labor for patients and families. Patients in latent labor often report that their experience does not match what they were informed about by providers, therefore, preparation for the realities and normal variations of the labor process is vital in terms of triaging and managing patients who come in for evaluation during latent labor. There is limited research around the process of decision-making for admission of low-risk pregnant individuals in spontaneous labor and many hospitals lack formal protocols to aid providers in decision-making (Breman et al., 2019). Additionally, the decision-making process is often complex, and influenced by multiple factors, including patient status, preferences, and support, hospital staff, and provider discretion (Breman et al., 2019; Marowitz, 2014; Miller et al., 2020).

While the American College of Nurse Midwives (ACNM) and American College of Obstetricians and Gynecologists (ACOG) both support the promotion of physiologic labor and delaying the admission of low-risk patients until in spontaneous active labor, this can be challenging as many patients face anxiety and reluctance to the idea of returning home (ACOG, 2019; ACNM, 2012; Paul et al., 2017). An RCT conducted by McNiven et al. (1998) found that patients who presented to triage in latent labor (defined as <4cm dilated) who opted to be discharged home or utilized a labor lounge to ambulate and rest prior to re-examination experienced shorter labors, had decreased use of epidural anesthesia, and lower rates of labor augmentation (*p-value* <0.001; 0.023; 0.001). Some institutions have introduced guidelines and labor lounges to support the progression of spontaneous labor before hospital admission (Paul et al., 2017). These lounges offer stations for meditation, exercises with birthing tools, ambulation, massage, and hydrotherapy. In institutions with limited space, providing laboring tools like birthing balls, rebozos, or massage tools can serve as an effective alternative (Paul et al., 2017). Ultimately, providing reassurance to help normalize the latent labor process in addition to education and resources can empower and instill confidence in pregnant patients and their support companions.

Supportive Methods for Outpatient Pain Management and Latent Labor Support

There is large variation in pregnant individuals' experience with latent labor and many patients feel an incongruence between the education they receive from providers and how they feel when labor begins (Breman et al., 2019). While some pregnant people are comfortable laboring at home, others may feel anxious, scared, or lack adequate resources to allow them to comfortably labor at home (Breman et al., 2019). Low-risk patients in latent labor who met criteria for the project were offered three options in the triage unit: admission to labor and delivery, reassessment in two to four hours in the triage unit (often with supportive methods for latent labor management), or discharge home. For those who opt for labor management and reassessment in triage, common interventions include therapeutic rest, non-pharmacologic methods, ambulation, and labor support, all of which have variable degrees of evidence (Bagger et al., 2023; Karatopuk & Yarici, 2023; Maykin et al., 2021; Tillett & Ames, 2010). Therapeutic rest was also an option for patients choosing to discharge home.

Therapeutic Rest Prior to Admission

There are no formal guidelines for therapeutic rest and the medication composition and method of administration can vary widely between organizations (Bagger et al., 2023). Typically, therapeutic rest consists of a combination of opioid and/or sedative analgesic along with an antiemetic to both relieve pain and nausea and decrease exhaustion by promoting rest during the latent phase of labor (Bagger et al., 2023; Maykin et al., 2021). Common medications used for therapeutic rest include morphine (IM or IV), promethazine (Phenergan) (IM or IV), and hydroxyzine (Vistaril) (PO or IM), however dosages vary widely dependent on providers and institutional guidelines (Bagger et al., 2023; Maykin et al., 2021; Phillipi & Kantrowitz-Gordon, 2023; Satin; 2024).

In their 2021 prospective cohort study, Maykin et al. examined the impact of therapeutic rest on patient satisfaction and birth outcomes amongst 82 low-risk, term (37w0d weeks of gestation to 41w6d weeks of gestation) women in latent labor (defined as ≤5 cm). Sixty-six women (80%) were offered and

received 10 to 15mg of intramuscular morphine sulfate and 25mg intramuscular promethazine. Those who received therapeutic rest were less likely to need labor induction compared to those who did not receive the therapy (*p-value* = 0.03). Additionally, while not statistically significant, those in the therapeutic rest group were more likely to be admitted in active labor (*p-value* = 0.3, 95% CI 0.44 - 7.890). Both groups had similar rates of epidural use and no differences in adverse maternal or neonatal outcomes. High satisfaction was reported amongst those who received therapeutic rest. Similarly, a 2023 retrospective cohort study by Bagger et al. studying 800 women in latent labor (control = 386, intervention = 414) found that therapeutic rest was a safe management option for latent labor pain and did not pose an increased risk of adverse perinatal outcomes or neonatal resuscitation.

Non-pharmacological and at Home Support

Continuous labor support with a doula, nurse, or other trained individual is associated with improved outcomes such as shortened labor, reduced maternal anxiety, increased chance of vaginal birth, improved APGAR scores, increased patient satisfaction, and decreased need for analgesia and oxytocin use (ACOG, 2019; Bohren et al., 2017; Hodnett et al., 2013; Ramey-Collier et al., 2023). Doulas are trained professionals that provide multiple supportive services to pregnant individuals throughout pregnancy, labor, and postpartum in a hospital setting and/or at a patient's home. During labor, doulas often provide emotional and physical support through education, assistance with position changes, breathing techniques, massage, and patient advocacy (Sobczak et al., 2023). This continuous support is especially impactful for marginalized, underinsured, and low-income pregnant individuals (Bohren et al., 2017). In one of the few RCTs exploring the effects of continuous doula support on labor outcomes of 586 nulliparous women, Campbell et al., found that participants who had doulas (n=291) during their labor had shorter labors (*p-value <0.004*) and higher 1 min and 5 min APGAR scores (*p-value* <0.04*;* 0.006) compared to those in the control group who did not have doula support (n=295) (Campbell et al., 2006). Another RCT studying labor outcomes of 420 low-risk nulliparous singleton laboring women found that patients who had doulas also

had lower rates of cesarean delivery (*p-value* = 0.002) and epidural use (*p-value* = 0.008) (McGrath & Kennell., 2008). Unfortunately, these studies did not specify or primarily focus on outcomes of patients who had doula support during the latent phase of labor, and research on doula presence during latent phase is limited. While the overall benefits of doulas for pregnant patients are clear, it's important to acknowledge that not all individuals have access to doulas or have doulas present when they initially present for triage evaluation.

Aromatherapy is a non-pharmacological alternative modality that has potential benefits for reducing pain and anxiety in labor and minimal risk of adverse outcomes and can easily be utilized at home as well as in a hospital setting (Karatopuk & Yarici, 2023; Tillett & Ames, 2010). In their triple-blind RCT of 121 primiparous low-risk women in spontaneous labor, Karatopuk & Yarici found that patients in latent labor who received aromatherapy with lavender oil through either massage (n=37) or diffuser (n=44) had lower reported pain and anxiety compared to those who did not receive aromatherapy (n=40) (*p-value* = 0.05) (Karatopuk & Yarici, 2023). Similarly, a 2019 RCT of 60 women (control n=30; experimental n=30) showed that patients who received sacral massage with aromatherapy applied during labor had a positive reduction in patient's pain and anxiety levels as well as resulted in higher rates of patient satisfaction (*p-value* <0.001) (Karaduman & Çevik, 2019). The results of these studies suggest that aromatherapy is a low-cost, low-risk, and accessible modality for midwives to offer patients as an option to reduce pain and anxiety throughout the labor process. While both author's findings were statistically significant, both studies were limited by small sample sizes.

Lastly, encouraging ambulation and upright positioning (including squatting, swaying, lunging, and using the birthing ball) during labor has some positive associations with decreased pain perception and improved labor progress due to encouraging favorable positioning of the fetus (Ondeck, 2014; Simkin & Bolding, 2004). While there is limited research and data around the benefits of movement during latent labor, the promotion of upright positioning and exercises can contribute to the decrease in labor pain

through the process of distraction and, ultimately, reduction in anxious thoughts (Makvandi et al., 2015). Notably, these exercises can be easily promoted by clinicians for patients to utilize in both a hospital triage space and for those who opt to discharge home to labor.

