Leah Elaine Elliott

Touro University, Nevada

Protocol to Reduce the Primary Cesarean Section Rate in the Low-Risk Population

In partial fulfillment of the requirements for the Doctor of Nursing Practice

DNP Project Chair: Dr. Judith Carrion

DNP Project Members: Dr. Denise Zabriskie

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Abstract

The cesarean section rate has risen by 60% in the last thirty years and is now the most common surgery performed on women. Cesarean sections can be a life-saving measure for both mother and baby but, according to the World Health Organization (WHO), it is used too frequently. The significant increase in cesarean sections is not correlated with decreases in infant and maternal mortality and morbidity. A culture of casual acceptance of the cesarean section has developed and many women are unaware of the associated risks and potential complications following a cesarean section, including risks to future pregnancies. According to the Office of Disease Prevention and Health Promotion, one of the National Healthy People 2020 goals is to decrease the cesarean section rate to less than 23.9% in low-risk populations. Creating awareness of the problem and providing education to the nursing staff regarding labor support techniques can make significant decreases in the cesarean section rates. Movement is essential in labor to increase the likelihood of a well-positioned baby for birth. Creating a culture that supports vaginal delivery by utilizing evidenced-based literature and developing a protocol and training program is the goal of this DNP quality improvement project.

Keywords: Reduction of primary cesarean section, NTSV, continuous labor support, labor progress, supporting vaginal birth, preventing fetal malposition in labor.

Introduction

A cesarean section is a major surgery that can be used as a life-saving measure for both the perinatal mother and fetus in circumstances where physiological vaginal birth is no longer the safest means to obtain a healthy mother and baby (Lagrew & Jenkins, 2014a; Smith, Peterson, Lagrew, & Main, 2016). In the last 30 years, the cesarean section rate has increased by more than 60% with no significant improvements in outcomes for either the mother or the baby (Main, Morton, Melsop, Hopkins, Giuliani, & Gould, 2012). The prevalence of the cesarean section varies widely throughout the world and across different regions in the United States (US) (Kozhimannil, Arcaya, & Subramanian, 2015). Large variations of cesarean section rates also exist among hospital systems and service areas serving similar patient populations (Centers for Disease Control and Prevention [CDC], 2017). Substantial variations in cesarean section rates are even apparent among physicians, including those physicians who work within the same group or hospital system (Main et al., 2012). Individual labor and delivery nurses also develop their individual bedside practices and skills thus, the cesarean section rates vary among nurses (Edmonds O'Hara, Clarke & Shah, 2017; Smith et al., 2016).

While cesarean sections can be a life-saving, they are not without risk (CDC, 2017). There are increased risks of infection with a cesarean section when compared to vaginal birth; in addition, there are other life-threatening complications such as post-partum hemorrhage (Main, Morton, Melsop, Hopkins, Giuliani & Gould, 2011). The recovery time and the length of the hospital stay are longer for cesarean patients than those that give birth vaginally. A cesarean section is also more expensive for both the patient and the hospital. According to Smith et al. (2016), the cost of a cesarean section is increased to all stakeholders including: insurers, employers, taxpayers, the government, and the patient (p. 23). The patient's satisfaction with the

childbirth experience may be affected when a cesarean section is the mode of delivery; this may also influence the development of post-partum depression (Lobel & DeLuca, 2007). With all these increased risks and no significant measurable outcome improvements, the evidence suggests that quality obstetric care in the United States (US) would benefit from a reduction in the number of cesarean section deliveries (Main et al., 2012).

One of the programs from the U.S. Department of Health and Human Services is "Healthy People 2020". One of the goals of this program is to decrease the national cesarean section rate to at or below 23.9% for low-risk populations (United States Department of Health and Human Services. Office of Disease Prevention and Health Promotion, n.d.). The metric used to determine if the patient is in the low-risk category is that the patient presents with favorable conditions for a vaginal delivery. The low-risk category is a first pregnancy (nulliparous) and a single full-term gestation fetus in the head down position (vertex). The terms nulliparous, term, singleton, and vertex have a commonly used acronym (NTSV) (Smith et al., 2016).

Background

The cesarean section is a surgery to deliver the fetus from the mother via a surgical incision through the abdomen. One of the earliest recorded cesarean sections, where both mother and baby survived, dates back to the 1500s (United States National Library of Medicine Part 1, 2013). The surgery became more prevalent following the use of anesthesia in the late 1800s. The outcomes of the surgery continued to become safer following the discovery and increased use of antibiotics in the 1940s (United States National Library of Medicine Part 2, 2013).

Due to the significant increase in the number of cesarean section deliveries, the Joint Commission calls the current cesarean section rate an epidemic and notes that "there is no data that higher rates improve any outcomes, and yet the rates continue to rise" (Smith et al., 2016, p.

19). Zwelling (2008), describes how culture can influence birth practices and can have a powerful impact on how society views the normalcy of birth. These societal views have led to a casual acceptance of the cesarean section as a safe and easy way to give birth despite the evidence of the increased risks of complications (Zwelling, 2008).

Many risk factors have been identified that may increase the chance of a primary cesarean section in an otherwise low-risk pregnancy. The California Maternal Quality Care Collaborative (CMQCC) notes that in the U.S., despite many women being in the low-risk category, most hospitals routinely employ common obstetric interventions and procedures intended to treat high-risk pregnancies (Smith et al., 2016). One of the biggest risk factors for a cesarean section is elective induction, which is defined as using medication or intervention to induce labor for a non-medical indication (Childbirth Connection, 2016; Main et al., 2012). Another risk factor identified is the admission of the patient in early labor without a medical indication for being at the hospital at that time (Main et al., 2012; Neal, 2014).

Lastly, several studies have shown that nurses play a key role in mitigating the risk of the cesarean section by active labor management and labor support skills (Edmonds et al., 2017). Labor support can be described as providing emotional support, physical comfort measures, and acting as an advocate for the patient during labor (Barrett & Stark, 2010). Active labor management and comfort measure skills are typically not taught in nursing schools. These are skills that must be learned on the job, either by observing or being mentored by a more experienced nurse or midwife. Nurses new to the profession or existing nurses new to the specialty can sometimes be overwhelmed with the learning curve required to work in this unpredictable, fast-paced environment. It is difficult to teach labor support skills during the initial orientation phase of training to the specialty of maternal child health. Once a nurse feels

more confident with the abilities to meet the safety needs of the patients, the more refined skills of comfort and labor support can be absorbed and learned while caring for the patient (C. Pratt-Meyer, personal communication, July 8, 2018). A Cochrane review (2013) showed that continuous labor support decreases the length of the labor and may decrease the perception of pain by assisting the mother to relax (Hodnett, Gates, Hofmeyr, & Sakala). Women who have continuous labor support have less of a chance of having a cesarean section, less chance of needing Pitocin (a medicinal intervention to stimulate labor) and report higher satisfaction with their birth experiences (Hodnett et al, 2013).

Problem Statement

The current problem is the rise in the cesarean section rates nationally. Cesarean section rates may impact funding from certain payers and contract negotiations with some health care contracts as plans are moving forward with the payment for performance (PFP) model as part of the Affordable Care Act (Medicare, 2018). The Healthy People 2020 goal is less than 23.9% for the low-risk population (United States Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (n.d.). At the project site, the number of cesarean sections is ranges from 7-10% more than the set Healthy People 2020 goal (T. Albitre, personal communication, August 17, 2018). There are evidence-based strategies available that may help lower cesarean section rates and these processes or initiatives are not currently used at the project site (Smith et al., 2016). Furthermore, there is limited patient education provided by clinic providers regarding risk factors and prevention of first-time cesarean sections in low-risk populations.

This Doctor of Nursing Practice (DNP) quality improvement project will provide a standardized care approach for best practice based on the development and implementation of a

protocol (Appendix A) for reduction in cesarean section rates using the current evidence provided in the California Quality Care Collaborative (CMQCC) Toolkit to Support Vaginal Birth and Reduce Primary Cesareans for supporting vaginal delivery (Smith et al., 2016).

Purpose Statement

The purpose of this quality improvement project is to implement a protocol (Appendix A) which will use the evidence-based practice from the CMQCC toolkit to decrease the number of cesarean section deliveries in the NTSV patient at the practice site.

Project Question

Will the development and implementation of a protocol (Appendix A) using evidence-based strategies from the CMQCC Toolkit to Support Vaginal Birth and Reduce Primary Cesareans, and applied by the labor and delivery registered nurse, result in decreasing the primary cesarean section rate at the practice site?

The project question developed uses the PICOT format and includes:

1. Population- Staff nurses on the labor and delivery unit
2. Intervention- Implement a protocol which is based on the evidence from the CMQCC toolkit to support vaginal birth and decrease cesareans.
3. Comparison- Current practice/no protocol
4. Outcome- A decrease in the number of cesarean section deliveries at the practice site. Staff nurses will have a better understanding of management recommendations following an educational intervention supported by the evidence from the CMQCC toolkit.

   Time- Within 3 months

Project Objectives

Effective leadership by a (DNP) prepared nurse utilizes current evidence-based

practice to improve patient outcomes. The project objectives include:

- Develop an evidence-based protocol for strategies to support vaginal birth and reduce the primary cesarean section based on the CMQCC toolkit to support vaginal birth and decrease cesareans.
- Educate staff to the developed protocol based on the California Maternal Quality Care Collaborative Toolkit (Smith et al, 2016).
- Evaluate the implementation of the evidence-based protocol on the reduction for primary cesarean section deliveries through pre-and post-intervention chart audits.

Significance

The cesarean section is much safer in recent years due to the use of antibiotics and surgical protocols; however, the overuse of this surgery can create additional risk factors for many of the women in the low-risk category. These risks include post-partum hemorrhage, the number one reason for maternal death (Say et al., 2014). Other risks that increase with each subsequent pregnancy are a higher incidence of uterine rupture and placental abnormalities which affect infant and maternal morbidity and mortality (Main et al., 2012). Cesarean sections can increase the risk of stress and anxiety and may be a cause for post-traumatic stress in the new mother (Molina, Weiser, & Haynes, 2016). This additional stress and needed recovery time may also interfere with the breastfeeding dyad (Kuguoglu, Yildiz, Kurtuncu, & Canan, 2012).

