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

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NURS 653: Internship

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Abstract

The aim of this project was to assess whether supplemental education on labor positioning for Labor and Delivery nurses would increase the nurses' confidence in utilizing patient positioning to promote fetal descent and progress labor. Previous research suggests that upright, mobile positions during the first stage of labor have various benefits, including reduced cesarean rates, shorter lengths of labor, and less epidural usage. However, a major barrier to maximizing these benefits is a gap in knowledge among Labor and Delivery nurses, resulting in inconsistent use of various positions. This improvement project addresses this problem at a large community hospital in the San Francisco Bay Area by implementing staff education on nine selected positions to increase staff confidence and standardization of labor positioning on the Labor and Delivery unit. Participants completed pre- and post-education surveys to gauge the success of this project. Survey results showed an increase in staff confidence utilizing all nine positions included in the education. While this project has several limitations, including sample size and access to the unit, the findings suggest that additional staff education on labor positioning can increase confidence and preparedness to use these positions to encourage fetal descent and ultimately progress labor with laboring patients.

Keywords: labor, delivery, position, first stage, pelvis, fetal descent

Introduction

The cesarean rate in the United States is on the rise, increasing from 31.8% in 2020 to 32.1% in 2021 (Hamilton et al., 2022). Furthermore, low-risk cesarean deliveries, defined as nulliparous women carrying term, singleton fetuses presenting in the cephalic position, have increased from 25.9% in 2020 to 26.3% in 2021. Cesarean births, commonly referred to as c-sections, threaten maternal and fetal health with several potential complications, including excessive pain, infection, hemorrhage, internal organ damage, endomyometritis, anesthesia complications, longer length of recovery, and deep venous thrombosis (Quinlan & Murphy, 2015; Tussey et al., 2015).

Reducing cesarean rates has continually been a target of public health efforts to improve maternal and fetal health. More specifically, these efforts focus on reducing the rate of medically unnecessary cesareans in low-risk pregnancies. One of these public health initiatives is Healthy People 2030, which aims to reduce national primary cesarean births among low-risk women to 23.6% (Office of Disease Prevention and Health Promotion, n.d.). Since the cesarean rate in the United States is climbing, moving further away from the national target, health professionals must explore innovative approaches to reduce cesarean deliveries, especially in low-risk pregnancies.

To identify effective approaches for reducing cesareans, it must first be understood what leads to this type of delivery. Although there are several reasons for labors that result in c-sections, the World Health Organization (WHO) reports labor dystocia, or failure to progress, as the most common indication (WHO, 2018). One low-cost, low-interventional strategy for addressing dystocia is utilization of various labor positions with mobility. The American College of Obstetricians and Gynecologists (ACOG) supports this management strategy and recognizes

its effectiveness in enhancing maternal comfort, optimizing fetal position for delivery, and therefore promoting better labor outcomes (ACOG, 2019).

One hinderance to utilizing effective labor positions with patients is a gap in knowledge among Labor and Delivery nurses, resulting in inconsistent usage during patient care. Labor and Delivery nurses should be expected to appropriately select maternal positions that are associated with specific outcomes, such as fetal descent, rotation, and alignment (Tussey et al., 2015). Additionally, they must have adequate knowledge to provide clear, evidence-based explanations to patients to help them make informed choices throughout the labor process. However, nurses entering the obstetric specialty often come from a wide variety of nursing backgrounds, experiences, and trainings. When hospitals lack a standardized approach to training these nurses and providing clear protocols for labor interventions, such as positioning, it can result in inconsistent implementation, and even misuse, that can have detrimental effects on patient care.

Problem Description

The Labor and Delivery unit at a large community hospital in the San Francisco Bay Area consists of fourteen labor and delivery rooms, two operating rooms, and four triage beds, and is staffed by approximately twelve nurses during each eight-hour shift. This hospital delivers more than three-thousand babies each year and provides award winning care in obstetrics, gynecology, and neonatology (Santa Clara Valley Medical Center, 2022). However, the current cesarean rate at this hospital for first-time, low-risk, full-term pregnancies is 23.9%, slightly higher than the national target of 23.6% (Cal Hospital Compare, 2022; Office of Disease Prevention and Health Promotion, n.d.).

In Fall 2022, a nurse educator from this hospital requested help implementing a project that would increase staff knowledge to successfully utilize patient positioning and promote better

patient outcomes. The nurse educator recognizes that Labor and Delivery nurses come into this specialty with varying professional experiences and expresses an interest in standardizing the education on positioning to promote more consistent use in patient care. A group of students partnered with the hospital and created an educational training to improve the nurses' knowledge and confidence with several positions that can be used during the first stage of labor. The students critiqued and synthesized the current research to develop an evidence-based approach to why, when, and how various patient positions can be used to promote fetal descent and progress labor. Furthermore, by providing the same education to the eighty staff nurses on this unit, the hospital will develop a more standardized approach to utilizing this labor intervention, resulting in more consistent, high quality patient care and better labor outcomes. Although not studied as an outcome measure for this project, these improvements have the potential to reduce labor dystocia, therefore lowering the hospital's overall cesarean rate. This can have a huge positive impact on the patient experience, as well as the economic health of the organization at large.

