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**Educating Nursing Staff on Evidence-Based Maternal Positioning to Promote Fetal Descent
During the First and Second Stages of Labor**

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NURS 653: Internship

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Abstract

The aim of this project was to determine whether educating Labor and Delivery (L&D) nurses on maternal positions would increase their confidence their implementation to reduce the risk of cesarean sections (c-sections, CS) and progress the first and second stages of labor. Previous studies have shown that upright positions reduce the length of both labor stages by promoting more effective uterine contractions. Although L&D nurses may be familiar with the labor positions, they may not have confidence in their utilization as the education and practice of the birthing positions is not standardized. At a Bay Area county hospital, L&D nurses were given a pre-education survey to assess their current knowledge and confidence level in implementing the labor positions. After identifying gaps in knowledge, education on evidence-based maternal positions was provided using in-person training, educational handouts, and an instructional video recording. A post-education survey revealed a significant improvement in the nurses' knowledge and confidence level in the application of the labor positions. Despite the limited sample size, the project was successful in demonstrating the effectiveness of staff education to increase nursing knowledge and confidence in the use of maternal positionings that promote fetal descent.

Keywords: labor positions, first stage, second stage, fetal descent, progression of labor, staff education, nurse confidence

Introduction

Cesarean section (CS) is the most common surgery in the United States, with over a million cesarean section births (CB) performed annually (Sakai-Bizmark et al., 2021). In 2020, the Center for Disease Control and Prevention (CDC) reported an average total CS rate of 31.8%, an alarming increase compared to the average total CS of 5.5% in 1970 (*"Births in the United States, 2020,"* 2021). Although cesarean sections are indicated in life-saving emergencies, unnecessary cesarean deliveries can increase the likelihood of maternal morbidities (i.e., hemorrhage and placenta accreta) and newborn complications (i.e., infection and lower breastfeeding rates) (Kozhimannil et al., 2014). In addition, unnecessary cesarean sections result in a substantial financial burden for healthcare insurers, as the average CS procedure costs 50% more than vaginal births (*"Reducing Unnecessary C-Sections in California,"* 2021). In response to this, the World Health Organization (WHO) has established their average total CS rate goal at 10-15% (*"WHO Statement on Caesarean Section Rates,"* 2015). In low-risk mothers, a population with an increased risk of c-sections (Vadnais et al., 2017), the U.S. Department of Health and Human Services has set their ideal average CS rate at 23.6% (*"Reduce cesarean births among low-risk women with no prior births - MICH-06,"* 2022). New policies must be implemented to effect change in this ever-growing trend.

A proposed low-cost method to reduce CS rates is the practice of mobile or upright labor positions. Lawrence et al. (2013) had shown that women placed in mobile or upright positions had a shortened duration of the first stage of labor and were less likely to undergo a CS. Studies have illustrated that implementing these labor positions helped advance the second stage of labor (Huang et al., 2019). In addition, the utilization of upright positions has been associated with reduced pain and fewer labor interventions (Ondeck, 2014). A barrier that prevents the

implementation of birthing positions that aid in fetal descent is the absence of standardized evidence-based maternal positioning education, resulting in the lack of knowledge and confidence in its practice. Educational interventions have been indicated to improve evidence-based practice (EBP) skills and increase both knowledge and confidence in conducting EBP (Sapri et al., 2022). By encouraging the standardization of EBP maternal positions, L&D nurses can strengthen their knowledge and confidence to practice labor positions that improve the well-being of mother and baby.

Problem Description

In this Bay Area county hospital, there are 79 L&D nurses that work between the eight-hour AM, PM, and nocturnal shifts. There is a wide range of L&D experience among the unit nurses, from new graduate nursing to over 25 years of maternal nursing practice. The differing years of experience among the nurses in the maternity unit contributes to the inconsistent use of EBP labor positions. Therefore, each L&D nurse takes it upon themselves to implement patient labor positions that they believe to be the most effective based on past experiences. This limits the nurses in utilizing the latest evidence-based supported positions that best promote fetal descent and progress labor. The lack of standardized education and training in maternal positioning also results in insufficient knowledge and a variation in the nurses' level of confidence to implement the birthing positions. It is critical to standardize maternal positioning education in this L&D unit to reduce unsafe labor practices that prolong labor times and increase the risk of cesarean sections.