Studies conclude that neonatal cerebral palsy outcomes have remained unchanged in the last fifteen years despite the rise in cesarean sections (Smith et al., 2016). Cerebral palsy is thought to be caused by a lack of oxygen during birth (Donn, Chiswick, & Fanarof, 2014). One of the most common reasons for cesarean section is fetal intolerance to labor, presumably from lack of oxygenation as noted on the electronic fetal monitor (Sartwelle & Johnston, 2014). There is an

associated risk of neonatal intensive care admission and respiratory difficulties with the use of the cesarean sections (Nelson, Sartwelle, & Rouse, 2016). Additional risks include longer hospital stays, a decrease in early skin-to-skin contact, and a delay in early initiation of breastfeeding (Main et al., 2012). There have been minimal benefits reported for neonates in conjunction with the higher cesarean section rates (Main et al, 2012).

To improve maternity care services and create high value, high quality care in the U.S., a re-design of standard practice is needed (American College of Obstetricians and Gynecologists [ACOG], Association for Women's Health and Neonatal Nurses [AWHONN], American College of Nurse-Midwives [ACNM], American Academy of Family Physicians [AAFP], & Society for Maternal-Fetal Medicine [SMFM], 2011). The risk of having a cesarean section can be reduced by improving the culture surrounding birth (Lagrew & Jenkins, 2014b). This can be achieved by providing quality education to the patients on how to lower their risk of receiving a cesarean section. In addition to educating the patients, a cesarean section can be reduced by educating the physicians, midwives, and nurses who care for them by using evidence-based tools for labor management and support of low-risk pregnancies (Lagrew & Jenkins, 2015).

Search Terms

The literature search used the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database with the search term "reducing primary cesarean section" and 24 results were returned. Four of these articles were relevant to the topic. Additional search criteria included the search mode of Boolean/phrase. Other criteria defined in the search included: English language, published within the last five years, peer-reviewed, evidence-based practice and full text available. Removing the evidence-based criteria changed the number of available articles to 399. The date range was then modified to 2016-2018 and this brought the results

number down to 165. Approximately 10 of these studies were relevant to the topic. Other search terms were explored looking for information that has been published since the release of the toolkit. Some of these terms were NTSV, quality maternity care, and continuous labor support. Other databases that were searched include PubMed, Cochrane Library, Google Scholar, and ProQuest (health and medical). The research was limited to studies conducted during the time frame of 2012-2018. Occasionally, older studies on labor support and the effects of the cesarean section have been referenced as they are significant for clarity and background.

Review of Literature

In the last thirty years, there has been a significant increase in the cesarean section rate of low-risk perinatal women in the U.S. (Smith et al., 2016). The literature search suggests that the reasons for the significant increase in the U.S. are multifaceted. A belief among caregivers and patients is that the increase in surgical births has led to an improvement of outcomes for mothers and babies (Main et al., 2011). There may be an underlying fear of litigation on behalf of some providers that may influence the decision to proceed to a cesarean section (Minkoff, 2012; Sakala, Yang & Corry, 2013)

The literature identified a prevalence of casual acceptance to the cesarean section as a safe and easy way to give birth by both caregivers and parents (Childbirth Connection, 2016). Due to this belief, there has been an increase in the number of women asking for an elective primary cesarean section without medical necessity (Cheng, Declercq, Belanoff, Stotland, & Iverson, 2015; Ryding, Lukasse, Kristjansdottir, Steingrimsdottir, & Schei, 2016). The offer of a primary cesarean section by the physician for a suspected medical problem such as macrosomia or cephalopelvic disproportion (CPD) has become more prevalent and requested and expected by the mother although there is no evidence to support this intervention (Caughey, Cahill, Guise &

Rouse, 2014). Furthermore, the literature compares and contrasts the current maternity care in the US with other places in the world. This comparison shows that the US model tends to apply a high-risk level of care to all mothers and this results in the overuse of expensive procedures and interventions (Smith et al., 2016). These interventions increase the likelihood of a cesarean section for low-risk mothers (Lothian, 2009). Many caregivers view vaginal birth as dangerous and with many risks, for all patients, even though most women have a low-risk for complications (ACOG et al., 2011; Buckley, 2015; Sakala & Corry, 2008).

According to Main et al. (2011), there is a belief among caregivers and patients that the increased number of cesarean sections have improved outcomes. The literature revealed that this belief is not supported by the evidence. Specifically, in the incidence of cerebral palsy (a condition often attributed to a complication from birth asphyxia), there has not been a reduction in the rate of incidence in the last 15 years (Nelson et al., 2016). The literature review revealed that birth by cesarean section carried an increased risk of major respiratory problems and increased the development of childhood asthma (Black, Bhattacharya, Philip, Norman & McLernon, 2015; Go, Emeis, Guise & Schelonka, 2011; Sinha, Begley & McIntosh, 2011). There is a higher incidence of neonatal intensive care unit (NICU) admissions in babies born through the cesarean section due to serious respiratory complications (Black et al., 2015; Main et al., 2011; Sinha et al., 2011). This separation from the mother has been shown to interfere with bonding between the mother and infant, initiation of early skin-to-skin, and interrupts the breastfeeding dyad relationship (Main et al., 2012; Zanardo et al., 2010).

Impact of the Problem

The significant increase in cesarean sections has not coincided with improved outcomes for mothers or newborns (The Joint Commission, 2018). The continued increase in the number

of cesarean sections has increased risks to both the mother and baby (Main et al., 2012). The literature search revealed that the risks to the mother in the low-risk population from a cesarean section include increased incidence of postpartum hemorrhage (Main et al, 2011). This risk and other life-threatening risks such as uterine rupture, placenta previa, placenta accreta, and post-surgical abdominal adhesions all increased with each subsequent pregnancy (Smith et al., 2016; MacDorman, Declercq & Menacker, 2011). Also, there is an increased risk of infection following a surgical procedure when compared to vaginal delivery (ACOG et al., 2011)

Current research is looking further at the effects of cesarean section on the mother's psychological health. One study suggested that the woman's experience of childbirth affected her development of postpartum mood disorders (Lobel & DeLuca, 2007). Both research articles are more than ten years old and this correlation needs to be further investigated. Other risks identified in an older study revealed that psychological stress, anxiety and the development of post-traumatic stress disorder (PTSD) are all potential risks following a cesarean section (Ayers, Joseph, McKenzie-McHarg, Slad, & Wijma, 2008; Silver, Rouse & Rouse, 2007). Both research articles are more than ten years old and this correlation may need further study, but it is a logical assumption that an unplanned event such as a primary cesarean section may have long-lasting psychological effects on the mother (Lobel & DeLuca, 2007).

Cesarean sections require a longer hospital stay and recovery time (Geller, Wu, Jannelli, Nguyen, & Visco, 2010). The healthcare costs of the delivery are greater with a cesarean section in comparison with vaginal delivery (Delercq, Sakata, Corry, Applebaum, & Herrlich, 2013). The cost of a cesarean section can be $5,000 to $10,000 more than vaginal delivery (Pacific Business Group on Health, 2016). These increased costs are shouldered by insurance companies, employers, taxpayers, the government and the consumer (Smith et al.,

2016).

Although the cesarean section is needed in some situations and can provide a lifesaving intervention to both the mother and the baby in certain circumstances, the current rate remains higher than necessary in the low-risk population according to the World Health Organization (WHO, 2015). The current recommended national goal according to the WHO of cesarean section rates for the NTSV category is 15.5% (WHO, 2015). The Healthy People 2020 goal is a cesarean section rate for women in the low-risk category of no more than 23.9 % (United States Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (n.d.). Current NTSV cesarean section rates in the US range from 22% - 60% in some areas (Smith et al., 2016). California rates also have large variations, from 22% - 33.1 % (Smith et al, 2016). The current figures estimate that more than 60% of California hospitals still have an NTSV cesarean section rate over the Healthy People 2020 goal of 23.9% (Smith et al., 2016). A national agenda for reducing primary cesarean sections is being supported by organizations such as ACOG, SMFM, and AWHONN (Smith et al., 2016).

Addressing the problem with current evidence

Reduction of the primary cesarean section rate in the NTSV population using preventative measures such as removal of barriers to labor support is the first step in providing high quality, high-value maternity care as described in the 2010 publication by Community Connection and a multidisciplinary team (Carter et al., 2010).

Prevention. Prevention of this healthcare epidemic begins with developing a culture that is aware of the significance and is active in prevention measures. The CMQCC Toolkit to Support Vaginal Birth and Reduce Primary Cesareans (“Support Vaginal Birth and Reduce Primary Cesareans”) describes strategies for the prevention of the primary cesarean section

(Smith et al, 2016). These strategies include: implementing policies that use best practices, early labor support policies, improving supportive care, encouraging the use of doulas, utilizing best practices for women who have epidural anesthesia, intermittent fetal monitoring for low-risk women, and implementing treatment guidelines for modifiable conditions (Smith et al., 2016). Other strategies to increase awareness, encourage support for and manage certain conditions that contribute to the increase of cesareans are provided in the toolkit (Smith, et al, 2016).

Current management. The practice site has a cesarean section rate that exceeds the 2020 Healthy People goal by greater than 7 - 10% (T. Albitre, personal communication, August 17, 2018). It is important to reduce this cesarean section rate to improve outcomes and reduce risks for the patients (Smith et al, 2016). Also, as more payers adopt the performance model, low performing hospitals will be excluded from receiving contracts with certain providers (Main et al., 2011).

Current recommendations. Current recommendations from the CMQCC Toolkit to Support Vaginal Birth and Reduce Primary Cesareans include improving the culture in maternity care and creating awareness for the importance of education regarding the steps for cesarean reduction (Main et al., 2011; Smith et al., 2016). Increasing patient awareness of the steps for cesarean reduction and creating access to quality education before delivery is an important first step in this process of changing the culture of maternity care in the U.S. (Smith et al., 2016; Sakala & Corry, 2008). Another step is to provide education and tools on early labor comfort measures to patients. These resources and support may allow the patient to stay home until active labor begins and potentially avoid the cascade of interventions that are present once admitted into the hospital (Neal, 2014). Other recommendations include removing barriers to labor support (Association of Women's Health, Obstetric and Neonatal Nurses [AWHONN], 2018;

Ivory, 2015; Simpson, 2012). This can increase patient satisfaction and increase nurse job satisfaction (Smith et al., 2016). Other steps to reducing the cesarean section rates include encouraging and supporting freedom of movement in the mother once admitted in active labor (Ondeck, 2014). This may be the single most important factor in reducing the cesarean section rate due to malposition of the fetus (Edmonds & Jones, 2013; Lothian, 2009; Medforth, Ball, Walker, Battersby & Stables, 2017; Priddis, Dahlen & Schmid, 2012; WHO, 2018). Other factors that may influence fetal malpositioning and inhibit freedom of movement in the mother is the continuous use of the electronic fetal monitor (Arnold & Flint, 2017; AWHONN, 2018; Cheng, Cheng, Shaffer & Caughey, 2006; Priddis et al., 2012). One suggestion is to decrease the use of standardized continuous fetal monitoring in the low-risk patient (Arnold & Flint, 2017; AWHONN, 2018; Donn et al., 2014; Minkoff, 2012; Priddis et al., 2012). Continuous fetal monitoring has been linked to increased interventions and an increase in the cesarean section rate (Nelson et al., 2016).