Summary

Studies show that admitting low-risk individuals in pre-active labor (<5-6 cm dilation) is linked to longer hospital stays and increases the likelihood of medical interventions during labor such as oxytocin use, amniotomy, operative vaginal, and cesarean delivery (Iobst et al., 2019; Miller et al., 2020; Neal et al., 2014; Tilden et al., 2023). Nurse-midwives can mitigate this risk through patient education and providing resources, emotional, physical, and pharmacological options to assist patient coping during latent labor. To manage latent labor, some institutions offer therapeutic rest using medications like morphine and promethazine or Vistaril, which has potential benefits of increasing a patient's chance of being admitted in active labor and increases patient satisfaction (Maykin et al., 2021). Non-pharmacological support, such as continuous labor support from doulas, aromatherapy, and encouraging movement, can also help reduce pain and anxiety, and promote a more positive labor experience (Bohren et al., 2017; Campbell et al., 2006; Karatopuk & Yarici, 2023; McGrath & Kennell., 2008). While formal research around therapeutic rest and non-pharmacological supportive methods during latent labor is limited, many of these practices are well-established standards within the midwifery model of care and are low-risk modalities that can be offered to patients as alternative methods to promote comfort during the latent labor process.

Rationale

Currently, there is no accepted standardized process or tool for triaging and managing patients in latent labor. While a standardized process is not necessarily appropriate or applicable to all patient cases, patient-centered care and shared decision-making (SDM) between nurse-midwives and patients regarding management decisions has the potential to decrease admission of low-risk pregnant patients in latent-labor and improve awareness and use of comfort measures prior to hospital admission.

Shared decision-making (SDM) is a collaborative process in which patients and providers are both involved in making healthcare decisions together. This process takes into account evidence-based clinical knowledge as well as a patient's values, preferences, and individual circumstances (Elwyn et al., 2012). This approach to care ensures that patients are fully informed of the options for their care, supportive in deliberating these options, and remain active participants in their care in order to increase patient satisfaction and improve care outcomes (Elwyn et al., 2012). The practice of SDM is well aligned with the midwifery model of care which prioritizes equitable, ethical, and accessible care and promotes patient and family involvement in informed decision-making (ACNM, 2023). Additionally, effective communication and collaborative perinatal care has been shown to increase patient satisfaction and improve patient's birth experiences (Megregian et al., 2020).

The IHI Model for Improvement (MFI) and the SHARE approach developed by the Agency for Healthcare Research and Quality (AHRQ) were the primary frameworks utilized to guide this quality improvement project. The MFI framework has two main components: three key questions essential for guiding improvement work and short Plan-Do-Study-Act (PDSA) cycles to test and adapt changes (Institute for Healthcare Improvement, 2024). The SHARE approach is a five-step process for shared decision-making that involves exploring and comparing the benefits, harms, and risks through meaningful discussions focused on what is most important to the patient (AHRQ, 2023). These two frameworks can be used together to encourage engagement between nurse-midwives, patients, and families to aid in the decision-making process of latent labor management and decrease incidence of latent labor admissions, particularly for patients who are wanting low-intervention labor and birth experiences.

Specific Aims

The intent of this project was to create a latent labor resource for the midwifery practice to utilize for educating low-risk, term patients about supportive modalities and labor management while promoting

shared decision-making and the physiologic labor process. This project consisted of two PDSA cycles. The first cycle was conducted from October 1, 2024 to October 31, 2024 and the second cycle from November 1, 2024 to November 30, 2024. The specific aims developed for this QI project included:

1) 100% of midwifery faculty and students who will be taking call between October 1, 2024 to November 30, 2024 will have confirmed that they listened to the voice-over slide deck on the project's rationale and workflow by September 23, 2024,

2) By September 30, 2024, 80% of midwifery faculty will have completed a pre-intervention survey regarding their perceptions on current process of triaging patients in latent labor,

3) By the end of the first PDSA cycle, 75% of patients who present to triage in latent labor (<6 cm dilation) will have received the latent labor resource and be engaged in a shared decision-making conversation regarding comfort measures, evidence about interventions, and care options prior to hospital admission,

4) By the end of the second PDSA cycle, 100% of patients who present to triage in latent labor will have received the latent labor resource tool,

5) At the end of the first PDSA cycle, documentation of the use of the latent labor resource (dot phrase) will be present in the electronic health record (EHR) of 70% of midwife patients triaged for latent labor,

6) By the end of the second PDSA cycle, documentation of the use of the latent labor resource will be present in the EHR of 90% of midwife patients triaged for latent labor,

7) By December 7, 2024, 100% of midwifery faculty will have completed a post-intervention survey.

Methods

Context

This project was conducted within the labor and delivery unit of a large urban teaching hospital in the Pacific Northwest. A group of 12 primary and seven per diem Certified Nurse Midwives (CNMs) (hereafter referred to as midwives) were part of an independent faculty practice with 24-hour call coverage, supervising graduate midwifery students during most intrapartum call shifts. Consultation occurred with obstetricians as needed for complications or transfers of care for medical indications. There was a dedicated triage space outside of the 12-bed labor and delivery unit with four private rooms equipped with a bed, monitors for vitals and telemetry, dopplers, and access to routine medications. The initial triage assessment was typically carried out by a registered nurse followed by provider evaluation that included a review of a patient's medical and social history and evaluation of vitals, allergies, medications, fetal assessment (through auscultation or continuous external fetal monitoring), and cervical examination (Jordan et al., 2019).

During FY23 (July 2022 – June 2023) the midwifery practice had a total of 466 births, 358 (76.8%) NSVD, and 86 (17.8%) cesarean births. Twenty-two (4.7%) midwifery patients had a water birth and there was a VBAC success rate of 67.6%. Additionally, during this time period, there were 181 outpatient triage visits. 65.9% of patients were on private/commercial insurance, 32.9% had OHP, and 1.1% were self-pay.

Baseline data for this project were derived from this midwifery practice's secure database (RedCap) which contained more than 200 variables gathered from each patient to track outcomes, assessment of quality of care, and research purposes. Data were collected at a patient's initial pregnancy visit, during admission to labor and delivery, upon birth, during the postpartum stay, and following the two and six-week outpatient postpartum visits. Database patient information is de-identified. For the purpose of this project, data were collected from the database from two, three-month time periods in the previous year related to cervical exam at admission to labor and delivery and selected outcomes.

Baseline data revealed that between October 1, 2023 and December 31, 2024 70 midwife patients at term were admitted to labor and delivery in spontaneous labor and received cervical examinations upon admission; however, only 60 patients in the repository had admission cervical dilation documented. Forty-two (70%) of these 60 patients were admitted to labor and delivery at <6cm dilation. Labor progressed spontaneously in 46 patients out of 63 (73%), six (9.5%) underwent artificial rupture of membranes, and 14 (22%) received oxytocin augmentation. Sixty-eight out of 70 (97%) patients had the type of birth documented, 52 (78.5%) of which had vaginal births (land), eight (11.8%) had water births, one (1.5%) had a vacuum assisted birth, five (7.4%) had a primary cesarean birth, and two (2.9%) had a repeat cesarean birth after attempted TOLAC. For the seven patients who had a cesarean birth, documented indications included arrest of dilation (n=3), arrest of descent (n=1), fetal intolerance of labor (n=4), and placental abruption (n=1). Between January 1, 2024 and March 30, 2024, there were 61 documented triage encounters of midwifery patients who presented to labor and delivery in spontaneous labor, 50 of whom had cervical dilation at admission documented. Thirty-four patients (68%) were <6cm upon admission to labor and delivery. These data sets did not include information regarding spontaneous progression of labor vs augmentation methods. Fifty-nine out of 61 patients (96%) had the type of birth documented, 46 (78%) had vaginal births on land, six (10.2%) had water births, two (3.4%) had a forceps assisted birth, and five (8.5%) had a primary cesarean delivery. Of those who had a cesarean birth, two (40%) were indicated for arrest of dilation, one (20%) for arrest of descent, and two (40%) had fetal intolerance to labor. Unfortunately, as this is retrospective practice data, it is not possible to make causal inferences nor determine what factors might have influenced admission and interventions, such as GBS status, parity, pregnancy complications, FHR status, fetal position, or patient-family satisfaction or preferences. These data do, however, shed some light on outcomes of the midwifery model of care at this facility, and it is important to note relative high rates of spontaneous progression of labor and vaginal birth as well as overall low rates of cesarean births and oxytocin augmentation.