Available Knowledge

PICO Question

For L&D nurses at a Bay Area county hospital, does providing nursing education on labor positions during the first and second stages of labor, compared to no nursing education provided, affect nursing knowledge and confidence level in utilizing maternal positions that facilitate fetal descent and advance labor?

Search Strategy

This PICO question was investigated using the University of San Francisco Gleason Library website to access CINAHL, Pubmed, and Google Scholar. The following keywords were used in the systematic search: *labor positions, first stage, second stage, fetal descent, progression of labor, staff education, and nurse confidence*. A literature review has been composed of five studies sourced from peer-reviewed, scholarly articles. Due to the limited publications found in searches between January 2018 and January 2023, the year of publication included in the literature review was extended to January 2010. The five selected publications were then appraised using the Johns Hopkins Nursing Evidence-Based Practice Research Evidence Appraisal Tool (Johns Hopkins Nursing, 2022).

Literature Synthesis

Evidence-based research promotes excellence in the nursing profession through education on the latest data that promotes the safest and most effective nursing practices. Five evidence-based practice (EBP) articles have been examined to provide support for maternal positions implemented during the first and second stages of labor that encourage fetal descent and labor progression.

The practice of birthing positions has been shown to have beneficial labor outcomes. In a study led by Zwelling (2010), a systematic review of 39 randomized control trials over a 30-year timeframe revealed that labor positions reduced labor pains, augmented maternal-fetal circulation, improved uterine contraction quality, shortened the duration of labor, promoted fetal descent, reduced trauma to the perineum, and resulted in less episiotomies. Many of the EBP articles focused on flexible sacrum positions, including upright positions (i.e., standing, kneeling, hands and knees, squatting/assisted squat, and lunging) and their positive effects on the birthing experience. Edqvist et al. (2016) conducted a population-based prospective cohort study between 2008 and 2013 on 2,992 laboring women from four Nordic countries intending to have planned home births. They noted that women placed in flexible sacrum positions had less invasive birthing interventions as they experienced fewer episiotomies (Edqvist et al., 2016).

Lawrence et al. (2013) and Ondeck (2014) each performed systematic reviews of 25 randomized and quasirandomized trials comprising 5,218 laboring women that were placed in the upright or recumbent positions during the first stage of labor and both noted that women in the upright position experienced a shorter duration of labor, were less likely to have an epidural due to less reported pain, and were less likely to have a c-section compared to those placed in the recumbent position. Kibuka et al. (2021) provide evidence in favor of upright birthing positions implemented in both the first and second stages of labor. In their systematic review and meta-analysis of 18,697 laboring women from 65 randomized and quasirandomized trials across three Cochrane systematic reviews, they illustrated that women with no epidural analgesia experienced shorter first and second stages of labor when placed in the upright position (Kibuka et al., 2021). For laboring women with no epidural analgesia and positioned upright during the first stage of labor, there were fewer cesarean births, epidural use, and admissions to the neonatal intensive

care unit seen (Kibuka et al., 2021). Women in the second stage of labor placed in the upright position with no epidural analgesia also had fewer assisted vaginal births (Kibuka et al., 2021). A literature synthesis created from these five research articles (see Appendix B) provided the EBP foundation to carry out this quality improvement project.

Rationale

This L&D change project is modeled after Lewin's change theory. This change model is composed of three stages: unfreezing, change, and refreezing model ("Lewin's Change Theory," 2020). The unfreezing stage recognizes the need for change by bringing awareness to labor positions that, when practiced during the first two stages of labor, promote positive birthing outcomes such as shorter first and second stages of labor, fewer labor interventions, and reduced cesarean sections. This is accomplished by providing education rooted in evidence-based research that substantiates the practice of these maternal positions.

The second stage is the change stage in which a new process is introduced to address the knowledge gap that hinders the practice of maternal positioning effective in encouraging fetal descent and labor progression. In this stage, providing in-person training sessions and educational materials (i.e., handouts and video demonstrations) on the labor positions closes the gap in knowledge and increases staff confidence. The refreezing stage, the last stage in Lewin's change model, enforces positive and successful change. When the benefits of implementing the labor positions are observed, we refreeze this change by standardizing the new education measures that foster the utilization of these birthing positions.