Available Knowledge

PICO Question

The PICO question for this project is, "For labor and delivery nurses, how does staff education on patient positioning during the first stage of labor compared to no additional education affect the nurses' level of knowledge and confidence of using various labor positions to aid in fetal descent and progression of labor?"

Search Strategy

To explore this PICO question, a comprehensive literature search was conducted using the University of San Francisco Gleeson Library, CINAHL, Scopus, and PubMed databases. The databases were searched using keywords from the project's aim statement, including labor,

delivery, position, first stage, pelvis, and fetal descent. Limitations were placed on the search to only include peer-reviewed, scholarly articles published no earlier than 2012, although one article from 2007 was included due to its relevance. A total of five studies met this specific criterion and were used to synthesize a strong literature review addressing the project's topic.

Synthesis of Literature

It can be difficult to determine the exact effects of positioning on labor progress, since study participants cannot be reasonably expected to stay in one position throughout the entirety of labor. However, the following studies do clearly support the benefits of upright positioning and mobility on maternal outcomes during the first stage of labor.

Lawrence et al. (2013) conducted a systematic review with meta-analysis on the effects of maternal positions and mobility on the first stage of labor. The authors performed a systematic search of the Cochrane Pregnancy and Childbirth Group's Trials Register, only including randomized and quasi-randomized trials that compared women in upright versus recumbent positions during the first stage of labor. After utilizing the *Cochrane Handbook for Systematic Reviews* for data collection, quality assessment, and results analysis, 25 studies were included, totaling 5,218 study participants. The main results of this review were that upright positions in conjunction with mobility resulted in shorter first stages of labor by about 1 hour and 22 minutes; fewer cesarean deliveries; and reduction of epidural use for pain management. The review found no significant differences in duration of second stage of labor and other outcomes impacting the wellbeing of mothers and infants.

Gizzo et al. (2014) conducted an observational cohort study on pregnant women admitted to the Labor and Delivery unit at the University of Padua from January 2013 to December 2013. The study compared maternal and fetal outcomes of women who labored in recumbent positions

versus patients who preferred alternative positions, including upright, squatting, sitting on ball, or hands-and-knees. 225 participants were included in the study, with 69 in Group A, who spent at least 50% of labor in a recumbent position, and 156 women in Group B, who utilized the alternative, non-recumbent positions. The results show that women in the vertical, alternative positions had less pain, shorter first and second stages of labor, fewer requests for analgesia, fewer operative and cesarean deliveries, and less episiotomies. The study did not report any significant differences in neonatal outcomes.

Liu (2007) conducted a randomized control study investigating the effect of the angle of position on maternal labor outcomes. The two labor positions being compared were a zero-degree recumbent position and a thirty-degree upright position. The study recruited 68 women and placed them into 3 groups: (a) thirty-degree upright position without bearing down instructions (24 participants); (b) thirty-degree upright position with bearing down instructions (22 participants); and (c) a control group in a zero-degree recumbent position with bearing down instructions (22 participants). This study found that the upright position enhanced fetal descent, resulting in shorter durations of the first and second stages of labor compared to the labors in the recumbent position.

A fourth study conducted by Eman and Al-Zahrani (2017) utilized a quasi-experimental research design to assess the effect of upright versus recumbent positions on labor outcomes, including progress, duration, method of delivery, neonatal outcomes, and maternal satisfaction. The study took place on a Labor and Delivery unit at Benha University Hospital and divided 100 participants into two groups with 50 participants in each. The first group used upright positions in the first stage of labor and the second group utilized recumbent positions. Data was collected with four tools: structured interviewing questionnaire, structured observational checklist, visual

analogue pain intensity scale, and maternal satisfaction with assumed position questionnaire. The authors reported upright positions had a positive effect on progress of labor, decreased duration of all stages of labor, better neonatal outcomes, and improved maternal satisfaction with the assumed position. The suggested implications for practice are that laboring women should be encouraged and supported to utilize upright positions during the first stage of labor, including walking, sitting, standing, kneeling, and squatting.

Lastly, Kibuka et al. (2021) compiled evidence from Cochrane Systemic Reviews of randomized control trials comparing the effects of upright versus horizontal laboring positions on mode of delivery, and length of first and second stages of labor. Ultimately, the study included three systemic reviews from the database, with a total of 18,697 participants. The authors found that the duration of the first stage of labor was reduced by one hour and twenty-two minutes when utilizing upright birthing positions compared to horizontal positions. Additionally, the researchers reported a reduction in cesarean deliveries, a statistically significant difference in duration of second stage, and a reduction in assisted vaginal deliveries when patient were positioned upright instead of horizonal.