Benefits of current recommendations. The development of the protocol (Appendix A) based on the CMQCC Toolkit to Support Vaginal Birth and Reduce Primary Cesareans strategies will benefit the practice site by aligning the current culture and patient management with the literature best practices. The protocol (Appendix A) will address the encouragement of childbirth education, labor admission practices, and labor management techniques from the registered nurse perspective (Smith et al., 2016).

Issues still under investigation. The literature also revealed that other areas are still under investigation and include early epidurals and malposition of the fetus (Cheng, Shaffer, Nicholson & Caughey, 2014). The discussion of whether early epidural use increases the chance of a cesarean section was discussed in the literature. Several articles supported both sides of the

argument. However, preliminary evidence suggested that the use of early epidurals (less than five centimeters cervical dilation) increased the chance of a mal-positioned fetus by more than four times (Cheng et al., 2006; Cheng et al., 2014). A mal-positioned fetus can interfere with the woman's ability to deliver vaginally (Medforth et al., 2017; Talauliker & Arulkumaran, 2015). This research supports the need for education on the importance of movement in labor to both the nursing staff and the patient (Edmonds & Jones, 2013). If an early epidural is administered, the research recommended that the mother's position changes every 20 minutes throughout the first stage of labor to encourage fetal descent and if she is unable, the nurse is expected to assist (Evans & Cremering, 2016; Smith et al., 2016).

Conclusion

The literature review described the impact of the current NTSV cesarean section rate and the subsequently increased risks that are posed to mothers and babies. The need for steps to reduce this current rate is supported within the literature. Changes such as the education of early labor support techniques, delay in admission to the labor unit until the active labor stage and increasing maternal movement have been shown to significantly decrease the cesarean section rate (Smith et al, 2016). Creating awareness and providing education to the staff on the importance of reducing the cesarean section rate is necessary for a change in the culture of the unit. Supplying the bedside labor nurse with tools such as policies that increase maternal freedom of movement and peanut balls for maternal positioning are also needed to support vaginal delivery.

Theoretical Framework

The project will use the Plan-Do-Study-Act (PDSA) framework (Appendix B). The PDSA cycle is a systematic way of measuring if an implemented change has made improvements

in a process, product or service (W. Edwards Deming Institute, 2018). This design is a simple yet effective way to measure the impact of change on a small scale before implementing it in the larger population (Agency for Healthcare Research and Quality [AHRQ], 2013). The PDSA cycle does not replace the existing change theories utilized within the organization, rather, it can provide enhancements and allow the change process to be expedited (Institute for Healthcare Improvement [IHI], 2018b).

Development of the theory

This change model was originally developed by Walter Shewhart in 1939 to initiate change in an organization. In the original version, also referred to as a "Stewart cycle", it was called the PDCA cycle, where the "C" was referred to as the check step (Taylor, McNicholas, Nicolay, Farsi, Bell & Reed, 2013). This change model was modified from its original form by Associates in Process Improvement (API) under the direction of Doctor Deming in the 1950s and has been utilized by hundreds of healthcare associations to accelerate improvements within the organizations (IHI, 2018a). Now referred to as the "Deming Wheel" or the Plan-Do-Study-Act cycle for change implementation. This change model can be used to help businesses or organizations to develop a hypothesis of what changes need to be implemented to improve customer satisfaction or improve patient outcomes within the healthcare setting.

Applicability of theory to current practice

This theory applies to healthcare as it can assist to speed up the proposed change and allow the users to realize their quality improvement goals more efficiently (Reed & Card, 2015). When applied correctly, the steps of the PDSA cycle can assist the stakeholders to quickly determine if the interventions are making the intended change. The PDSA cycle allows for revisions and adjustments to be made to the plan without having to start over again (Reed &

Card, 2015). The PDSA cycle works as an adjunct to the existing change agents used in the healthcare environment (IHI, 2018a), and used as a test to identify if the changes are meeting the aim of the project.

Major tenets

The major tenets of the theory are establishing an aim where the goals of the change are clearly defined. The next step is to establish what changes are necessary to meet the proposed aim. The final step is to determine the evaluation method to know that the change has resulted in an improvement in the process (IHI, 2018a). Once the aim has been firmly established, the systematic approach of Plan-Do-Study-Act can be applied as a change agent and an evaluation of the effectiveness of that change.

Plan. When initiating a change, the first step is to establish a team of people who recognize an opportunity for improvement and who want to work through the process of improving (IHI, 2018a; Hall, 2018). The next step is to draft an aim statement to describe the goals of the change. An important part of the planning process is to identify the need for change by examining the current process and brainstorming with the team on how this might be improved (IHI, 2018a; Hall, 2018). Observing how others have initiated the change is also helpful in this step. Analyzing the processes that might be done more efficiently or performed differently can be useful in developing the problem statement. (IHIa, 2018; Hall, 2018). Once the problem statement has been identified, the action plan can be developed (IHI, 2018a; Hall, 2018).

Do. This is the implementation process of the change model (IHI, 2018a; Hall, 2018). This action plan can be applied in a smaller area (like a unit within the hospital) and then evaluated to determine if the goal is being reached by implementing the change, before applying

the idea to a larger area (such as every unit within the hospital) (IHI, 2018a; Hall, 2018). The effectiveness of the applied change is discussed and analyzed among the team using the data that has been collected from each step (IHI, 2018a; Hall, 2018).

Study. The team analyzes the data collected to determine if the aim was met (IHI, 2018a; Hall, 2018). Some of the questions the team may apply are: did the plan result in an improvement and was the investment worth the results? It is important to analyze the data for trends and possible unintended side effects (IHI, 2018a; Hall, 2018). Looking for changes that may improve outcomes and can be applied to the plan before disseminating to the larger population (to other units in the hospital) are evaluated in this step (IHI, 2018a; Hall, 2018).

Act. The last part of the process involves reflections and outcomes following the implementation of the plan (IHI, 2018a; Hall, 2018). The entire change cycle can be re-applied during this phase if the project aim was not met. The PDSA cycle is fluid and ongoing, allowing the team to re-evaluate the effectiveness of the plan regularly and make changes as necessary (IHI, 2018a; Hall, 2018).

Theory Application to the DNP Project

This theory can be applied to the DNP project as it is a quality improvement project that is aimed to support vaginal delivery within the unit. The PDSA is a continual process that provides a framework for accelerated development, examination, and implementation of quality improvement changes (AHRQ, 2013). By applying this specific change model to this project, the team may be able to make changes throughout the implementation phase to increase the likelihood of being able to meet the project aim (IHI, 2018a; Hall, 2018).

Plan. During the planning phase, a team of early adopters and supporters will be assembled to work on the DNP project. This team will include a group of nurses at the practice

site that has expressed interest in the project goals and have experience with active labor management skills that support vaginal delivery. During the planning phase, the continuous fetal monitoring, initiation of continuous intravenous fluids and early labor admission practices with the low-risk patient will be reviewed along with the unit policies. The policies will be reviewed and revised as necessary to be consistent with the current literature. In this phase, the removal of any barriers to continuous labor support by the nurse will occur. Some of the barriers that have been reported by the nurses at the practice site are the lack of labor support tools and skills. The plan for a training protocol will be developed for existing and future labor nurses on the unit based on the strategies in the CMQCC *Toolkit to Support Vaginal Birth and Reduce Primary Cesareans* (Appendix A) (Smith et al., 2016).

Do. Education will be provided to the nursing staff regarding the current cesarean section rate and the implications to the mother and baby in voice-over power point recording (Appendix C). This introduction will be sent to each labor and delivery RN via email and posted on the learning management system (LMS). A mandatory online course from Relias called *Supporting Vaginal Birth* will be assigned to each nurse using the existing LMS (Appendix D) (Relias, 2019). A hands-on labor support tools class will be provided to all current nursing staff utilizing the CMQCC resource *Hands-on, Understanding and Demonstration of Labor Support (*HUDLS) modules (Appendix E) (CMQCC, 2018). During implementation, several strategies will be used to inform the nursing staff of events, such as emails, flyers, posters, huddle briefs, and patient comments from the *Listening to Mothers Survey* (Delercq et al., 2013). Discussion of the current policies and practices regarding intravenous fluids and continuous fetal monitoring will be presented using the same techniques as described above.

Study. Data will be collected throughout the implementation phase and will be analyzed

to look for existing gaps in the knowledge or trends that may not have been identified during the initial planning phase. The data will be analyzed to determine if the investment of training the nursing staff resulted in the use of active labor management skills and a subsequent reduction of cesarean sections.

Act. Following the implementation phase, the data that has been collected will be analyzed to establish if further changes need to be applied to the model. The cesarean section in the NTSV population will be compared to the rate in the six weeks before implementation. If further changes are identified, the PDSA cycle will be re-applied and the project will be adjusted to include these changes (IHI, 2018b).

Project Design

The quality improvement project will focus on improving patient outcomes by promoting a decrease in the number of cesarean section deliveries by implementing an evidence-based practice protocol based on the CMQCC Toolkit to Support Vaginal Birth and Reduce Primary Cesarean (Appendix A) (Smith et al., 2016). The project design will include an implementation of a protocol and an educational intervention for the staff. The data collection will include a pre and post implementation chart audit which will include the number of cesarean sections to determine if there was a reduction in cesarean sections following the intervention.

Data collection for this project will include pre and post-implementation chart audits. Chart audits will examine quantitative data which includes the number of cesarean section deliveries. This data obtained will determine if the development of a protocol for the reduction of cesarean section rates, and education provided to the staff on the new protocol were successful and might lead to a reduction in the number of cesarean section deliveries.

Population of interest

The population of interest will be the registered nursing staff at the practice site that will be implementing the protocol. All current registered staff nurses working on the labor and delivery unit will be involved in the education and implementation of the protocol. Registered nurses on other units in the facility will be excluded from participating in this project.

Setting. The setting of the project will be in the labor and delivery unit of a hospital in central California. This hospital has 108 beds and performs approximately 2700-3300 deliveries per year. The practice site serves a diverse socioeconomic, religious and racial patient population. Approval for development and implementation of the DNP project has been obtained from the unit manager and the chief nursing officer. The executive leadership team has determined that Institutional Review Board (IRB) approval is not necessary because this is a quality improvement project using de-identified data.