Specific Project Aim

The specific aim of this quality improvement project is to provide education to L&D nurses to increase their knowledge and confidence in practicing maternal positions during the

first and second stages of labor. This educational project has been conducted with the goal of standardizing the use of evidence-based labor positions during the first two stages of labor to aid in fetal descent and labor progression. The birthing position educational tools include in-person training, flyers, and an instructional video.

Context

Microsystem Assessment

The labor and delivery microsystem can be described by the five Ps: purpose, patients, professionals, processes, and patterns (Godfrey et al., 2005).

Purpose

The purpose of the L&D unit is to provide safe, high-quality, compassionate, and culturally inclusive obstetric care.

Patients

The L&D unit consists of laboring patients from various ethnic and cultural backgrounds. Many of their patients fall under the federal poverty line and have high-risk pregnancies.

Professionals

The key stakeholders in labor and delivery include the professional staff that deal with direct patient care or have administrative roles in the unit. The members that fall into these categories include registered nurses, obstetricians/gynecologists (OB/GYNs), nurse practitioners, certified nurse midwives, doulas, anesthesiologists, neonatologists, charge nurses, nurse managers, and unit directors.

Processes

The processes that are key to the unit's functionality include pre-shift meetings, handoff reporting, uterine activity monitoring, electronic fetal monitoring, maternal monitoring, use of an

electronic medical record (EMR) system, L&D admission, scheduling, triaging, and transferring patients to the postpartum unit.

Patterns

The patterns that exist in the L&D unit include pre-shift meetings, handoff reporting, debriefs, monthly team meetings, interdisciplinary communication, and patient documentation via EMR system.

Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

A SWOT Analysis (see Appendix C) recognizes the strengths, weaknesses, opportunities, and threats involved in executing this quality improvement project. The greatest strengths found include the low-cost educational tools required for the change project and the staff developer's enthusiasm to provide the resources necessary to encourage EBP among the Labor and Delivery nurses in the unit. A weakness that limits the ability to ensure that education is administered to all the L&D nurses is the restricted timeframe to implement the project. The opportunities offered by this project include strengthening the nurses' knowledge and confidence level in practicing labor positions that improve the well-being of both mother and baby by promoting fetal descent, shortening the duration of the first and second stages of labor, and reducing cesarean section risk. The most critical threat is the difficulty in scheduling training sessions for the L&D nurses due to inconsistent work schedules and demanding workloads.

Cost-Benefit Analysis

A cost-benefit analysis is vital in weighing the benefits of the project in comparison to its costs. The hospital was not responsible for any costs associated with the project as students created educational tools and directed training sessions as required by their internship course. Moreover, the L&D unit was already equipped with the assistive birthing devices necessary to

demonstrate the maternal positions, such as peanut balls, chairs, and birthing chairs. Educational handouts and an educational video recording will aid in the standardization of the labor positions while keeping project costs to a minimum.

Intervention

The quality improvement project was conducted over a 15-week timeframe, from late January 2023 to mid-May 2023 (see Appendix D). The initial phase included conducting the literature review and research, meeting with the L&D staff developer, creating the educational materials (i.e., flyers and educational video), creating the pre- and post-educational surveys, and conducting a microsystem assessment. Next, the pre-educational survey (see Appendix E) was administered to assess the L&D nurses' knowledge and confidence in practicing nine labor positions, four maternal positions for the first stage of labor (kneeling, lunging, sitting, and backwards sitting [on a chair]) and five maternal positions for the second stage of labor (hands and knees, assisted squat, sitting, side-lying with the peanut ball, and throne/semi-sitting). Nurses were given the option to complete the pre-educational surveys using a QR code or have the survey distributors collect their responses for them. The pre-educational survey consisted of 13 questions, using free-response and Likert scale questions to collect qualitative and quantitative data, respectively. The pre-educational survey questions also assessed nurses' confidence level when utilizing assistive birthing devices (i.e., peanut balls, squat bars, sheet pulling, birthing chairs, and birthing balls) as well as their confidence in positioning epidural and bariatric patients.