These five articles provide strong support for implementing this quality improvement project on the Labor and Delivery unit (see Appendix B). The selected articles show the clear benefits of upright positions and mobility with laboring patients to decrease the length of the first stage of labor and reduce cesarean deliveries. This evidence supports this project's intervention and helps guide the selection of various labor positions for the staff education plan. The intervention will emphasize upright positions, such as squatting, kneeling, sitting, and dangling, as well as mobility movements, including walking, stair climbing, and rocking.

Rationale

Kurt Lewin's Change Theory is the change model that provides the framework for this Labor and Delivery unit quality improvement project. The authors will utilize this model to gain the unit and organization's acceptance for the proposed intervention, as well as sustain change using the new labor tool within the microsystem.

Lewin's change model helps explain how individuals unlearn current behaviors to restructure and relearn new approaches. This is critical to continuous improvement within a healthcare system to consistently support the use of best practices. The three main phases of this theory include unfreezing, change, and refreezing (Harris et al, 2018). During unfreezing, an individual experiences a shift in the social atmosphere, providing the motivation for change to occur. This phase relies on an individual's ability to recognize imperfections within a system and accept the need for change. In this project, the needed change is increasing staff knowledge of various labor positions to ultimately reduce the length of labor and prevent surgical deliveries. The authors address the staff's gap in knowledge, a major barrier to the unfreezing phase, by providing thorough, evidence-based education to increase their confidence and preparedness with using these tools with future patients.

The second phase, change, involves a perceivable shift from the "norm". The change phase is best supported when the individual feels a sense of comradery engaging in the change process, such as from other coworkers (Harris et al, 2018). This project plans to successfully move through the change phase by identifying nurse champions on each shift in the initial phase of the project to elicit support, excitement, and motivation from other Labor and Delivery nurses. These champions will be the first nurses to receive the staff education and can use this experience to

educate the other nurses, as well as answer questions as this new labor tool is widely adopted on the unit.

The last phase is refreezing, which involves accepting the new approach as the current standard of practice. This improvement project addresses refreezing by providing a recorded version of the staff education that can be shown to all future new hires, moving towards standardizing the approach to educating Labor and Delivery nurses on utilizing these labor positions with patients. This step is critical to sustain a practice change within the microsystem.

Project Aim

By December 2022, the nurses in the Labor and Delivery unit will improve their knowledge of labor positions to utilize during the first stage of labor to promote fetal descent and progression of labor. The project will include an educational training for Labor and Delivery nurses based on their learning needs and interests to improve their confidence with this labor tool. Future studies may explore potential effects on hospital cesarean rates, duration of labor, and patient satisfaction scores to explore additional benefits of this intervention.

Context

Various assessment tools were used to develop the labor position education project, including a microsystem assessment, SWOT (strengths, weaknesses, opportunities, and threats) analysis, and cost-benefit analysis.

A microsystem assessment was conducted on the Labor and Delivery unit to better understand how the unit functions, what equipment is available, and how nurses can better incorporate labor positions into patient care for more successful implementation of staff education. The five areas being assessed are 5Ps: professionals, purpose, processes, patients, and patterns (King & Gerard, 2016). A thorough assessment on the unit reveals professionals and

processes as two priority areas for improving patient care within this microsystem. Unit observations and staff surveys emphasize a lack of knowledge among nurses on how and when to utilize patient positioning as a labor tool to promote fetal descent and progression of labor. Nurses select different positions with varying explanations of why, when, or how to use them, emphasizing the need for greater education in this area. Additionally, the unit lacked a standardized approach to educating nurses on these labor positions, resulting in inconsistent and ineffective use for seeing the expected benefits in patient care.

Additionally, a SWOT analysis (see Appendix C) identified the strengths, weaknesses, opportunities, and threats of implementing a staff education training on the labor and delivery unit. The most attractive strengths of this project are that it is relatively low-cost and short in duration, only requiring about ten minutes to complete. The nurses and nurse educator were eager to improve staff knowledge and adopt evidence-based best practices on their unit, while also limiting time needed for additional trainings. This project presents several opportunities not only to increase staff knowledge, but to improve unit and patient outcomes, including patient satisfaction, cesarean rates, epidural usage, and labor duration. Major threats to the project include selecting nurse champions who will enthusiastically participate in the training and disseminate the information to other nurses across all three shifts, and getting nurses to participate in the education, no matter how short, when it is an additional request of them on top of their shift.

Lastly, a cost-benefit analysis was conducted to assess the financial implications of this project. The students provided the educational resources and trainings as part of their internship course, so the hospital did not incur any costs for paying nursing staff to run these sessions. Furthermore, all the equipment used to teach the labor positions was already available at the

hospital, including peanut balls, yoga balls, adjustable beds, pillows, towels, step stools, and chairs. Students wanted to ensure the selected positions were feasible to accomplish with existing hospital equipment, so no additional direct costs were associated with the project. Additionally, the hospital does not have the budget to support the continued implementation of this project if high costs are involved. To support continued standardization of Labor and Delivery nurses' education with positions, the students recorded a presentation of the staff education that can be used as an online module for future new hires. In the future, there may be minimal costs associated with hourly wages for nurses participating in the education, but the goal is to keep it a low-budget project for current and future use for successful implementation at this county hospital.

