THE IMPACT OF INTERMITTENT AUSCULTATION AND PHYSIOLOGIC LABOR SUPPORT EDUCATION FOR NURSES ON PATIENT SATISFACTION AND NURSE SELF-EFFICACY

A Scholarly Project

Submitted to the

Faculty of Liberty University

In partial fulfillment of

The requirements for the degree

Of Doctor of Nursing Practice

By

Heather Nicole Soper

Liberty University

Lynchburg, VA

April, 2020
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Scholarly Project Chair Approval:

_________________________  _______________
Dr. Vickie Moore, DNP, FNP-C  Date
ABSTRACT

Knowledge and implementation of intermittent fetal auscultation (IA) and labor support mechanisms in the hospital setting are becoming a lost art. Nurses are well-trained on how to utilize technology and perform medical interventions for laboring patients, but are losing the confidence and skills necessary to promote normal, physiologic births for low-risk women. In order to address these concerns, an evidence-based practice project was piloted in a hospital in Virginia. Nurses were trained on the science, clinical application, and outcomes of both intermittent auscultation and continuous electronic fetal monitoring for low-risk women; education was also focused on labor support mechanisms and the effects of the birth environment on laboring women. The program was structured in a pre-test/post-test format, and nurses were given a three-month implementation period to apply learned practices. Nurses also filled out a survey to measure self-efficacy of labor-support mechanisms; the survey was administered prior to the seminar and following the three-month implementation period. Results from the surveys demonstrated an increase in nurse’s self-efficacy after implementation, as well as an increase in labor support knowledge following the educational seminar. To obtain patient views, all patients who gave birth were given a birth satisfaction survey during the three-month implementation period; patients were asked to specify if they had continuous fetal monitoring or intermittent auscultation, and whether any medical interventions were needed during labor and birth. Overall program results suggest that nurses benefit from continued education on normal labor and birth practices, but that the culture of the hospital unit, beliefs and values of individual patients, and provider practices affect the implementation of IA and the potential reduction of medical interventions in labor.

Keywords: Intermittent auscultation, birth satisfaction, labor support, medical interventions, continuous electronic fetal monitoring
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I would like to acknowledge the nursing staff that graciously supported this project by participating in the educational seminar on intermittent fetal monitoring and labor support and implementing their knowledge with laboring patients. They also took the time to distribute and collect birth satisfaction surveys from patients postpartum, which provided the outcome data necessary for evaluating the project. I would also like to thank Dr. Vickie Moore, the chair of this project, who gave me guidance and support every step of the way.

Lastly, I would like to thank my husband and children for their patience and love as they allowed me to pursue this project faithfully and completely. It certainly required much sacrifice.
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List of Abbreviations

American College of Nurse-Midwives (ACNM)

American College of OB/GYN (ACOG)

Birth Satisfaction Scale-Revised (BSS-R)

Certified Nurse Midwife (CNM)

Collaborative Institutional Training Initiative (CITI)

Continuous Electronic Fetal Monitoring (CEFM)

Doctor of Nursing Practice (DNP)

Institutional Review Board (IRB)

Intermittent Auscultation (IA)

Randomized-control trial (RCT)
SECTION ONE: INTRODUCTION

Intermittent auscultation (IA) is a method of fetal heart rate surveillance that involves using a doppler device to listen and count the fetal heart rate for short periods during labor. While this is a known method for assessing fetal well-being, it is only used in a small percentage of births in the United States. Conversely, continuous electronic fetal monitoring (CEFM), where the fetal heart rate during labor is continuously monitored, is used in 84% of births and is the most common obstetric intervention performed during childbirth. CEFM has been shown to increase medical interventions, such as Pitocin and epidural use, as well as cesarean and operative vaginal deliveries, without decreasing perinatal morbidity and mortality rates (Kumari, Velimala Ratna, et al, 2015). Because of the widespread use of CEFM, nurses are trained to provide continuous monitoring, but lack the necessary training and skills to support physiologic birth using IA. Nurses require education on how to continuously support low risk, laboring women, including the use of IA. Utilizing IA and labor support on low-risk women can reduce rates of cesarean and operative deliveries, reduce maternal morbidity and mortality, increase patient satisfaction through labor support techniques, and decrease healthcare costs. When nurses provide high-touch, patient-centered care, they have been shown to increase their own satisfaction and self-efficacy with IA and labor support, while also increasing their patients’ satisfaction with the birth experience (Bohren, Hofmeyr, Sakala, Fukuzawa, & Cuthbert, 2017).