Results from the pre-educational surveys were used to create personalized in-person training sessions that demonstrated the labor positions, provided evidence-based research to support its practice, explained how to utilize certain assistive birthing devices, and explained

proper positionings for epidural and bariatric patients. At the end of each teaching session, the L&D nurses were given an educational handout (see Appendix F) to enhance memory consolidation of the learning content. Each educational session culminated with a post-educational survey (see Appendix G) containing six free-response and Likert scale questions to determine whether an improvement was seen in the knowledge and confidence levels in the implementation of labor positions for both labor stages. Like the pre-educational survey, nurses had the choice to complete the post-educational survey themselves using a QR code or have the educators leading the training sessions document their responses for them. Copies of the educational tools were given to the L&D unit staff developer to administer to the nurses unavailable or absent for training, and to help standardize the education for future training sessions.

Measures

The project measures the L&D nurses' knowledge and confidence level in the labor positions before and after the training sessions using the Likert scale. The Likert scale was used to test nurses' confidence in placing their patients in each of the nine maternal positions, positioning epidural and bariatric patients, and using the assistive birthing devices. The Likert scale gave the nurses four options to rate their confidence level: "1-Not confident at all", "2-Somewhat confident", "3-Confident" and "4-Very confident." The pre-educational surveys also collected information on the nurses' highest education level, the preferred positionings they practice on their patients for the first and second stages of labor, and the barriers that impacted their confidence in implementing the birthing positions. In addition to the Likert scale questions, the post-educational surveys provided an opportunity for nurses to offer their recommendations to improve the project.

Results

Pre- and post-educational surveys were administered to the L&D nurses throughout the AM, PM, and NOC shifts to assess their knowledge and confidence levels in nine evidence-based labor positions shown to encourage fetal descent and labor progression. Out of the 79 L&D nurses in the unit, 43 nurses (54% of the L&D registered nursing team) completed the pre-educational surveys, received the educational training, and completed the post-educational surveys. Using Likert scale questions, percentage differences in the pre- and post-educational confidence levels in the nine labor positions practiced during the first and second stages of labor were calculated and are exhibited in Figure 1 and Figure 2, respectively. The greatest improvements in the “4-Very confident” levels post-education are seen in the kneeling position (74%) and lunging position (93%) for the first stage of labor as well as the assisted squat position (131%) for the second stage of labor.

Figure 1. Post-Education Survey Confidence Improvement in the First Stage of Labor

