

University of Texas at Tyler

Scholar Works at UT Tyler

MSN Capstone Projects

Nursing

Fall 12-4-2023

Effect of Doula Care Education on Cesarean Section Rates: A Benchmark Study

Elena Rubio-Mcdonald
erubiomcdonald@patriots.uttyler.edu

Follow this and additional works at: https://scholarworks.uttyler.edu/nursing_msn



Part of the [Maternal, Child Health and Neonatal Nursing Commons](#)

Recommended Citation

Rubio-Mcdonald, Elena, "Effect of Doula Care Education on Cesarean Section Rates: A Benchmark Study" (2023). *MSN Capstone Projects*. Paper 283.
<http://hdl.handle.net/10950/4509>

This MSN Capstone Project is brought to you for free and open access by the Nursing at Scholar Works at UT Tyler. It has been accepted for inclusion in MSN Capstone Projects by an authorized administrator of Scholar Works at UT Tyler. For more information, please contact tgullings@uttyler.edu.

Effect of Doula Care Education on Cesarean Section Rates: A Benchmark Study

A Paper Submitted in Partial Fulfillment of the Requirements

For NURS 5382: Capstone

In the School of Nursing

The University of Texas at Tyler

by

Elena Rubio-McDonald

December 4, 2023

Contents

Acknowledgments

Executive Summary

Implementation and Benchmark Project

1. Rationale for the Project
2. Literature Synthesis
3. Project Stakeholders
4. Implementation Plan
5. Timetable/Flowchart
6. Data Collection Methods
7. Evaluation
8. Cost/Benefit Analysis
9. Discussion of Results

Conclusions/Recommendations

References

Appendices

Acknowledgments

To God be the glory; you have been at my side every day, through many challenges over the past three years. To my husband, Gavain, who made many sacrifices, encouraged me, and always believed that I could cross the finish line, thank you. To my sons, who studied along side me, patiently waited for me, and inspired me to stay the course, thank you. To my parents, fellow nurses, professors, and sweet friends, I am deeply grateful for your support and guidance, thank you. To Jennifer Hankins, may this work honor you and be an ongoing reflection of your love for people and nursing.

Executive Summary

A cesarean section (CS) is a vital maternal care intervention when necessary; however, the surgical procedure places childbearing women at direct risk for infection, hemorrhage, thromboembolism, injury to bladder or bowel, post-surgical pain, and complications from anesthesia. The CS procedure is associated with indirect or long-term risk of cardiovascular disorders, placenta previa or abruption, hysterectomy, infertility, and chronic pain (Gupta & Saini, 2018). The risk of mortality associated with CS is four to five times more likely compared to vaginal delivery. Maternal morbidity and mortality rates may continue to rise if healthcare teams are unable or unwilling to take steps to prevent unnecessary CS.

Severe nursing shortages, high patient volumes, and patients with complex pregnancy related health concerns create barriers to the provision of continuous labor support (CLS) by labor and delivery (L&D) nurses. Partnering with certified doulas and implementing the CLS methods they employ may promote spontaneous vaginal birth, improve maternal outcomes, and birth satisfaction overall (Bohren et al., 2017; Chen et al., 2018). To obtain a more in-depth understanding of the correlation between traditional nursing care, doula care, and CS rates, this benchmark study explores evidence to guide the implementation of an interprofessional learning intervention (ILI). Traditional nursing care is provided by a member of the perinatal healthcare team in a usual setting. Obstetricians, family physicians, nurse midwives, and perinatal nursing teams are primary providers in a usual care setting such as a hospital or clinic. A doula is a birth companion that supports a mother before, during, and after childbirth. They provide emotional, physical, and educational support (Doulas of North America International [DONA], 2023). Examining the role of the L&D nurse and doula while applying learned CLS methods supports

meaningful change in the usual care model to decrease maternal and newborn morbidity and mortality rates associated with CS.

Effect of Doula Care Education on Cesarean Section Rates: A Benchmark Study

A doula is a trained professional who provides physical, emotional, and educational support to mothers before, during, and immediately after childbirth, especially during the intrapartum period in the form of CLS (Attanasio et al., 2021; Bohren et al., 2017; Kozhimannil et al., 2016). Evidence shows doula care decreases CS rates, improves overall maternal outcomes, and increases birth satisfaction rates (Bohren et al., 2017; Falconi et al., 2022; Fortier & Godwin, 2015; Howard & Low, 2020; Kozhimannil et al., 2016; Lunda et al., 2018; Stjernholm et al., 2021; Thurston et al., 2019). Labor and delivery nurses are key members of the maternal care team. They provide most of the direct patient care to women during childbirth and attend nearly all births in the United States (Edmonds et al., 2017). Implementation of evidence-based CLS methods and interprofessional collaboration between doulas and L&D nurses, nurse volunteers, and student nurses promotes role understanding and decreases the need for medical intervention and cesarean delivery (Boire & Lucas, 2022; Howard & Low, 2020; Murn, 2019). Labor and delivery teams express varying degrees of understanding of doulas and the care they provide. The quality and success of the relationship between practitioners and doulas is built on knowledge sharing, role clarification, and a healthy work environment that promotes respect and a willingness to collaborate (Neel et al., 2019). To apply best practice and improve patient outcomes, specifically reduction of CS rates, implementation of an educational intervention that incorporates CLS methods employed by doulas provided for L&D nurses will demonstrate a positive impact on intrapartum women and their families.

The educational intervention will include the opportunity to learn more about doula care from certified, practicing doulas in classroom, simulated, and live clinical environments. The Learning stations include opportunities for hands-on experience of CLS methods such as

massage, patient mobilization, deep breathing, and distraction will be available to the L&D nurses. Doulas and L&D nurses will have an opportunity to share their personal experiences in the care of intrapartum women as well as their understanding of each other's roles. After the learning intervention, the nurses will apply what they have learned in the live clinical environment. At the conclusion of the intervention, data will be collected through chart audits to explore the relationship between the individual nurse participant and mode of delivery for the women in their care (Iobst et al., 2020). After the data is collected, the L&D nurses will gather again to share how they applied methods of learned CLS, barriers to the provision of doula care, impacts of collaborating with doulas, understood benefits of spontaneous vaginal birth, the relationship between CLS and CS, and to reflect on personal and nursing practice changes for future improvement.

Rationale for the Project

Betrán, et al. (2016) and the World Health Organization's (WHO) Departments of Reproductive Health and Research, and Maternal, Newborn, Child, and Adolescent Health (2018) examined data collected across 150 countries and determined CS rates have increased in nearly every nation around the world since 1990. In the United States the rate was 32.1% in 2021, which was an increase from 31.8% in 2020 (Osterman et al., 2023). The WHO determined CS rates greater than 10% of live births show no improvement of maternal and newborn mortality outcomes (Chen et al., 2018; Department of Reproductive Health and Research, 2015). Reasons for CS vary widely and include medical necessity, patient preference, professional practice methods, political and organizational policy, social and cultural constructs, and socioeconomic factors (Betrán, et al., 2016). The current maternal health crisis significantly impacts Non-Hispanic Black women and Native American women (The White House, 2022;

WHO, 2023). These women are also more likely to experience CS, preterm birth, and maternal mortality. Doula care is culturally sensitive and addresses health disparities, enhancing communication between mothers and healthcare providers (Attanasio et al., 2021; Bohren et al., 2017, 2019; Falconi et al., 2022; Howard & Low, 2020; Lunda et al., 2018; Thurston et al., 2019).

Although the Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN, 2018) supports the provision of CLS during childbirth, intrapartum nurses experience significant barriers to achieving this care measure, including high nurse-patient ratios, organizational policy confines, and resistance to change in routine practices (Bohren et al., 2017; da Matta Machado Fernandes et al., 2021; Edmonds et al., 2017; Fortier & Godwin, 2015; Murn, 2019; Neel et al., 2019; Stjernholm et al., 2021; VanGompel et al., 2019). The rising costs of healthcare and limited organizational resources, including severe perinatal provider and nursing shortages, prompt maternal care clinicians and programs to seek sensible solutions. In 2021, 41% of all births in the United States were funded by Medicaid (Osterman et al., 2023). The cost of CS compared to vaginal delivery is nearly 30% higher than the cost of vaginal birth (Negrini, et al., 2021). This project seeks to improve patient outcomes, provide resources to the overburdened perinatal nurse, promote the benefits of a doula and the care they provide, and provide cost-effective intrapartum care solutions. The study and findings that follow seek to answer the question, "In intrapartum women, how does collaborative, evidence-based doula care education for L&D nurses compared to usual doula care education for L&D nurses effect cesarean section rates?"