Interventions

To address identified gaps in latent labor management, a comprehensive labor resource was developed for midwifery providers to use when low-risk patients present to triage in latent labor. Labor management options reviewed in the latent labor resource included the following:

- Ambulate, perform labor exercises and plan for re-evaluation in approximately three hours (e.g. utilize a birthing ball, walk the halls, walk stairs, 'Spinning Babies'© exercises, 'Miles Circuit'©)
- Therapeutic rest (and reassess in triage)
    - Morphine and Promethazine
    - Morphine and Hydroxyzine
    - Hydroxyzine only
- Discharge home w/ comfort options
    - Hydrotherapy
    - Therapeutic rest and discharge home: Vistaril, Benadryl, Morphine Phenergan (if determined appropriate by the midwife)
    - Rest
    - Home exercises with support persons (eg doula, partner)
    - Instructions of when to call back
    - Transcutaneous Electrical Nerve Stimulation (TENS) unit
- Admission to labor and delivery
    - Labor augmentation with oxytocin and/or amniotomy
    - Analgesic support (eg epidural)

This latent labor resource was introduced to the midwifery faculty and implemented in October 2024. The first step in this quality improvement project was the creation of a latent labor resource written at a fifth-grade reading level so as to be accessible to a diverse patient population (see Appendix A). In

addition to this, an electronic health record link to a phrase (hereafter referred to as a dot phrase) was created so that midwives could easily and quickly document when the resource was provided to patients during their triage visits. For the midwives' convenience and to increase use, this dot phrase was added to the standardized note templates for triage visits and patient admissions. In these notes the following text appeared: "Patient provided with latent labor education resource?" with options to select "No" or "Yes". The "Yes" option linked to a populated drop-down menu of intervention options to select (e.g discharge home with comfort options, ambulate and return for reassessment in two hours, admission to L&D, etc) (see Appendix B). This dot phrase assisted with documenting clinical care decisions, tracking the use of this resource, and correlating patient charts with labor and birth outcomes.

Prior to the initiation of this project, the midwifery practice was given simple instructions for using and documenting their use of latent labor resource via a brief voice-over slide-deck presentation prior to the initiation of the project. The slide-deck included a synopsis of the QI project's problem description, brief review of evidence and available knowledge, rationale for the project, and example of the workflow. Prior to the start of the first PDSA cycle, the midwives were surveyed on their perceptions of current triage practices (see Appendix D). Surveys were created and distributed using Qualtrics© software. Responses were designed using a 'Likert scale' with the following options: 'strongly agree', 'agree', 'neutral', 'disagree', and 'strongly disagree'.

Study of the Intervention(s)

During the 'study' phases of the PDSA cycles, patient medical records were reviewed for patient outcomes and interventions and data were collected and de-identified for review. Following the closure of each PDSA cycle, a chart review was conducted on each patient identified on a midwifery-managed tracking log to analyze whether a) the patient presented to triage for labor assessment, b) they were determined to be in latent labor, and c) the decision aid was utilized. The type of interventions that were carried out and selected birth outcomes were collected for analysis. Studied interventions included: use of latent labor

management methods (e.g. ambulation, therapeutic rest, aromatherapy, massage), discharge home with comfort options, and admission of patients <6cm dilation. Studied outcomes were the use of induction or augmentation methods such as amniotomy, oxytocin use, and epidural use as well as the method of birth.

Measures

The Institute for Healthcare Improvement (IHI) differentiates between primary and secondary outcomes when assessing the effectiveness and impact of healthcare interventions and quality improvement projects (IHI, 2024). Within this context, two sets of measures, outcome and process, were utilized to assess and track progress and improvements during this QI project's PDSA cycles.

Outcome measures included the percentage of patients admitted from triage in latent labor, the percentage of patients who were sent home, when / if patients returned and stage of labor, and selected birth outcome (e.g. interventions, mode of delivery, complications during labor). Process measures included 1) the percentage of patients presenting to triage in latent labor that utilized the latent labor resource / tool and had the latent labor resource dot phrase documented in their E.H.R, 2) the percentage of midwives who completed the pre-intervention and post-intervention surveys, and 3) the results of the surveys completed by the midwives. Balancing measures of this process included an increased workload and time commitment for midwifery providers as well as potential for decreased patient satisfaction related to the amount or type of information on intervention options.

Analysis

Analysis of the outcomes for this QI project incorporated both qualitative and quantitative methods. Data were collected from the Likert scale surveys completed prior to the initiation of the first PDSA phase, as well as feedback collected following the completion of the second PDSA cycle. Data of the number of patients who utilized the patient resource, interventions, and birth outcomes were assessed

through de-identified chart reviews. These data points were then converted to percentages and displayed in both table and bar chart formats.

Ethical Considerations

Ethical aspects of implementing this QI project included a formal review and determination of non-research design through the academic organization's institutional review board (IRB). Following a review of a submitted proposal, the IRB determined that the proposed study did not involve human subjects. The latent labor resource was written in English and at a fifth-grade reading level. Midwives were encouraged to engage in shared decision-making and carry out interventions to ensure that patient care plans and decisions were appropriate, individualized, and prioritized patient safety. When reviewing patient EHRs, the data were de-identified to maintain confidentiality and adhere to HIPPA standards. Both pre-intervention and post-intervention surveys sent to the midwifery practice and midwifery students maintained participant's anonymity.

Results

Prior to the initiation of PDSA cycle one (September 16, 2024 to September 30, 2024), midwives were asked to complete a pre-intervention survey to assess their perception of the midwifery practice's triaging process of patients in latent labor. Surveys were sent to 13 midwives and four midwifery students and at closing on September 30, 2024, 12 (70.5%) surveys were completed. Full survey results can be seen in Appendix G (Table 3 and Table 4). Pre-intervention survey data suggest a mixed perception amongst the midwifery practice regarding the triaging process of patients in latent labor. While 58% of surveyed midwives 'somewhat agreed' that they were satisfied with the triage process, they were evenly split on whether the practice follows a consistent process when triaging patients in latent labor. Fifty percent of midwives 'somewhat agreed' and 25% 'somewhat disagreed' that patients were adequately educated regarding care options when presenting to triage in latent labor, but 66% reported did not think that there

were adequate resources available to assist with educating patients on latent labor management. There were varying levels of comfort regarding the use of therapeutic rest amongst the midwives. Lastly, 92% 'strongly agreed' that admitting patients in latent labor increases intervention rates, and 50% 'somewhat agreed' that low-risk patients in latent labor are admitted too often within the practice.

Beginning with the first PDSA cycle, two laminated copies and 20 non-laminated copies of the latent labor resource (see Appendix A) were posted on a dedicated and labelled clipboard in the triage work room. Beginning October 1, 2024, the midwife on-call received an alert at the start of her shift via the paging system which served as a reminder to complete the intervention with any applicable patients that present to triage throughout the shift. Midwives were asked to place a patient sticker or medical record number on a simple tracking log (see Appendix D) that was posted in the midwifery office indicating that they triaged a patient and whether the latent labor resource was used. Beginning on October 1, 2024, weekly emails were sent to the faculty and student midwives to provide important updates and reminders as well as collect feedback. Studied interventions included: use of latent labor management methods (e.g. ambulation, therapeutic rest), discharge home with comfort options, and admission of patients <6cm dilation. Studied outcomes were the use of induction or augmentation methods such as amniotomy, oxytocin use, and epidural use as well as method of birth.