Background

The Institute of Medicine’s Triple Aim promotes patient-centered, evidenced-based, lower-cost healthcare (Whittington, Nolan, Lewis, & Torres, 2015). Patient satisfaction is a quality indicator for healthcare organizations and satisfaction has far-reaching effects on how providers and healthcare organizations are perceived by the community. Patient satisfaction is
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not just a business outcome measurement, but also necessary for maximum reimbursement or bonus payments from health insurers. It is important for healthcare organizations to not only maintain their patients and families for future healthcare needs, but also keep their healthcare costs down and receive full reimbursement for healthcare services rendered.

Patient satisfaction surveys at a community hospital in Virginia have consistently shown low scores for the women who labor and deliver on the maternity unit. This hospital was the site chosen for the project. The nurses routinely use continuous electronic fetal monitoring (CEFM) on low-risk women to assess fetal well-being. This is, in part, because nurses on this unit are unfamiliar or lack confidence with the intermittent auscultation (IA) approach and frequently under-utilize it for low-risk women who present in spontaneous labor. It has also been observed that the nursing staff are not confident in providing support to a laboring woman through position changes, use of birthing balls, massage, counter-pressure, birth stools, and hydrotherapy; or supporting the woman’s psychological, spiritual, and emotional needs. These are important skills for nurses to provide as they are helpful for the progress of labor and decreasing medical interventions. Without these skills, this can make the nurse feel powerless, undervalued, and decrease his/her self-efficacy using IA and labor support methods which plays into the underuse of these tools and approach.

Problem Statement

Intermittent auscultation is under-utilized in the low-risk pregnancy population in the U.S., which in turn creates nurses who are not well-trained or confident providing labor support to low-risk women. IA and labor support have been shown to decrease medical interventions, specifically cesarean and operative deliveries, as well as increase patient satisfaction with the birth experience.
Purpose of the Project

The purpose of the project was to provide a nursing education intervention that informs nursing staff on current evidence pertaining to: (1) classification of low-risk eligibility for IA by reviewing the unit specific IA policy, (2) protocols for IA use, and (3) high-touch, holistic, patient-centered labor support mechanisms. The objectives were to decrease the medical interventions previously discussed that arise from the use of CEFM, while increasing nurse support in labor. A portion of the seminar was also focused on outcomes of CEFM use to demonstrate the risks that are involved with utilizing this type of fetal monitoring on low-risk women. These actions were suspected to increase nurse self-efficacy and patient satisfaction with the birth experience, resulting in higher patient satisfaction scores for those who received IA vs. CEFM, as well as higher self-efficacy rates by the nurses on the maternity unit.

Clinical Question

Does intermittent auscultation and physiologic labor support education for nurses, as opposed to continuous fetal monitoring, increase patient satisfaction with the birth experience and increase nurse self-efficacy?