Literature Synthesis

In the United States over 700 women die each year due to pregnancy or childbirth related causes. Native American and Black mothers are two to three times more likely to die than Non-Hispanic White mothers (Attanasio et al., 2021; Falconi et al., 2022; Hoyert, 2022). Cesarean section is a high-risk procedure that may lead to poor outcomes. It should only be implemented after careful consideration by the healthcare provider team, using well-researched tools of determination. Decreasing unnecessary CS is a global challenge (Betrán et al., 2016; Department of Reproductive Health and Research, 2015; WHO, 2023). Nurses have an opportunity to stand in the gap and utilize their experience, clinical judgment, and evidence-based practice to support the laboring woman in normal birth. Integration of doula care and collaboration with doulas through the promotion of education initiatives across the maternity health care model will decrease CS rates, improve patient outcomes, decrease maternal health disparities, and increase birth satisfaction rates (Bohren et al., 2019; Falconi et al., 2022, Howard & Low, 2020; Thurston et al., 2019). Doula care poses no harm to the patient. It provides many benefits to intrapartum women, especially in vulnerable populations who face greater risk of CS and poor outcomes in pregnancy and childbirth (Attanasio, et al., 2021; Falconi et al, 2022; Platt & Kaye, 2020; The White House, 2022).

The L&D nurse must be skilled, knowledgeable, and able to implement evidenced-based practice to promote best patient outcomes, however, they are faced with a variety of challenges to accomplish this goal. The intrapartum period is a critical phase of childbirth and although nurses seek to provide continual care and be fully present during this time, they are expected to care for multiple patients, monitor patients using advanced technology, administer correct and timely medications, and manage emergency situations. Collaboration with a doula may help the L&D nurse to actively participate in the implementation of best practice during the intrapartum

period, to care for multiple patients, and to focus on skills and responsibilities only a nurse can provide (Bohren et al., 2017; da Matta Machado Fernandes et al., 2021; Howard & Low, 2020; Neel et al., 2019). The doula can provide support for tasks such as guidance in breathing technique, assistance with repositioning, information sharing, and provision of emotional support for the mother and family.

Continuous labor support in the usual care environment has a significant impact on CS rates through education of mother and family and through physical and emotional support from conception to the postpartum period (Boire & Lucas, 2022; Chen et al., 2018; Neel, et al., 2019; O'Brien & Hotelling, 2018). Continuous labor support contributes to spontaneous vaginal delivery, decreased use of epidural analgesia and administration of oxygen mixed with nitrous oxide, and other standard pain-relieving medical interventions. Decreased length of labor was also found to be more likely in women who receive CLS, leading to a decreased rate of instrumental delivery and emergency CS (Bohren et al., 2017; Stjernholm et al., 2021). Doulas incorporate and routinely implement CLS methods in the care of their clients. Comfort measures such as therapeutic touch, positioning, mobilizing, and human reassurance help to promote pain relief, reduce anxiety, and stress, and promote psychological well-being (Bohren et al., 2017; Edmonds et al., 2017; Howard & Low, 2020; Lunda et al., 2018; Murn, 2019; Stjernholm et al., 2021; Thurston et al., 2019). Doulas advise the intrapartum woman in breathing, relaxation, and are present for the entire labor. Doulas seek to preserve the woman's memory of her birth experience, leading to higher rates of birth satisfaction, by providing encouragement and information about the physiology of birth and advocating for them and their partners, promoting positive communication with healthcare providers (DONA, 2023; Fortier & Godwin, 2015; Howard & Low, 2020; Thurston et al., 2019).

L&D nurses receive education on CLS and benefits of vaginal delivery; however, clinical education programs to incorporate learned knowledge and skills are recommended to promote nursing confidence and patient advocacy (Anderson et al., 2017; Neel et al., 2019; Whitworth & McMullan, 2017). Recommendations for providing CLS education to intrapartum nurses and their nurse leaders should include dissemination of information through staff in-services, poster projects, and organizational policy (Anderson et al., 2017; AWHONN, 2018). Johns Hopkins University School of Nursing and Duke University School of Nursing have implemented volunteer programs for nursing students to be trained as doulas and provide care in a real-world environment (Boire & Lucas, 2022; O'Brien & Hotelling, 2018). These innovative, evidence-based programs serve as a model for future implementation of doula care methods in the usual care environment with benefits for nurse and patient.

Evidence-based doula care instruction includes the following concepts and skills. Understanding the women's perception of birth and of themselves as a woman, parent, and mother; and their perceived ability to breastfeed and care for their newborn. The benefits of CLS and low-intervention maternity care to promote vaginal birth. The ability of women and families to make decisions in collaboration with maternal care teams. The impact of doula care on the woman laboring with pain medication or requiring CS. The L&D nurses' role in optimal birth outcomes and baby-friendly policy and procedure development and implementation. Strategies for strong team relationships between nurse and doula (Howard & Low, 2020; O'Brien & Hotelling, 2018). Labor and delivery nurses may be minimally exposed to the role of the doula and doula care, or CLS, in formal textbooks; however, collaborative education opportunities to apply learned knowledge in a simulated or clinical environment may be limited or non-existent.

The purpose of the ILI is to draw the two skilled caregivers together for the provision of high quality CLS to impact CS rates.

Project Stakeholders

Beneficence is promoting good and is considered the core of nursing care. Labor and delivery nurses can promote good care for their patients by examining personal opinions and biases and by providing equitable care in their area of practice (American Nurses Association [ANA], 2015). An intrapartum woman's choice of support person, health care providers, and birth plan fulfillment are integral to the emotional, physical, spiritual, cultural, and psychological self. These choices and organizational support structures set a foundation for how they will respond to caring for themselves and their families (Bohren et al., 2017; da Matta Machado Fernandes, et al., 2021). Continuous labor support helps to bridge cultural, racial, ethnic, and socio-economic gaps in care and promotes maternal care justice. The U.S. maternal care crisis as evidenced by high maternal mortality rates and expansion of maternity care deserts requires cost-effective and compassionate practice change (March of Dimes, 2023; The White House, 2022). Collaboration with doulas and implementation of CLS in the traditional care setting promotes organizational stewardship, positive birth experience, and decreased rates of CS for vulnerable maternal care populations (Kozhimannil et al., 2016; Platt & Kaye, 2020; Thurston et al., 2019).

The site of proposed practice change is the Labor and Delivery Department of a large safety-net hospital located in the United States. The project necessitates obtaining permission from the hospital's Evidence-based Practice & Research Committee, Institutional Review Board, Labor and Delivery Department leadership, and Clinical Education Department management. Instrumental to inspiring change are the Clinical Education Labor and Delivery Nurse Residency Manager and the Labor and Delivery Nursing Professional Development (NPD) Practitioner.

Other stakeholders include Labor and Delivery Unit managers, Labor and Delivery Unit direct-care nurses, Labor and Delivery Unit support staff, a nurse scientist, a nurse informaticist, two professionally certified doulas, intrapartum patients, patient support persons, and obstetric providers. A variety of obstetric providers care for intrapartum women in the organization including Attending Physicians, Fellow Physicians, Resident Physicians, Medical Interns, Medical Students, Physician Assistants, and Certified Nurse Midwives. Doulas with experience providing care in the acute care setting and who have effective communication skills with a desire to collaborate with perinatal nurses are ideal team members. Team leaders for the project are two direct-care L&D nurses and an NPD practitioner who embrace a spirit of inquiry.

Collaboration with Room Scheduling Services, Clinical Education Department administrative staff, and contracted printing services will be necessary for the implementation of the ILI. The ILI requires a classroom with audio-visual equipment, space to mobilize, CLS support equipment and supplies, such as birthing bars, birthing balls, and cold-compresses. Printed materials would include pre- and post-test materials, activity agenda, contact information, and tip sheets for nurses to reference. The ability of all stakeholders to communicate virtually will be necessary. Potential barriers to implementation include the cost of nurse compensation, willingness of L&D management teams to encourage participation in the project, and motivation of L&D nurses to attend a voluntary education event during their off-duty time. To overcome barriers a well-designed, data driven, evidence-based presentation of the project plan and goals will be provided to all stakeholders in a shared video, through electronic and printed materials, in pre-shift nursing meetings, and in direct one-to-one meetings with primary stakeholders.

