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## Implementation of Staff Education to Standardize the Use of Positions During the First Stage of Labor

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**Implementation of Staff Education to Standardize the Use of Positions During the First  
Stage of Labor**

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University of San Francisco School of Nursing and Health Professions

NURS 653 –Internship

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### **Abstract**

This project aims to educate labor and delivery (L&D) nurses on effective laboring positions that can aid fetal descent during the first stage of labor. In an L&D unit of a south Bay Area County hospital, there is a lack of standardization of knowledge and practices on laboring positions among the nursing staff. Evidence shows that upright positions and frequent mobility are effective in shortening the duration of labor and minimizing unnecessary cesarean deliveries. Based on the evidence, a project was implemented using verbal education of evidence-based laboring positions. An educational handout was also provided along with a recorded video presentation that can be utilized for staff development training. To evaluate the success of the educational training, staff nurses completed a pre-and post-education survey to gauge their confidence level in implementing the laboring positions. Despite the limited timeframe and small pool of participants, the survey results show a significant increase in confidence levels among the nursing staff after receiving the educational training.

*Keywords:* labor, positions, fetal descent, progression of labor, first stage of labor, educational training, nurse confidence

## Introduction

The severe increase in maternal mortality and morbidity in the United States has been correlated with the increase in cesarean delivery rates (Burke & Allen, 2020). According to the National Vital Statistics System, the average cesarean delivery rate in the United States increased from 31.7% in 2019 to 32.1% in 2021 (Osterman, 2022). Globally, cesarean deliveries account for more than 21% of all childbirths and will continue to rise to an estimated 29% by 2030 (World Health Organization [WHO], 2021). Although considered to be necessary in some cases, cesarean deliveries can lead to adverse outcomes for both mother and baby such as maternal hemorrhaging, infection, and an increased risk of complications for future pregnancies (WHO, 2021). The increased risk of postpartum complications from cesarean deliveries can lead to the use of more pain medications, prolonged hospital stays, and increased healthcare costs (Burke & Allen, 2020).

In 2020, California was ranked 27<sup>th</sup> with 30.5% of cesarean delivery rates nationwide, according to the National Center for Health Statistics (Centers for Disease and Control Prevention [CDC], 2022). This project takes place in a hospital that was recognized as one of the best for maternity care with an average cesarean delivery rate of less than 23.9% for first-time, low-risk pregnancies (County of Santa Clara, 2021). Although considered to be relatively lower than the state average, minimizing cesarean deliveries has been the continuing goal to promote better health outcomes for both mother and baby. One way to avoid cesarean deliveries and promote spontaneous vaginal births is by frequent patient positioning during the first stage of labor.

The birthing position that a patient assumes during labor is an important aspect that can affect the progression of labor and its outcomes. After being given education on the benefits

and risks of the laboring position, patients should have the opportunity to make their own decision on what position works best for them (Yadav et al., 2021). The lithotomy is a common and traditional position, but evidence has shown that staying upright and increasing mobility can shorten the duration of labor and effectively aid in fetal descent (Yadav et al., 2021).

Nurses play an instrumental role in the birthing process with many responsibilities such as monitoring fetal status, providing comfort measures, and initiating interventions as needed for labor support (Murn, 2019). While midwives and doulas may specialize in labor support and positioning, nurses are constantly at the bedside with the patients and have a great influence on labor outcomes and decision-making (Murn, 2019). Nurses who work in the L&D unit must be knowledgeable of evidence-based practices, therefore, providing learning opportunities can benefit both nurses and laboring patients (Murn, 2019).

### **Problem Description**

The setting for this project takes place in an L&D unit of a county hospital located in the south Bay Area. The unit consists of 12 beds and employs 80 registered nurses. The hospital is equipped with a birthing center that delivers more babies than average in addition to multiple educational programs that supports breastfeeding and high-risk pregnancies (County of Santa Clara, 2021)

Within the L&D unit, there lacks standardization of nursing practice on the use of laboring positions to promote fetal descent. There is also a variation of knowledge among the nurses on effective laboring positions as there are novice nurses, experienced nurses, and nurses who have or have not taken birthing classes. Novice nurses may not acquire similar knowledge and practices as experienced nurses and experienced nurses may not be as

accepting of new practices. As healthcare education may change throughout the years, some nurses may not be updated with evidence-based practices. Nurses utilize different laboring positions based on the needs of the patient and their specific pregnancy characteristics. There is a knowledge gap among the nursing staff regarding the use of laboring positions that can help promote fetal descent and the progression of labor. It is important to standardize nurses' knowledge and practice so that nurses can maintain a systematic approach to quickly respond and intervene (see Appendix A for Statement of Determination)

### **Available knowledge**

#### **PICO Question**

For labor and delivery nurses, how does staff education on patient positioning during the first stage of labor compared to no additional education affect nurses' knowledge and confidence in using various labor positions to aid in fetal descent and progression of labor?

#### **Search strategy**

A systematic literature search was conducted in September of 2022 to address the PICO question. The databases utilized were CINAHL, PubMed, Scholarly Google, and Semantic Scholar. An additional search for anecdotal evidence was conducted utilizing sources such as YouTube, Spinning Babies, Lamaze, and Obstetrics Initiatives to find effective laboring positions commonly practiced by certified doulas and midwives. The purpose of this research is to find reliable sources on effective laboring positions that aid fetal descent using search terms such as *laboring positions, maternal positions, labor and delivery, fetal descent, maneuvers, labor progression, and birthing positions*. The inclusion criteria were peer-reviewed articles published from 2017 through 2022. A total of 14 peer-reviewed articles were selected based on relevant titles, abstracts, and keywords.

CINAHL, PubMed, Scholarly Google, and Semantic Scholar showed peer-reviewed articles supporting “upright positions” and “mobility” as the most effective way to aid in fetal descent and shortening the birthing process. Once it was determined that upright and mobility were evidence-based, additional inclusion criteria were applied using keywords such as *first stage of labor* or *early labor*. This educational project focuses on the first stage of labor since the goal is to promote fetal descent before the baby is delivered, which usually starts at the beginning of the second stage. The first stage is divided into two phases: the latent and active phases. The latent phase, also known as the early phase, is the period when uterine contractions are painful with variable changes in the cervix and some degree of effacement (WHO, 2018). The active phase is the period when uterine contractions increase with more regularity and pain, labor is accelerated, leading to rapid cervical dilation and delivery (WHO, 2018).

The duration of the first stage of labor varies according to the individual’s “natural reproductive process and pregnancy characteristics” which healthcare providers should advise their patients before implementing any intervention (WHO, 2018, p. 39). This educational project takes into consideration the benefits of laboring positions and techniques that will enhance the cervical dilation and progression of the first stage of labor to promote fetal descent. Among the 14 peer-reviewed articles, six were selected and appraised with the John Hopkins Appraisal Tool (see Appendix B)

### **Synthesis of Literature**

Educational training in laboring positions requires practices that are evidence-based, valid, and reliable. Each article was reviewed to gather evidence of laboring positions that influenced the progression of labor and were effective in avoiding cesarean deliveries. The

existing literature will guide the project by providing evidence that supports the educational teachings of laboring positions during the first stage of labor.

Emam et al. (2018) performed a quasi-experimental on 100 primipara women in the first stage of labor to compare the outcomes between those in the upright positions versus the recumbent positions. The article was appraised as a Level II Quality A, with results indicating that upright positions had a positive effect on the progress of labor, decreased the duration of all three stages of labor, improved patient satisfaction, and lead to better neonatal outcomes (Emam et al., 2018)

An evidence-based literature review conducted by Ondeck (2019) focused on 25 randomized or quasi-randomized trials of 5,218 women to review the benefits of movement during labor and various factors that can change and support the freedom of movement during physiologic childbearing (p. 82). The review indicated that although walking and upright positionings were effective at reducing the duration of the first stage of labor, better quality studies were needed to demonstrate the significance of education between healthcare providers and the laboring patient (Ondeck, 2019). The article was appraised as a Level V Quality B, emphasizing that the choice of positioning can be supported and influenced by healthcare providers.