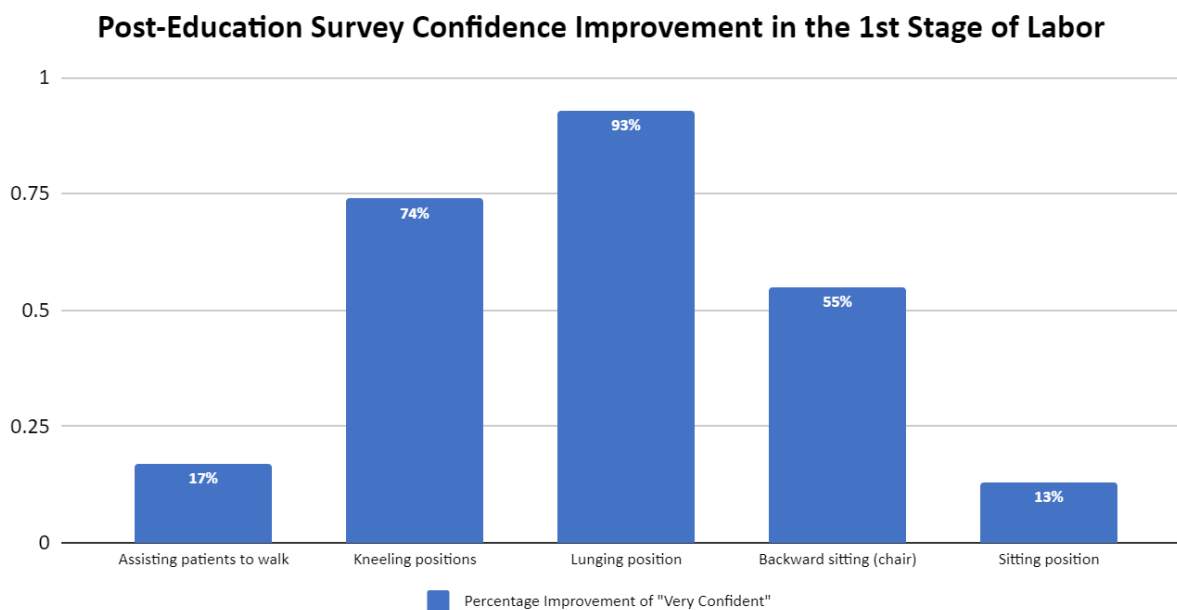
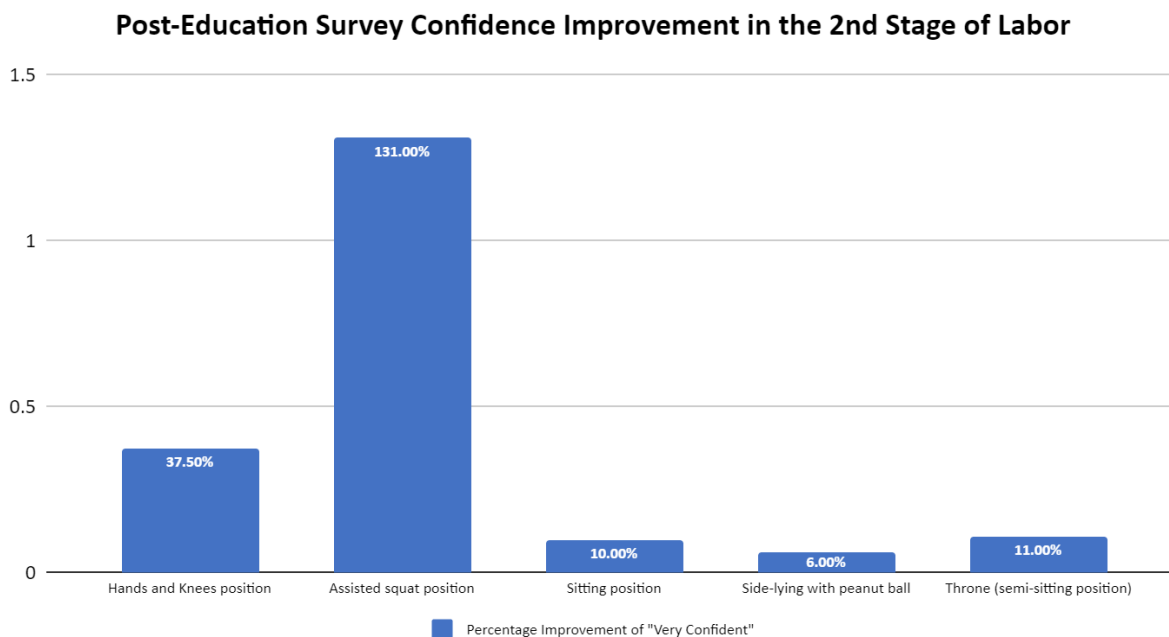


Figure 2. Post-Education Survey Confidence Improvement in the Second Stage of Labor



Discussion

The percentage differences between the pre- and post-educational survey confidence levels convey that education given to L&D nurses on evidence-based labor positions increases knowledge and confidence levels in their implementation. The unit's staff developer played a crucial role in the project's success by encouraging the nurses to participate in the project and by sharing the educational resources with the nursing team. With their strong desire to educate nurses and improve both maternal and newborn outcomes, L&D staff developers and nurse educators will be key to encouraging the standardization of the maternal positioning education.

There were a few significant limitations observed in this project. Due to the lack of time for the nurses to participate in the project, nurses were in a rush to complete the pre- and post-educational surveys and were at times distracted during the training sessions. If there was time allocated in their schedules or financial incentives for participation, more nurses may have been

included in the study. Another limitation was that nurses expressed that many of the labor positions were not practical for their patients with a high body mass index. More evidence-based birth positions should be included in the educational training to account for this patient population. Lastly, with the limited timeframe for this project, other vital measures were not included, such as the impact that the educational training had on the hospital's number of cesarean births, labor duration, and birthing experiences. These additional measures would serve as an even greater motivation for the hospital to standardize the educational training.

Conclusion

The continuing rise in cesarean section rates has been a persistent challenge for almost 60 years ("*Births in the United States, 2020*," 2021). Standardizing education on evidence-based birthing positions that aid in fetal descent and labor progression would be a step forward to reducing c-section rates. This project demonstrates that evidence-based education increases staff knowledge and confidence in labor positions that promote safer birthing practices. Positive outcomes of the quality improvement change project would be instrumental in influencing change in other maternity facilities to improve the well-being and quality of care for mothers and their newborns.