Stakeholders. Stakeholders for the proposed implementation include all obstetrical: gynecology medical providers, the medical director, clinic manager, and nursing administration. The stakeholders in the practice site are open to evidence-based changes that will improve patient outcomes. Rapport will be built with the stakeholders by keeping them informed during the implementation process and will involve stakeholders' feedback.

Recruitment methods

Since this is a quality improvement initiative all nurses working on the unit will be included in this DNP project. The exclusion criteria are those nurses that do not work on the labor and delivery unit and nurses that work on the post-partum unit. Since this is a quality improvement project the mandatory education session will be provided to all registered nurses while on duty. The current number of labor and delivery registered nurses employed at the

practice site is sixty-one.

Chart audits

The pre and post-implementation chart audits that will be conducted by the project lead will include the criteria of the NTSV low-risk criteria. The low-risk category is defined using the NTSV metric. This metric is described as nulliparous (first time giving birth), gestationally at-term (gestational age of 37.0 weeks or greater), singleton (one fetus), in the vertex (head down position). The chart audits will include 30 charts both pre-implementation and post-implementation which meet the inclusion criteria. The pre-implementation chart audit will take place one week before the implementation of the project. The post-implementation chart audit will take place one week following the implementation of the project.

The data collection and analysis will be completed using the electronic health record (EHR). Permission has already been granted by the practice site for this process and the proper security measures and passwords have been provided by the organization. The data collected will be de-identified aggregate data to protect the confidentiality and comply with the Health Insurance Portability and Accountability Act (HIPAA) policies within the organization.

Tools/Instrumentation

Tools that will be utilized for the project include: the protocol developed by the project lead based on the CMQCC Toolkit to Support Vaginal Birth and Reduce Primary Cesareans, clipboard cover quick reference of protocol highlights (Appendix F), reference binder and text (Appendices G &H), mandatory educational module from Relias Supporting Vaginal Birth (Appendix D), introduction video to present protocol and quality improvement project (Appendix C), CMQCC Hands On Understanding and Demonstration of Labor Support (HUDLS) modules (Appendix E), codebook and chart audit tool(Appendices I & J)(CMQCC,

2018; Relias, 2019; Smith et al., 2016).

Protocol. The protocol will be developed based on the strategies defined by the CMQCC "Toolkit to Support Vaginal Birth and Reduce Primary Cesareans" by the project lead in collaboration with the medical providers, medical director, clinic manager, and nursing administrator (Appendix A) (Smith et al., 2016). The protocol will be evaluated for validity through a review of content experts at the project site as well as the review of the project team members.

Handouts. A document will be created by the project lead as a reference guide displaying the protocol highlights (Appendix F). This reference will be laminated and placed into use a clipboard cover for all patient charts for ease of access to the RN care providers (Appendix F). A reference binder will be assembled for use on the unit by both RNs and physicians (Appendix G). The reference binder will contain the protocol, the CMQCC "Toolkit to Support Vaginal Birth and Reduce Primary Cesareans", various algorithms for labor support, pertinent research articles, labor support ideas and color photos of some of the concepts presented in the HUDLS (Appendix G) (CMQCC, 2018; Relias, 2019; Smith et al., 2016). The Labor Progress Handbook textbook will be donated to the unit as an additional reference for the RN staff (Appendix H) (Simkin, Hanson & Ancheta, 2017).

Education plan. The education plan for the nursing staff will have multiple components. The first component is a voice-over power point loaded onto the LMS to create awareness and announce the project Appendix C). The next component of the education plan is an online educational module that covers the current literature recommendations to create an environment that supports vaginal birth. The practice site has joined the corporate taskforce intending to support vaginal delivery. As part of this team, the practice site will be a pilot site to introduce an

educational module presented by the Relias Company on the Gnosis platform (Appendix D) (Relias, 2019). This mandatory module will be distributed to all labor and delivery nurses in the weeks before the quality improvement project implementation.

During implementation, a hand on labor support course will be presented to the labor and delivery nurses utilizing the CMQCC HUDLS modules (Appendix E) (CMQCC, 2018). This educational component will include methods of labor support and encouragement of movement to be utilized by the labor and delivery nurse and serves to reinforce the protocol. The presentation of these modules still is overseen by the project lead. Six modules within the course will be presented to the staff during the project implementation. There is an additional free educational program available online through CMQCC. The nurses at the practice site will be provided with further information to continue their study of these topics if they chose.

Chart auditing tool. An Excel spreadsheet will be created to collect and categorize the data from the post-implementation chart audits. The post-implementation chart audits will be conducted with the use of an audit tool that will be developed by the project lead (Appendix I). The chart audit tool will be an excel spreadsheet that will document structural, process, and outcome quality measures. A codebook will be developed by the project lead to classify the data collected during the chart review (Appendix J). The data will be compiled into an Excel spreadsheet. The collected data will be analyzed using the International Business Machines (IBM) Statistical Package for the Social Sciences (SPSS) software for correlations between the variables and the outcome of delivery type. This tool has been approved for use by the practice site.

Data collection procedures

The project lead will conduct the pre and post implementation chart audits using a

spreadsheet provided by the unit RN analyst. The data in the spreadsheet will be de-identified to protect patient and nurse confidentiality. The spreadsheet will be kept at the practice site in a locked area following organization policies. The implementation of the project will take place over two weeks. The chart audits and data collection will include 30 charts that meet the inclusion criteria (NTSV) for the timeframe. The de-identified data will be compiled into an Excel spreadsheet created by the project lead and analysis will be conducted using the SPSS software. A Fishers exact probability test will be used to determine if the protocol intervention correlates with a decrease in the cesarean section rate. The de-identified data will be stored in a secure file that meets the standards of the practice site for security

The chart audit tool created by the project lead includes the structural quality measure that assesses the following variables: the age of the mother (demographic only), gestational age of fetus, if induction was utilized for either medical or elective reasons; or whether cervical dilation and the bishop score were recorded on admission (Appendix I). These variables will be analyzed to determine the correlation to the delivery method.

Intervention/Project Timeline

The timeline for this project implementation is four weeks. The timeframe includes the implementation of the project intervention, data collection, and analysis/interpretation. The project implementation will start at the beginning of DNP III. Project approval will occur at the end of DNP II.

Implementation

Week one will include project implementation. The protocol based on the CMQCC Toolkit will be announced to the staff via an introduction video presentation sent to their email and loaded on to the LMS (Appendix C). Every shift, huddle briefs announcing the project and

protocol will be conducted. The Relias modules will be deployed to the labor and delivery nurses before the start of implementation (Appendix D). The required completion date coincides with the onset of implementation. The CMQCC HUDLS modules training course will occur daily during implementation (Appendix E). In week two, implementation will continue with training sessions on the unit for the nursing staff using the CMQCC HUDLS modules. These training sessions will include hands-on labor support tool demonstration and answer any questions about the protocol.

Data collection

In week three, data collection will take place by the project lead. Thirty charts will be identified that meet the inclusion criteria. The selected charts will be evaluated for multiple variables using the chart audit tool (Appendix I). The variables include: if the patient has freedom of movement more than 50% of the labor or less than 50% of the labor and the type of delivery (either vaginal delivery or delivery by cesarean section). Other variables that will be evaluated will include the cervical assessment at the time of admission and if the patient received induction of labor (defined as medical or elective). The data collected will be coded using the codebook created by the project lead (Appendix J).

Analysis

In week four, analysis and evaluation of the data will take place. The data collected will be analyzed utilizing the IBM SPSS software. The variable of freedom of movement will be compared to the delivery type to determine if there is a correlation. The analysis will attempt to determine if there is a significant change in the rates of cesarean section as compared to pre-implementation. This is outlined in the table below:

Table 1

Outline of Implementation

Week 1 Implementation	• The week will begin with an announcement of the project implementation by the leadership team. • The training for the nursing staff will be opened in the LMS before this date with the due date coinciding with implementation. • Implementation of the protocol and available education will be announced to nursing staff with a voice-over PowerPoint video presentation. This will be sent to email and on the LMS. • The HUDLS training sessions will be provided every day of every shift.
Week 2 Implementation continues	• Implementation continues. • HUDLS modules continue every day and every shift. This training will include hands-on labor support tools and a discussion of the protocol.
Week 3 Data Collection	• Data collection of thirty charts will take place post-implementation. • The data will be compiled and categorized into the Excel database created by the project lead.
Week 4 Analysis and Evaluation	• Analysis of the data will be completed by the project lead utilizing the IBM SPSS program. • The data will be compared to the pre-implementation data to determine if there are correlations associated. • Results will be provided to the leadership team and stakeholders. • The PDSA cycle will be evaluated for potential changes needed for the continuation of the protocol post project.

Ethics/Human Subjects Protection

This is a quality improvement project and the information that will be used from the patient charts for analysis will not use any patient identifiers. HIPAA compliance will be followed per unit and organizational policy regarding the de-identified data collected. No direct patient contact or patient care is planned as part of this protocol development. No interviews are planned with actual patients or family members. The indirect benefit of participation includes

the potential of a normal physiological vaginal birth as a result of the educational intervention provided to the nurses. There is no perceived risk to participation in this quality improvement project beyond the stressors of everyday life. There is no compensation for participation. This project should be exempt from a formal IRB review at the practice site as this project is a quality improvement project and should be exempt under the provision that there is no risk to human subjects due to the data being collected without any patient identifiers. This is reserved for projects that use surveys, noninvasive procedures, secondary documents, or methods in which the data are de-identified (Houser, 2016; Moran, Burson & Conrad, 2017). The IRB process at Touro University will be followed. This is a quality improvement project and will likely not require a full IRB review.

Plan for Analysis/Evaluation

The data analysis for this project will use the SPSS program. The data collected from the pre-implementation chart audit of thirty charts will be entered into a Microsoft Excel spreadsheet (Appendix I.) This information will be used to determine the magnitude of a relationship between the cesarean section rate and nursing interventions (if any) using a Phi coefficient (Pallant, 2016). It is expected, there will be approximately the same number of charts to audit post-implementation. The same procedure as described above for the pre-implementation will take place with this data. Fisher's exact test will be performed to compare the cesarean section rates before and after implementation (Sylvia & Terhaar, 2018).

Evaluation

Following the analysis of the data collected, the project lead will evaluate if there are statistical correlations between the variables and a decrease in the primary cesarean section rate at the practice site. Following the implementation of the protocol and completion of the training

for the nursing staff, it is expected to see an increase in the nursing techniques that support vaginal delivery according to the literature. During the post-implementation chart audit, variables such as freedom of movement will be assessed. It may be determined that further education is required post project to effectively make a change at the practice site. The project lead will evaluate if the educational intervention and protocol implementation results in a practice change among the nursing staff by encouraging freedom of movement during labor and incorporating labor support techniques that support vaginal delivery as compared to the pre-implementation chart analysis. It is expected the educational tool and implementation of the protocol will result in a practice change by the nursing staff and subsequently, this practice change will result in a decrease in the primary cesarean section rate.