A systematic review with a meta-analysis conducted by Kibuka et al. (2021) showed a significant mean difference found in the duration of the first stage of labor by one hour and 22 minutes and a reduction of cesarean delivery rate in vertical positions. The study was a Cochrane systemic review that evaluated the effects of maternal positions in childbirth with the quality of evidence being very low to moderate. The review compared vertical positions with horizontal positions and evaluated outcomes such as the duration of labor, duration of



birth period (the second stage), and mode of birth. The results regarding the duration of the first stage of labor were highly considered in the educational project. Although the reviews showed the benefits of vertical positions, there were “wide variations with little or no information on the precise definitions and optimal positioning during childbirth” (Kibuka et al., 2021, p. 11). The review concluded that there was uncertainty about the effect of vertical compared with horizontal positions on the duration of labor, birth, and operative births and that better well-designed studies are needed to further replicate the methods (Kibuka et al., 2021, p. 12). The review was appraised at Level II, Quality A.

In addition to upright positions, evidence was reviewed by Wahyungsih et al. (2021) to analyze the effect of the left lateral and squatting position on the progress of the active phase during the first stage of labor. The study is a pre-experimental (quasi-research) that included nine primigravida women comparing the progress of labor before and after implementing the positions. The results showed that the positioning seemed to accelerate the progress of labor with minimal side effects, however, the level of evidence was not strong, unclear, and was appraised as a Level II Quality B. The study concluded that the findings can be referenced as informational material for future researchers to determine the effect of other positions that can accelerate labor such as standing or the hands-and-knees position (Wahyungsih et al., 2021, p. 216).

More evidence was needed to support the effect of ambulation on labor outcomes, specifically on fetal descent. Nayak et al. (2020) conducted a quantitative research experimental study on ambulation and its effect on labor outcomes during the first stage of labor. The study was appraised as a Level I Quality A. The sample included 60 primigravida women who were at 37 to 42 weeks of gestation with single vertex presentation and

spontaneous onset of labor in one to two centimeters of cervical dilation in the latent phase. The study was beneficial to the project as it specified the recommended duration of walking and the recommended distance. The data was collected by a self-structured observation checklist and concluded that ambulation has a significant effect on the first stage of labor and helps the early descent of the fetus by gravity influence (Nayak et al., 2020). In addition, ambulation helped to increase uterine contraction intensity and frequency which helps in the progression of active labor and improves labor outcomes (Nayak et al., 2020, p. 1435).

Lastly, the literature review conducted by Desseauve et al. (2017) provided significant evidence by analyzing obstetrical mechanics of birth such as the passenger (a moving body: the fetus), obstacles to the passage, the cervix, and the soft tissue (p. 50). Various systematic reviews were analyzed, and epidemiological data suggested that vertical birthing positions have many benefits to labor outcomes. Although the lithotomy position provided maternal comfort, upright positions had several advantages on the duration of labor, use of operative vaginal or cesarean deliveries, fetal heart rate abnormalities, and maternal (Desseauve et al., 2017, p. 47). A Cochrane review showed that upright positions might shorten the duration of the second stage of labor by four minutes but the rates of operative or cesarean deliveries did not differ significantly for women in upright positions compared with horizontal positions during the first stage (Desseauve et al., 2017, p. 48).

The review discussed several articles that supported maternal positioning that assists in the rotation of the baby which can help with the descent. In this case, a position on all fours would induce better flexion and promote rotation (Desseauve et al., 2017, p. 50). One of the obstacles to the moving fetus would be the pelvis and studies confirmed that hyperflexion and hyperextension of the thighs may affect pelvic diameter (Desseauve et al, 2017). It has been

shown that positions such as hands and knees or squatting may increase some pelvic dimensions by six to eight millimeters and that upright positions can shorten the first stage of labor by acting on the cervix to promote dilation (Desseauve et al., 2017). In conclusion, the review emphasized that the optimal choice of laboring position should be up to the patient and that the role of healthcare professionals is essential for the goal of physiological birth (Desseauve et al., 2017, p. 52). The review was appraised at a Level V Quality A.

### **Rationale**

The Knowledge Management Theory was the conceptual framework guiding this educational project as it focuses on the knowledge of nurses as a “combination of routine and non-routine knowledge-based work” (Finkelman, 2012, p. 11). The project requires the interprofessional collaboration of L&D nurses, the nurse educator, and nurse leaders. Identifying the most effective laboring positions incorporates the evidence-based practice, anecdotal evidence, and experience. Finkelman (2012) elaborates on the concept of routine work and non-routine knowledge work. Routine work may require “specialized knowledge” that involves the expected outcomes and predictability, whereas non-routine knowledge work is “full of exceptions, lacks predictability, requires interpretation and judgment, and may not be fully understood” (Finkelman, 2012, p. 11).

Some nurses may or may not have attended birthing classes or received training on laboring positions before working as an L&D nurse. Various nurses may have acquired knowledge and skills from previous preceptors, seasoned nurses, or from outside resources. Each laboring patient have their birth plan and limitations, therefore, not all laboring positions are appropriate for all patients; this emphasizes the lack of predictability of non-routine knowledge work. The focus of the educational project relies on the knowledge of nurses and

utilizes critical thinking, clinical reasoning, judgment, and evidence-based practice that can be applied to improve patient care (Finkelman, 2012).

The knowledge of how to implement a labor position is important, however, nurses must also have effective judgment and interpretation of when it is appropriate to translate the knowledge into practice (Murn, 2019). Nurses are involved in the birthing process and must be adaptable to changes and quick interventions. With the guidance of the Knowledge Management Theory, the educational training will help nurses to use systematic decision-making to improve competency and improve laboring practices.

### **Specific Project Aim**

There are multiple aims for this educational project. The primary aim is to educate L&D nurses and increase their level of confidence in implementing various labor positions. The project also aims to standardize the use of labor positions during the first stage of labor. The process begins with the collection of data to assess the initial level of confidence and background history of the nurses. The process ends with the evaluation of the nurses' level of confidence in implementing the labor positions after the educational training.

### **Context**

#### **Microsystem Assessment**

A microsystem assessment is conducted with guidance from the 5 Ps framework to help determine if the project goals are aligned with the microsystem and its organization.

#### ***Purpose***

The purpose of the microsystem is to provide quality care for all pregnant persons during antepartum, intrapartum, and postpartum. The unit provides comprehensive care that is culturally inclusive and family-friendly for all (Santa Clara Medical Center, n.d.). The

microsystem is within a birthing center that provides high-risk comprehensive services such as prenatal care, genetic counseling, prenatal diagnosis, obstetrical consultation, delivery, and newborn care.

### ***Patients***

The patient population of the microsystem consists of all pregnant persons, including pediatrics as they are considered adults when pregnant and share the same guidelines and policies within the unit. The age of the patients ranges between 19 to 40 years with complicated and uncomplicated pregnancies. The patient population is primarily high-risk with complex medical histories and is mostly homeless. Most patients have Medicaid and Medicare insurance as the hospital is known for serving the uninsured and underinsured.

The goal is to find the best practices that are accommodating to all laboring patients, typically without the use of equipment, for there is a safety risk as most patients require epidural analgesia for pain management. However, the target population for this project will be the nursing staff as it aims to assess their confidence and knowledge before and after the educational training.

### ***Professionals***

The professionals in this microsystem include obstetricians, registered nurses, obstetric anesthesiologists, pediatricians, nurse practitioners, certified lactation consultants, and labor support individuals. Within the microsystem itself, nurses and physicians are commonly present as unit flow depends on the shift and time of day. Lactation consultants, labor support individuals such as doulas or midwives, and social workers are on-call if the service is requested.

### ***Processes***

The microsystem has processes that include antepartum care, admission, scheduling, labor support, immediate postpartum care, and emergency care. Upon admission, the nurses welcome the patient and escort them to the triage room for an assessment. Once labor is in progress, the patient will be escorted to their private room until the patient gives birth. During that time, members of the multidisciplinary team can provide care as needed. Doulas and midwifery services are available upon request and are available through a video call.

### ***Patterns***

The patterns of this microsystem consist of daily staff huddles, handoff shift reports, debriefs, and interdisciplinary communication. Before each shift, there is a staff huddle to discuss and evaluate current metrics, staffing, and updates. The nurses then give and receive handoff shift reports before meeting their assigned patients. Computer terminals are placed in divided sections of the unit, including one in every room to support charting, scheduling, patient education, and communication between all healthcare providers.

### **PDSA (Plan, Do Study, Act) Cycle**

The PDSA cycle was utilized and modified throughout the process to ensure goals were aligned between the team and the nursing staff. The PDSA cycle helps to map out the process of change and determine the next steps for the future project team (Harris et al., 2018). See Appendix C.

### **SWOT (Strengths, Weaknesses, Opportunities, Threats) Analysis**

A comprehensive microsystem assessment was performed using the SWOT analysis to assess and identify the strengths, weaknesses, opportunities, and threats of the microsystem (see Appendix D).