SECTION TWO: LITERATURE REVIEW

According to Devane et al. (2017), continuous electronic fetal monitoring (CEFM) in labor is the most common medical intervention performed in U.S. hospital-based childbirth settings; however, over the last 40 years of use, it has not been shown to reduce perinatal morbidity or mortality. Others studies have found that CEFM has a high negative predictive value but very low positive predictive value of 3-18% for fetal hypoxia (Low, Victory, & Derrick, 1999). CEFM was first introduced in the 1960’s to identify fetus’ at risk for hypoxia
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and subsequent poor neonatal outcomes in women with pregnancy or medical complications; or in other words, for women with high-risk pregnancies. This type of fetal monitoring became more prevalent in the years following its introduction with the assumption that it was beneficial to assess for fetal heart rate abnormalities in all laboring women, even though no research supported any benefit to low-risk women. Women quickly acclimated to this change after CEFM was introduced and it is now an expected part of care in labor (Heelan, 2013). A Cochrane review showed intermittent auscultation (IA) and CEFM to be of no statistical difference for adverse outcomes for the infant in regard to asphyxia or cerebral palsy (Alfirevic, Devane, Gyte, & Cuthbert, 2017). However, CEFM has been shown to increase the rates of cesarean delivery, operative vaginal delivery (vacuum and forceps) and other medical interventions, including Pitocin augmentation and epidural use. These medical interventions are expensive and pose additional risks for patients and strains the healthcare system (Kumari, Velimala Ratna, et al, 2015). Maternal morbidity and mortality arise from high cesarean rates due to postpartum hemorrhage, infection, placenta accreta, and injury to other organs during surgery. The recovery time is also longer than a vaginal birth and slows the woman from returning to her normal duties of life (Menichini, Longo, Chen, Molina, Blackwell, & Sibai, 2018).

Intermittent auscultation (IA) during labor has been shown to increase patient mobility, shorten labor, and decrease the 2nd stage of labor, which all increase the likelihood of a vaginal birth, decrease medical interventions such as epidurals and oxytocin use, and increase patient satisfaction while decreasing costs (ACOG, 2019), (Ayerle et al., 2018). More than 70% of all pregnant women entering labor have low-risk pregnancies that would be eligible and benefit from IA use (Brunt, 2005). Studies have shown that a majority of nurses believe IA is the best
option for their patients, yet they inconsistently use it due to unclear unit policies and protocols, lack of skill, and the inability to achieve the 1:1 nurse to patient ratio that is typically required (Miller, 2015). There is a lack of research on the impact of labor support and IA on patient satisfaction with the birth experience, as well as the impact of IA and labor support education on nursing self-efficacy.

Search Strategy

The databases for this literature search included: PubMed, Cochrane Database of Systematic Reviews, and CINAHL. The keywords used were continuous electronic fetal monitoring, intermittent auscultation, labor support, birth satisfaction, nurse satisfaction, and patient satisfaction. Parameters of the search included only journal articles published in the English language within the past five years and combined a minimum of at least two keywords in the search results. Fifty-nine articles were yielded with these criteria. They were further narrowed down by choosing research that was done in developed nations. Fifteen studies were selected that met the inclusion criteria. There were four Cochrane systematic reviews, two committee opinions from the American College of OB/GYN (ACOG) and American College of Nurse-Midwives (ACNM), four random-control trials (RCT), one meta-analysis, and four qualitative studies included in the literature review.

Critical Appraisal

Every article examined for the project was ranked according to Melnyk’s system of hierarchy (University of Michigan Library, 2015). The evidence that supports this project is very strong with Melnyk Level 1 evidence from four Cochrane Reviews and one meta-analysis. IA has not been studied well in the high-risk pregnant population but has been well-studied in low-risk pregnant women to demonstrate safety of use. The limitations of some studies included one
center trials, or trials done outside the United States. A weakness in the literature is a universal tool for measuring patient satisfaction with the birth experience. There was a total of five studies of Level 1 evidence, two articles were Level 7 evidence, four articles were Level 2 evidence and four were Level 6 evidence. A table of evidence is provided in Appendix A.

**Synthesis**

Based on an extensive quality analysis of the current research, the majority of women report higher rates of satisfaction when they feel they have control, their providers listen to them through shared decision-making, and they have mobility in labor (Jackson, Land, & Holmes, 2016). The research also suggests that women are most satisfied with their care when the least amount of medical interventions are performed (Erenoğlu & Baser, 2019). Systematic reviews and RCT’s reveal that IA is associated with lower cesarean and operative vaginal delivery rates, and CEFM increases medical interventions such as Pitocin augmentation and epidural use (Alfirevic et al., 2017). IA also reduces healthcare costs due to the reduction of medical interventions and potential complication of those interventions.