During PDSA cycle one, eight patient encounters were logged on the resource tracker. Of these, six (75%) met criteria for utilizing the latent labor resource ('low-risk', term, intact membranes, and confirmed to be in latent labor). Two (33%) of these patients chose to discharge home after evaluation, three (50%) chose to be directly admitted, and one (16%) chose to ambulate and then return for re-evaluation. One (16%) utilized therapeutic rest while in triage prior to discharge home. Once admitted, four (66%) of the six patients had a spontaneous progression of labor without interventions. One (16%) underwent AROM, and one (16%) received Pitocin. Four (66%) received an epidural. All patients (n=6) had a normal spontaneous vaginal delivery (NSVD). Studied interventions and outcomes for these patients are presented in Table 1.

Table 1

PDSA Cycle 1

	Studied Interventions				Studied Outcomes		
	Parity	**Gestation**	**Dilation**	**Intervention**	**Labor Interventions**	**Epidural**	**Method of Birth**
Patient A	Primiparous	39w0d – 39w6d	2cm	D/C home with TR	None – spontaneously progressed	Yes	NSVD
Patient B	Primiparous	38w0d – 38w6d	4-5cm	D/C home	None – spontaneously progressed	No	NSVD
Patient C	Primiparous	39w0d – 39w6d	4-5cm	Admit	AROM	Yes	NSVD
Patient D	Primiparous	39w0d – 39w6d	2cm	Ambulate and re-evaluate – admitted on re-eval	Pitocin	Yes	NSVD
Patient E	Multiparous	40w0d – 40w6d	4-5cm	Admit	None – spontaneously progressed	No	NSVD
Patient F	Primiparous	40w0d – 40w6d	3cm	Admit	None – spontaneously progressed	Yes	NSVD

Terms:
AROM = Artificial Rupture of Membranes D/C = Discharge NSVD = Normal Spontaneous Vaginal Delivery TR = Therapeutic Rest

Following feedback received during the first phase of the PDSA cycle, a visual infographic version of the resource (see Appendix C) was created and placed in triage at the beginning of the second PDSA cycle on November 1, 2024. This visual infographic provided an additional, or alternative, option for patients to utilize while in triage. Two laminated copies of this infographic were placed on the dedicated clipboard alongside the latent labor resource. The midwifery practice was notified of this new option in the weekly email on November 8, 2024.

During PDSA cycle two (November 1, 2024 to November 30, 2024), 13 patient encounters were logged on the patient tracker. Of these, nine (69%) met criteria for utilizing the latent labor resource. Six (66%) chose to discharge home after evaluation, one (11%) opted to be admitted, and two (22%) chose to ambulate and return for re-evaluation. Three (33%) received therapeutic rest prior to discharging home. Following admission, five (55%) of patients had spontaneous progression of labor (including SROM), four (44%) underwent AROM, and two (22%) received Pitocin. Seven (77%) of patients had an NSVD and two

(22%) had a cesarean birth. Studied interventions and outcomes for these patients are presented in Table 2. Figure 1 and Figure 2 present all studied interventions and studied outcomes for both PDSA cycles.

Table 2

PDSA Cycle 2

	Studied Interventions				Studied Outcomes		
	Parity	**Gestation**	**Dilation**	**Intervention**	**Labor Interventions**	**Epidural**	**Method of Birth**
Patient G	Multiparous	39w0d – 39w6d	1cm	D/C home	None – spontaneously progressed	No	NSVD - VBAC
Patient H	Multiparous	39w0d – 39w6d	4cm	Admit	None – spontaneously progressed	No	NSVD - Water Birth
Patient I	Primiparous	40w0d – 40w6d	1cm	D/C home with TR	None – spontaneously progressed	No	NSVD
Patient J	Primiparous	40w0d – 40w6d	1cm	D/C home	Later admitted for PROM. Misoprostol, Cook Balloon, Pitocin, AROM	Yes	Cesarean Birth (for fetal intolerance and failure to progress)
Patient K	Multiparous	38w0d – 38w6d	3cm	D/C home	None – spontaneously progressed	Yes	NSVD
Patient L	Primiparous	40w0d – 40w6d	2cm	D/C home with TR	AROM, Pitocin	Yes	Cesarean Birth (for fetal intolerance)
Patient M	Multiparous	38w0d – 38w6d	4cm	Ambulate and re-evaluate – Admit after re-eval	AROM	Yes	NSVD
Patient N	Primiparous	37w0d – 37w6d	3cm	D/C home with TR	None – spontaneously progressed	No	NSVD
Patient O	Primiparous	40w0d – 40w6d	4cm	Ambulate and re-evaluate – Admit after re-eval	AROM	Yes	NSVD

Terms:
AROM = Artificial Rupture of Membranes D/C = Discharge NSVD = Normal Spontaneous Vaginal Delivery PROM = Premature rupture of membranes
TR = Therapeutic Rest VBAC = Vaginal birth after cesarean

Following the completion of the second PDSA cycle on November 30, 2024, a post-intervention survey was sent out to faculty and student midwives (see Appendix F). Answers and feedback to surveys were anonymous. Thirteen midwives and four students received surveys, and six responses were completed (35% response rate). Five (83%) respondents reported utilizing the resource in triage. Of those

Figure 1

Studied Interventions for PDSA Cycles 1 and 2

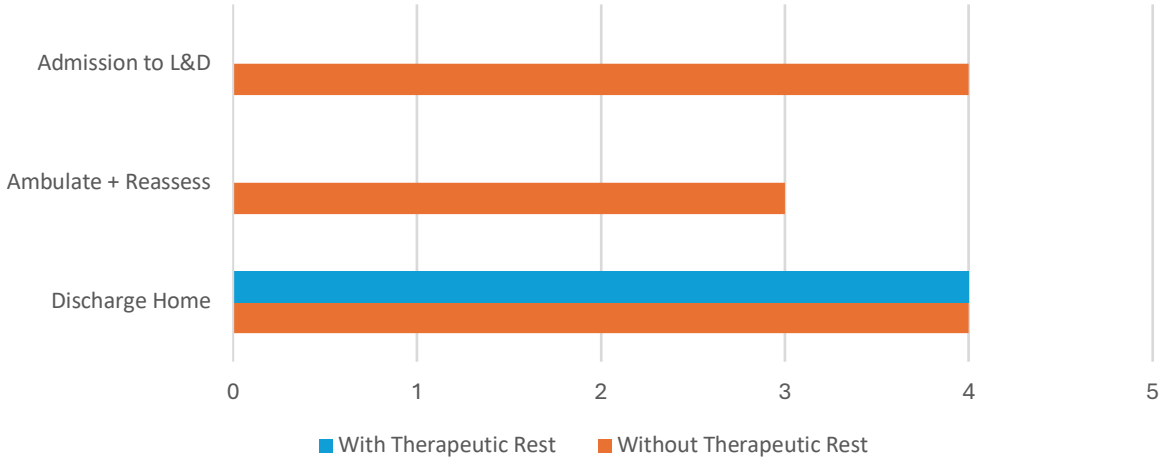
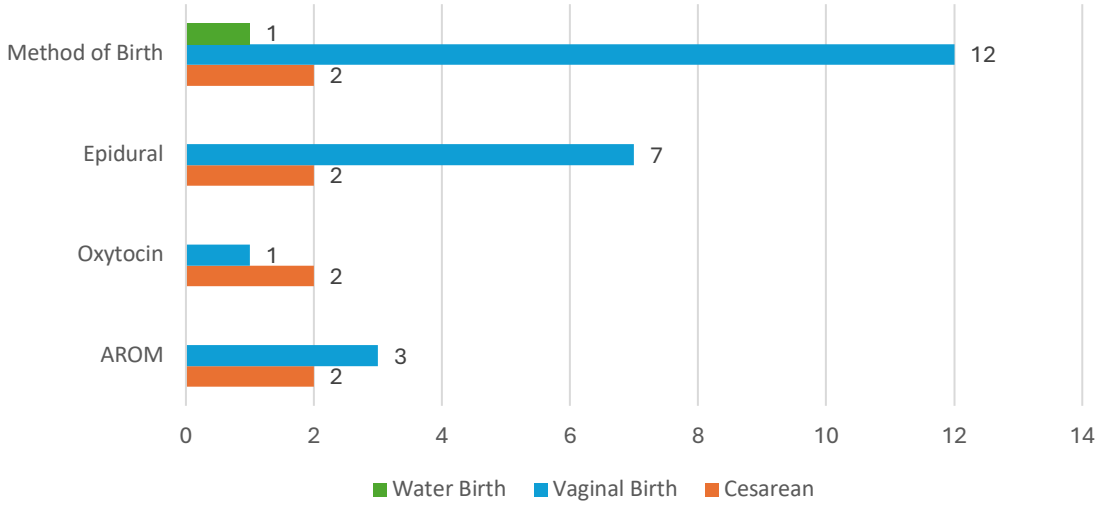