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APPENDIX A

Student Project Approval: Statement of Determination

Title of Project:

Educating Nursing Staff on Evidence-Based Maternal Positioning to Promote Fetal Descent During the First and Second Stages of Labor

Brief Description of Project:

This quality improvement project aims to increase nursing knowledge and confidence in practicing evidence-supported labor positions during the first and second stages of labor that promote fetal descent and labor progression. After the administration of pre-surveys, educational tools such as in-person training, educational handouts, and an instructional video are provided to fill knowledge gaps and improve confidence levels. Post-surveys are used to assess for strengthened nursing knowledge and confidence in the implementation of the birthing positions.


To qualify as an Evidence-based Change in Practice Project, rather than a Research Project, the criteria outlined in federal guidelines will be used:

<http://answers.hhs.gov/ohrp/categories/1569>

This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Students may proceed with implementation.

Comments:

Signature of Supervising Faculty Dr. Nicole Beamish (date) 5/25/2023

Signature of Student  (date) 05/12/2023

APPENDIX B

Literature Synthesis Table

Study	Design	Sample & Setting	Results	Evidence Rating
<p>Edqvist, M., Blix, E., Hegaard, H. K., Ólafsdóttir, O. Á., Hildingsson, I., Ingversen, K., & Lindgren, H. (2016). Perineal injuries and birth positions among 2992 women with a low risk pregnancy who opted for a homebirth. <i>BMC pregnancy and childbirth</i>, 16(1), 1-8. https://doi.org/10.1186/s12884-016-0990-0</p>	<p>Population-based prospective cohort study (2008-2013)</p>	<p>2,992 laboring women from four Nordic countries intending to have planned home births</p>	<p>Less episiotomies were seen in women placed in the flexible sacrum position.</p>	<p>Level III</p>
<p>Kibuka, M., Price, A., Onakpoya, I., Tierney, S., & Clarke, M. (2021). Evaluating the effects of maternal positions in childbirth: An overview of Cochrane Systematic Reviews. <i>European journal of midwifery</i>, 5, 57. https://doi.org/10.18332/ejm/142781</p>	<p>Systematic review and meta-analysis of randomized and quasirandomized trials</p>	<p>18,697 laboring women across a total of 65 trials within three Cochrane systematic reviews</p>	<p>Women with no epidural experienced shorter first and second stages of labor when placed in the upright position. Less cesarean sections (c-sections), use of an epidural, and admissions to the neonatal intensive care unit were seen in women placed in the upright position in the first stage of labor with no epidural. Women in the second stage of labor placed in the upright position with no epidural experienced less assisted vaginal births.</p>	<p>Level II</p>
<p>Lawrence, A., Lewis, L., Hofmeyr, G. J., & Styles, C. (2013). Maternal positions and mobility during first stage labour. <i>The Cochrane database of systematic reviews</i>, (8).</p>	<p>Systematic review of randomized and quasirandomized trials</p>	<p>5,218 women in the first stage of labor placed in the upright or recumbent positions across 25 studies. Women were placed in two groups for comparison:</p>	<p>Women experienced a shorter duration of labor, less pain, less likely to have an epidural, and less likely to have a c-section when placed in the upright position.</p>	<p>Level II</p>

		1) upright and ambulatory vs. recumbent and bed care & 2) upright and ambulatory vs. recumbent ad bed care (with epidural)		
<p>Ondeck, M. (2014). Healthy birth practice #2: walk, move around, and change positions throughout labor. <i>The Journal of perinatal education</i>, 23(4), 188–193. https://doi.org/10.1891/1058-1243.23.4.188</p>	Systematic review of randomized and quasirandomized trials	5,218 women across 25 studies placed in comparison groups: upright and ambulatory vs. recumbent	Women placed in the upright position during the first stage of labor had a shorter duration of labor, are less likely to have a c-section, are less likely to have an epidural, and report greater birthing experiences compared to women placed in the recumbent position.	Level V
<p>Zwelling, E. (2010). Overcoming the challenges: maternal movement and positioning to facilitate labor progress. MCN. <i>The American journal of maternal child nursing</i>, 35(2), 72–80. https://doi.org/10.1097/NMC.0b013e3181caeab3</p>	Systematic review of randomized control trials	Women in labor observed over a 30-year timeframe across 39 referenced studies	Practicing birthing positions has positive effects on labor, including reduced labor pains, augmented maternal-fetal circulation, improved uterine contraction quality, shorter duration of labor, promotion of fetal descent, reduced trauma to the perineum, and less episiotomies.	Level I