Implementation Plan

Phase one and two of project implementation involves planning and team development, and design and implementation of the ILI. Planning and team development requires careful examination of stakeholders, with a focus on the patient. Placing the patient at the center of practice change promotes collaborative progression toward goals, desired patient outcomes, and clinician reflection on personal practice. Evidence shows intrapartum women prefer a support person to be caring, kind, and a trusted advocate. They desire a joyful birth experience for themselves and their baby, and an experience that promotes feelings of confidence and control (Bohren et al., 2019; Lunda et al., 2018). Women who felt supported to implement learned evidence-based methods of childbirth were more likely to experience feelings of respect and individualized support (da Matta Machado Fernandes et al., 2021; Lunda et al., 2018). A variety of community needs should be considered prior to implementation including but not limited to emotional and mental health resources, socio-economic factors, and family and partner structures (Attanasio et al., 2021; Thurston et al., 2019).

The Iowa Model of evidence-based practice change includes a step-by-step process for organized and clear process flow. Labor and delivery department leaders, direct-care nurses, and support staff are more likely to apply practice changes if there is a clear relationship between the need for change and improved outcomes (Dang et al., 2019). Planning and team development requires obtaining permissions and approvals. Refer to the Evidence-based Practice and Research Committee and nurse scientist to confirm organizational and regulatory policy and procedures are followed correctly in learning and clinical settings. The project team for the ILI includes two professional doulas, two direct-care L&D nurses, one representing the day shift and one representing the night shift, the Clinical Education Labor and Delivery Nurse Residency Manager, and an NPD practitioner.

Application of Knowle's Adult Learning Theory and facilitation of the Flipped Classroom Method (FCM) guide the design and implementation of the ILI. Knowle's Adult Learning Theory and the FCM recognize learners' previous experience and knowledge, readiness to learn, and desire for content relevance. These characteristics provide structure to the lecture presentations and learning station design (Barbour & Schuessler, 2018). Opening topics covered in lecture will include the impact of doula care education on CS, a comparison of current perinatal nurse versus doula CLS curriculum, and a description of the role of a doula. Comparing CLS methods learned and applied by L&D nurses and doulas will provide the L&D nurses with a better understanding of their own practice, benefits of CLS, benefits of doula care, and barriers to applying CLS in the clinical environment.

The doulas, direct-care nurses, and NPD practitioner will design active learning stations for intentional engagement with topics such as non-pharmacological comfort, maternal care collaboration, and the birth environment. The topics are adapted from Murn (2019), "Mothering the Mother: An Educational Program for Nurse-Provided Continuous Labor Support." Incorporation of active learning stations provides opportunity for L&D nurses to use clinical judgement, critical thinking, and collaborative skills to solve problems and promotes student-centered learning, a foundation of the FCM (Barbour & Schuessler, 2018). Successful implementation of the project includes phase three and four which are evaluation, dissemination, and future practice change (Dang et al., 2019).

Timetable/Flowchart

The hospital cares for women across the maternal care continuum and is in an urban setting. The maternal care team supports the delivery of over 11,000 babies per year. The hospital has 44 private L&D rooms and nine operating rooms for patients who require CS. Due

to the volume of patients and the size of the L&D units, the timeline for this project is one year. During months one and two, obtaining stakeholder buy-in and permissions will take priority, followed by team development, examination of current nursing practice and patient characteristics and preferences. Months three through four will require a focused effort on assembly and review of evidence, and the detailed design of the ILI. Project team leads will need to be firmly committed to shared goals and have clearly defined roles for effective project implementation.

The ILI will be presented in three sessions for maximum participation and will be video-recorded for viewing by nurses who are unable to attend in-person. The ILI will be conducted over three hours beginning with the Interprofessional Learning Intervention Survey pre-test questions followed by lecture, active learning stations, debrief, and Interprofessional Learning Intervention Survey post-test questions. Months five through ten provide an opportunity for L&D nurses to apply learned practice changes to the real-world clinical environment. It will be important during this time for project leaders to encourage nurses to seek answers to their questions, to help nurses locate reference materials, and to encourage them to communicate barriers to implementation. Months nine and ten will involve a coordinated time of debriefing and feedback and post intervention data collection. Cesarean section rates post-intervention and impact on patient outcomes will be necessary. Debriefing and examination of outcomes guided by ethical considerations and known gaps in care should be included (ANA, 2015). Once the results of project implementation have been evaluated and effective practice changes are understood, months eleven through twelve will be a time of knowledge sharing. Dissemination of project processes, results, patient impact, and cost are critical to long-term application of

improved nursing care and enculturation of evidence-based practice within the organization (Dang et al., 2019).

Data Collection Methods

This study began with a search for high-quality evidence. A literature search was conducted through electronic databases, accessing health care organization websites, and with direction from the text, *Evidence-Based Practice in Nursing and Healthcare: A Guide to Best Practice* (Hartzell & Fineout-Overholt, 2019, pp. 55-97). A search for resources was conducted through Cumulative Index to Nursing and Allied Health Literature (CINAHL), PubMed, Cochrane Library, and SCOPUS databases. The search was filtered to meta-analysis, systematic reviews, randomized-controlled trials, and qualitative reviews in CINAHL, PubMed, Cochrane, and SCOPUS. Articles of particular interest were limited to full-text or free full-text to access the article details. The search initially focused on studies conducted in the United States and was broadened to other countries due to global concerns surrounding the topic.

Effective evaluation of practice change will require obtaining the following data: number of births per year, number of births attended by doulas, and number of perinatal nurses. This information gives clarity to patient volume, perinatal nurse-doula familiarity, and staffing conditions. The total number of perinatal nurses attending the ILI and the shift they most commonly work will indicate the degree of impact the ILI has on patient outcomes and the nurse's ability to apply what was learned. The total number of perinatal nurses who experience the ILI in a video recorded format will allow for evaluation of the different learning platforms for most effective implementation. Cesarean section rates of the organization prior to practice change implementation and post implementation are a key data point. For accuracy it will be important to look at CS rates per ILI participants specifically. This will provide information on

patient outcomes according to the nurses that cared for them. Another key source of evaluation are the results of pre- and post- Interprofessional Learning Intervention Survey. The survey will provide critical information to examine the nurses' knowledge, skill, and attitude of the ILI.

Other valuable information to review is nurse and doula feedback from debriefing sessions, patient satisfaction rate, patient characteristics, rate of instrumental delivery, use of pharmacological and non-pharmacological methods of pain management during the intrapartum period, patient funding source, cost of CS, and cost of vaginal delivery. The primary tool for evaluation of the ILI is the Interprofessional Learning Intervention Survey. Questions are adapted from Murn (2019) Pre-and Post-test Questionnaire and are focused on the nurses' understanding and perception of CLS, doula care, collaboration with doulas in the clinical setting, understanding of professional nursing organization standards, the role of the L&D nurse and CLS, understanding and perception of CS, knowledge of maternal health disparities, cost implications of CS compared to vaginal delivery. Collaborating with stakeholders, a nurse scientist, and nurse informaticist is essential to accurate and timely collection of data. Barriers to accurate data collection are unwillingness of stakeholders to provide information or access to information, patient privacy restrictions, lack of academic support resources and databases, and scarcity of evidence-based practice and nursing informatics resource personnel.

Evaluation

Review of quality evidence relating directly to the desired practice change was conducted using Melnyk and Fineout-Overholt's (2019) "Evaluation Table Template and Synthesis Table Examples for Critical Appraisal" (pp. 723-726) (Appendix A). The Interprofessional Learning Intervention Survey is the primary tool used to evaluate the learning outcomes of ILI participants (Appendix C). The survey will be distributed to the participants prior to the start of the ILI and at

the end of the ILI. Expected results prior to the ILI will most likely reflect a lack of knowledge about the role of a doula, the relationship between doula care and intrapartum care of the patient, the relationship between doula care or CLS and CS, the relationship between vulnerable minority populations and doula care, and the benefits and lower cost of vaginal delivery versus CS.