Figure 2

Studied Outcomes for PDSA Cycles 1 and 2



who utilized the resource, two (40%) found the resource 'extremely helpful' and three (60%) found the resource 'somewhat helpful'. Three (50%) used the dot phrase to document patient triage visits and one (17%) was not aware that there was a dot phrase. Lastly, five (83%) out of six respondents reported that they would be interested in continuing to use the resource following the completion of the QI project. Five

respondents provided supplemental feedback. Four found the resource helpful, with one noting it encouraged more thorough counseling and offered good reminders on therapeutic rest. Another expressed interest in continued availability despite not being able to use it during the term. One respondent highlighted the resource's role in standardizing care while emphasizing the importance of clinical judgment for individual patients. While the response rate was low, the post-intervention survey results showed promising engagement and interest in continued use of the latent labor resource. Data from the post-intervention survey can be found in Appendix G. Additionally, informal feedback from several community members, including resident obstetricians, nurses, and triage midwives (outside the practice), indicated that the latent labor tool was a valuable and adaptable resource for both providers and patients.

Discussion

Summary

Throughout the nine weeks that this project was implemented, 20 patient encounters were logged on the latent labor resource tracker, 15 (75%) met criteria for utilizing the resource. A majority of patients who used the resource (53%) elected to discharge home following evaluation, with plans to return when their labor symptoms became more intense. Three (20%) elected to ambulate and use labor exercises and return for re-evaluation. Four (26%) opted to be admitted to the labor unit. Four (26%) received therapeutic rest during their triage visit prior to being discharged home. 13 (86%) patients had a vaginal birth and two (13%) had a cesarean birth. While the scope of this project cannot determine whether the resource had any clear effect on birth outcomes, one can conclude that, when provided with the information and given the option, many of these midwifery patients were comfortable with opting to go home, trying exercises to encourage labor progression, and utilizing therapeutic rest prior to being admitted to the hospital.

Following collection of the data for this QI project, outcomes were reviewed to assess whether the specific aims were achieved. By September 23, 2024, 82% of midwives and students acknowledged

watching the voice-over slide deck on the project's rationale and workflow, which did not meet the original specific aim of a confirmation rate of 100%. By September 30, 2024, 70.5% of midwives completed the pre-intervention survey, falling slightly short of the goal for 80% completion rate amongst midwifery staff. By the end of PDSA cycle two, the aim was to have 90% of midwives complete the post-intervention survey, which only achieved a 35% response rate. The fifth specific aim was to have the dot phrase documented in 70% of patient charts at the end of PDSA cycle one; this goal was nearly met with 66% of patients triaged for latent labor having the dot phrase documented. By the end of the second PDSA cycle, 100% of patients had the documentation of the latent labor tool, exceeding the original goal of 90%. While the tracking log was available to document patient encounters, limitations in the tracking made it difficult to definitively determine exactly how many patients presented to triage in latent labor during the duration of the QI project.

There is no currently accepted or widely used resource or tool to assist providers triaging patients in latent labor in the U.S. A core tenet of midwifery care is the promotion of physiologic labor and birth (ACNM, 2012). Using both the MFI framework and SHARE approach, the latent labor resource was designed to support midwives in educating patients and facilitating shared decision-making, ultimately increasing patient and family awareness of evidence-based comfort measures during latent labor. By utilizing this resource, midwives could feel more confident in supporting patients making well-informed decisions regarding their care. While the overall number of patients who used the resource was small, analysis of data and feedback suggests that the resource had a positive impact on midwifery workflow, patient education, and care management.

Interpretation

Although there was a small sample size of patients and a lower response rate between the pre-intervention and post-intervention surveys, the results and feedback collected suggest a clear benefit of incorporating the latent labor resource into the midwifery practice's triage process. In the pre-intervention

survey, 66% of respondents reported a lack of available resources to aid in the education and labor management process, highlighting a gap that this QI project aimed to address. Pre-intervention survey results reveal that most participants believed that admitting low-risk pregnant patients in latent labor increases the risk of interventions, consistent with available research (Iobst et al., 2019; Miller et al., 2020; Neal et al., 2014; Tilden et al., 2023).

The latent labor resource was designed to align with this evidence, enhancing patient education, supporting shared decision-making, and promoting low-intervention labor management methods. Additionally, it offered an opportunity and accessible information for providers to provide more thorough counseling on management options. Unfortunately, there was a low response rate for the post-intervention survey, likely attributed to surveys being distributed late and near the 2024 winter holidays. However, 83% of post-intervention respondents reported that they would be interested in continuing to use the resource in their practice. Despite this poor response rate, collected feedback suggests a beneficial value and sustainability for the continued use of this resource. Project data suggest a possible benefit of midwives utilizing this resource to improve the process of triaging patients in latent labor and facilitate informed, individualized decision-making. This resource has a high-impact, low-cost potential, and allows midwives to easily offer guidance on latent labor management and low-intervention birth while maintaining individualized care practices. Providing clear options aids and empowers patients in making informed decisions around their care; these collaborative care models have been shown to improve patient satisfaction as well birth experiences (Megregian et al., 2020).

Helping birthing individuals prepare for the realities and normal variations of labor is essential for effective triaging and management during latent labor evaluations. However, limited research exists on the decision-making process for admitting low-risk pregnant individuals in spontaneous labor (Breman et al., 2019). The decision-making process in labor is often complex and heavily influenced by provider discretion, patient and family preferences, availability and quality of support, facility-specific policies, as well as

resources available to them in their place of birth (Marowitz, 2014; Miller et al., 2020). With this in mind, feedback suggests that use of this labor tool or infographic can address the gap in resources for providers within this large urban teaching hospital.

Limitations

As mentioned previously, there were two major limitations to the data collection of this QI project. First, there was a significant drop in responses for the post-intervention survey. This was likely because the survey was sent to the midwifery practice a week prior to the December 2024 winter holidays.

Second, there was no accurate way to track whether the resource was used unless the midwives or midwifery students recorded visits on the physical tracking log. Along with this, midwives could have utilized the resource but forgot to document patient encounters in the patient's EMR. These limitations were mitigated by sending daily reminder pages at the beginning of each shift (8am and 8pm) and the dot phrase (.cnmtriagelatentlaborresourceDNP) was embedded in standardized note templates for triage visits and admissions (.CNMTRIAGE and .CNMADMISSION) to serve as another reminder and make documenting more convenient. However, some midwives used personal note templates that did not include the dot phrase, and the reminder was ineffective when notes were written following a patient visit versus in real-time. Additionally, there was no available mechanism for verifying the total number of patients triaged by the midwifery practice over the nine-week project period. This metric, necessary to determine the percentage of triaged patients who used the resource, was key to one of the specific aims of the project.

During PDSA cycle one, some midwives reported difficulty locating the resource in triage. This was due to the resource being housed on a relatively inconspicuous clipboard and would be found covered by other items. To resolve this, bright labels were added, and the clipboard was placed in an elevated spot for improved visibility. Following this adjustment, the midwives were notified via a weekly email with a photo and updated location.

Pre-intervention and post-intervention surveys were distributed to midwifery faculty and students in an anonymous fashion. While anonymity promoted transparency in answers, surveys did not differentiate whether participants were faculty midwives or students, and results may have been affected by the relative lack of working experience from student participants.