The key points identified under strengths is the eagerness to learn from the staff nurses and great support from the nurse educator. Weaknesses identified were associated with the limited equipment and supplies as the unit shared one birthing ball and one wireless fetal monitoring system. By obtaining more wireless fetal monitoring, upright positioning and mobility can be more frequently implemented. Opportunities provided were the increase in nurse confidence in laboring positions as well the contribution to emerging data of potential outcomes such as cesarean delivery rates, patient satisfaction, and duration of labor. Threats to the project and of the microsystem are any potential shortage of staff as this can shorten the time needed to provide the educational training.

### **Cost Benefit Analysis**

It was found that the cost to implement this project is relatively low and the outcomes would result in a cost reduction for the organization. Student nurses conducted the research, and literature review, therefore, staff nurses did not lose hours away from direct patient care. The education can be presented by either the certified nurse leader (CNL) or the nurse champions and would take approximately ten minutes or less. The project would be little to no cost for the hospital as nurses can substitute one another during break times to attend the educational training. Minimum cost would be applied towards the educational materials such as the printing of handouts. The primary focus of this project is to increase nursing knowledge and confidence through education. With increased knowledge, nurses can respond efficiently which can help to reduce the laboring process in half. By doing so, hospital costs associated with the laboring process can also be reduced and cesarean deliveries can be prevented. If cesarean deliveries are prevented, costs associated with medications, operations, and length of stay can also be reduced, resulting in cost avoidance for the hospital organization.

## **Intervention**

The timeline for this project was designed and implemented over 13 weeks between September 2022 to December 2022 (See Appendix E). Phase one, the initiation of the project, consisted of interdisciplinary meetings with the clinical instructor, nurse educator, and team members. The introduction of the project topic, search strategy, and literature review was conducted and completed. Phase two, project planning, involved the designing and development of the educational materials. The pre-and post- education surveys were developed and were accessible through individual QR codes. An educational handout was created to summarize the teachings with pictures and descriptions of the positions, their uses, and benefits (See Appendix F). Information for the handout was obtained from sources such as Lamaze, Spinning Babies, and Obstetrics Initiatives. The evidence-based positions discussed in the education includes upright and mobile group: squatting, sitting, stair climbing/walking, and lunging or side-lunge. The anecdotal evidence of laboring positions that assists in fetal rotation includes flying cowgirl, a modified fire hydrant, side-lying, and Froggy Walcher's. In addition to the handout, an educational video presentation was developed using PowerPoint slides and a voiceover recording for the nurse educator to utilize for staff development training. The video content reflects the in-person education that includes an in-depth presentation on how to implement the positions and the benefits.

Phase three, the implementation phase, was completed over three days with one nursing student leading the training for each shift: days, evenings, and nocturnal. Providing educational training during each shift and on different days of the week allowed the nursing students to reach the greatest number of nurses should the barrier of a busy shift affect attendance. Each shift consisted of one nursing student leading the training for about two



hours per shift. The education was presented to nurses who were available when their schedules allowed it. Education was presented in groups of one to four in a private conference room or an empty patient room. The nurses are first asked to answer the pre-education survey by scanning the QR code on their phones. Once all participants have completed the survey, the education is presented with references to the educational handout. The participants will then scan another QR code for the post-education survey. After completion of the survey, the participants were given the handout to use for teaching points if requested. The participants then sign their names on a sign-up sheet to record who participated in the project.

### **Study of the Intervention**

The measurement strategy for the intervention will be reflected by the pre- and post-education surveys (see Appendix G). The pre-education survey gauges the nurses' initial confidence level in implementing the positions as well as their background and education history. The post-education survey will evaluate the effectiveness of the education and confidence level after receiving the education.

Before finalizing the surveys and educational materials, the nurse educator and team suggested some changes that would be more adaptable for their patient population. Modifications were made to the fire hydrant position to which the patient will be on the side rather than on all fours (hands and knees). The team determined that the positioning on all fours would be too strenuous for the patient and that the modified version will benefit those who have an epidural. The Trochanter Roll was removed due to the lack of supplies such as foam rolls. The classic Walcher's position was also removed due to the safety risk of the elevated beds needed to achieve the position. The Froggy Walcher's position was kept as an

alternative since it acquires a low-level bed and was deemed more comfortable for the patients.

### **Measures**

This project measures the nurses' level of confidence before and after the education using a four-point Likert Scale ranging from 1 (not confident) to 4 (very confident). The surveys gauged the nurses' level of confidence following nine items: flying cowgirl, kneeling/hands-on-knees, dangle, fire hydrant, Froggy Walcher's, squatting, sitting, lunging/side-lunging, and the upright/mobile group that includes walking, standing, rocking, and stair-climbing. Ten free-response questions were included to assess the baseline knowledge and background history of the nurses.

The post-education survey includes a similar nine-item rating scale and two free-response questions. The first free-response question of the post-education survey aims to address the barriers after receiving the education and implementing the positions, however, due to the limited time of the project, the answers will be directed toward the educational teaching. The final free-response question allows the nurses to provide suggestions or recommendations for the future implementation of the project.

### **Results**

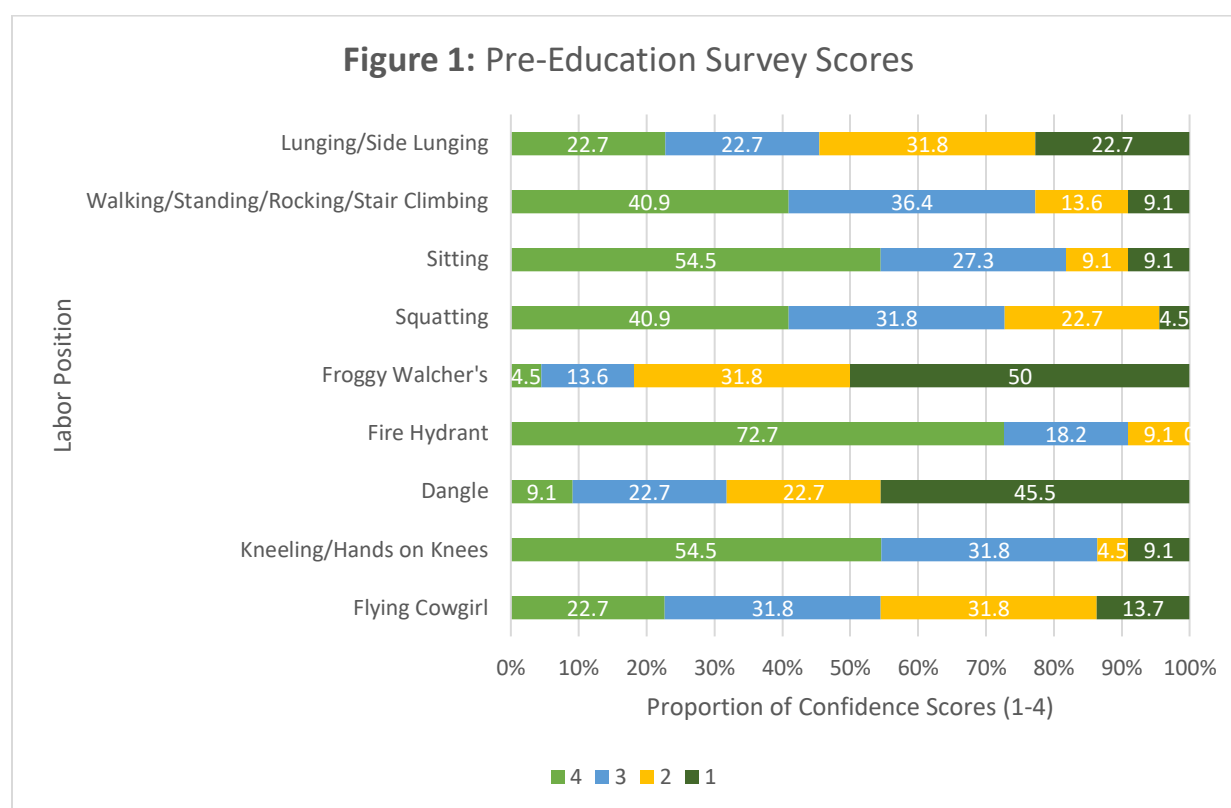
A total of 22 nurses completed the pre-education and post-education survey resulting in a 27.5% response rate. The pre-education survey shows that the average number of years worked as an L&D nurse was between five to nine years with the longest being 36 years and the shortest with less than one year of experience. A majority of 17 nurses have a bachelor's degree, four with an associate degree, and one with a master's degree. When asked if the nurses have taken any classes on birthing or laboring positions outside of the hospital

organization, 54.5% answered yes and 45.5% answered no. Twelve responses were collected when asked which outside classes were taken and results showed that six nurses (50%) attended birthing classes from Spinning Babies. Other responses described their classes as a “labor skills workshop” or received training from a “certified childbirth instructor”. The results also showed that the nurses gained experience from “labor support” and “obstetric emergencies”.