Significance/Implications for Nursing

The impact of the DNP quality improvement project may significantly change the methods of providing labor care to women at the practice site as well as labor and delivery care at other facilities. Implementing best practices such as increasing movement of the laboring women has been shown to decrease the cesarean rate by as much as 40% in other facilities (Ondeck, 2014). Currently, the cesarean section rate at the facility is higher than the Healthy People 2020 recommended rate of 23.9% United States Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (n.d.). Presenting the education intervention in several modalities such as written protocol, video, and direct practice will reach the various learning styles of the staff. Presenting this information to the nursing staff in a collaborative way will enlighten them to the current impact of the problem and the simple interventions that can drastically change the outcome for the patient (Edmonds & O'Hara, 2017).

Analysis of Results

The three aspects of the quality improvement project were to create awareness of the significance of the issue, provide education to the labor and delivery nurses on techniques to support vaginal delivery, and implement the designed protocol to decrease the primary cesarean section rate in the low-risk population. Awareness was created by the development of an introduction voice-over powerpoint education module. This introduction to the project was disseminated to all labor and delivery staff through the facilities learning management system (Appendix C). There were 56 of the current 61 actively employed labor and delivery nurses that viewed the video (five nurses are currently on leave and will not review the video).

Nurse education was accomplished in three different ways. First, a supporting vaginal delivery learning module was uploaded to the learning management system for all labor and delivery nurses. This module was created by Relias, a global healthcare continuing education company designed for nurses and physicians (Relias, 2019). This module has been validated by AWHONN and approved by the hospital leadership for dissemination (Appendix D). There were 56 of the 61 nurses that completed the required education module by the due date of March 31, 2019. The second step of the education training was provided by the project lead. During the three weeks of project implementation, the project lead conducted over 30 small group discussions and demonstrations to the labor and delivery nurses. These discussions included an introduction to the protocol, orientation to the two reference binders provided to the unit and hands-on demonstrations of movement and other labor support techniques to support vaginal delivery (Appendix G). These training sessions were performed on the unit, during both dayshift and nightshift, and lasted 15-45 minutes. All 56 nurses participated in at least two of the training sessions. The third step of the education training was to present the labor and delivery nursing

staff with the opportunity to complete an additional, optional learning module online and earn continuing education units. A flyer was created to provide instructions on how to register and complete the CMQCC HUDLS 15 lesson course (Appendix K). An application was submitted and approved to be able to provide continuing education units for completion of this optional training. This opportunity was presented to the nursing staff through email and during the on-unit presentations.

National data was collected from the Leapfrog Group comparing local hospitals with the practice site in maternity care. One of the metrics available is the NTSV cesarean section data. This measurement showed the cesarean section rate as of December 2018 as 34% (LeapFrogGroup, n.d.). Data was collected by the project lead for the 30 days before the project implementation and a total of 165 charts were reviewed. The data was provided to the project lead in an Excel document that had all patient identifiers removed. The project lead reviewed each chart to determine if it met the inclusion criteria. Forty-five charts met the inclusion criteria of NTSV. The inclusion criteria included only patients having their first baby, term gestation, singleton fetus in the head down position, and with no other high-risk criteria. There were 14 cesarean sections and 31 vaginal deliveries during this time frame representing a 31% NSTV cesarean section rate. Data was collected for the 30 days following implementation. A total of 155 charts were reviewed and 69 met the inclusion criteria. Of these patients, there were 50 vaginal deliveries and 19 cesarean section deliveries, representing 27%.

Figure 1. Cesarean section rates pre and post project implementation

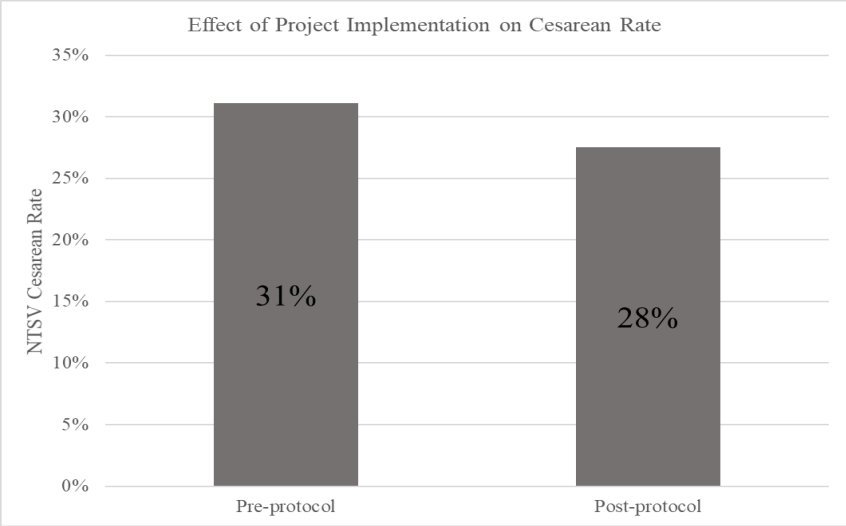

Table 2

Fishers Exact Probability Test

		X		
		0	1	Totals
Y	1	31	14	45
	0	50	19	69
Totals		81	33	114

Expected Cell Frequencies per Null Hypothesis

31.97	13.03
49.03	19.97

	Chi-Square	
Phi	Yates	Pearson
+0.04	0.04	0.17
P	0.841481	0.680112

Fisher Exact Probability Test:

P	one-tailed	0.4184257128494523
	two-tailed	0.832931799246156

Sample Size = Charts that met NTSV inclusion criteria

Pre-implementation = 45

Post-implementation = 69

There was a 3% reduction in cesarean section rates [XX time] after the project implementation (Figure 1), but the difference was not large enough to be statistically significant

(P=0.83). Monitoring over a longer period would be required to assess whether the protocol resulted in a statistically significant decline in cesarean section rates.

Discussion of Findings

This DNP project aimed to decrease the primary cesarean section rate in a low-risk population. The implementation of a protocol to support vaginal delivery has resulted in a decrease in the incidence of cesarean section in the timeframe between pre and post-implementation. Although there was a decrease from 31% to 28%, the change is not statistically significant. The project lead has determined that this may be due to the data sample size. Data collection will continue monthly over the next six months with continued analysis by the project lead.

Significance/Implications for Nursing

This project is significant to nursing as the literature notes there is a large variation in the cesarean section rates within regions, health systems, and among labor and delivery nurses (Edmonds & O'Hara, 2017; Smith et al., 2016). This variation is thought to be partly due to practices such as; early labor admission, continuous fetal monitoring, and lack of maternal movement in labor (Barrett, & Stark, 2010; CMQCC, 2019; Medforth et al., 2017; Neal, 2014; Nelson et al., 2016; Ondeck, 2014). Once the labor nurse is educated regarding best practices for supporting vaginal delivery as defined by the literature, changes can be made to individual practice. The information gained provides the labor nurse the opportunities to be involved with policy development on local, regional, and national levels. Policies should be based on best practices and can be aligned to support vaginal delivery based on the recommendations supported by the literature.

Decreasing the cesarean section rate is a Healthy People 2020 goal and hospitals are required by The Joint Commission to report cesarean section rates with this information being available to the public in July of 2020 United States Department of Health and Human Services. Office of Disease Prevention and Health Promotion. (n.d.). ; The Joint Commission, n.d.). According to Main et al. (2012), the last several decades have seen significant increases in interventions such as cesarean birth, without evidence of maternal or neonatal benefits. Decreasing the cesarean section rate for low-risk women will reduce the associated risks, lessen the costs to patients and insurance companies and diminish the associated risks for all subsequent deliveries (Smith et al., 2012). This quality improvement project focused on the tools and techniques the nurse can utilize at the bedside. The use of these tools has been shown to decrease the cesarean section rate in the low-risk population (Smith et.al, 2016). With a careful assessment of the individual unit needs, this quality improvement project can be adapted to provide evidenced-based education to the bedside nurse on the systems level.

Limitations

There were several limitations to this project. The first identified limitation of the project was that education was only provided to the nursing staff and did not include the physicians. Creating an educational component based on best practices and presenting to the physicians may increase the buy-in of the protocol. Presenting the protocol as a process improvement initiative that requires collaboration between the two disciplines may further and encourage cooperation. A second limitation was the presentation of the HUDLS to the nursing staff on the unit while on duty (Appendix E). This was an effective cost-saving measure but was limited by the census of the unit. A solution would be to offer education as a separate mandatory skills class or as part of the annual skills training. The last limitation was the length of time for data collection and

analysis. If the data collection was to continue for a greater length of time following implementation, there may be a large enough data sample to determine a statistically significant difference between pre and post supporting vaginal delivery protocol implementation.

Dissemination

The dissemination of the project will include a final presentation to the Touro University nursing faculty and students as part of the program requirements. Also, the dissemination of the supporting vaginal delivery protocol and project results will be provided by a poster presentation to the practice site. The poster will be created by the project lead in collaboration with the unit educator. The poster will be placed on the unit to encourage further conversation of nursing staff and physicians regarding the project. This poster presentation will also be presented to the health care system corporate task force on supporting vaginal delivery and discussed in the task force committee quarterly meeting.

As part of dissemination, a voice-over power point presentation will be developed by the project lead and emailed to the Chief Nursing Officer, Director of Risk, and Chief Executive Officer to inform them of the project findings and offer appreciation for the support of the project.

Further dissemination will include a presentation of the project results at a local perinatal symposium in 2020. The project lead plans to submit the project findings to organizations such as AWHONN and contemporary forums nursing conferences for further dissemination. A manuscript will be submitted to the Nursing for Women's Health and Journal of Obstetric, Gynecological and Neonatal Nursing for possible publication.

Sustainability

One week after the completion of the project implementation, a report became available

that tracked the cesarean section rate at the practice site. The project lead obtained access to these reports and compared the outcomes to the data that was collected through the chart audit. Both sets of data were identical. In these corporate reports, the NTSV metric is tracked as well as the Society for Maternal-Fetal Medicine (SMFM) metric. The SMFM metric is a clinically comprehensive metric that provides enhanced face validity and provides ease of use (Armstrong, Kozhimannil, McDermott, Saade, & Srinivas, 2016). Working with the perinatal safety coordinator, both measures will be tracked using the practice site reports over the next six months to determine if the decrease in the cesarean section rate continues.