Expected outcomes post ILI are L&D nurses will be able to explain, demonstrate, and discuss the role of the doula, CLS methods provided by the doula, CLS and relationship to mode and cost of delivery, aspects of maternal health disparities that are supported by doulas, doula care, and CLS provided by perinatal nurses. Other expected outcomes are improved ability to apply hands-on methods of CLS, non-pharmacological pain management, collaboration strategies with doulas, patients, and patient support persons, and understanding of the alignment of CLS with national nursing standards.

Meaningful evaluation of practice change in the clinical setting requires an environmental, personnel, and resource scan of the Labor and Delivery Department setting (Appendix D). To assess change, data collection is completed before the intervention and after the intervention, prioritizing patient impacts and preferences and integrating nurse clinical expertise (Dang et al., 2019). Data will be extracted through chart audits, maintaining client anonymity, at close of clinical application. Nurse participants and patient mode of delivery will be reviewed for patterns of similarity or dissimilarity. For example, if the nurse participant documented provision of CLS methods employed by doulas the expectation is that the patient is less likely to undergo a CS. The following metrics will guide the success of the practice change: nurse participation rates, CS rates, patient satisfaction rates, identified impact on and pre- and post- cost expenditures for mode of delivery.

Cost/Benefit Analysis

As healthcare systems continue to face complex financial limitations, every effort should be made to make the best use of organizational resources. When traditional L&D teams have access to doula support and can apply learned doula care methods in practice, CS rates decrease, and significant cost savings follow. Kozhimannil et al. (2016) examined the effectiveness of doula support to reduce costs of Medicaid funded childbirth. The method of analysis was a probabilistic decision-analytic model against a sample of 65,147 Medicaid funded singleton births with usual care and 1,297 singleton births with usual care and doula support in the West North Central United States and the East North Central United States. The results of the study “...found that, on average, doula supported deliveries among Medicaid beneficiaries regionally would save \$58.4 million and avert 3,288 preterm births each year” (Kozhimannil, 2016, pp. 24-25). The study found that women who had doula support were less likely to have preterm birth, 4.7% vs 6.3%, and less likely to have a CS, 20.4% vs 34.2%. Like similar studies, this review explained that Black women had an increase rate of CS and preterm birth. Access to doula care, rather than a desire for doula care, demonstrated improved outcomes, especially for minority women. The cost of maternity care makes up the largest segment of hospital expenses in the United States and much of the cost of maternity care is attributed to CS deliveries. Medicaid reporting noted the average cost of CS, including pre-, intra-, and post-partum costs, averaged \$13,590. Vaginal deliveries averaged about 30% less at \$9,131.00 (Negrini et al., 2021). These costs do not include maternal morbidity and mortality costs, pre-term deliveries, or intensive care admissions.

Practice change could lead to a significant reduction in costs. If it is discovered that applying doula care methods learned through the evidence-based ILI is effective, a reduction of unnecessary CS deliveries, medical intervention, pre-term deliveries, and morbidity and

mortality rates could be the long-term outcome. After auditing the charts of nurses who participated in the ILI, it is possible to assume that the nurses' application of new knowledge and skill may have an impact on the patient's mode of delivery (Edmonds et al., 2017; Lunda et al., 2018; Stjernholm et al., 2021). The cost of the ILI will be minimal compared to potential cost savings.

This organization provides computer access for all staff members and audio-visual equipment is available in classrooms, simulated learning centers, and at the bedside. Printed education materials are estimated at \$500 to \$1000 dollars based on current market pricing from an approved third-party vendor. The cost of compensation to allow L&D nurses to attend education events will be the most challenging resource to obtain and requires manager approval. There are an estimated 150 L&D nurses on staff, not including agency nurses. The average cost of L&D nurse compensation per hour is \$40. If all 170 L&D nurses attend the ILI for four hours total, which includes a one-hour time of debrief at the conclusion of the intervention, the compensation is estimated to be \$27,200, not including differentials for overtime or for nurses who view the video-recording during evening or night shift hours. Doulas will volunteer their time to promote their practice and improve their knowledge of and collaboration with L&D nurses. Other costs might include compensation for the time required of the Clinical Education Labor and Delivery Nurse Residency Manager, Clinical Education Department NPD Practitioner, nurse scientist, and nurse informaticist. Other expenses are the cost of compensation for time to collect data through chart audits, team development, and meetings, and cost to disseminate results at the conclusion of the intervention.

The average rate of CS in the organization is well below the national level at 23.8% (U.S. News & World Report, 2023). The hospital is one of the largest county hospitals in the country

relying almost entirely on tax-payer, local, state, and federal funding for the care of its patients. Less than 9% of patients have commercial insurance and nearly 30% have Medicaid. These factors make good stewardship essential practice for maternal care teams.

Discussion of Results

Fourteen well-designed studies that span four countries and include over 50,000 women's outcomes and experiences demonstrate CS rates are decreased when intrapartum women receive CLS doula care methods and traditional nursing support (Bohren et al., 2017, 2019; Kozhimannil et al., 2016; Stjernholm et al., 2021). One study demonstrated no difference between CLS paired with traditional labor support to reduce CS rates; however, it provided powerful statements of the maternal experience in Brazil, a country where CS rates are above 50% (da Matta Machado Fernandes et al., 2021). This is a benchmark study that was not fully implemented due to time constraints; however, it is a practical change that could be executed in a variety of acute care hospitals despite lack of access to all resources mentioned. Due to the powerful impact on patient outcomes and marked cost-benefit of realized practice change, it is recommended by Clinical Education Department leadership. Support from all nursing leaders and a willingness to examine personal practice would be necessary for successful implementation and accurate evaluation. Challenges to data collection due to lack of transparency and access is a significant barrier as well as compensation costs for participation. Leading practice change in this complex maternal care environment will require a servant-leader mindset that embraces the desire to improve the lives of patients and create a more just and caring organization (Best, 2020). Successful practice change will be recognized in the L&D nurses' renewed spirit of caring demonstrated by the provision of doula care in the intrapartum period to positively impact CS rates.

Conclusions/Recommendations

Quality nursing care of intrapartum women in the traditional L&D environment paired with doula support or doula care methods of CLS would expand with additional research. Research on factors that influence intrapartum care teams' decisions for medical intervention during the intrapartum period and their attitudes toward birth practices could lead to greater support for doulas and a decrease in CS rates (Liva et al., 2012). da Matta Machado Fernandes (2021) states that "...there is a need to combine health education with changes in the maternal health model of care, promoting evidence-based patient-centered care and adequate hospital ambiance to access the EBP" (p.23). Research focused on the impact of postpartum and neonatal health and the implementation of policy changes to promote doula care and spontaneous vaginal birth would provide additional evidence for improved patient outcomes, decreased CS rates, and significant cost reduction in the global healthcare system. Institutional policy change and education efforts aligned to interprofessional collaboration with doulas and doula care will strengthen the L&D nurses' ability to provide evidence-based CLS and positively impact patient outcomes (Bohren et al., 2017; da Matta Machado Fernandes et al., 2021; Liva et al., 2012).

References

- American Nurses Association. (2015). Code of ethics for nurses with interpretive statements. Nursingworld.org. <https://www.nursingworld.org/practice-policy/nursing-excellence/ethics/code-of-ethics-for-nurses/>
- Anderson, B., Rooks, J., & Barroso, R. (2017). Chapter seventeen: Therapeutic presence and continuous labor support: Hallmarks of midwifery. In B. Anderson, J. Rooks, & R. Barroso (Eds.), *Best practices in midwifery, Using the evidence to promote change* (2nd ed.), Springer Publishing Company.
- Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN). (2018). AWHONN position statement, Continuous Labor Support for Every Woman. *Journal of Obstetric, Gynecologic & Neonatal Nursing*, 47(1), pp.73-74. <https://doi.org/10.1016/j.jogn.2017.11.010>
- Barbour, C. & Schuessler, J. B. (2018). A preliminary framework to guide implementation of the flipped classroom method in nursing education. *Nursing Education in Practice*, 34, 36-42. <https://doi.org/10.1016/j.nepr.2018.11.001>
- Best, C. (2020). Is there a place for servant leadership in nursing? *Practice Nursing*, 31(3), 128-132. <https://doi.org/10.12968/pnur.2020.31.3.128>
- Betrán A.P., Ye, J., Moller, A-B., Zhang J., Gülmezoglu, A.M., & Torloni, M.R. (2016). The increasing trend in caesarean section rates: Global, regional, and national estimates: 1990-2014. *PLOS ONE*, 11(2), 1-12: e0148343. <https://doi.org/10.1371/journal.pone.0148343>
- Boire, C. & Lucas, L. (2022). Birth companions: Teaching nursing students to become doulas. *The Journal of Perinatal Education*, 31(1), 14-20. <http://dx.doi.org/10.1891/J-PE-D-20-00064>