The following questions were asked in the pre-education survey to gain an understanding of the experiences and practices of the nurses. When asked what laboring positions were most effective in helping fetal descent, the “throne” and “flying cowgirl” positions were most mentioned. When asked which positions were utilized most frequently, eight responded with the “fire hydrant”, seven responded with the “throne”, four with both the “side-lying” and “side-lying release” and two with the “flying cowgirl”.

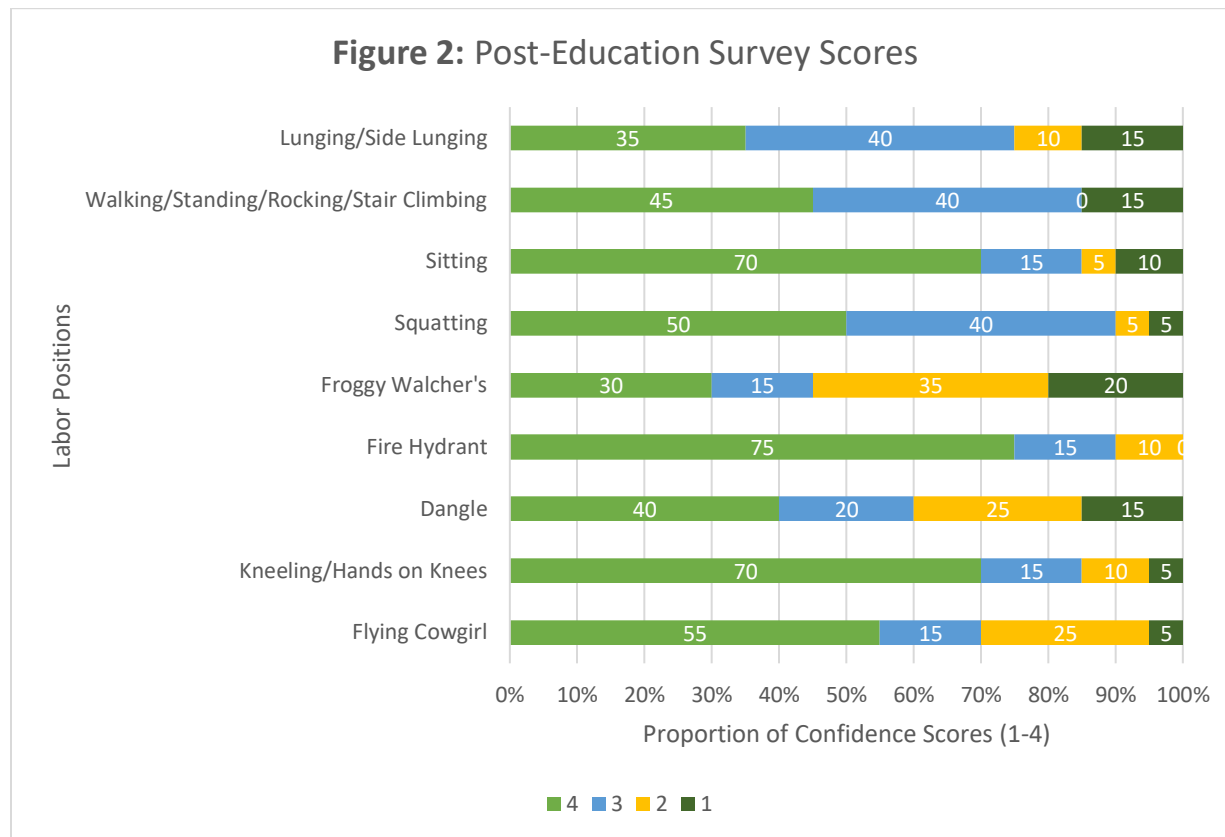
One item question asked the nurses to share any common barriers when positioning patients. A total of 18 responses were collected with a majority of seven who responded with analgesia usage or “epidurals” associated with pain. In addition, patients with a high body mass index (BMI) were also listed as a barrier as well as patients having “limited mobility”. Patient refusal or “unwillingness to try the positions” was a common barrier as patients “refuse to try a new position” or simply “do not want to be repositioned”. Other barriers listed were language, lack of supplies such as yoga balls, interference from medical doctors, and fetal status. Lastly, when asked what the nurses hope to learn from this project, most answered with “more positions” or “more useful positions”. The common theme in these responses was related to the overall goal of feeling more confident with positioning, increasing maternal comfort, and achieving vaginal deliveries.

Twenty-two nurses completed the 19-item pre-education survey to gauge their initial level of confidence in implementing the positions. The positions with the highest percentage of a “very confident” level were the “fire hydrant” (72.7%), “sitting” (54.5%), and “kneeling/hands-on-knees” (54.5%). The positions with the lowest percentage of a “very confident” level were the “Froggy Walcher’s” (4.5%) and the “dangle” (9.1%). The percentages of the confidence scores before the educational training can be seen in Figure 1.



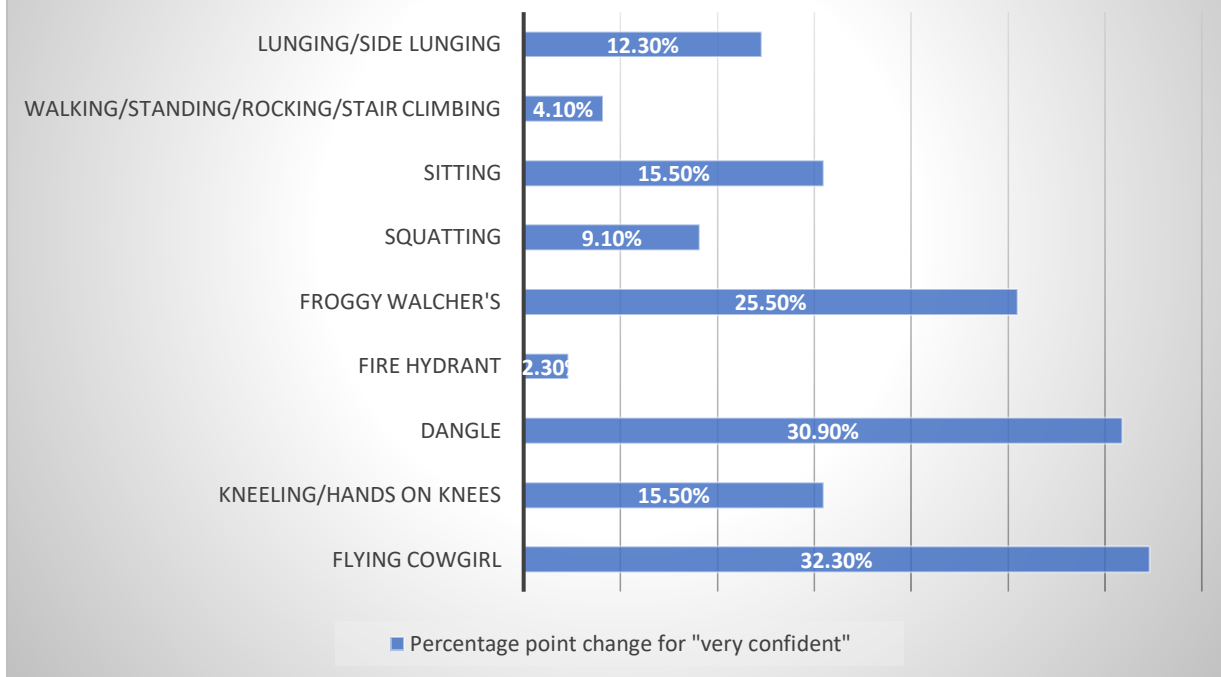
Twenty nurses completed the 11-item post-education survey. Three positions that showed the highest percentage of a “very confident” level were the “fire hydrant” (75%), “sitting (70%)”, and “kneeling/hands-on-knees” (70%). The positions that maintained the lowest “very confident” level, even after the educational training, were the “Froggy Walcher’s” (30%) and “lunging/side-lunging” (35%) even though both received an increase

from the pre-education survey. The percentage confidence scores after the educational training are provided in Figure 2.