Intervention

The staff education project on labor positioning was designed to be implemented over a 13-week period from August 2022 through early December 2022 (see Appendix D). The intervention began with a pre-educational survey to establish the nurses' confidence level prior to the intervention with implementing the nine selected labor positions (see Appendix E). The survey was distributed to Labor and Delivery nurses in-person using a QR code. The questions on the survey consisted of nine Likert-scale questions and six free response questions to gather sufficient quantitative and qualitative data to guide the development of the educational plan. The students used this data and feedback to develop a teaching plan that addressed the learning needs identified by the pre-survey, including effective positions with epidural usage, how to promote vaginal birth using positioning, the evidence supporting each position, and improving confidence using these positions in patient care. The students created a printed handout and video

presentation depicting the nine labor positions, along with evidence-based explanations of how, when, and why to employ each position with patients (see Appendix F).

Next, the students developed a training schedule to teach Labor and Delivery nurses across all three shifts. Days and times were chosen to ensure the unit champions and nurse educator were available, and busier times, such as change of shift, were avoided. Due to limited access to the unit, the students completed education on three separate shifts over the course of one week. Each session had the nurse educator and champions present, as well as approximately three to six additional nurses working that shift. The education lasted fifteen minutes, with time allotted to practice the positions and ask follow-up questions. At the end of each training session, nurses scanned a second QR code that brought them to the post-educational survey (see Appendix G). This survey contained the same nine Likert-scale questions, as well as free response questions identifying barriers to using these positions with patients and suggestions for future project modifications.

Lastly, the students provided the nurse educator with printed handouts and a recorded presentation to educate nurses who could not attend the scheduled training sessions, in addition to all future new hires on the unit. This will help provide consistent education to all Labor and Delivery nurses at this hospital to standardize the approach to positioning patients on this unit.

Measures

The measures for this project were collected in the pre-education and post-education surveys. The Likert-scale questions measured the nurses' confidence with implementing nine labor positions: flying cowgirl, kneeling/hands on knees, dangle, fire hydrant, froggy Walcher's, squatting, sitting, walking/standing/rocking/stair climbing, and lunging/side-lunging. The scale ranged from 1 "Not confident at all" to 4 "Very confident." Additionally, the pre-survey asked a

few demographic questions, such as how long the nurse has worked in labor and delivery, what is their highest level of education, what shift they work, and if they have previously taken any birthing or laboring classes outside of the hospital. The post-survey collected qualitative data identifying potential barriers to position use, areas the nurses want to learn more about, and suggestions for future research. This information can be used to guide future phases of this project.

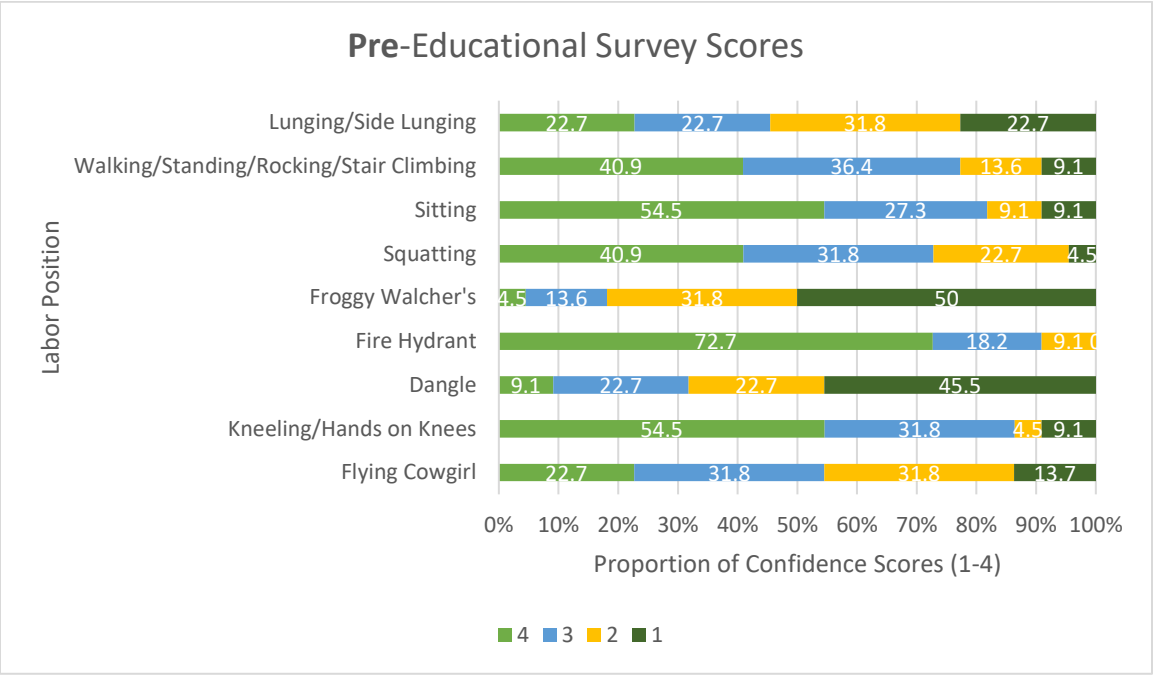
Results

Surveys with Likert-scale and free response style questions were administered to Labor and Delivery nurses before and after an educational presentation on nine evidence-supported labor positions for promoting fetal decent and progression of labor during the first stage of labor. The surveys measured the nurses' initial confidence levels with implementing each position compared to their confidence utilizing these same positions after the educational training.