All newly hired nurses will be introduced to the supporting vaginal delivery protocol and will be provided with the same education tools that were used in the project implementation. Following the end of the project implementation, the nursing staff continues to be interested in the quality improvement project at the practice site. A member of the professional practice committee has developed a plan to continue education on the concepts learned for promoting vaginal delivery. This plan includes the creation of educational posters on the topics that will be placed in the staff lounge. The first poster has already been created and presented. The project lead has witnessed and participated in several conversations about the protocol with the nursing staff and physicians. These conversations represent an increased awareness of the issue on the unit and recognition of the importance of supporting vaginal delivery protocol components. The quality improvement project has been successful in bringing awareness of the current literature recommendations to decrease the cesarean section rate to the nursing staff and physicians at the practice site. The protocol development, implementation, and educational training have provided tools for the nurses to utilize for the implementation of best practices. Over time as the culture of the unit develops to support vaginal delivery, the cesarean section rate in the low-risk

population will be decreased.

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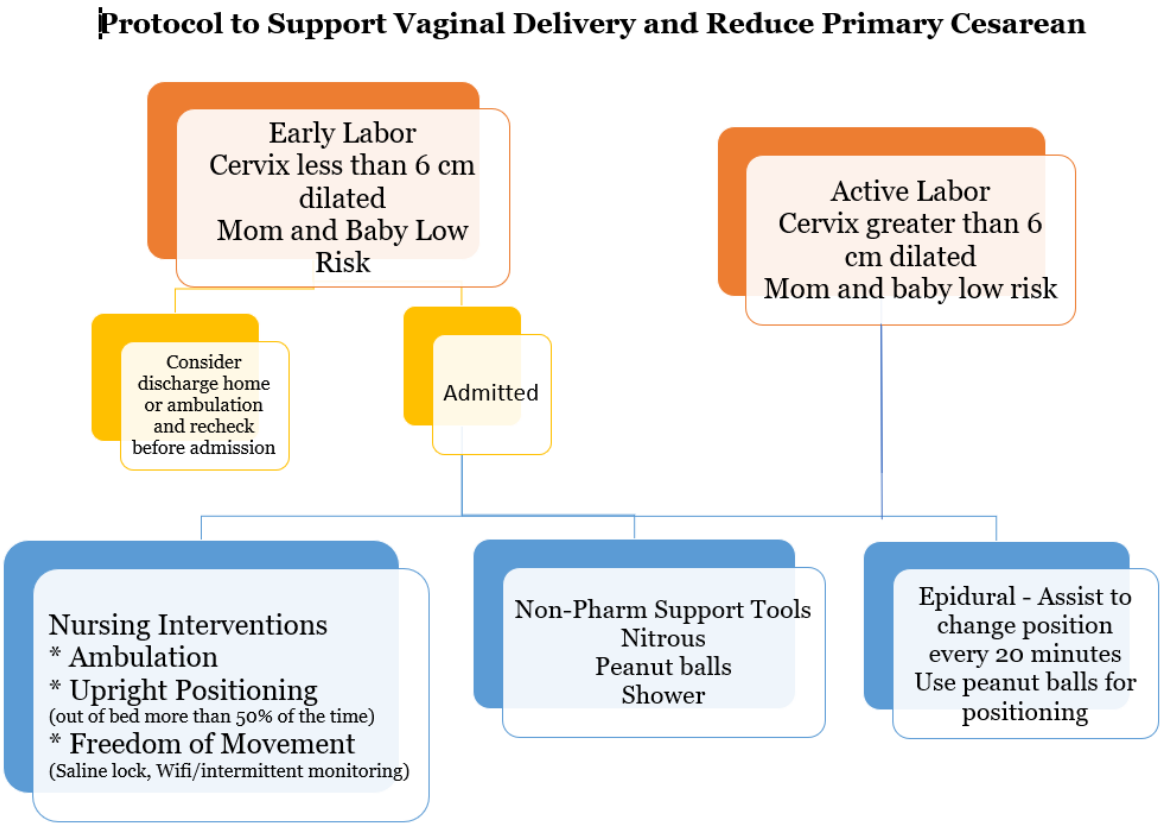
Appendix A


Protocol to Support Vaginal Delivery and Reduce Primary Cesarean
Early Labor
Cervix less than 6 cm dilated
Mom and Baby Low Risk
Active Labor
Cervix greater than 6 cm dilated
Mom and baby low risk
Consider discharge home or ambulation and recheck before admission
Admitted
Nursing Interventions
* Ambulation
* Upright Positioning
(out of bed more than 50% of the time)
* Freedom of Movement
(Saline lock, Wifi/intermittent monitoring)
Non-Pharm Support Tools
Nitrous
Peanut balls
Shower
Epidural - Assist to change position every 20 minutes
Use peanut balls for positioning

Appendix B

PDSA Cycle

References

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Appendix C

Introduction Video Link

https://youtu.be/UBj01ox2yU4

Appendix D

Relias Supporting Vaginal Delivery Course Description

RELIAS

Promoting Vaginal Birth: A Guide to Understand and Lower the Cesarean Birth Rate

NOW REVIEWED AND VALIDATED BY AWHONN!

According to ACOG, 42 percent of obstetricians have experienced a liability claim, many of which can be attributed to issues in proficiency and team communication and could be avoided with targeted and timely training, education and analytics. Relias OB, formerly GNOSIS™, is a comprehensive program designed to improve quality and patient safety in five high-acuity obstetrical areas.

Fetal Assessment & Monitoring
A tracing-centered approach teaches concepts, such as anatomy, physiology, pattern identification, NICHD nomenclature, FHR components, patterns, and interventions.

Hypertensive Disorders
Evidence-based guidelines around hypertensive disorders in pregnancy, including classification and nomenclature, diagnostic criteria, and management guidelines.

Shoulder Dystocia (SD)
A team-based model covers how to manage various aspects of SD using illustrations and explanations of the maneuvers used to resolve this obstetric emergency.

Promoting Vaginal Birth
Clinical strategies to promote safe vaginal birth, including selective labor induction, use of vaginal birth after cesarean, and fetal malpresentation management.

Obstetrical Hemorrhage
An overview of obstetrical hemorrhage teaches how to recognize abnormal bleeding, quantify blood loss, identify risk factors, and understand early interventions.

ANCC & ACCME Accredited
All courses are ANCC & ACCME accredited, so nurses and providers can earn continuing education credit as they learn.

Appendix E

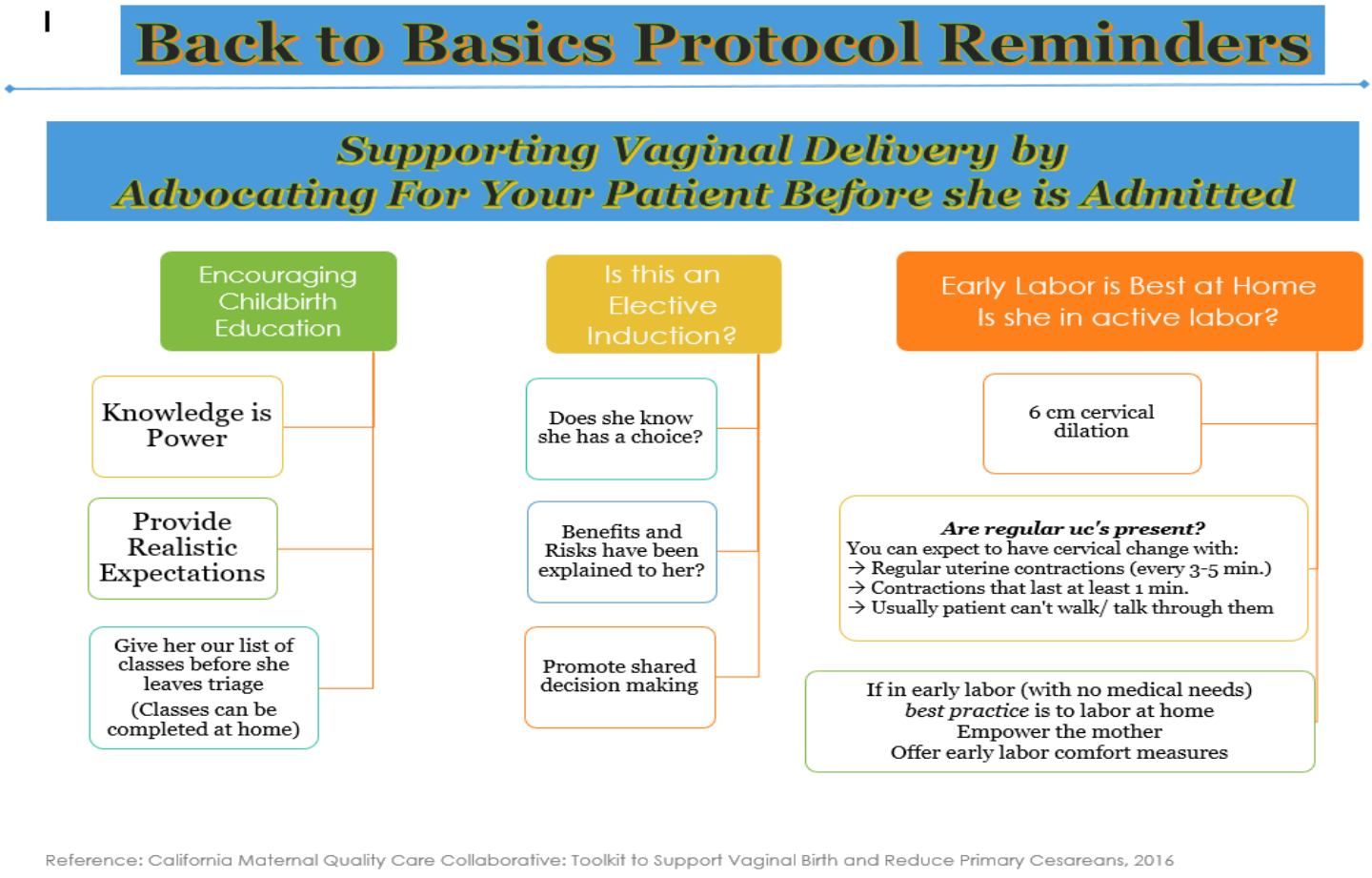
CMQCC Hands-On Understanding and Demonstration of Labor Support Courses (HUDLS)

Available at https://hudls.cmqcc.org/

HUDLS Course Content		
Module 1: Promoting Spontaneous Labor	Module 2: Professional Teamwork	Module 3: First Stage Labor
A: The Bishop Score	A: Shared Decision Making	A: Active Labor Support
B: Latent Labor Management	B: Closed Loop Communication	B: Labor Preference Checklist
C: Prolonged Latent Labor & Therapeutic Rest	C: SBAR Communication	C: Labor Dystocia
D: Safe Induction of Labor	D: Shared Mental Modeling	D: Peanut Balls
E: Coping with Labor		
Module 4: Comfort in Labor	Module 5: Fetal Well-Being	Module 6: Second Stage Labor
A. Supportive Measures	A: Intermittent Fetal Auscultation	A: Labor Management
B: Movement and Positioning	B: Leopold's Maneuvers	B: Fetal Malposition Resolution
C: Nitrous Oxide		

Appendix F

Clipboard Cover: Protocol Reference, Page 1



Reference: California Maternal Quality Care Collaborative: Toolkit to Support Vaginal Birth and Reduce Primary Cesareans, 2016

Appendix F

Clipboard Cover: Protocol Reference, Page 2

Supporting and Advocating for Vaginal Birth by Action in Labor

Movement During Labor Is Essential

- Out of bed as much as possible
- Intermittent or WIFI fetal monitoring
- Saline lock
- Ambulation
- Upright position
- Peanut balls/Birth Balls
- Frequent Position changes after epidural administration (every 20 Minutes)

Comfort Measures

- Support
- Guidance
- Touch
- Water
- Rocking
- Nitrous Oxide
- Music (iPet)
- Peanut Balls
- Imagery
- Belly Bands
- Pharmacological

You Make a Difference in Every Birth!