The greatest percentage point change in increase for the highest confidence level was seen in “flying cowgirl” (32.3%), “dangle” (30.9%), and “Froggy Walcher’s” (25.5%). The smallest increases were seen in the upright and mobile group of “walking, standing, rocking, stair-climbing” (4.1%) and the “fire hydrant” (2.3%). However, both initially started with a high confidence level which did not provide the opportunity for a massive increase. The percentage point change for the highest confidence level between both surveys is provided in Figure 3.

**Figure 3: Percentage Point Change from Pre-Survey to Post-Survey for Highest Confidence Level**



### Discussion

The results of the pre-and post-education surveys demonstrate that the educational training worked to increase the confidence level of L&D nurses across all nine positions. Although two respondents were lost from the post-education survey, the outcome results were expected as confidence levels increased.

### Limitations

The main limitations of this project were limited days on the unit and time. Limited access to the unit resulted in a three-day implementation phase rather than the goal of ten days. The ten-day implementation would allow more time for nurses to receive the educational training, take the pre-education survey, practice the positions on patients, and take the post-

education survey. Each of the three days included the distribution of the pre-education survey, the educational training, and the post-education survey all in one day. Therefore, the results of the post-education survey do not reflect the true measure of confidence associated with the implementation of positions with patients.

In addition, the nurses received educational training during their shifts, which was a challenge as nurses are busy providing care for their patients. Some nurses attended the educational training during their meal break which affected the nursing students' ability to provide thorough education. Some nurses had to step away for charting or to answer call lights, therefore, education felt rushed and inconsistent. Limited time resulted in missed opportunities to answer the free-response questions, however, all 22 nurses answered all Likert Scale questions.

### **Recommendations**

The limitations were considered to address future recommendations for this project. First, an increase in the length of time should be included between the pre-and post-educational surveys to allow nurses the opportunity to practice the positions. This will help the project achieve full results and outcomes by evaluating the effectiveness of the educational training and determining any necessary changes. Additionally, as requested in several survey responses, a hands-on component should be added to the educational training so that nurses can practice the positions before utilizing them on patients. This can help the nurses to fully grasp the benefits and risks of each laboring position and can accommodate nurses who have a variety of learning needs.

Lastly, future implementation of this project should explore other potential outcome measures such as hospital cesarean rates, duration of labor, analgesia usage, and patient

satisfaction scores. Improvements in these outcomes can help gain buy-in from key stakeholders with the potential of cost-benefit savings for the organization. This project was reviewed and approved by the University of San Francisco as an evidenced-based quality improvement project and can be considered as a pilot program should the hospital organization wants to further continue this project.



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## Appendix A: Statement of Determination

### Student Project Approval: Statement of Determination

**Title of Project:** Implementation of Staff Education to Standardize Use of Labor Positions During First Stage of Labor

**Brief Description of Project:**

- **Aim Statement:** We aim to educate labor and delivery nurses on various labor positions to promote fetal descent and progression of labor.
- **Description of intervention:** Implementation of a pre- and post-education survey to assess the knowledge and background of nurses in the labor and delivery (L&D) unit. Effective labor positions supported by literature and anecdotal evidence will be presented and demonstrated to nurse champions who will present the teachings and evidence to the rest of the staff. Educational handout and video of the teachings will be developed and given to the nursing staff. Nurse confidence will be measured by the post-education survey to evaluate effectiveness of educational intervention. For future implementation, nurses will utilize teachings to patients and report back the findings.
- **How will this intervention change practice:** By providing L&D nurses with the knowledge of effective laboring positions, confidence will improve, and practice is standardized. The educational intervention can also standardize knowledge that can lead to quick and efficient interventions to help aid fetal descent and the progression of labor. The evidence will take into consideration the appropriate stage of labor as well as specific individual needs but aims to be suitable for all patients. This intervention will prepare nurses to act quickly during times of labor which can aid in the process of safe vaginal deliveries and reduce the need for cesarean deliveries.
- **Outcome measurements:**
  - Staff level of confidence

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* 10/28/2022

Signature of Student:  9/29/2022

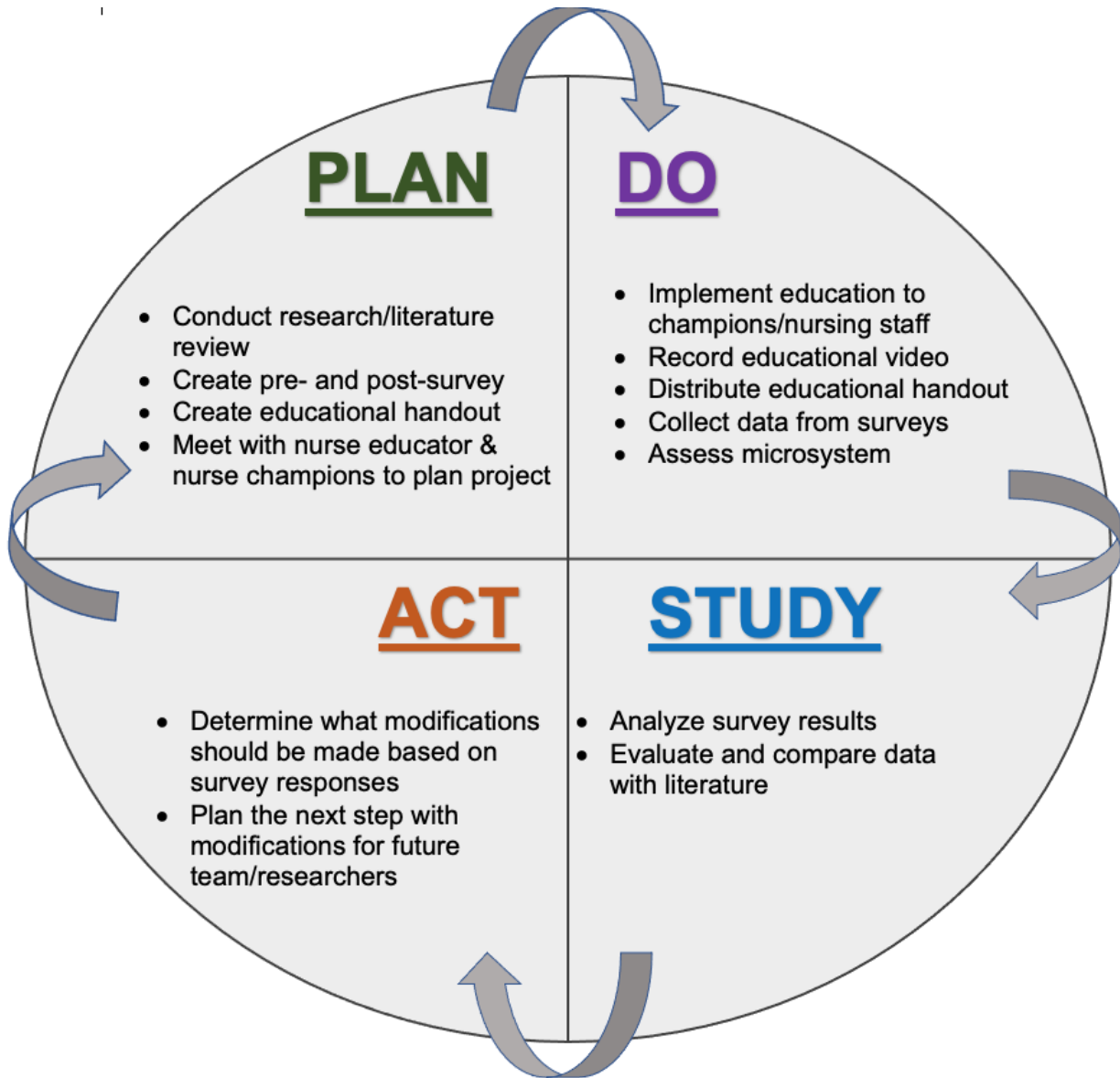
### Appendix B: Literature Synthesis Table