APPENDIX C

SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none">• Low-cost intervention for educational tools and space• Support from the staff developer• Relatively low time commitment• Government funding provided for quality improvement initiatives at a county hospital• Resources available to implement evidence-based quality improvement projects at a research and teaching hospital	<ul style="list-style-type: none">• Repositioning constraints due to need for continuous electronic fetal monitoring• Restricted timeframe to implement project and provide education• Limited assistive birthing devices
Opportunities	Threats
<ul style="list-style-type: none">• Strengthens nursing knowledge and confidence in implementing labor positions to improve wellbeing of mother and baby• Improves birthing outcomes by promoting fetal descent, shortening labor duration in first and second stages of labor, and reduces cesarean section risk• Contributes results to existing research	<ul style="list-style-type: none">• Insufficient research on high-risk obstetric patients• Difficult to schedule educational sessions with labor and delivery nurses due to demanding workloads

APPENDIX D

Gantt Chart

TASKS	START DATE	DUE DATE	DURATION	JANUARY				FEBRUARY				MARCH				APRIL				MAY			
				WEEK				WEEK				WEEK				WEEK				WEEK			
				1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
PLAN																							
Project Initiation Team Meeting	1/23/23	1/31/23	2																				
Literature Review and Research	2/1/23	2/18/23	5																				
DO																							
Survey Creation	2/19/23	3/1/23	3																				
Meeting with Staff Developer	3/1/23	3/1/23	1																				
Creation of Educational Handouts and Flyers	3/1/23	3/12/23	2																				
Microsystem Assessment	3/8/23	3/17/23	2																				
STUDY																							
Administer Pre-Survey	3/9/23	3/22/23	3																				
Implementation of Nurse Education	3/13/23	4/14/23	4																				
Birthing Positions Video Creation	4/16/23	4/21/23	1																				
ACT																							
Administer Post-Survey	4/14/23	4/21/23	2																				
Data Evaluation and Analysis	4/21/23	5/5/23	3																				
Present Results to Unit Staff and Staff Developer	5/8/23	5/12/23	1																				

APPENDIX E

Pre-Educational Survey

SCVMC Labor and Delivery Birth Positions Survey

You have been invited to participate in an evidence-based quality improvement project on birth positions in labor and delivery. This online survey should take about 5-10 minutes to complete. Participation is voluntary, and responses will be kept confidential.

* Indicates required question

1. What is your name? *

2. What is your education level (certificate, ADN, BSN, MSN etc.) *

3. What positions do you usually assist patients to during the FIRST stage of labor? *

4. STAGE 1 LABOR: Describe your confidence level for each position or activity: *

Mark only one oval per row.

	1 - Not confident at all	2 - Somewhat confident	3 - Confident	4 - Very confident
Assisting patients to walk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kneeling position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lunging position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Backwards sitting (on a chair)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. What positions do you usually assist patients to during the SECOND stage of labor? *

6. STAGE 2 LABOR: Describe your confidence level for each position or activity: *

Mark only one oval per row.

	1 - Not confident at all	2 - Somewhat confident	3 - Confident	4 - Very confident
Hands and knees position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assisted squat position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Side-lying with peanut ball	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Throne (Semi-sitting)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Please rate your confidence level when positioning the following patient types: *

Mark only one oval per row.

	1 - Not confident at all	2 - Somewhat confident	3 - Confident	4 - Very confident
Epidural patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bariatric patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Please rate your confidence level when using the following assistive devices: *

Mark only one oval per row.

	1 - Not confident at all	2 - Somewhat confident	3 - Confident	4 - Very confident
Peanut ball	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Squat bar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sheet pulling	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Birthing chair	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Birthing ball	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Are there specific positions that you would like to increase your confidence in?

10. What current barriers, if any, exist that prevent you from increasing your confidence in maternal positioning?

11. Prior to delivery and excluding vaginal exams, how often do you place the patient in lithotomy position? *

Mark only one oval.

- Less than 25% of the time
- 25-50% of the time
- 50-75% of the time
- More than 75% of the time

12. Are you familiar with flexible sacrum positions versus non-flexible sacrum positions, and their effects on fetal descent? *

Mark only one oval.