Twenty-two nurses completed the pre-educational survey. The position with the highest confidence level prior to education was fire hydrant, with 72.7% of respondents selecting "4-very confident" implementing this position with patients. Other positions nurses felt "very confident" with prior to education are standing/rocking/stair climbing (40.9%), sitting (54.5%), squatting (40.9%), and kneeling/hands on knees (54.5%). The position with the lowest confidence level on the pre-survey is Froggy Walcher's, which only 4.5% of nurses selected "4-very confident" and 50% of nurses answered "1-not confident at all." Additionally, survey participants did not feel confident at all utilizing the dangle position (45.4%) with laboring patients. 22.7% of respondents felt "very confident" utilizing flying cowgirl, and 13.7% felt "not confident at all" with this same position. Lastly, lunging/side lunging demonstrated fairly similar results across the Likert-scale, with 22.7% of nurses in each of the "4", "3", and "1" confidence

levels and 31.8% answering at a “2” confidence level. The exact percentages for each confidence level and position are shown in figure 1.

Figure 1



After completing the educational training with the graduate students, twenty nurses responded to the post-educational survey. The three positions with the largest majority of “very confident” responses were fire hydrant (75%), sitting (70%), and kneeling/hands on knees (70%). The positions that maintained the lowest “very confidence” responses were Froggy Walcher’s (30%) and lunging/side lunging (35%), although both did still increase from the pre-educational survey. All the results from the post-educational survey can be seen in Figure 2.

Figure 2

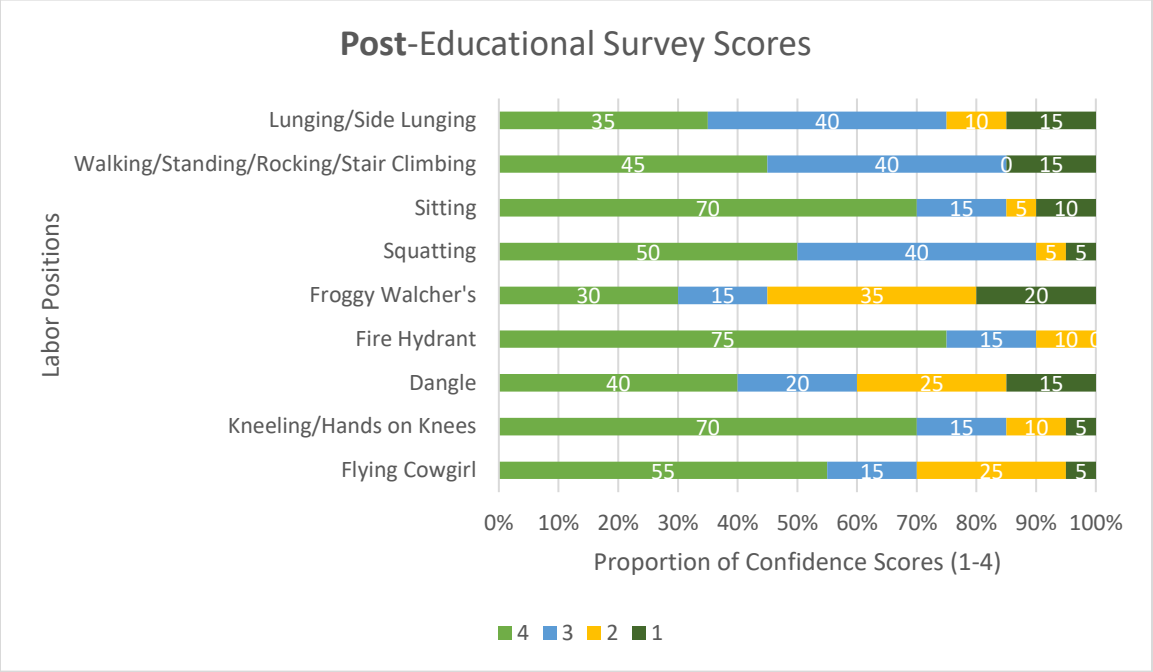
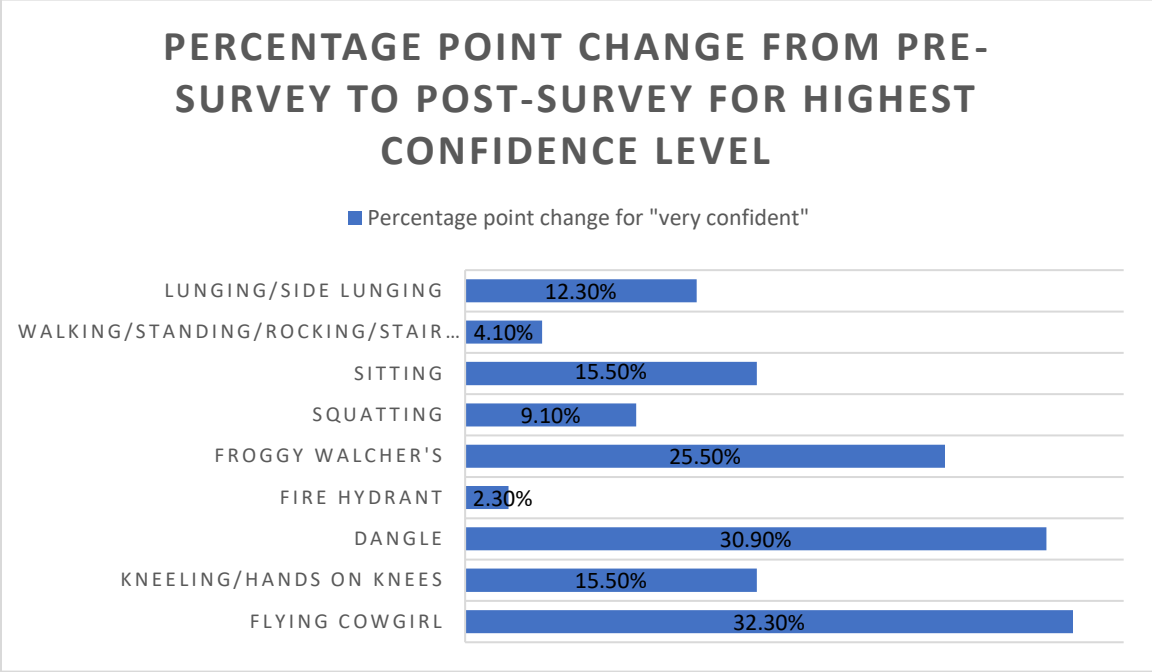