- Dang, D., Melnyk, M. B., Fineout-Overholt, E., Yost, J., Cullen, L., Cvach, M., Larabee, J. H., Rycroft-Malone, J., Schultz, A. A., Stetler, C. B., & Stevens, K. R. (2019). Models to guide implementation and sustainability of evidence-based practice. In B. M. Melnyk & E. Fineout-Overholt (Eds.), *Evidence-based practice in nursing and healthcare, A guide to best practice*. (4th ed., pp. 378-437). Wolters Kluwer.
- Department of Reproductive Health & Research. (2015, April). *WHO statement on caesarean section rates*. World Health Organization, Human Reproduction Programme. Who.int. <https://www.who.int/publications/i/item/WHO-RHR-15.02>
- Departments of Reproductive Health & Research, and Maternal, Newborn, Child, and Adolescent Health. (2018). *WHO recommendations for non-clinical interventions to reduce unnecessary caesarean sections*. World Health Organization (WHO). <https://www.who.int/publications/i/item/9789241550338>
- Doulas of North America International (DONA). (2023, March 2). *Birth doula certification*. Dona.org. <https://www.dona.org/become-a-doula/birth-doula-certification/>
- Gupta, M. & Saini, V. (2018). Caesarean section: Mortality and morbidity. *Journal of Clinical and Diagnostic Research*, 12(9): QE01-QE06. <http://dx.doi.org/10.7860/JCDR/2018/37034.11994>
- Hartzell, T. A. & Fineout-Overholt, E. (2019). Finding relevant evidence to answer clinical questions. In B. M. Melnyk & E. Fineout-Overholt (Eds.), *Evidence-based practice in nursing and healthcare: A guide to best practice* (4th ed., pp. 55-98). Wolters Kluwer.
- Hoyert, D. L. (2022, February). *Maternal mortality rates in the United States, 2020*. [NCHS Health E-Stats]. <https://dx.doi.org/10.15620/cdc:113967>
- Iobst, S.E., Storr, C.L, Bingham, D. Zhu, S., & Johantgen, M. (2020). Variation of intrapartum care and cesarean rates among practitioners attending births of low-risk, nulliparous women. *Birth*, 47, 227-236. <https://doi.org/10.1111/birt.12483>

Liva, S. J., Hall, W. A., Klein, M. C. & Wong, S. T. (2012). Factors associated with differences in Canadian perinatal nurses' attitudes toward birth practices. *Journal of Obstetric, Gynecological, and Neonatal Nursing*, 41, 761-773. <https://doi.org/10.1111/j.1552-6909.2012.01412.x>

March of Dimes. (2023). *Maternity care deserts report, nowhere to go: Maternity care deserts across the U.S.* (2022 Report). <https://www.marchofdimes.org/maternity-care-deserts-report>

Melnyk, B. M. & Fineout-Overholt, E. (2019). Appendix C Evaluation Table Template and Synthesis Table Examples for Critical Appraisal. In B. M. Melnyk & E. Fineout-Overholt (Eds.), *Evidence-based practice in nursing and healthcare, A guide to best practice*. (4th ed., pp. 723-726). Wolters Kluwer.

Neel, K., Goldman, R., Marte, D., Bello, G., & Nothnagle, M. B. (2019). Hospital-based maternity care practitioners' perceptions of doulas. *Birth*, 46, 355-361. <https://doi.org/10.1111/birt.12420>

Negrini, R., Domingues da Silva Ferreira, R., & Guimaraes, D. Z. (2021). Value-based care in obstetrics: Comparison between vaginal birth and caesarean section. *BMC Pregnancy and Childbirth*, 21:333, 1-10. <https://doi.org/10.1186/s12884-021-03798-2>

O'Brien, E. & Hotelling, B. A. (2018). Amazing things happen when student nurses are given birth doula training. *The Journal of Perinatal Education*, 27(2), 98-103. <http://dx.doi.org/10.1891/1058-1243.27.2.98>.

Osterman, M. J. K., Hamilton, B. E., Martin, J. A., Driscoll, A. K. & Valenzuela, C. P. (2023, January 31). *National Vital Statistics Reports, Births: Final data for 2021* (Volume 72, No. 1). U.S. Department of Health and Human Services, National Center for Health Statistics. <https://www.cdc.gov/nchs/data/nvsr/nvsr72/nvsr72-01.pdf>

- Platt, T. & Kaye, N. (2020). *Four state strategies to employ doulas to improve maternal health and birth outcomes in Medicaid* [Policy Brief]. National Academy for State Health Policy. <https://nashp.org/four-state-strategies-to-employ-doulas-to-improve-maternal-health-and-birth-outcomes-in-medicaid/>
- U.S. News & World Report. (2023). *Parkland Health-Dallas maternity care (uncomplicated pregnancy)*. Health.usnews.com. <https://health.usnews.com/best-hospitals/area/tx/parkland-memorial-hospital-6740950/maternity>
- VanGompel, E. W., Perez, S., Wang, C., Datta, A., Cape, V. & Main, E. (2019). Measuring labor and delivery unit culture and clinicians' attitudes toward birth: Revision and validation of the Labor Culture Survey. *Birth Issues in Perinatal Care*, 46, 300-310. <https://doi.org/10.1111/birt.12406>
- The White House. (2022). *White House blueprint for addressing the maternal health crisis*. [Executive Summary] WH.gov. <https://www.whitehouse.gov/wp-content/uploads/2022/06/Maternal-Health-Blueprint.pdf>
- World Health Organization. (2023, September 9). *Caesarean section rates continue to rise, amid growing inequalities in access. Rising rates suggest increasing numbers of medically unnecessary, potentially harmful procedures*. World Health Organization, Human Reproduction Programme. Retrieved on September 9, 2023, from <https://www.who.int/news/item/16-06-2021-caesarean-section-rates-continue-to-rise-amid-growing-inequalities-in-access>
- Whitworth, S. & McMullan, T. (2017). Chapter 15: Nursing care during labor and birth. In S. Whitworth & T. McMullan (Eds.), *Maternal-Newborn* (1st ed.). F.A. Davis Company.

Appendix A**Evidence Table**

PICOT Question: In intrapartum women (P), how does collaborative, evidence-based education designed for labor and delivery (L&D) nurses about the role of a doula and continuous labor support methods (I), compared to usual education about the role of a doula and continuous labor support methods (C), affect cesarean section rates?

PICOT Question Type: Intervention Etiology Diagnosis or Diagnostic Test Prognosis/Prediction Meaning

Attanasio, L. B., DaCosta, M., Kleppel, R., Govantes, T., Sankey, H. Z., & Goff, S. L. (2021). Community perspectives on the creation of a hospital-based doula program. *Health Equity*, 5.1, 545-553. <https://doi.org/10.1089/heq.2020.0096>

Bohren, M. A., Hofmeyr, G. J., Sakala, C., Fukuzawa, R. K., & Cuthbert, A. (2017). Continuous support for women during childbirth (Review). *Cochrane Database of Systematic Reviews*, 7, Art. No.: CD003766. <https://doi.org/10.1002/14651858.cd003766.pub6>

Bohren, M. A., Berger, B. O., Munthe-Kaas, H, Tunçalp, Ö. (2019). Perceptions and experiences of labour companionship: A qualitative evidence synthesis. *Cochrane Database of Systematic Reviews*, 3, 1-88. <https://doi.org/10.1002/14651858.cd012449.pub2>

Chen, I., Opiyo, N., Tavender, E., Mortazhejri, S., Rader, T., Petkovic, J., Yogasingam, S., Taljaard, M., Agarwal, S., Laopaiboon, M., Wasiak, J., Khunpradit, S., Lumbiganon, P., Gruen, R.L., & Betrán, A. P. (2018). Non-clinical interventions for reducing unnecessary caesarean sections (Review). *Cochrane Database Systematic Reviews* 2019,(9), 1-132. No.: CD00528. <https://doi.org/10.1002/14651858.cd005528.pub3>