Study	Design	Sample	Outcome/Feasibility	Evidence Rating
<p>Emam, A.M., &amp; Al-Zahrani, A. (2018). Upright versus recumbent position during first stage of labor among primipara women on labor outcomes. <i>Journal of Nursing Education and Practice</i>, 8, 113. <a href="https://doi.org/10.5430/jnep.v8n7p113">https://doi.org/10.5430/jnep.v8n7p113</a></p>	<p>Quasi-experimental</p>	<p>100 parturient women in the first stage of labor divided into two groups: 50 upright and 50 in recumbent</p>	<p>The upright position had a positive effect on the progress of labor, decreased duration of the three stages of labor, better neonatal outcomes, and improved parturient women's satisfaction with the assumed position.</p> <p>The study recommended that all parturient women in low-risk labor should be informed about the benefits of assuming upright positions during the first stage of labor and be encouraged/supported to use them.</p>	<p>L II A</p>
<p>Wahyuningsih, D., Andera, N.A., &amp; Andika, N.A. (2021). The effect of left lateral position and squatting position on the progress of the active phase of the first stage of labor among primigravida women at private practice midwife Istikomah, Amd. Keb, Sampung Subdistrict, Ponorogo District. <i>Jurnal Ners dan Kebidanan (Journal of Ners and Midwifery)</i>. DOI: <a href="https://doi.org/10.26699/jnk.v8i2.AR.T.p211-216">10.26699/jnk.v8i2.AR.T.p211-216</a></p>	<p>Pre-Experimental (quasi-research)</p>	<p>All 9 (respondents) primigravida women in the active phase of the first stage of labor</p>	<p>Before the intervention of left lateral and squatting positions in VT 1, all 9 respondents (100%) had normal labor progress.</p> <p>After the intervention of the positioning in VT 2, most respondents (77.8%) had labor progress in the short category.</p> <p>The analysis obtained a p-value = 0.000 &lt; alpha = 0.05, thus there was an effective left lateral position and squatting position on the progress</p>	<p>L II B</p>

			of the active phase of the first stage of labor among primigravida women and seems to accelerate the progress of labor with minimal side effects.	
<p>Ondeck M. (2019). Healthy birth practice #2: Walk, move around, and change positions throughout labor. <i>The Journal of perinatal education</i>, 28(2), 81–87.  <a href="https://doi.org/10.1891/1058-1243.28.2.81">https://doi.org/10.1891/1058-1243.28.2.81</a></p>	Evidence-Based Literature Review	25 randomized or quasi-randomized trials of 5,218 women	<p>While there is evidence that walking and upright positions reduce the duration of the first stage of labor, there is a need for better-quality studies to demonstrate the significance to providers and direct them on more precise recommendations for ambulation and movement.</p> <p>There is insufficient understanding of what facilitates or inhibits a woman’s use of physiological birth positioning and directing the choice of mobility and position change could change women’s inherent choices.</p>	L V B
<p>Kibuka, M., Price, A., Onakpoya, I., Tierney, S., &amp; 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.  <a href="https://doi.org/10.18332/ejm/142781">https://doi.org/10.18332/ejm/142781</a></p>	Systematic Review with meta-analysis	<p>Three Cochrane SRs were included in 65 trials with 18,697 women</p> <p>Inclusion criteria: pregnant women of any parity who had experienced spontaneous or induced labor at the full term of their pregnancies, using any type of analgesia</p>	<p>There was a significant mean difference found in the duration of the first stage by one hour and 22 minutes and a reduction in cesarean section rates in the upright birth position group compared with horizontal.</p> <p>There was also a statistically significant difference in the duration of the second stage of labor and a reduction in assisted vaginal birth rates in the upright group compared with the horizontal</p>	L II A

			without epidural analgesia.  The quality of evidence within the reviews was very low to moderate.	
Nayak, D., Tripathy, P., & Digal, B. (2020). Effect of ambulation on labour outcome during the first stage of labour among primi mothers. <i>European Journal of Molecular &amp; Clinical Medicine</i> , 7(8), 1432-1437. <a href="https://ejmcm.com/article/4312_c63324c44f2e2f092d7cc6955aa5e37b.pdf">https://ejmcm.com/article/4312_c63324c44f2e2f092d7cc6955aa5e37b.pdf</a>	Quantitative research experimental study	60 prime mothers having 37-42 weeks of gestation with single vertex presentation and spontaneous onset of labor in 1-2 cm of cervical dilation (latent phase)	The result of the study shows that the mean and SD 17.16 +- 2.8 on labor outcome in the experiment group and the mean +- SD (13.5 +- 4.3) in the control group was statistically significant as evidence from $t = 3.91$ at $df = 58$ and $p$ -value was 0.0001.  It shows that ambulation has positive effects on labor outcomes, helps in the early descent of the fetus, and increases coordination of uterine contract intensity and frequency.	L I A
Desseauve, D., Fradet, L., Lacouture, P., & Pierre, F. (2017). Position for labor and birth: State of knowledge and biomechanical perspectives. <i>European journal of obstetrics, gynecology, and reproductive biology</i> , 208, 46-54. <a href="https://doi.org/10.1016/j.ejogrb.2016.11.006">https://doi.org/10.1016/j.ejogrb.2016.11.006</a>	Literature Review	No definitive sample  Various studies and systematic reviews	Epidemiological data suggest that vertical birthing positions have many benefits when examining how childbirth positions during labor affects maternal, fetal, and neonatal outcomes.  Many questions remain about the advantage of one position over another. Thus, childbirth could be considered in a way as an athletic feat that requires the choice of optimal positions suited to each woman at different stages of labor to improve its efficiency and effectiveness.	L V A

### Appendix C: PDSA Cycle





**Appendix D: SWOT Analysis**

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• Relatively low cost for project development</li> <li>• Nurse eagerness to learn and contribute to the project</li> <li>• Support from nurse educator and nurse champions</li> </ul>	<ul style="list-style-type: none"> <li>• Limited equipment and supplies in the unit</li> <li>• Limited evidence on labor positions other than “upright” and “mobility”</li> <li>• Limited training and birthing classes provided for staff</li> </ul>
<b>Opportunities</b>	<b>Threats</b>
<ul style="list-style-type: none"> <li>• Increase nurse confidence and knowledge of labor positions</li> <li>• Shorten the duration of labor</li> <li>• Decrease cesarean delivery rates</li> <li>• Outcomes can contribute to emerging data</li> <li>• Video presentation can be utilized for staff development training</li> </ul>	<ul style="list-style-type: none"> <li>• Limited time for nurses to receive education during their shift</li> <li>• Unable to provide thorough education due to limited time</li> </ul>



## Appendix F: Educational Handout

### Implementation of Staff Education to Standardize the Use of Positions During the First Stage of Labor

#### Upright and Mobile Positions

- Includes squatting, sitting, standing, rocking, dangling, kneeling, stair climbing, and lunging
- Gravity helps promote fetal descent into the pelvis
- Can increase pelvic diameter up to 2 cm
- Vertical positions with the addition of mobility can increase comfort, reduce need for analgesia, shorten the first stage of labor, and reduce cesarean deliveries
- Can help align the baby into an ideal position for delivery



If patient has epidural

#### Flying Cowgirl

- Helps open the pelvic inlet to allow the baby to engage and/or rotate
- Use for 3-6 contractions, then repeat on the other side
- Keep the back arched and knees as far away as possible from the abdomen
- Use a peanut ball to keep the knees wide



### **Froggy Walcher's**

- Use to help the fetus engage when it is high above the pelvis and strong, frequent contractions are not helping with engagement
- Try for 3 consecutive contractions
- Move the woman to the end of the bed, letting the legs hang off the edge (no support)
- If woman has a high BMI, dense epidural, or does not feel comfortable with the classic Walcher's position, try Froggy Walcher's by keeping the soles of the feet together and supported, and the knees wide and as far away from the abdomen as possible, ensuring knees are lower than the hips





### **(Modified) Fire Hydrant/Side Lying**

- Opens side of pelvis, giving fetus more room to engage
- Useful if fetus is in right or left occiput position; elevate right leg if right occiput posterior position and raise left leg if left occiput posterior to encourage optimal alignment



## Appendix G: Pre- & Post-Education Survey

### L&D Pre-Education Survey

 **[Redacted]** (not shared) [Switch account](#) 

How long have you been a L&D nurse?

Your answer \_\_\_\_\_

What is your education level?

ADN

LPN

BSN

MSN

NP

What shifts do you work?

AM

PM

NOC

Have you taken any classes on birthing/laboring positions outside of Hospital A?

No

Yes

If you answered "yes" to the above question, how many classes, and which ones?  
(Please name them if you can remember)

Your answer \_\_\_\_\_

In your experience, what laboring positions are the most effective in helping baby descend?