Lastly, this resource was designed primarily for low-risk pregnant individuals. Although it was occasionally used with a broader patient group, data collection was limited to those meeting specific criteria (e.g. term gestation, low-risk pregnancy, and intact membranes), reducing the number of patients in the data review. However, with provider discretion, aspects of this resource can still be safely utilized amongst a wider patient population.

Conclusions

This QI project highlights the potential benefits of incorporating a latent labor resource into the midwifery practice of a large academic teaching institution. While limitations in tracking and post-intervention survey response rates made it difficult to fully assess the resource's impact, collected data and feedback suggest that providing midwives with a structured accessible tool helped to enhance patient education, encouraged shared decision-making, and supported promotion of physiologic low-intervention labor management.

Feedback suggests that this resource was well received, with 83% of the post-intervention survey respondents expressing interest in its continued use, indicating a high possibility of sustainability within the midwifery practice. As this is a simple, low-cost, and adaptable tool for educating and counseling patients in latent labor it would be useful to continue to improve visibility and accessibility of the resource. Several midwives also noted a possible benefit to introducing the resource in the outpatient clinic to support discussions during third-trimester prenatal visits. Additionally, informal feedback from interdisciplinary team members suggests the resource's adaptability beyond the midwifery practice, further supporting its potential value in more diverse clinical environments. Introducing this resource during the final weeks of a

pregnancy in the outpatient setting would provide patients with the opportunity to familiarize themselves with the latent labor process and available management options. This approach could serve as a valuable intervention for a future quality improvement initiative.

Given the lack of widely accepted tools for educating and managing patients who present to the hospital in latent labor, this resource fills a notable gap in obstetrical care by offering a practical solution that aligns with midwifery standards of promoting the physiologic labor process and empowering patients through collaborative decision-making. Future efforts of exploring the use of this resource should focus on improving data collection methods in the triage space. It would be beneficial to collect data regarding the current use of therapeutic rest methods, potentially integrating the use of therapeutic rest in triage into the midwifery RedCap database. Additionally, there could be further education and promotion of therapeutic rest methods and dosages to improve provider comfort. This could be achieved through sending a short 'refresher' presentation or document to midwifery staff as well as putting a simple methods and dosage reference in the call room or triage space.

Ultimately, this QI project has underscored the importance of equipping midwives with practical resource to facilitate evidence-based, patient-centered collaborative care for latent labor patients in the triage setting.

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Appendix A

Latent Labor Resource

What is Latent Labor?
Latent labor, also known as early labor, is when your body starts getting ready for childbirth. During this time, the cervix begins to open (dilate) and thin out (efface). This stage usually happens when the cervix is between 0 to 6 centimeters dilated.

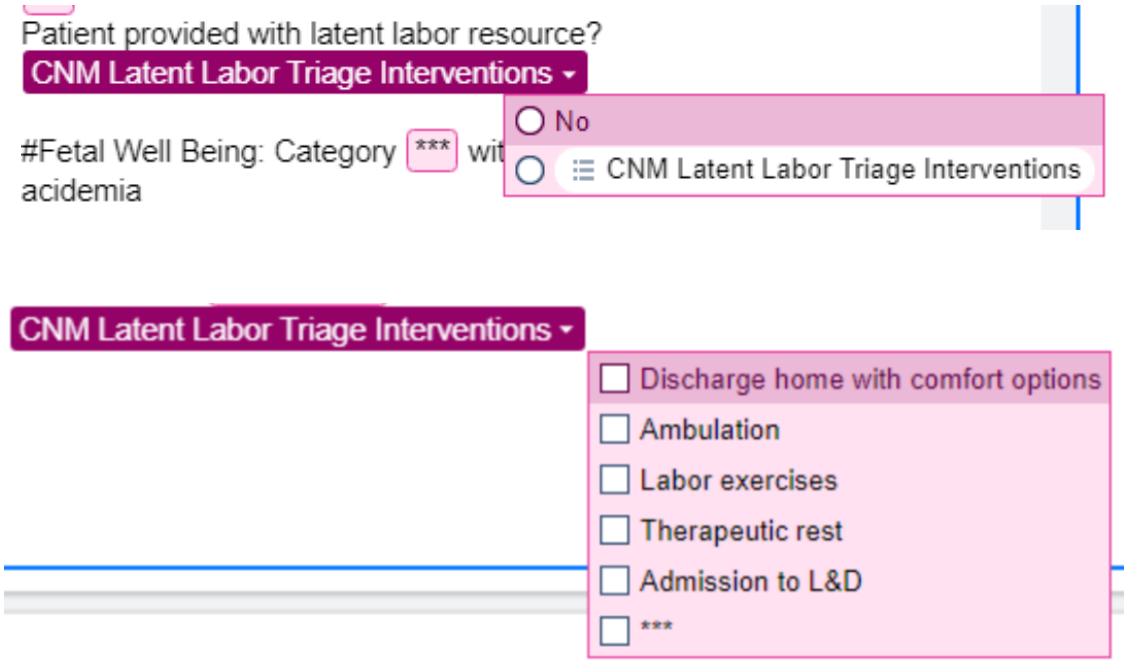
	Discharge Home (w/ comfort options)	Walking + Labor Exercises and Re-Evaluate in Triage	Therapeutic Rest	Admission to the Labor and Delivery Unit
What is it?	It is safe for many people to continue to labor at home and there are many tools to bring comfort during the labor process. Laboring at home can look like: - Resting in your own bed - Taking a bath or shower - Bouncing on a birthing ball - Doing guided labor exercises - Using a TENS unit - Aromatherapy - And/or having a support person you trust provide a massage.	Moving around during early labor (before 6 cm dilation) can help you progress. We suggest being active for 2 hours and then returning to the triage unit to be re-evaluated by the midwives. After being evaluated, you might: - Go home to rest or keep laboring. - Get pain medicine and go home. - Be admitted to the labor and delivery unit. Activity ideas include: - Walk around the hospital or outside if the weather is nice. - Use a birthing ball, squat, or try special labor exercises like 'Spinning Babies' or 'Miles Circuit.' The midwives and nurses can help you with these exercises.	"Therapeutic rest" means using medicine to help you rest during early labor. This usually includes a pain reliever and something to help you sleep and reduce nausea. The most common medicines are Morphine and Promethazine (Phenergan) or Hydroxyzine (Vistaril)[i]. To work best, part of the medicine is injected into the large muscle in your thigh, and the rest is given through an IV or by mouth.	In the labor and delivery unit, there are many ways to help you feel comfortable and get into active labor. These include: - stronger pain medications - epidurals - medications to speed up labor Talk to your midwife about your labor goals so you can make a plan together. Once you're admitted, you usually won't go home until after your baby is born.
Why?	Waiting to go to the hospital until active labor starts (over 6 cm dilation) can lower the chance of needing medical interventions. For some, staying at home during early labor can feel better because it's a familiar, safe place.	Moving and staying upright during labor (like squatting, swaying, lunging, or using a birthing ball) can help reduce anxiety, make you feel more in control, and lessen pain. Movement helps blood flow to you and your baby, making it easier to handle contractions.	Many people fall asleep quickly after getting 'therapeutic rest'. This is a good option if you're having painful contractions, have tried things like water, rest, or massage, and need to sleep during early labor.	Being admitted to the birthing unit is a good choice if you've tried exercises and comfort options but need more help or don't feel safe going home.