There was a gap in the literature of research evaluating nursing self-efficacy with intermittent auscultation or labor support. The 1:1 nurse to patient ratio that is typically required in most hospital childbirth settings for IA use and effective labor support was stated as a concern by nursing staff as a barrier in providing IA. A knowledge gap was acknowledged by several authors on this topic of nurse self-efficacy with labor support and how more research is needed. Smith, Begley, Clarke, and Devane (2012) propose that IA is becoming a lost skill for nurses due to widespread use of continuous fetal monitoring. They also found that labor nurses spend only 6-10% of their time in labor support activities, while the majority of time is spent preparing medications, charting the fetal monitoring tracing interpretations, communicating with other
nurses, and updating charts. These activities take direct time away from the laboring woman, which can negatively impact the woman’s ability to cope with labor and her perception of support from nursing staff.

**Conceptual Framework/Model**

The Iowa Model is the conceptual framework that was used to support the project (Iowa Model Collaborative, 2017). This model is effective for guiding and implementing practice changes and quality improvement initiatives in healthcare settings. This project was a combination of knowledge-focused and problem-focused triggers. The knowledge deficit of IA benefits and lack of confidence with labor support were knowledge-focused triggers, while routine use of CEFM instead of IA, when it is not beneficial or necessary for low-risk women, was the problem-focused trigger. The values of the organization were reducing healthcare costs and increasing patient satisfaction. The relevant research was identified and critically appraised for use and application to this project. The nursing education intervention was piloted with the specific outcome measures of birth satisfaction and nurse self-efficacy. Permission was obtained to use the Iowa Model for this project and can be viewed in Appendix B.

**Summary**

The findings of the literature review supported the purpose of this project. Intermittent auscultation is a safe and appropriate way to monitor fetal status for low-risk women in labor. The use of continuous electronic fetal monitoring increases a woman’s risk for medical interventions (Pitocin augmentation and epidural use) and operative deliveries, which can consequently decrease birth experience satisfaction and increase healthcare costs from additional cesarean sections and complications from surgery. A research gap existed on how IA implementation with labor support affect patient satisfaction and nurse self-efficacy, so the
project sought to provide outcome data on this topic. The purpose of the project, therefore, was to provide a nursing education intervention that would increase nursing knowledge on IA and labor support mechanisms, increase nurse self-efficacy with labor support and positively impact patient satisfaction scores with the birth experience.

SECTION THREE: METHODOLOGY

Design

The design of this project utilized the Iowa Model for Evidence-Based Practice and included a practice change that was evaluated through a three-month pilot study (Iowa Model Collaborative, 2017). Instead of nursing staff using continuous fetal monitoring (CEFM) as the routine standard of care, labor and delivery nurses in a Virginia community hospital were educated on how to identify low-risk patients and apply IA for fetal monitoring, as well as labor support mechanisms, according to evidence-based protocols within the unit’s policy. The design was a non-experimental, evidence-based practice project. The goal of the project was to apply knowledge from current research to a real practice setting and evaluate the outcomes of patient satisfaction with the birth experience, as well as nursing self-efficacy with labor support and IA use, before and after the educational intervention. The educational seminar had the ability to strengthen nurse’s understanding and confidence with low-intervention labor and birth, which many nurses lack. Evidence strongly suggests that IA is a safe and effective choice of fetal monitoring for a low-risk woman in labor. The use of IA facilitates movement, allowing a laboring woman to move between a variety of positions that help the descent of the fetal head and assist in coping with labor pain. It also allows women access to hydrotherapy, which helps with pain relief. This, consequently, promotes progression of labor and decreases medical interventions, including epidurals, augmentation methods (Pitocin), and cesarean and operative
vaginal deliveries, which all carry associated costs and health risks. By decreasing these medical interventions in labor and associated risks, the birth experience can be enhanced. This project was done through a pre-test/post-test design. Nursing knowledge was assessed before and after an educational seminar and nurse self-efficacy was assessed before the same educational seminar, and after the three-month implementation of the project. Birth satisfaction surveys were distributed to all women that gave birth at the hospital for a three-month period, excluding planned cesarean births, to evaluate the birth satisfaction of those that received CEFM compared to those that received IA.