Figure 3 illustrates the percentage point increases for nurses selecting "4-very confident" for each individual position. There were increases in feeling "very confident" across all nine positions; however, the greatest increases in the "very confident" level were with flying cowgirl (32.3% increase), dangle (30.9% increase), and Froggy Walcher's (25.5% increase). The smallest increases were in walking/standing/rocking/stair climbing (4.1% increase) and fire hydrant (2.3% increase). Each percentage point increase for the nine positions is shown in Figure 3.

Figure 3



Discussion

The results of the pre- and post-educational surveys demonstrate that the educational training on nine selected positions does increase the confidence levels of Labor and Delivery nurses utilizing these positions with laboring patients. Part of the success of this project is attributed to the nurse champions who showed enthusiasm learning the material and helped educate other nurses on the unit to reach more individuals. Furthermore, they will be instrumental in sustaining this change in practice and educating new nurses to help standardize the approach to labor positioning at this hospital.

Although this project shows promising results, there are a few key limitations that must be addressed. Due to scheduling and communication issues with hospital staff, the graduate students had limited access and time on the unit to implement this project in a timely manner. Ideally, there would be an extended interval between the pre- and post-surveys to educate the nurses over the course of about seven to ten days. Due to scheduling issues, the students had to

complete the surveys and education on the same day, which may have impacted the results. Additionally, in the post-survey, nurses requested a “hands on component” be included in the project. This was not feasible during this phase but should be considered in future cycles. Another limitation was the time required to complete the education and surveys. The students tried to keep the process as short as possible to respect the nurses’ time, but it still required the staff to take a short break or step off the unit to participate. In some cases, the education and survey responses felt rushed, which may have influenced the responses collected. Future phases of this project should consider running the education when nurses are not working and offer hourly wages for participation.

The students implementing this project have a few recommendations for future phases of this project. First, nurses expressed difficulty utilizing certain positions due to the high-risk patient population at this community hospital. Some positions were not feasible due to high body mass indexes (BMIs), electronic fetal monitoring wires, intravenous (IV) lines, blood pressure cuffs, and other equipment. They requested positions be added that are more specific to most of the hospital’s patient population and that can be easily modified in varying situations common to the dynamic Labor and Delivery environment. Second, as mentioned above, nurses would like a hands-on component in the educational training so they can practice moving people into these positions and coaching them through the benefits and risks before utilizing it on real patients. This will help educate nurses with a variety of learning needs, especially tactile learners. Lastly, future implementation of this project should explore improvements in other important outcome measures, such as hospital cesarean rates, duration of labor, and patient satisfaction scores. This could have the extra benefit of financial savings for the organization and help gain further buy-in from key stakeholders.