	Being comfortable at home and choosing your own positions can help you feel more in control and reduce stress, which can help your labor progress. This can be a good choice for those who want less interventions, feel safe at home, and have support from a doula, family member, or friend.	Movement can also help your baby get into a better position for birth, which can reduce pain and make labor shorter. You can do these exercises at home with help from a doula or a support person.	Early labor can be long and tiring. It usually lasts around 20 hours for first-time moms and 14 hours for those who've given birth before. Therapeutic rest can help by reducing exhaustion, lowering anxiety, and making you more comfortable. By resting, your labor may progress better. Those who receive therapeutic rest are more likely to be admitted to the hospital in active labor.	At the labor and delivery unit, you can get stronger pain medications or an epidural if you want. This is also a good option if you want to speed up labor with medicine like oxytocin.
Why Not? Any Risks?	Going home in early labor is safe and low risk. Before leaving, you'll be evaluated and monitored for a while. Some people may feel anxious about going home, so it's important to have support, like a doula or a family member, and things that help you feel comfortable. This may not be the best option if you don't feel safe or comfortable at home or don't have reliable transportation to and from the hospital.	Movement and exercises during pregnancy and labor is safe and low risk for most people. Walking and exercises can make contractions more frequent, intense, or painful.	Therapeutic rest can help during early labor, but it can have some risks and side effects. These medications may make you feel very sleepy or dizzy, so it's important to have someone to drive you home afterward. These medications are safe for pregnant women, but small amounts can cross the placenta to your baby. You might notice that your baby is less active after taking the medication, but this is temporary and okay. Although it's rare, some people may have an allergic reaction to these medications.	Being admitted to the hospital during early labor can lead to more medical interventions. This might include: - Oxytocin (a medicine to help contractions) - Misoprostol (to soften the cervix) - Opening your bag of water - An epidural (for pain relief) - A C-section If you want a low-intervention labor, being admitted to the hospital during early labor might not be the best choice. Early labor is often long and can last about 20 hours for first-time parents. This means you might be at the hospital for 1 to 3 days.

[i] **Typical dosing for therapeutic rest:**
Morphine 10mg (6mg IM and 4mg IV) **AND** Promethazine (Phenergan) 25mg PO **OR** Hydroxyzine Pamoate (Vistaril) 50-100mg PO

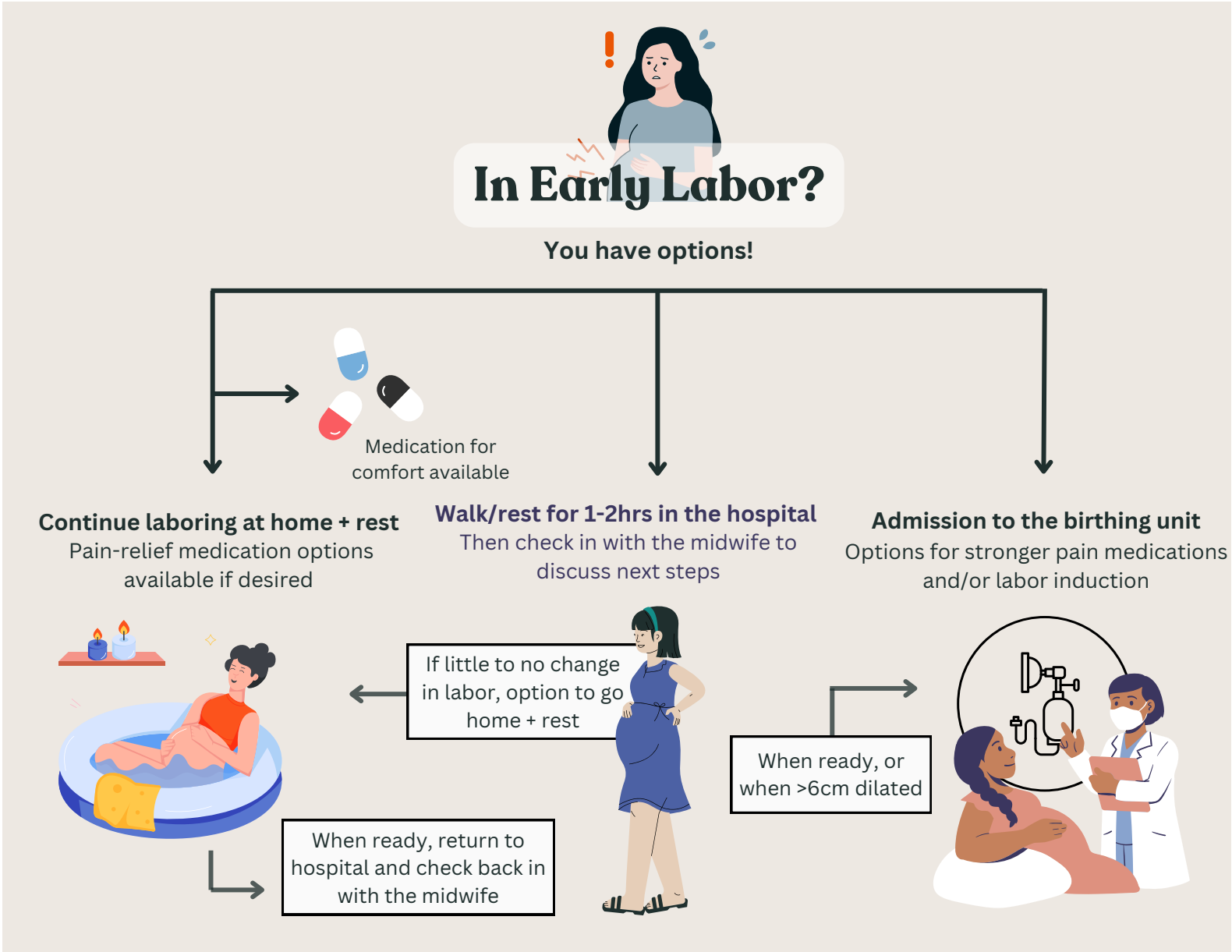
Appendix B

Latent Labor Dot Phrase



Appendix C

Visual Infographic



Appendix D

LATENT LABOR TRIAGE DNP PROJECT - PATIENT TRACKER

DATE	PATIENT STICKER	LATENT LABOR TOOL USED?
		YES / NO
		YES / NO
		YES / NO
		YES/ NO
		YES / NO

Appendix E

Pre-Intervention Survey

- I am satisfied with the way that the midwifery practice triages patients in latent labor.
- I believe that there is a consistent process amongst the midwives in this practice for triaging patients in latent labor.
- In my experience, patients are adequately educated by the midwives on options for care when they present to triage in latent labor.
- In my experience, patients are routinely engaged in shared decision-making when presenting to triage in latent labor.
- There are adequate resources available to assist with educating patients on latent labor management.
- I believe that early admission of patients in latent labor increases rates of interventions.
- I believe that low-risk patients in latent labor are admitted too often in this midwifery practice.
- I am familiar and comfortable with therapeutic rest and offer it to patients who present to triage in latent labor.

Appendix F

Post-Intervention Survey

- Did you utilize the latent labor resource (written table and/or visual handout) when triaging patients in latent labor?
- If so, how helpful was the resource during the triage process for patients in latent labor?
- Did you use the dot phrase (.CNMLATENTLABORRESOURCEDNP) or smart phrase (in the CNMTRIAGE2023 and .CNMADMISSION EPIC templates) to document patient triage visits?
- Following the completion of this QI project, will you continue to use the patient education resource?
- Do you have any feedback or thoughts that you would like to share about your experience utilizing the latent labor resource?

Appendix G

Pre-Intervention Survey Results

Table 3

Summary of Pre-Intervention Survey Results

	Strongly Agree	Somewhat Agree	Neither Agree or Disagree	Somewhat Disagree	Strongly Disagree
I am satisfied with the way that the midwifery practice triages patients in latent labor. (n=12)	---	58% (n=7)	17% (n=2)	25% (n=3)	---
I believe that there is a consistent process amongst the midwives in this practice for triaging patients in latent labor. (n=12)	---	33% (n=4)	33% (n=4)	33% (n=4)	---
In my experience, patients are adequately educated by the midwives on options for care when they present to triage in latent labor. (n=12)	8% (n=1)	50% (n=6)	17% (n=2)	25% (n=3)	---
In my experience, patients are routinely engaged in shared decision-making when presenting to triage in latent labor. (n=12)	17% (n=2)	58% (n=7)	17% (n=2)	---	8% (n=1)
There are adequate resources available to assist with educating patients on latent labor management. (n=11)	9% (n=1)	18% (n=2)	---	45% (n=5)	27% (n=3)
I believe that early admission of patients in latent labor increases rates of interventions. (n=12)	92% (n=11)	8% (n=1)	---	---	---
I believe that low-risk patients in latent labor are admitted too often in this midwifery practice. (n=12)	8% (n=1)	50% (n=6)	25% (n=3)	17% (n=2)	---
I am familiar and comfortable with therapeutic rest and offer it to patients who present to triage in latent labor. (n=12)	42% (n=5)	33% (n=4)	8% (n=1)	8% (n=1)	8% (n=1)