**Measurable Outcomes**

The measurable outcomes were: (1) Pre-test/Post-test of educational seminar: knowledge on IA use before and after an educational seminar; (2) Patient satisfaction with the birth experience: patient satisfaction with their birth experience divided into two groups (IA group vs. CEFM group) (3) Nurse self-efficacy: nurse self-efficacy with labor support mechanisms before and after an educational seminar and three-month project implementation.

**Patient satisfaction with the birth experience.** After a 1.5-hour educational seminar intervention for sixteen labor and delivery nurses on IA policies and procedures and physiologic labor support, patients who received IA would demonstrate an increase in satisfaction with their birth experience. It was expected that those who indicated IA use on their surveys would give higher satisfaction ratings, compared to women who reported CEFM use.

**Pre-test/Post-test of educational seminar.** Before and after the educational seminar intervention for labor and delivery nurses on IA policies and procedures and physiologic labor support, nurses would report increased knowledge of IA use and labor support techniques. This was evaluated by a pre-test/post-test model.
Nurse self-efficacy. Before and after the educational intervention and after a three-month implementation period utilizing their new knowledge on IA policies and physiologic labor support, nurse self-efficacy, measured using a Likert scale, would demonstrate an increase in confidence after the implementation period. This was expected to be evidenced by a pre- and post-implementation survey on nurse self-efficacy, showing higher scores after the three-month implementation period.

Setting

The project took place on a labor and delivery unit at a community hospital in Virginia. Approximately 1,000 births occur on the unit each year. This project aligned with the strategic plan of the organization to gain market-share of the births that occur in the surrounding region through the mechanism of increasing patient satisfaction. According to a community assessment performed in 2018, 400 women in need of childbirth services in the region were going to other facilities to receive care. Around this same time, patient satisfaction surveys (HCAHPS) were collected six weeks postpartum from women who delivered at the hospital and revealed lower than desired satisfaction scores with the birth experience. Nursing staff turnover had also been high over the last two years on the labor and delivery unit. This project aimed to address both patient satisfaction with the birth experience and nurse self-efficacy with IA and labor support by implementing IA, instead of CEFM, as the standard of care for low-risk women through educating nurses on how to incorporate strategies that support and guide physiologic birth. This project was supported by the Assistant Chief Nursing Officer and Nurse Manager of Labor and Delivery. The project site letter of support is contained in Appendix D.
Population

The population that was targeted for the project included all pregnant women that received care and gave birth on the labor and delivery unit at a community hospital in Virginia over a three-month time frame (December 16, 2019 - March 16, 2020). This population was influenced by the nursing staff who received an educational intervention on evidence-based research for IA and labor support measures. The population for the educational seminar was targeted toward all labor and delivery nurses on the unit.

The sample population estimate of women who were projected to give birth over a three-month time period was expected to be approximately 175 women. Due to some patients’ desire to opt-out and other factors that affect the collection of surveys, the amount of completed surveys for data analysis was a total of 48 birth satisfaction surveys. If a woman was admitted to the labor and delivery unit and greater than 37 weeks gestation, she would be eligible for the birth satisfaction survey and the nurse was expected to collect it at the time of her discharge.

Scheduled and planned cesarean birth patients were excluded from the survey because they did not experience labor. Women filling out the survey were able to notate whether CEFM or IA was used for a majority of labor, and any interventions that took place. The options included circling the following: Pitocin use, epidural use, vacuum, or forceps assisted delivery, cesarean section, and jacuzzi tub.