- da Matta Machado Fernandes, L., Lansky, S., Reis Passos, H. R., Boziak, C., & Shaw, B.A. (2021). Brazilian women's use of evidence-based practices in childbirth after participating in the Senses of Birth intervention: A mixed-methods study. *PLOS ONE*, 16(4), 1-28: e0248740. <https://DOI.org/10.1371/journal.pone.0248740>
- Edmonds, J. K., O'Hara, M., Clarke, S. P., & Shah, N. T. (2017). Variation in cesarean birth rates by labor and delivery nurses. *Journal of Obstetrical, Gynecologic & Neonatal Nursing*, 46, 486-493. <https://dx.doi.org/10.1016/j.jogn.2017.03.009>
- Falconi, A. M., Bromfield, S. G., Tang, T., Malloy, D., Blanco, D., Diciglio, S., & Chi, W. (2022). Doula care across the maternity care continuum and impact on maternal health: Evaluation of doula programs across three states using propensity score matching. *eClinicalMedicine*, 50:101531. <https://doi.org/10.1016/j.eclinm.2022.101531>
- Fortier, J. H. & Godwin, M. (2015). Doula support compared with standard care, Meta-analysis of the effects on the rate of medical interventions during labour for low-risk women delivering at term. *Canadian Family Physician*, 61, e284-292. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4463913/pdf/061e284.pdf>
- Howard, E. D., & Low, L. K. (2020). It's time to dial up doula care. *Journal of Perinatal & Neonatal Nursing*, 34(1), 4-7. <https://doi.org/10.1097/jpn.0000000000000456>
- Kozhimannil, K. B., Hardeman, R. R., Alarid-Escudero, F., Vogelsang, C. A., Blauer-Peterson, C., & Howell, E. A. (2016). Modeling the cost-effectiveness of doula care associated with reductions in preterm birth and cesarean delivery. *Birth: Issues in Perinatal Care*, 43(1), 20–26. <https://doi.org/10.1111/birt.12218>
- Lunda, P., Minnie, C.S. & Benadé, P. (2018). Women's experiences of continuous support during childbirth: A meta-synthesis. *BMC Pregnancy Childbirth*, 18:167. <https://doi.org/10.1186/s12884-018-1755-8>

- Murn N. L. (2019). Mothering the mother: An educational program for nurse-provided continuous labor support. *Journal of Perinatal Education*, 28(4).199-209. <https://dx.doi.org/10.1891/1058-1243.28.4.199>
- Stjernholm, Y. V., Charvalho, PdS, Bergdahl, O., Vladic, T., & Petersson, M. (2021). Continuous support promotes obstetric labor progress and vaginal delivery in primiparous women-a randomized controlled study. *Frontiers in Psychology*, 12(582823),1-7. <https://doi.org/10.3389/fpsyg.2021.582823>
- Thurston, L. A. F., Abrams, D., Dreher, A., Ostrowski, S. R., & Wright, J. C. (2019). Improving birth and breastfeeding outcomes among low resource women in Alabama by including doulas in the interprofessional birth care team. *Journal of Interprofessional Education & Practice*, 17, 1-6. <https://doi.org/10.1016/j.xjep.2019.100278>

Citation: (i.e., author(s), date of publication, & title)	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables Studied and Their Definitions	Measurement of Major Variables	Data Analysis	Study Findings	Strength of the Evidence (i.e., level of evidence + quality [study strengths and weaknesses])
Author, Year, Title	Theoretical basis for study Qualitative Tradition		Number, Characteristics, Attrition rate & why?	Independent variables (e.g., IV1 = IV2 =) Dependent variables (e.g., DV =) Do not need to put IV & DV in Legend	What scales were used to measure the outcome variables (e.g., name of scale, author, reliability info [e.g., Cronbach alphas])	What stats were used to answer the clinical question (i.e., all stats do not need to be put into the table)	Statistical findings or qualitative findings (i.e., for every statistical test you have in the data analysis column, you should have a finding)	<ul style="list-style-type: none"> Strengths and limitations of the study Risk or harm if study intervention or findings implemented Feasibility of use in your practice Remember: level of evidence (See PICOT handout) + quality of evidence = strength of evidence & confidence to act Use the USPSTF grading schema http://www.ahrq.gov/clinic/3rduspstf/ratings.htm
1. Attanasio et al., (2021). Community Perspectives on the Creation of a Hospital-Based Doula Program	<p>Six Themes</p> <p>Awareness and general perceptions of DLAs</p> <p>DLA care</p> <p>Unmet support needs DLAs could address</p> <p>Program recommendations</p> <p>Barriers to working as a DLA</p> <p>DLA and healthcare personnel interaction</p>	Four focus groups and four individual interviews	<p>N = 23 focus group participants</p> <p>N = 4 interviews Springfield, MA, US. Population 150,000</p> <p>N = 20 pregnant women or parent with a child under age 2</p> <p>N = 5 people who provided CLS during a birth in the previous 2 years</p> <p>N = 4 women who had received DLA training</p>	<p>IV = CLS companion or Doula care</p> <p>DV = patient and caregiver perspectives</p>	<p>Pregnant women who gave birth in previous two years</p> <p>CLS person provided support previous two years</p> <p>Women recently received DLA training</p>	Conventional qualitative content analysis	DLAs help address gaps/ negative experiences of healthcare system through continuity of care and advocacy	<p>Level of evidence – VI</p> <p>Strength – Perception of IW, CLS persons, doulas, and community members</p> <p>Limitations – small sample size, focus groups (subjective reporting)</p> <p>Risk of harm – None</p> <p>Feasibility – High</p> <p>Conclusion – DLA care as part of the interprofessional maternity care team improves maternal experience and is positive for CLS persons, beneficial to maternal community</p>

2. Bohren et al. (2017) Continuous support for women during childbirth (Review)	None	Systematic Review of RCTs	27 Trials, 17 countries, 15,858 women, wide variety of settings	IV – CLS DV – IW DV 2 – Babies of IW	Primary Outcomes: SVD, negative feeling of childbirth, postpartum depression Secondary Outcomes: PM, regional anesthesia, synthetic oxytocin, length of labor, severe labor pain, CS, instrumental birth	Fixed-effect meta-analysis	IW with CLS more likely to have SVD (21 trials, 14,369 women, 95% confidence interval (CI) 1.04 to 1.12 Less likely to have a CS (24 trials, 15,347 women, 95% CI 0.64 to 0.88)	Level I Strength: Sample population and setting Limitation: Risk of bias Risk of harm: None Feasibility - High Conclusion: CLS, specifically with a doula decreases CS rates
3. Bohren et al. (2019) Perceptions and Experiences of Labour Companionship: A Qualitative Evidence Synthesis (Review)	Modified SURE framework	Systematic Review of Qualitative Studies	51 studies Perceptions from women, healthcare providers, male partners, DLAs	IV – CLS DV- Perceptions of support by mother DV II - Perceptions of support by family members DV III - Perceptions of support by health workers DV IV – CLS and rate of CS	Factors affecting implementation (of CLS as related to the health worker/environment) Roles that companions play Experiences of companionship (women, male partner, doula)	Thematic synthesis Logical model to link intervention to health and well-being Matrix model to compare important CLS characteristics to interventions	Identified 4 roles of CLS based on experiences Identification of barriers to implementing CLS during childbirth to support positive outcomes	Level of evidence - IV Strength – Sample size and perceptions of all stakeholders involved in labor. Limitation - Methodological limitations of included studies and relevance of the data to the study. Risk of harm – None Feasibility – High Conclusion- Research, education, and training in maternal care are needed for successful implementation of CLS.