Table 4

Pre-Intervention Individual Respondent Answers

Response ID	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
	I am satisfied with the way that the midwifery practice triages patients in latent labor.	I believe that there is a consistent process amongst the midwives in this practice for triaging patients in latent labor.	In my experience, patients are adequately educated by the midwives on options for care when they present to triage in latent labor.	In my experience, patients are routinely engaged in shared decision-making when presenting to triage in latent labor.	There are adequate resources available to assist with educating patients on latent labor management.	I believe that early admission of patients in latent labor increases rates of interventions.	I believe that low-risk patients in latent labor are admitted too often in this midwifery practice.	I am familiar and comfortable with therapeutic rest and offer it to patients who present to triage in latent labor.
1	Somewhat agree	Neither agree nor disagree	Somewhat agree	Somewhat agree	Strongly agree	Strongly agree	Somewhat agree	Strongly agree
2	Somewhat disagree	Somewhat disagree	Somewhat disagree	Strongly disagree		Strongly agree	Strongly agree	Strongly agree
3	Somewhat agree	Somewhat agree	Somewhat disagree	Strongly agree	Somewhat disagree	Somewhat agree	Neither agree nor disagree	Strongly agree
4	Somewhat disagree	Somewhat disagree	Strongly agree	Somewhat agree	Strongly disagree	Strongly agree	Somewhat disagree	Somewhat agree
5	Somewhat agree	Somewhat disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	Somewhat agree	Strongly agree
6	Somewhat disagree	Somewhat disagree	Somewhat agree	Somewhat agree	Somewhat disagree	Strongly agree	Somewhat agree	Strongly agree
7	Somewhat agree	Neither agree nor disagree	Somewhat agree	Somewhat agree	Somewhat disagree	Strongly agree	Neither agree nor disagree	Strongly disagree
8	Somewhat agree	Somewhat agree	Somewhat agree	Somewhat agree	Strongly disagree	Strongly agree	Somewhat agree	Somewhat agree
9	Neither agree nor disagree	Neither agree nor disagree	Neither agree nor disagree	Somewhat agree	Strongly disagree	Strongly agree	Somewhat disagree	Somewhat agree
10	Neither agree nor disagree	Somewhat agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly agree	Neither agree nor disagree	Neither agree nor disagree
11	Somewhat agree	Neither agree nor disagree	Neither agree nor disagree	Somewhat agree	Somewhat agree	Strongly agree	Somewhat agree	Somewhat agree
12	Somewhat agree	Somewhat agree	Somewhat agree	Strongly agree	Somewhat disagree	Strongly agree	Somewhat agree	Somewhat disagree

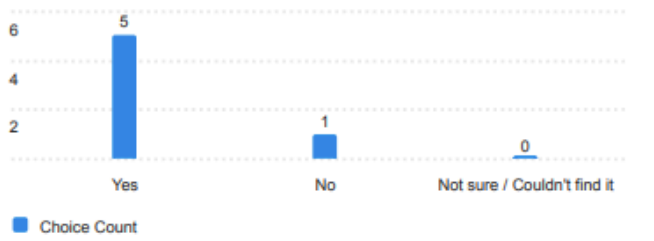
Appendix H

Post-Intervention Survey Results

Response ID	Q1	Q2	Q3	Q4	Q5
	Did you utilize the latent labor resource (written table and/or visual infographic) when triaging patients in latent labor?	If so, how helpful was the resource during the triage process for patients in latent labor?	Did you use the dot phrase (.CNMLATENTLABORRESOURCEDNP) or smart phrase (in the CNMTRIAGE2023 and .CNMADMISSION EPIC templates) to document patient triage visits?	Following the completion of this QI project, would you be interested in continuing to use the patient education resource?	Do you have any feedback or thoughts that you would like to share about your experience utilizing the latent labor resource?
1	No	Didn't use the resource	No	Yes	I thought this was a very cool resource, I just didn't end up getting to use it through the term. Would love to see it continue to be available.
2	Yes	Somewhat helpful	Yes	Maybe	I think having it there reminded people and encouraged providers to counsel on options more thoroughly than usual. I also think it reminded people of the therapeutic rest formations which people often vary on in practice.
3	Yes	Somewhat helpful	No	Yes	Having a protocol helps standardize the care midwives provide but like everything in healthcare, can't always standardize care for all patients. As a provider, we have to look at the whole picture and with our clinic judgement, provide best options.
4	Yes	Somewhat helpful	Yes	Yes	
5	Yes	Extremely helpful	Yes	Yes	Very helpful. Used it frequently
6	Yes	Extremely helpful	Didn't know there was a dot phrase	Yes	Loved it, great work Ari!

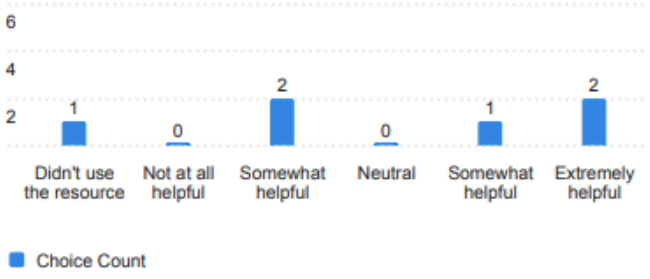
Q1 - Did you utilize the latent labor resource (written table and/or visual infographic) when triaging patients in latent labor?

6 Responses



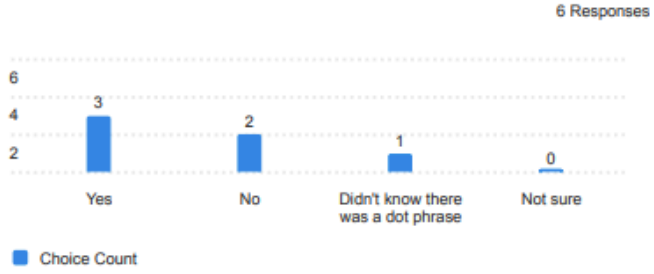
Q2 - If so, how helpful was the resource during the triage process for patients in latent labor?

6 Responses



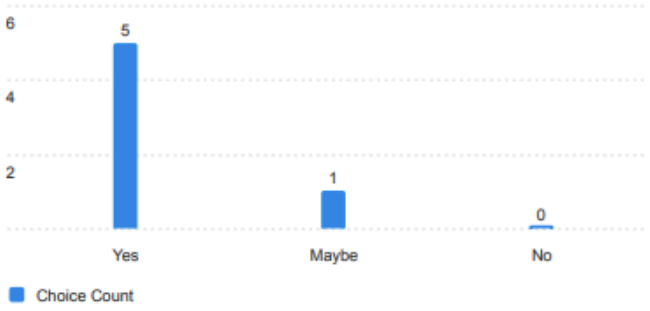
Q3 - Did you use the dot phrase (.CNMLATENTLABORRESOURCEDNP) or smart phrase (in the CNMTRIAGE2023 and .CNMADMISSION EPIC templates) to document patient triage visits?

6 Responses



Q4 - Following the completion of this QI project, would you be interested in continuing to use the patient education resource?

6 Responses



Q5 - Do you have any feedback or thoughts that you would like to share about your experience utilizing the latent labor resource?

Loved it, great work Ari!

Very helpful. Used it frequently

Having a protocol helps standardize the care midwives provide but like everything in healthcare, can't always standardize care for all patients. As a provider, we have to look at the whole picture and with our clinic judgement, provide best options.

I think having it there reminded people and encouraged providers to counsel on options more thoroughly than usual. I also think it reminded people of the therapeutic rest formations which people often vary on in practice.

I thought this was a very cool resource, I just didn't end up getting to use it through the term. Would love to see it continue to be available.

Appendix I

Cause and Effect Diagram

"Fishbone Diagram" for Discharge in Latent Labor DNP Project