Your answer

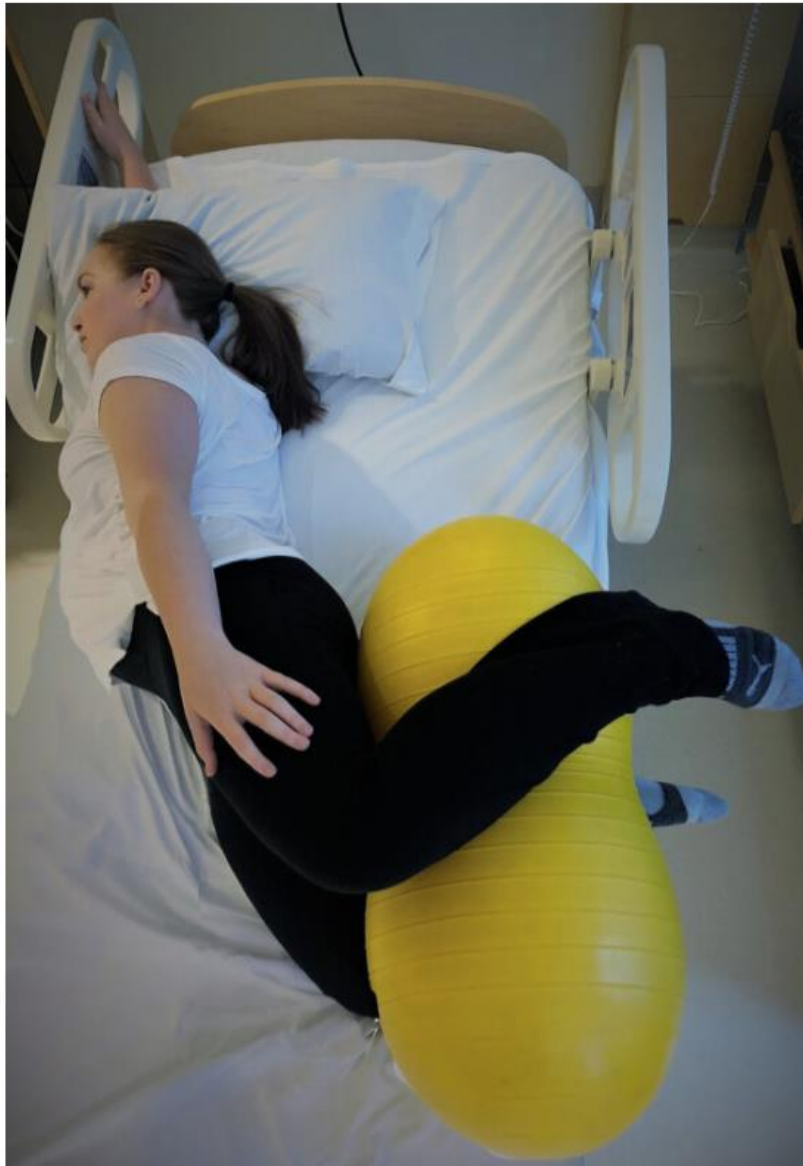
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Which positions do you utilize most frequently?

Your answer

---

How confident are you with implementing **Flying Cowgirl**?



1 2 3 4

How confident are you with implementing **Kneeling/Hands on Knees**?



1

2

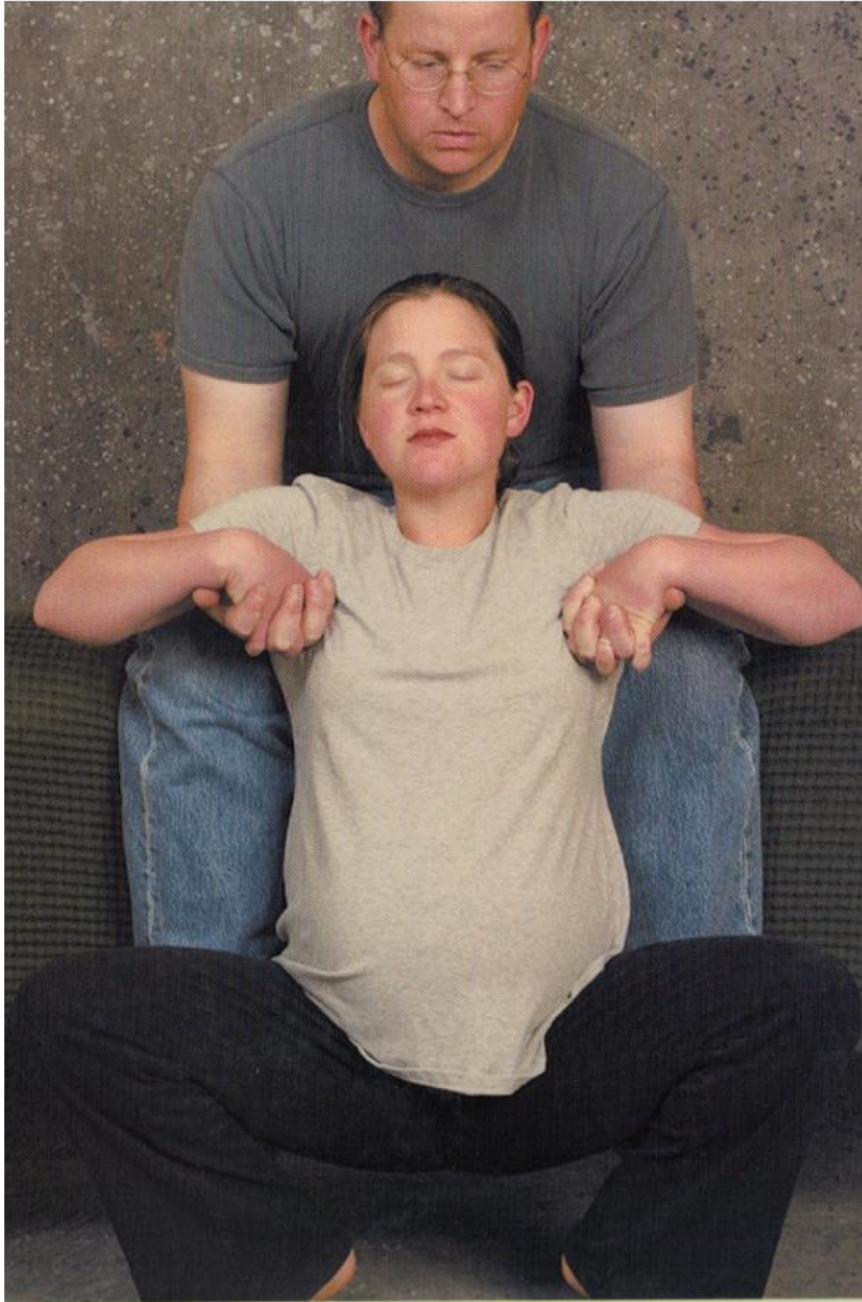
3

4

Not confident at all

Very Confident

How confident are you with implementing **Dangle**?



1      2      3      4

Not confident at all                    Very Confident



How confident are you with implementing **Fire Hydrant**?



1      2      3      4

Not confident at all                    Very Confident

How confident are you with implementing **Froggy Walcher's**?