Empower her with your Words.

Encourage her with your Presence.

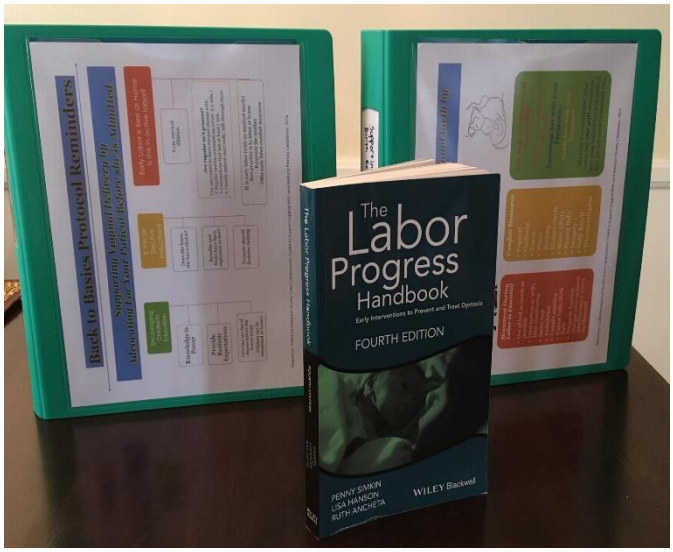
Guide her with your Support

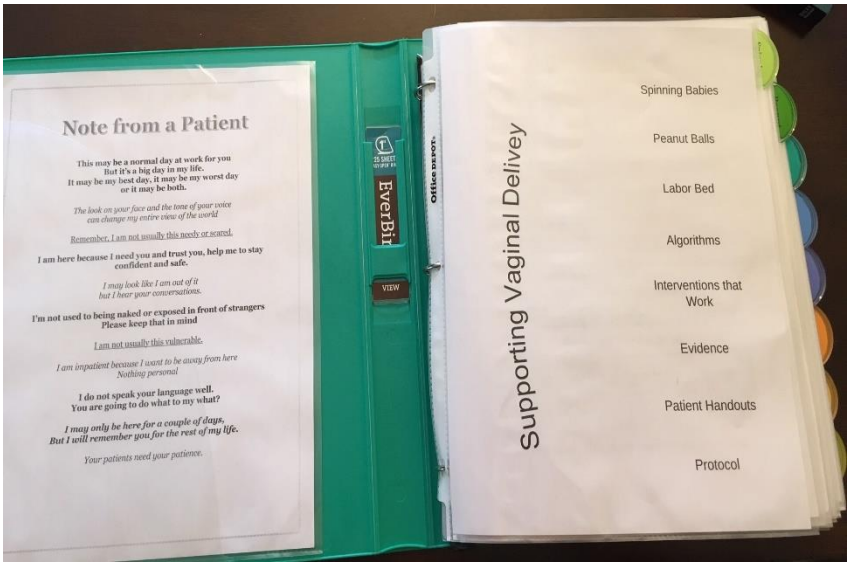
She may not remember your name but ***she will*** remember how **you** helped her and guided her, on her most important day.

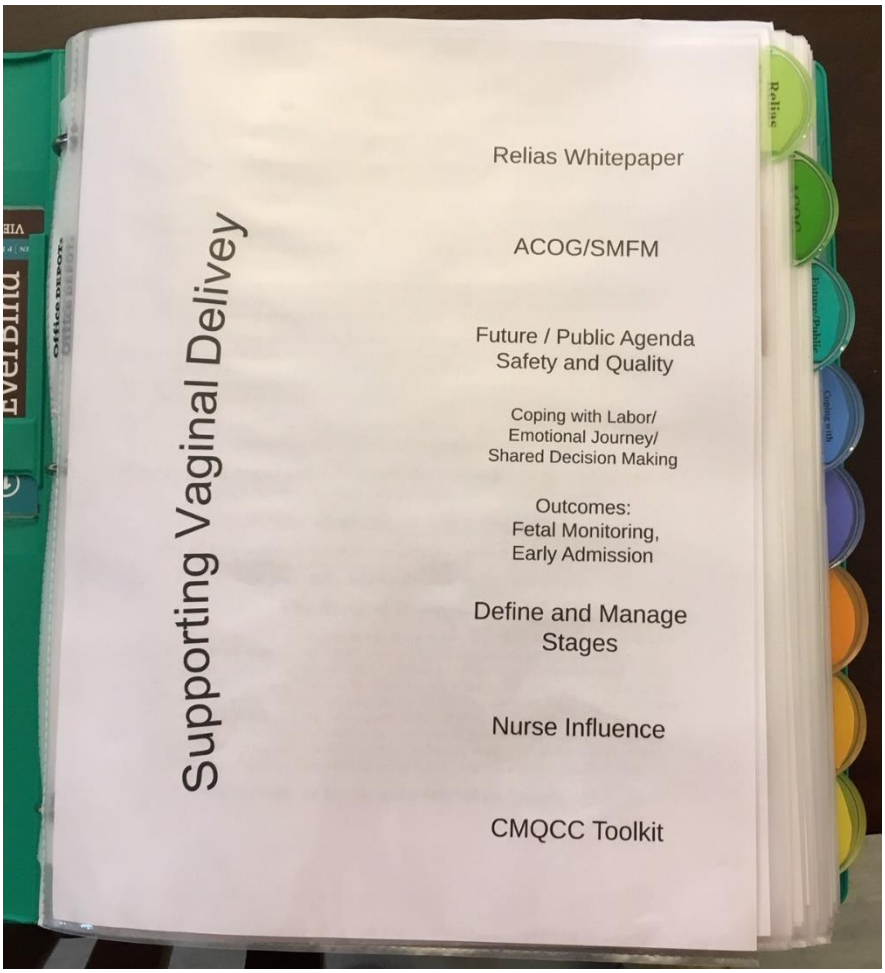
Reference: California Maternal Quality Care Collaborative: Toolkit to Support Vaginal Birth and Reduce Primary Cesareans, 2016