4. Chen et al. (2018) Non-clinical Interventions for Reducing Unnecessary Caesarean Section (Review)	None	Systematic review of RCTs	N = 29 studies	IV = non-clinical intervention DV = CS rate	Classification of non-clinical interventions Primary and secondary outcome measures (CS) Interventions targeted at women or families	Effect of interventions using risk ratios, odds ratios, or risk differences Mean difference measure for continuous outcomes	Moderate – certainty suggests little or no difference in CS rates between DLA care and standard care	Level of evidence – I Strengths: Number of studies reflect global CS trends Limitation: Factors beyond non-clinical intervention impact CS rates and numerous sources of data collection. Risk of harm: None Feasibility - High Conclusion: Monitoring of CS rates helps to develop effective organizational health practice, provider education, and perinatal policy.
5. da Matta Machado Fernandes et al. (2021) Brazilian Women's Use of Evidence-Based Practices in Childbirth after Participating in the Senses of Birth Intervention: A Mixed-Methods Study	The Senses of Birth (SoB) intervention and the Theory of Planned Behavior. If Brazilian women have access to intrapartum EBP CS rates will decrease and low-birth weight births will decrease.	Mixed-method analysis Non-randomized controlled trial	N=1,287 total pregnant women took post-test survey N=555 women included in quantitative study N=258 included in qualitative study	IV - SoB intervention IV2- Intrapartum EBP which includes 2) one-to-one continuous care DV- normal birth DV II- use of EBP DV III- reduced CS	Analysis of association between social-demographic characteristic, normal birth, CS, and women's behavior	Quantitative: Chi-square and ANOVA tests. Qualitative: open coding analytic process	CS rate nearly identical between DLA/CLS and usual care (12.5% w/ DLA/CLS and 12.4% w/ usual care). No CLS were 24.2% more likely to experience CS No DLA were 39.5% more likely to experience CS.	Level of evidence - III Strength – patient perception, voice of post-partum women after intervention is powerful. Limitation – survey of pre, intra, and post-partum was answered at a single point in time. Risk of harm – None Feasibility – High Conclusion – Patient perceptions and patient ability to advocate for EBP in maternity care is lacking. CLS and DLA promote decreased CS rates.
6. Edmonds et al. (2017). Variation in Cesarean Birth Rates by Labor and Delivery Nurses	None	Retrospective cohort study	N = 3031 births attended by 72 RNs Hospital Boston, MA, USA 2013 – 2015	IV = L&D RN DV = CS rates	72 L&D RNs, Single hospital (54 FTE, 12-hour shifts, permanent staff) Only births nulliparous, single, vertex fetuses at term	Data extracted from electronic health records entered by obstetric providers CS rates calculated for each RN present > 15 eligible births	Distribution of individual RN CS rates ranged from 8.3% to 48% with a mean of 26%	Level of evidence – IV Strength: novel study of effects of individual nurse on CS rates (prior studies have focused on providers only) Limitations: small sample size Risk of harm: None Feasibility: High Conclusion: Multiple factors impact CS rates; however, this study demonstrates perinatal nurses may have significant impact on rate of CS.

<p>7. Falconi, A. M., et al., (2022) Doula Care Across the Maternity Continuum and Impact on Maternal Health: Evaluation of Doula Programs Across Three States Using Propensity Score Matching</p>	None	Cohort Study Observational case-controlled study Years 2014-2020	<p>N = 340,010 at least one-day funded Medicaid</p> <p>N= 330 at least one-day funded Medicaid with DLA care California, Florida, and Northeastern state in U.S.</p>	<p>IV – DLA support: four prenatal visits, CLS, and up to/ including four postpartum visits</p> <p>DV I to VII – Maternal health outcomes</p>	HealthCore Integrated Research Database, Centers for Medicaid and Medicare ICD-9, ICD-10, CPT, and HCPCS codes	Multivariate logistic regression models with maternal health as the dependent outcome and DLA care as the primary exposure Propensity score matching	Reduction in CS and Preterm birth in women who received DLA care despite trimester care began; improved behavioral health outcomes; no significant difference between white and black women in outcomes with DLA care	<p>Level of evidence - III</p> <p>Strength - sample size, number of dependent variables, state funded DLA care through Medicaid</p> <p>Limitations – ratio of Medicaid funded births with DLA in CA and Northeastern state versus Medicaid funded births with DLA care in Florida (Florida higher)</p> <p>Risk of harm – none</p> <p>Feasibility – High</p> <p>Conclusion – DLA care across maternity care continuum decreases CS rates</p>
<p>8. Fortier, J. H. & Godwin M. (2015) Doula support compared with standard care Meta-analysis of the effects on the rate of medical interventions during labour for low-risk women delivering at term</p>	None	Meta-analysis of RCT N=10 studies	<p>N = 2019 IW</p> <p>N = 169 DLA & CS</p> <p>N = 222 standard care & CS All trials from standard hospital setting</p>	<p>IV = CS</p> <p>DV = DLA care</p> <p>DVII = standard care</p>	RCTs evaluated use of DLA for medical interventions during IW Outcomes evaluated: CS, instrumental vaginal delivery, use of oxytocin, and epidural anesthesia	Random effects model and sensitivity analysis for rating quality of articles	CS (odds ratio 0.68, 95% CI 0.47 to 0.99, P = .04) Standard care (odds ratio 0.54, 95% CI 0.35 to 0.90, P = .02)	<p>Level of evidence – I</p> <p>Strengths – Size of sample and review of RCTs</p> <p>Limitations – ineligibility of studies (over 12,000) were originally reviewed due to unclear classification of non-clinical interventions.</p> <p>Risk of harm: None</p> <p>Feasibility – High</p> <p>Conclusion – although CLS did not clearly demonstrate a decrease in CS, methods employed by doulas and RNs like relaxation technique, patient education, and midwifery care did decrease CS</p>

9. Howard & Low (2020). It's Time to Dial Up Doula Care	None	Expert Opinion/Narrative Review	15 sources of evidence including government and national organizations on maternity care	IV – DLA care DV – Maternity cost DV II – Maternal outcomes	Current DLA models: Evidence-based birth, education, certification, and qualifications	Literature review	Expanding doula care has potential to decrease expenditures, decrease CS rates and medical interventions overall	Level VI Strengths – Concise table (p.6) outlining benefits of doula care with narrative review of evidence Limitations – Opinion based on evidence Risk of harm – none Feasibility – High Conclusion – This is a clear and concise article with strong references that can be easily shared through an educational format
10. Kozhimannil et al. (2016) Modeling the Cost-Effectiveness of Doula Care Associated with Reductions in Preterm Birth and Cesarean Delivery.	None	Cohort Study Observational case-controlled study Years 2010-2014	N = 65,147 Medicaid-funded singleton births N = 1,935 Medicaid-funded singleton births with DLA Control group and intervention group from same regional location/hospitals in upper midwestern US.	IV – DLA care DV – Rate of Medicaid funded preterm birth DV 2- Rate of Medicaid funded CS DV 3 – Cost-effectiveness of reduction of preterm birth and CS	DLA program data indicates preterm birth <37 weeks Nationwide Inpatient Sample (NIS) CS rates were identified by delivery codes indicating delivery mode Cost information was derived from published Medicaid costs	Rate differences evaluated by t-tests. Regression analysis for association	Medicaid-funded deliveries by CS rate = 34.2%. Medicaid-funded deliveries with DLA support CS = 20.4%.	Level of evidence - III Strength - Sample size, usual care is defined. Weakness - Doula care was provided in urban settings only. Risk of harm – None Feasibility – High Conclusion – DLA care in hospital decreases CS rates and Medicaid costs.
11. Lunda et al. (2018). Women's Experiences of Continuous Support During Childbirth: A Meta-Analysis	None	Meta-synthesis of qualitative studies	12 studies related to IW views, experiences, perceptions of CLS N = 651 IW 2005 – 2016 Midwife-led units, hospitals, birth centers	IV = CLS DV = IW experiences	7 studies – IW perceptions of CLS 2 studies – IW experience with CLS provided by husband. Themes: foreign born IW experience with DLA support IW perceptions with CLS public teaching hospitals	Thematic synthesis according to Thomas and Hardin's guidelines	Antenatal / perinatal education should be included in healthcare policy and provided to healthcare professionals. CLS persons provide a feasible and effective CLS to address nurse midwifery shortages.	Level of evidence – V Strengths – Multidimensional benefits of CLS were addressed. Quotes from IW women. Implications for healthcare organizations to implement CLS through education and policy. Limitations – no studies from South Africa met the criteria for inclusion. Most studies were from developed countries. Risk of harm – none Feasibility – High Conclusion: CLS during childbirth was important to women and healthcare institutions should include CLS in education and policy development.