Conclusion

This project suggests that implementing a staff education program teaching labor positions that promote fetal descent and progression of labor can increase the confidence and preparedness of nurses to utilize these positions as a successful labor tool with future patients. Furthermore, the project moves this Labor and Delivery unit towards standardization of practice in positioning laboring patients, which promotes a cohesive, consistent approach to how, when, and why to utilize various positions. This will ultimately benefit the patient experience by providing competent and confident nursing care that delivers the best outcomes for women and children.

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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:

Educate staff on various labor positions that can be used with patients to promote fetal descent and progression of labor. The staff training will increase the nurses' confidence in implementing selected positions for better labor outcomes.

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 _____ (date) 11/28/22

Signature of Student Kelsey G Koch (date) 11/15/2022

Appendix B

Literature Synthesis Table

Study	Design	Sample	Outcome/Feasibility	Evidence Rating
Lawrence, A., Lewis, L., Hofmeyr, G. J., Dowswell, T. & Styles, C. (2013). Maternal positions and mobility during first stage labour. *Cochrane Database Systematic Review*, (8). **https://doi.org/10.1002/14651858.CD003934.pub3.**	Systematic review with meta-analysis of randomized control trials and quasi-experimental studies	25 RCTs and quasi-experimental studies included; 5,218 participants	Mobility and upright positions during the first stage of labor reduce the duration of the first stage of labor, cesarean deliveries, and the need for epidurals for pain relief.	Level II B
Gizzo, S., Di Gangi, S., Noventa, M., Bacile, V., Zambon, A., & Nardelli, G. B. (2014). Women's choice of positions during labour: Return to the past or a modern way to give birth? A cohort study in Italy. *BioMed Research International*. **https://doi.org/10.1155/2014/638093**	Observational cohort study	225 participants: 69 in Group A laboring in recumbent positions and 156 in Group B using alternative, non-recumbent positions	Women in vertical positions had less pain, shorter labors, fewer requests for analgesia, fewer operative and cesarean births, and less episiotomies.	Level III B
Liu, Y. C. (2007). The effects of the upright position during childbirth. *The Journal of Nursing Scholarship, 21*(1), 14-18. **https://doi.org/10.1111/j.1547-5069.1989.tb00091.x**	Randomized control trial	68 participants; 3 groups: (a) thirty-degree upright	Upright positions enhanced fetal descent, resulting in shorter labors compared to participants	Level I B

		position without bearing down instructions (24 participants); (b) thirty-degree upright position with bearing down instructions (22 participants); and (c) a control group in a zero-degree recumbent position with bearing down instructions (22 participants)	laboring in recumbent positions.	
Eman, A. M. M., & Al-Zahrani, A. E. (2017). Upright versus recumbent position during first stage of labor among primipara women on labor outcomes. *Journal of Nursing Education and Practice, 8*(7), 113-124. **https://doi.org/10.5430/jnep.v8n7p113**	Quasi-experimental study	100 participants; 2 groups of 50 participants each	Upright positions had a positive effect on progress of labor, decreased duration of all stages of labor, better neonatal outcomes, and improved maternal	Level II C

			satisfaction with the assumed position.	
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. *European Journal of Midwivery, 5*(57), 1-14. **https://doi.org/10.18332/ejm/142781**	Systematic review with meta-analysis of randomized control trials and quasi-experimental studies	3 systematic reviews; 18,697 participants	First stage of labor decreased by 1 hour and 22 minutes using upright positions compared to horizontal positions. Also, reduction in cesarean deliveries, second stage of labor, assisted vaginal deliveries with upright positions.	Level II A

Appendix C

SWOT Analysis

Strengths	**Weaknesses**
• Enhances knowledge of labor and delivery nurses • Relatively low cost • Short training that does not take a lot of additional time to complete	• Lack of sustainability plan to carry project on in the future • Nurses overwhelmed by training on top of their work schedules
Opportunities	**Threats**
• Adds evidence and support to existing data on this topic • Improves outcomes on labor and delivery unit, including patient satisfaction, cesarean rates, epidural usage, and duration of labor • Improves staff confidence and preparedness in positioning patients during labor	• Nurse educator's scheduling capacity for students and nurses to complete training • Staff nurses unable to take time off the unit to complete education • Nurse champions unwilling to help disseminate education to other nurses across all three shifts

Appendix D

Gantt Chart

				September				October				November/December				
Tasks	**Start Date**	**Due Date**	**Duration (weeks)**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Project Conception and Initiation																
Research and Literature Review	9/1	10/1	4													
Group Meetings with Nurse Educator	9/12	9/12	1													
Development of Materials/Surveys	10/15	10/26	2													
Project Definition and Planning																
Development of Teaching Plan	10/18	11/2	3													
Development of Education Schedule	11/11	11/15	1													
Microsystem Assessment	11/22	11/22	1													
Project Conception and Initiation																
Implementation of Pre-Surveys	11/23	11/29	1													
Implementation of Education	11/23	11/29	1													
Project Performance/Monitor																
Implementation of Post-Surveys	11/23	12/2	2													
Data Evaluation	11/23	12/2	2													
Final Presentation to Hospital Staff	12/6	12/6	1													