Appendix G

Unit Reference Binders

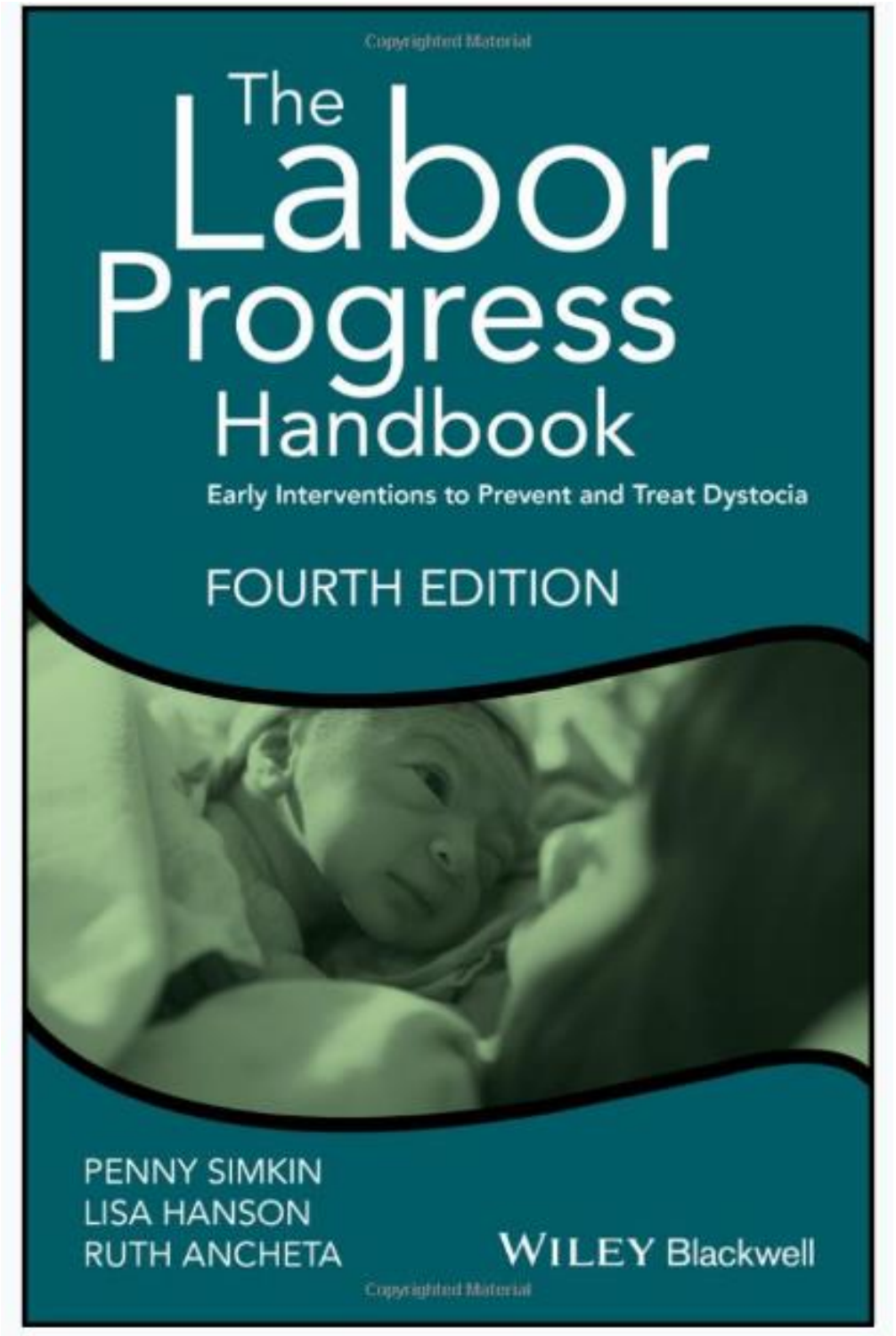






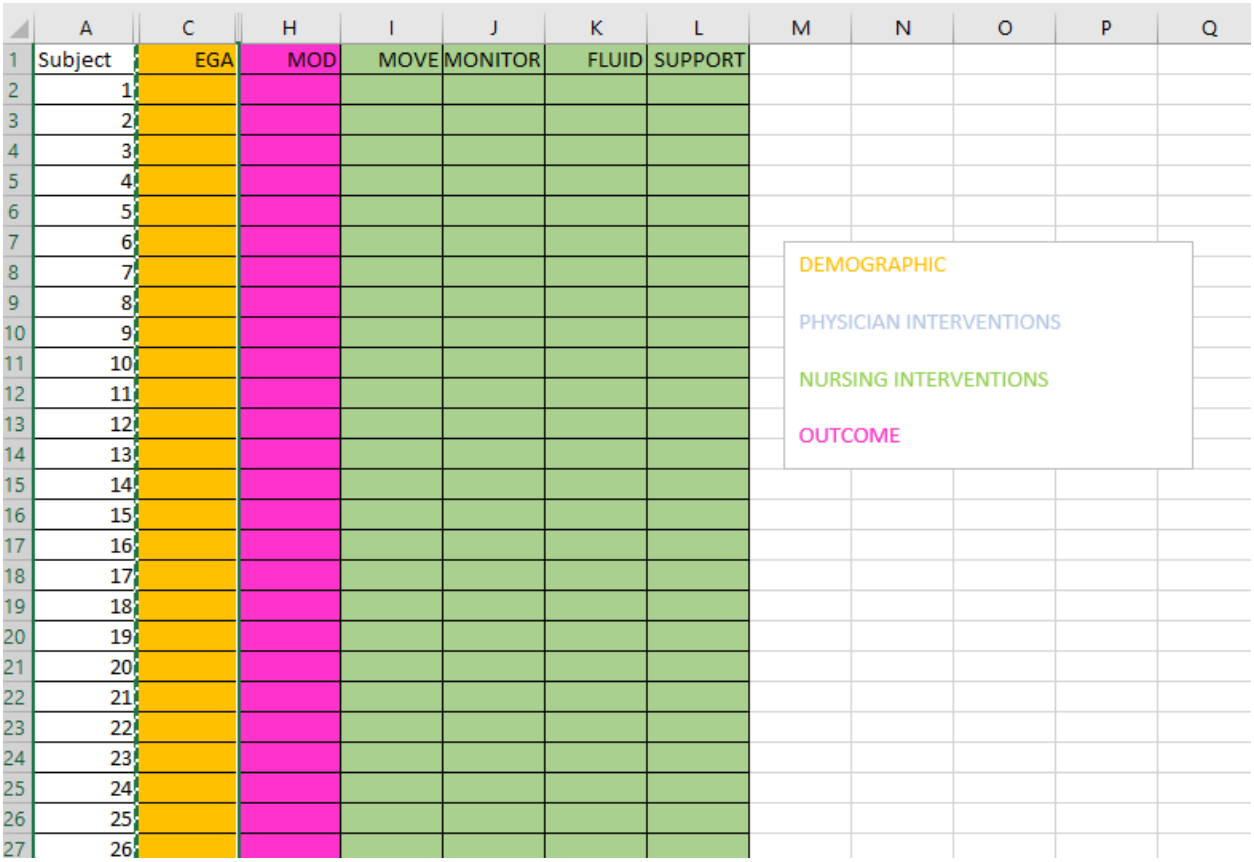
Appendix H

Reference Text Book



Appendix I

Chart Audit Tool



	A	C	H	I	J	K	L
1	Subject	EGA	MOD	MOVE	MONITOR	FLUID	SUPPORT
2	1						
3	2						
4	3						
5	4						
6	5						
7	6						
8	7						
9	8						
10	9						
11	10						
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DEMOGRAPHIC

PHYSICIAN INTERVENTIONS

NURSING INTERVENTIONS

OUTCOME

Appendix J

Code Book – Supporting Vaginal Delivery Chart Review

Code Book – Supporting Vaginal Delivery Chart Review

Item	Variable Code	Response Code
Gestational Age of Fetus	EGA	1 = 37-37.6 weeks 2 = 38 – 38.6 weeks 3 = 39-39.6 weeks 4= 40-40.6 weeks 5=41-41.3 weeks
Delivery Type	MOD	1= Vaginal 2=Cesarean
Indication	Indication	1= fetal 2 = maternal 3 = labor

Total – 30 participants

Demographic
Nursing Interventions
Outcome
Physician interventions

Appendix K

HUDLS Flyer Page 1

Hands-on Understanding & Demonstration of Labor Support (HUDLS)

What is it?

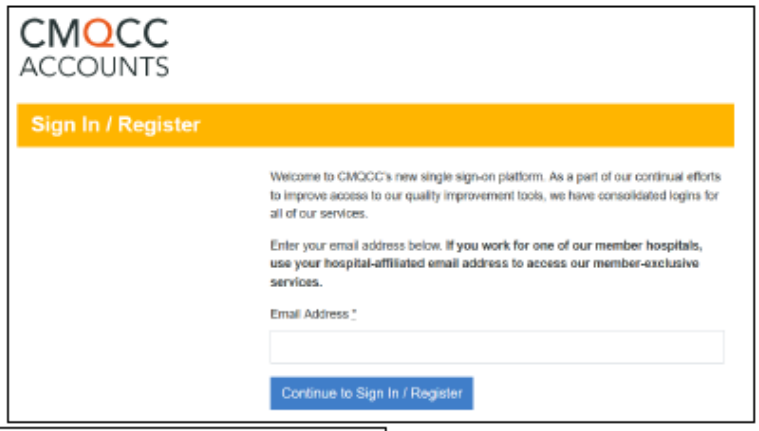
- Six educational modules with 21 lessons total
- Each lesson is designed to take 15 minutes or less to complete
- This course is optional.
- You can work on it at home.
- Earn 6 FREE continuing education units (CEU's).
  - Can be used for reimbursement from your personal education bank.

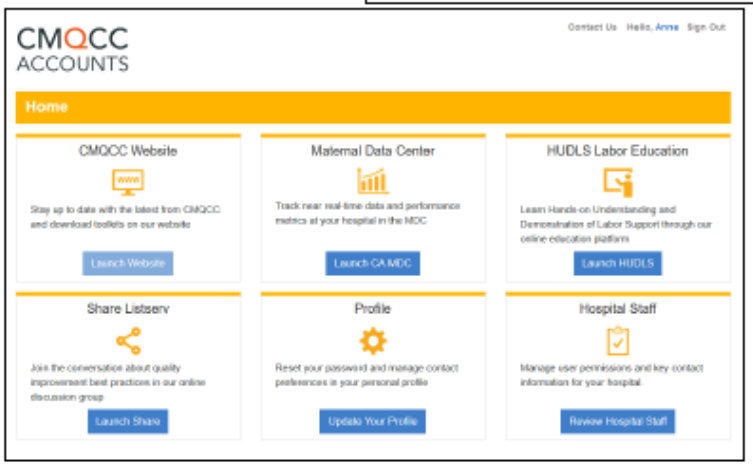
Instructions:

1. Go to this address Go to https://accounts.cmqcc.org
2. Create an account using your dignity health email address.
3. Complete all of the modules (6) with a passing score of 80% or higher
4. Print your transcript
5. Complete paper evaluation (sent in your work email, extras in the breakroom)
6. Turn all into Myoshi. Your CE certificate will be emailed to you.

See screenshots below for step-by-step account creation instructions.

Use your Dignity Health email when registering.

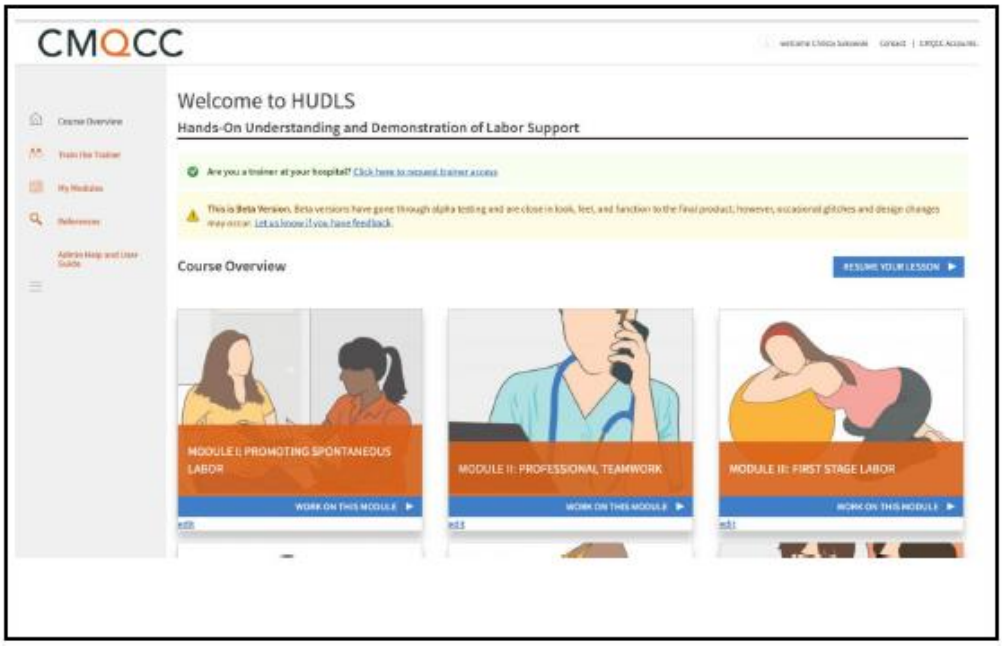




HUDLS are here

Appendix K

HUDLS Flyer Page 2



Welcome Screen and Landing Page for Modules

My Modules page This is your transcript. Print and turn in to Myoshi with evaluation for CEU's