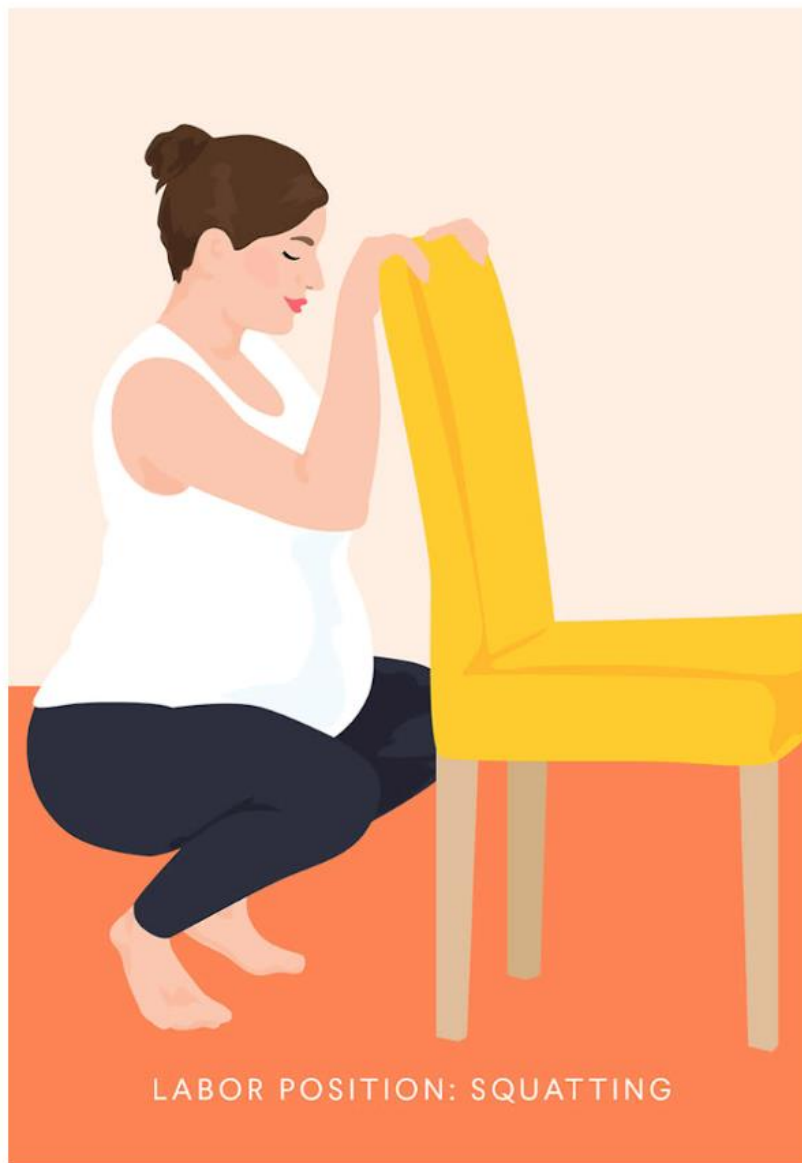


1      2      3      4

Not confident at all

Very Confident

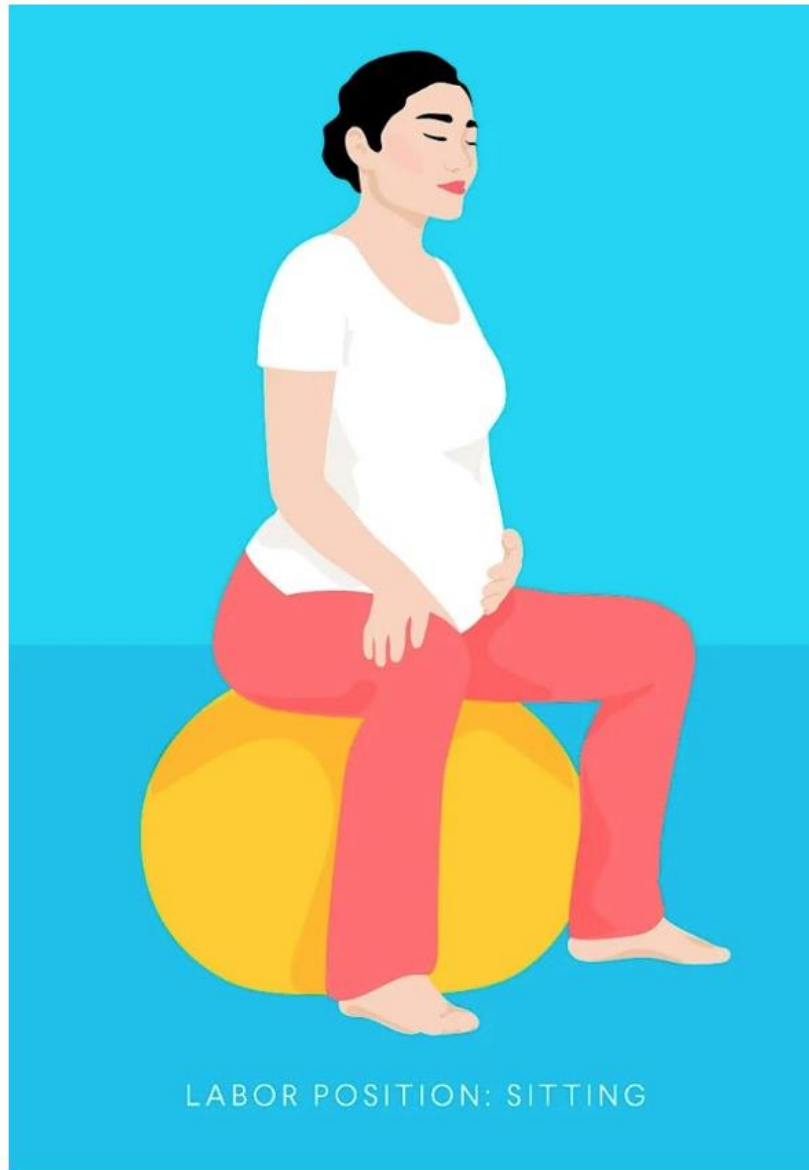
How confident are you with implementing **Squatting**?



1      2      3      4

Not confident at all                    Very confident

How confident are you with implementing **Sitting**?



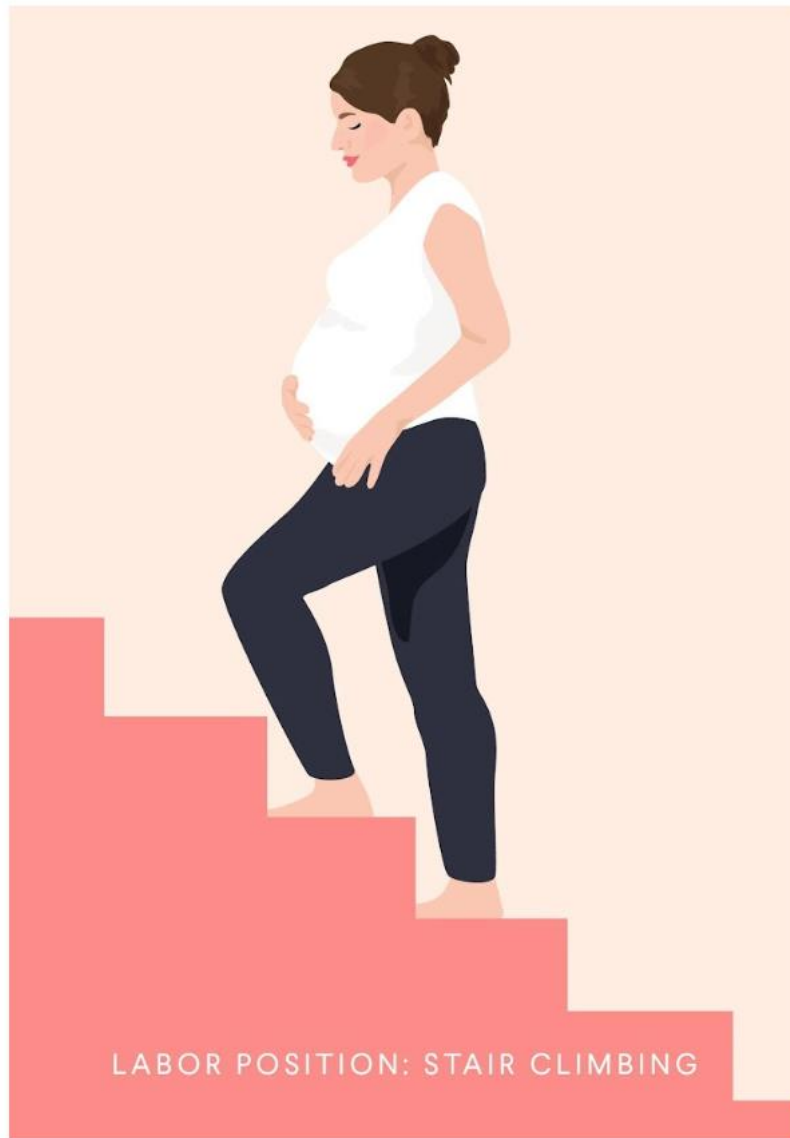
LABOR POSITION: SITTING

1 2 3 4

Not confident at all

Very confident

How comfortable are you with implementing **Walking/Standing/Rocking/Stair Climbing?**



1      2      3      4

Not confident at all                    Very confident

How confident are you with implementing **Lunging/Side Lunging**?



1      2      3      4

Not confident at all

Very confident

Are there any positions you would like to know more about?

Your answer

---

What are some common barriers of positioning patients that you've encountered?

Your answer

---

What do you hope to learn from this project?

Your answer

---

The post-education survey consists of the same nine rating scale questions of the given positions, in addition to two free-response questions:

1. What were some common barriers to implementing these positions with patients?
2. What are some future suggestions you have for research on this topic?