- Yes
- No

13. Have you received off-unit training on maternal positioning? (ie. Spinning babies class) *

Mark only one oval.

- Yes
- No

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APPENDIX F

Educational Handout

UNIVERSITY OF SAN FRANCISCO

Positions for 1st and 2nd Stages of Labor

Terminology

Upright Position:

Spine is over a 45 degree angle and vertical (Kibuka et al., 2021).



Flexible Sacrum Positions:

Birth positions that take body weight off of the sacrum (Edqvist et al., 2016). Promotes vaginal delivery and birth outcomes by allowing the pelvic outlet to expand more (Berta et al., 2019).

Non Flexible Sacrum Positions:

Birth positions that put body weight on the sacrum (Edqvist et al., 2016).



C-Curve (Spinal Flexion):

Curving the spine forward in flexion to better align the uterus with the pelvis and the fetal presenting part with the pelvic inlet (Zwelling, 2010).



References



Flexible Sacrum vs. Not Flexible Sacrum

Flexible Sacrum:

Upright positions

- Standing
- Kneeling
- Hands and knees
- Squatting/Assisted Squat
- Lunging

Side-lying

- Left and Right Lateral
- Sims/Modified Sims

Non-flexible sacrum:

- Supine
- Lithotomy
- Recumbent
- Semi Recumbent

Effects of frequent maternal position changes

- Shortens the duration of 1st and 2nd stages of labor
- Promotes progress of labor
 - Immobility decreases the baby's ability to engage into the pelvis, descend, rotate, and find the best fit.

Positions for 1st and 2nd Stages of Labor

STAGE 1

Epidural

Side-Lying /Lateral



Peanut Ball: less likely to result in a cesarean birth, shortens duration of 1st stage of labor.

Upright

Throne

No Epidural

Upright

Squatting (Assistive) Sitting



Kneeling



Ambulation



Lunging



Associated with shorter duration of 1st stage of labor and reduced cesarean births.

STAGE 2

Epidural

Upright

Sitting, Kneeling, Throne

Accelerates progress, facilitates stronger contractions, shortens duration of 2nd stage of labor.



(Throne with birthing seat)

These positions help the uterus contract stronger and more efficiently. Promotes optimal position for baby to pass through the pelvis faster.

Side-Lying/Lateral

Left or Right Lateral



At least a 30 degree incline results in more spontaneous vaginal births among nulliparous women.

Peanut Ball

Less likely to result in a cesarean birth compared to no peanut ball (taken out at full dilation and effacement). Shortens duration of 2nd stage of labor.

Sims/Modified Sims with Stirrup

Reduced cesarean births.



(Bueno et al., 2018)

No Epidural

Upright

Squatting, Sitting, Kneeling, Lunging, Standing

Shortens duration of 2nd stage of labor.

Hands and Knees

Lowers cesarean birth rates.



APPENDIX G

Post-Educational Survey

SCVMC Labor and Delivery Post-Survey

You have been invited to participate in an evidence-based quality improvement project on birth positions in labor and delivery. This online survey should take about 5 minutes to complete. Participation is voluntary, and responses will be kept confidential. Please only complete this survey if you have taken the pre-survey and received the educational demonstration.

* Indicates required question

1. What is your first and last name? *

2. STAGE 1 LABOR: Describe your confidence level for each position or activity: *

Mark only one oval per row.

	1- Not confident	2- Somewhat confident	3- Confident	4- Very confident
Assisting patients to walk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kneeling positions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lunging positions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Backwards sitting (chair)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. STAGE 2 LABOR: Describe your confidence level for each position or activity: *

Mark only one oval per row.

	1- Not confident	2- Somewhat confident	3- Confident	4- Very confident
Hands-and-knees position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Assisted squat position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sitting position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Side-lying with peanut ball	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Throne (semi-sitting position)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Please rate your confidence level when positioning the following patient types: *

Mark only one oval per row.

	1 - Not confident at all	2 - Somewhat confident	3 - Confident	4 - Very confident
Epidural patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bariatric patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Are you familiar with flexible sacrum positions versus non-flexible sacrum positions, and their effects on fetal descent? *

Mark only one oval.

Yes
 No

6. What could be improved for this current quality improvement project?

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