The nurse sample included 16 labor and delivery nurses who received the educational intervention; this accounts for more than half of the nursing staff on the unit. Most of the nurses who did not sign up for the educational seminar had an interest in attending but had other commitments and could not provide a date and time that would work for them. Nurses were recruited through email that solicited their participation, as well as through word of mouth. The
educational intervention was offered in four group sessions during a time that fit with each nurse’s schedule. A pre-test of nursing knowledge involving IA and nursing support in labor was given prior to the educational intervention, as well as a nurse self-efficacy survey on labor support. A post-test was administered at the end of the educational session, and the same self-efficacy survey was given again after the three-month implementation period. Each nurse that participated in the project provided their consent. The nurse consent form can be viewed in Appendix G. The recruitment email sent to nurses can be viewed in Appendix H.

**Ethical Considerations**

The project facilitator and leader, Heather Soper, CNM, DNP student, and Vickie Moore, FNP, DNP project chair, utilized proper research ethics to protect every nurse and patient involved in the project. Each patient satisfaction survey and pre-test/post-test score was confidential and anonymous. There was no sharing of any identifiable personal health information. Nurse self-efficacy data was kept confidential. All data will be kept for three years and then destroyed.

The Collaborative Institutional Training Initiative (CITI) course was completed and the certificates can be reviewed in Appendix C. The project was submitted and approved by the Liberty University Institutional Review Board (IRB) and the community hospital IRB prior to initiation. These can be reviewed in Appendix I and J.

**Data Collection**

The data from patients was collected in the form of a paper birth satisfaction survey. The patient received the survey as part of their admission to labor and delivery and completed the survey after delivery. The patient turned it in to their nurse at the time of discharge. The nurse
then took the paper survey and submitted it to a locked box at the nurses’ station. The project leader, Heather Soper, collected the surveys weekly from the locked box.

The data collected from the nurses was in the form of a written pre-test/post-test, before and after the educational intervention, and was personally collected by the project leader, Heather Soper. There was also a Likert-scale survey collected on nurse self-efficacy with labor support mechanisms. The nurse self-efficacy survey was completed and given to the project leader prior to the educational intervention, and then taken a second time at the conclusion of the three-month implementation period.

Tools

The Self-Efficacy Labor Support Scale was selected to measure nurse self-efficacy before the implementation of the educational seminar and at the completion of the three-month project. This is a 14-question survey using a Likert scale of 1-7 from strongly disagree (1) to strongly agree (7). The scale was used to determine the level of confidence nurses had in providing various elements of labor support and took less than 3 minutes to complete. According to Davies and Hodnett (2002), testing of the Self-Efficacy Labor Support Scale demonstrates reliability, validity and internal consistency showing satisfactory results. Permission to use this tool is found in Appendix E.

The Birth Satisfaction Scale-Revised Indicator (BSS-R) was used as the tool to measure patient satisfaction with the birth experience. According to Martin, Vardavaki, Hollins, and Martin (2017), studies have demonstrated excellent validity and reliability when using this indicator, which has been used internationally. The Birth Satisfaction Scale-Revised Indicator is a 10-question assessment of the birth experience using the Likert scale, which measures the woman’s perception of her quality of care during labor. The rationale for choosing this tool
related to the unique ability for the tool to measure satisfaction with the birth experience, not just generalized patient satisfaction. It was also clear and concise, and took less than 3 minutes for patients to fill out. The project leader chose this indicator to compare the birth experience of women monitored using CEFM to IA. Permission was received to use the BSS-R tool and can be found in Appendix F.