12. Mum (2019) Mothering the Mother: An Educational Program for Nurse-Provided Continuous Labor Support	Watson's Theory of Caring and Knowles' Adult Learner Theory	Well-designed controlled trial without randomization	23 perinatal nurses on a usual care unit	IV – Education provided. DV – Knowledge/experience gained by perinatal nurses regarding CLS	Benner's Stages of Clinical Competence Pre/Post test	Pre/post test data t-test p value	Post test data showed an increase in knowledge about the scope of practice of a doula, positive effects of CLS provided by nurses, positive effects of CLS to decrease obstetrical intervention, specifically rate of CS	Level of Evidence – III Strength – EBP educational intervention Limitation – Sample size 23 perinatal nurses in one hospital Risk of harm – None Feasibility – High Conclusion – Doula care and CLS education implementation led to improved understanding and application of CLS in traditional hospital setting
13. Stjernholm et al. (2021) Continuous Support Promotes Obstetric Labor Progress and Vaginal Delivery in Primiparous Women-A Randomized Controlled Study	None	RCT	N =6,000 primiparous women who delivered at Karolinska University Hospital Solna in Sweden 2015-2017	IV – CLS by a midwife DVI – Duration of active labor DVII – Delivery mode	Clinical exam - labor progress Visual Analog Scale – Birth Satisfaction Maternal venous samples - for cortisol levels Neonatal asphyxia measured by APGAR score <7 at 5 min	Power analysis U-test General linear model	Duration of active labor shorter with CLS (3.9h v. 5.7h) 95% CI CS was less compared to usual care (3% v. 14%) Presence of midwife or nurse in room during intrapartum period was almost equal (83% v. 84%)	Level of Evidence – I Strengths – large sample group that received care in hospital with standard obstetrical care. Limitations – midwives and nurses did not receive standardized training. Risk of harm: None Conclusion – CLS had direct effect on length of labor and CS rates. Feasibility – High
14. Thurston, et al. (2019). Improving Birth and Breastfeeding Outcomes Among Low Resource Women in Alabama by Including Doulas in the Interprofessional Care Team	None	Cohort Study Observational case-controlled study Years 2013-2014	N = 3, 782 Medicaid-funded singleton births N = 120 Medicaid funded singleton births with DLA Control group and intervention group from same regional location/hospitals in central Alabama, U.S.	IV – DLA support/CLS DV – CS DV II - BF	Outcomes assessed: incidence of birth by induction, preterm, low birth weight infants, epidural anesthesia, CS, BF initiation in hospital. Separate analysis comparing black mothers to white mothers for birth outcomes	Hypotheses were tested using odds ratios (OR) and confidence intervals	Medicaid funded (no DLA); (Black mother): more likely to give birth by CS (OR=1.4, 95% 0.7-2.8; p=0.31) Medicaid funded (no DLA); (White mother): more likely to give birth by CS (OR= 2.7, 95% 1.3-6.6; p<0.01)	Level of evidence - IV Strength - sample size, comparison between Black and White women impact of DLA care on birth outcomes. Limitation – study reviewed data over one year only Risk of harm – None Feasibility – High Conclusion – DLA care as part of the interprofessional maternity care team improves maternal outcomes including decreased rate CS and may be key to addressing maternal health disparities.

Legend: BF – Breastfeeding; CI – Confidence Interval; CLS – Continuous Labor Support; Cost – Cost of Maternal/Newborn Care; CS – Cesarean Section; DLA – Doula; EBP – Evidence-based Practice; IW-Intrapartum women; Length NS – Length Newborn Stay; PM – Pain Management; Preterm – Preterm Birth; RCTs – Randomized Controlled Trials; SBE – Satisfaction with Birth Experience; SoB – Senses of Birth; SVB – Spontaneous Vaginal Birth

Appendix B

Process Map for Doula Care Education Implementation

Phase I: Planning and Team Development

Month 1-2

- Identify stakeholders with consideration of patient preference
- Obtain quality data and share with stakeholders
- Obtain permissions and approvals for project implementation
- Develop project team
- Examine understanding of role of a professional doula and doula care
- Examine current L&D education and understanding of continuous labor support (CLS) methods

Phase II: Design and Implement Interprofessional Learning Intervention

Month 3-4

- Design evidence-based interprofessional learning intervention appropriate for organization
- Design lecture presentation that compares current perinatal CLS curriculum to doula care CLS curriculum
- Gather necessary materials, equipment, and supplies for active learning stations
- Encourage perinatal nurses to participate in learning intervention using adult learning principles
- Collaborate with professional doulas to implement learning. Video-record learning for nurses unable to participate in-person.
- Provide resources to reference during shift
- Provide date and time of project debrief

Phase III: Evaluation

Month 5-10

- Debrief with perinatal nurse participants
- Provide pre- and post-test survey of learning
- Examine cesarean section rates of patients cared for by perinatal nurse participants through chart audits
- Obtain feedback from perinatal nurse participants on effectiveness of learning and experience collaborating with professional doulas
- Obtain feedback from professional doulas on effectiveness of learning and experience collaborating with perinatal nurses
- Consider impact on patient outcomes, including ethical impact and health disparities

Phase IV: Dissemination and Future Practice Change

Month 11-12

- Compile qualitative and quantitative results of project implementation into structured, clear format
- Disseminate results to all stakeholders and request feedback and recommendations for future practice change
- Disseminate project to local, regional, and national nursing groups and organizations
- Apply best practice changes to promote continued improvement in patient outcomes

Appendix C

Interprofessional Learning Intervention Survey

Pre-and Post-ILI Questions

Question	Answer	Pretest(%)	Posttest(%)	Results(%)
Nurses caring for intrapartum women apply continuous labor support methods to decrease medical intervention.	No Yes Unknown			
Professional doulas and L&D nurses provide similar forms of continuous labor support.	No Yes Unknown			
Professional doulas only attend vaginal deliveries.	No Yes Unknown			
Professional doulas can collect vital signs and monitor fetal heart tones.	No Yes Unknown			
Continuous labor support methods employed by professional doulas are for out-of- hospital care settings only.	No Yes Unknown			
Women who are receiving pain medications/epidurals do not benefit from the services of a professional doula.	No Yes Unknown			
AWHONN supports organizational change that encourages nurses to provide continuous labor support to every patient.	No Yes Unknown			
Nurse-provided continuous labor support is integral to a woman's perception of the birth experience.	No Yes Unknown			
L&D nurses and doulas collaborate well in my department.	No Yes Unknown			
Continuous labor support has little to no impact on whether a woman will undergo a cesarean section.	No Yes Unknown			
Cesarean section delivery is usually safe and efforts to decrease rates of cesarean section in my organization are not necessary.	No Yes Unknown			
Minorities and low-income women are at a higher risk of experiencing birth complications.	No Yes Unknown			
The cost of cesarean section delivery is about the same as the cost of vaginal delivery.	No Yes			

	Unknown
L&D nurses have enough time to provide continuous labor support.	No Yes Unknown
The providers that I work with promote spontaneous vaginal delivery.	No Yes Unknown
A woman's birth experience impacts how the woman feels about herself and her ability to care for her newborn.	No Yes Unknown

Note: Adapted from Table 3, Pretest/Posttest Results After Educational Intervention (Murn, 2019, p. 207).

Appendix D

Evaluation: Pre- and Post- Intervention Data

<i>Data</i>	Pre-intervention	Post-intervention	Comparative Result
Total Number of Births in 12-month Period			
Total Number of Births Attended by Doulas			
Total Number of Perinatal Nurses			
Total Number of In-person Interprofessional Learning Intervention Nurse Participants			
Total Number of Interprofessional Learning Intervention Nurse Participants Who Viewed Video-recorded Session Only			
Total Number of Day Shift Interprofessional Learning Intervention Nurse Participants			
Total Number of Night Shift Interprofessional Learning Intervention Nurse Participants			
Cesarean Section Rate			
Rate of Cesarean Section in Relation to Individual Interprofessional Learning Intervention Nurse Participant			
Patient Satisfaction Rate			
Total Number of Minority Patients			
Total Number of Low-income Patients			
Total Number of Rural Patients			
Rate of Instrumental Delivery			
Use of Pharmacological Methods of Pain Management			
Use of Non-pharmacological Methods of Pain Management			
Medicaid Funded Birth			
Private Insurance Funded Birth			
Cash Pay Funded Birth			
Cost of Cesarean Section			
Cost of Vaginal Delivery			