Appendix E

Pre-Educational Survey

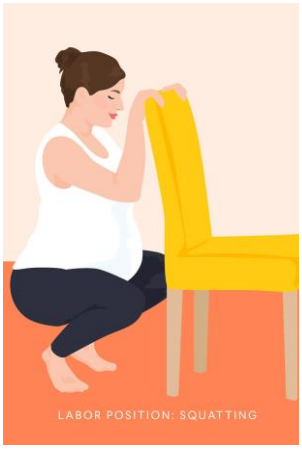
1. How long have you been a L&D nurse?
2. What is your education level (ADN, LPN, BSN, MSN, NP)?
3. What shifts do you work (AM, PM, NOC)?
4. Have you taken any classes on birthing/laboring positions outside of SCVMC?
5. If "yes", how many classes and which ones?
6. In your experience, what laboring positions are the most effective in helping baby descend?
7. Which positions do you utilize most frequently?
8. How confident are you with implementing **flying cowgirl**? (1 "not confident at all—4 "very confident")
9. How confident are you with implementing **kneeling/hands on knees**? (1 "not confident at all—4 "very confident")
10. How confident are you with implementing **dangle**? (1 "not confident at all—4 "very confident")
11. How confident are you with implementing **fire hydrant**? (1 "not confident at all—4 "very confident")
12. How confident are you with implementing **froggy Walcher's**? (1 "not confident at all—4 "very confident")
13. How confident are you with implementing **squatting**? (1 "not confident at all—4 "very confident")
14. How confident are you with implementing **sitting**? (1 "not confident at all—4 "very confident")
15. How confident are you with implementing **walking/standing/rocking/stair climbing**? (1 "not confident at all—4 "very confident")
16. How confident are you with implementing **lunging/side-lunging**? (1 "not confident at all—4 "very confident")
17. Are there are positions you would like to know more about?
18. What are some common barriers of positioning patients you have encountered?
19. What do you hope to learn from this project?

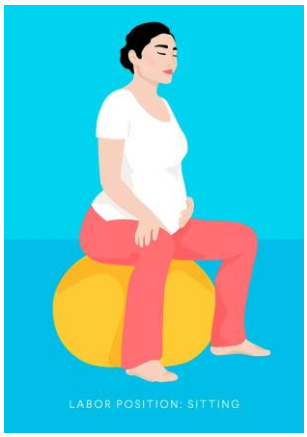
Appendix F

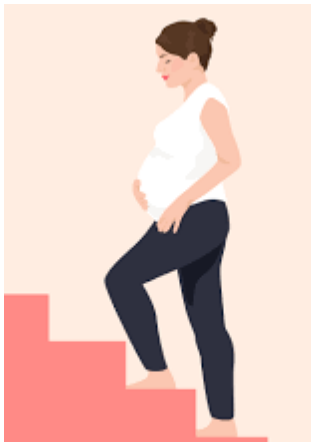
Educational Handout

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

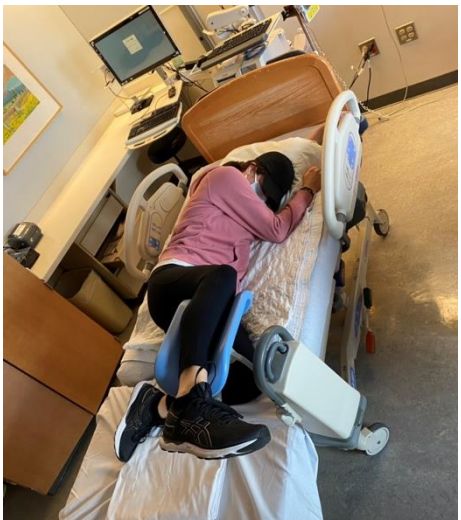
- Helps open the pelvic inlet to allow the baby to engage and/or rotate
- Use for 3-6 contractions, then repeat on the other side
- Keep the back arched and knees as far away as possible from the abdomen
- Use a peanut ball to keep the knees wide

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

Post-Educational Survey

1. How confident are you with implementing **flying cowgirl**? (1 “not confident at all—4 “very confident”)
2. How confident are you with implementing **kneeling/hands on knees**? (1 “not confident at all—4 “very confident”)
3. How confident are you with implementing **dangle**? (1 “not confident at all—4 “very confident”)
4. How confident are you with implementing **fire hydrant**? (1 “not confident at all—4 “very confident”)
5. How confident are you with implementing **froggy Walcher’s**? (1 “not confident at all—4 “very confident”)
6. How confident are you with implementing **squatting**? (1 “not confident at all—4 “very confident”)
7. How confident are you with implementing **sitting**? (1 “not confident at all—4 “very confident”)
8. How confident are you with implementing **walking/standing/rocking/stair climbing**? (1 “not confident at all—4 “very confident”)
9. How confident are you with implementing **lunging/side-lunging**? (1 “not confident at all—4 “very confident”)
10. What are some common barriers to implementing these positions with patients?
11. What are some future suggestions you have for research on this topic?