**Intervention**

All the nursing staff on labor and delivery were invited to take part in the practice project via email. The email explained the project and requested their participation. The 16 labor and delivery nurses that accepted, representing approximately 60% of the unit’s nursing staff, consented to participate in the project and were each given a choice of 4 different educational seminars they could attend, depending on their schedule and availability. Upon the start of the seminar, a nurse self-efficacy survey on labor support and a written pre-test on IA and labor support mechanisms were given and completed in less than 10 minutes. Once these were collected by the project lead, the nurses took part in an immediate face-to-face educational seminar lasting 1.5 hours and completed a post-test of the same questions as the pre-test. The seminar covered evidence-based information on CEFM and IA use, outcomes, protocols, and methods of determining patients as either low-risk or high-risk for fetal acidemia. Verbal instruction and hands-on demonstrations of physiologic labor support techniques for laboring women were provided. The nurses were then shown the birth satisfaction survey they were asked to hand out upon labor admission and collect prior to discharge over the upcoming three-month time frame starting on December 16th, 2019. This included all pregnant women that gave birth at the hospital, excluding planned cesarean births, as they didn’t require IA or labor
support. Heather Soper, project leader, picked up the surveys from a locked box at the nurse’s station on a weekly basis throughout the 3-month period.

The nurses were also given the same nurse self-efficacy survey at the end of the three-month implementation to measure the impact of the educational seminar on their confidence with providing labor support. The nurses were aware that a $50 Visa gift card would be given to the nurse who performed the highest rate of IA as indicated on patient birth satisfaction surveys.

**Timeline.** The written pre-test/post-test on IA and labor support, nurse self-efficacy surveys, and educational seminars were completed by the nurses between December 2, 2019 and December 15, 2019. The implementation began on December 16, 2019 and concluded on March 16, 2020. The nurse self-efficacy survey was completed by all 16 nurses who participated in the educational seminar by March 23, 2020. The $50 Visa gift card and presentation of findings were disseminated to the nursing staff via email on April 8, 2020.

**Feasibility Analysis.** The resources required for this project were: fetal dopplers, one locked box, and the nurses’ time. A high rate of commitment and buy-in from the nursing staff was also needed for this practice change. Fortunately, the unit manager held strong support for the project and offered to pay the nurses for the time spent attending the educational seminar. The budget included one catered meal per educational seminar (totaled $400), and one $50 gift card for the nurse that implemented the most IA in the three-month implementation period. The adequate nursing staff required to fully implement the IA protocol, which requires a 1:1 patient to nurse ratio, was predicted to be the most challenging resource for the project. In preparation for this being a problem, the nurse manager of labor and delivery committed to staffing the unit as best as she could to accommodate this need.
Data Analysis

Data analysis included analyzing answers from nurses’ pre- and post-tests, evaluating patient satisfaction with the birth experience, and measuring nurse self-efficacy using labor support methods. The two measurable outcomes of the project were patient satisfaction with the birth experience (comparing IA group to CEFM group) and nursing self-efficacy with labor support mechanisms. Descriptive statistics of means and percentages were used to analyze the data.

Pre-test/Post-test of educational seminar. Each of the 16 pre-tests were collected and graded prior to the educational seminar. Each test was graded as a percentage between 0-100%. The pre-test and post-test were identical, with 10 multiple-choice questions that included potential answers labeled A through D. Immediately after the educational seminar, nurses took the post-test again and the tests were graded in an identical way. All the pre-tests were averaged together for a mean score, and all the post-tests were averaged together for a mean score.

Patient satisfaction with the birth experience. The birth experience was measured using the Birth Satisfaction Scale-Revised survey, along with the accompanying grading tool. The questionnaire was a short, 10-question survey to evaluate the perception and birth experience of the patient. It also included a section for the patient to fill out whether she had CEFM or IA used during labor and any performed medical interventions. The survey data of women who were primarily using CEFM were grouped into one category, and the survey data of women who primarily used IA were grouped into another. Descriptive statistics was utilized to demonstrate the average score of birth satisfaction surveys in the CEFM group, and the average score in the IA group. The scale rated overall scores from 0 (representing no satisfaction), to 40
(representing the maximum satisfaction). Percentages of medical interventions reported by patients were also analyzed through simple descriptive statistics.

**Nurse self-efficacy.** Nurse self-efficacy was measured using the Self-Efficacy Labor Support scale. Each of the 14-line items, which were rated according to the Likert scale, were added up on each individual nurse’s survey to obtain an overall score. Descriptive statistics was then used to compare the overall nurse self-efficacy score of all 16 nurses before and after the education intervention of and three-month implementation period. The scores were then compared for a change in self-efficacy pre- and post-implementation.

**SECTION FOUR: RESULTS**

**Educational Seminar Pre-test/Post-test**

Sixteen labor and delivery nurses participated in the educational seminar, which is approximately 60% of the nurses on the unit. The result of the pre-test was an overall average score of 79%. The individual scores ranged from a 60%-100%. After the 1.5-hour educational seminar, the post-test average score was 93%. The post-test scores ranged from 80-100%. This demonstrated an acquisition of knowledge, with a 14% rise in score after the seminar. See Figure 2.

**Patient Satisfaction with the Birth Experience**

A total of 48 surveys were collected during the three-month project period. During the three-month project, approximately 220 births occurred. The sample of surveys collected represents about 22% of births. Patients specified use of CEFM vs. IA, and surveys were then divided into the CEFM group and IA group based on patient responses. There were 47 surveys (98%) indicating CEFM use, and 1 survey indicating IA use (2%). Each individual birth satisfaction questionnaire was then graded according to the BSS-R grading tool and added up for
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a total overall score. The average satisfaction score of the CEFM group was a 32.5, and the score of the IA survey was a 30. Individual satisfaction scores ranged from 23-40.

Due to the unexpected high use of CEFM during the project, medical interventions were also analyzed for rates of occurrence during labor and birth. These were documented by the patient as part of each individual birth satisfaction survey; the patient circled any intervention that took place during their labor or birth. The list on the satisfaction survey offered 5 medical intervention options, and each is listed with the corresponding rate of patient-reported occurrence: cesarean section (23%), vacuum/forceps delivery (2%), Pitocin use (60%), epidural use (73%), and jacuzzi tub use (10%). Out of the 60% of women who reported Pitocin use during labor, 79% reported also having an epidural. See Figure 3.

Nurse Self-Efficacy

All sixteen labor and delivery nurses filled out a pre-seminar nurse self-efficacy survey on their confidence utilizing labor support mechanisms. Each individual survey could receive an average score of 1-7; 7 representing the maximum confidence and self-efficacy. The scores were then averaged together for a group score. The pre-seminar (or baseline) score was a 5.2. The post-implementation score three months later was a 6.1. This represented a 0.9 increase of confidence in labor support after the completion of the project. See Figure 1.

SECTION FIVE: DISCUSSION

Implications for Practice

It is evident through the pre-test/post-test scores that nurses did acquire more knowledge on IA and labor support and also felt more confident providing labor support demonstrated by the higher nurse self-efficacy scores at the end of the project. This alone, however, was not enough to increase the rate of IA use and demonstrate IA’s effect on lowering medical
interventions in labor and increased birth satisfaction. A potential limitation of this study was participation turnout, since not all nurses attended the education seminar. If all nurses were trained, there may have been a higher amount of IA users. Since there was only one patient that reported IA use in labor as part of the project, her satisfaction score cannot be extrapolated to represent the birth satisfaction of all IA users in general. Additionally, medical interventions performed on many of the surveyed women, namely Pitocin and epidural use, excluded them from being candidates for IA monitoring; these interventions required the use of CEFM. The reasons for these medical interventions were not indicated and exceeded the objectives of the project. The project was not done specifically on low-risk women, yet nurses were trained to promote IA use in those that were eligible. The surveys were given to all women who experienced labor and birth on the unit.

An area of future research could be determining additional causes of medical interventions in labor such as inductions, beliefs and values of pregnant women surrounding pain relief options, and the culture of the labor and delivery unit, including provider practices and nurses’ beliefs. An additional focus of research could be specifically on low-risk pregnant women and their decision-making process before and during labor, including discussing the benefits and risks of the different types of fetal monitoring during prenatal visits. This would put more emphasis and responsibility on the patient and provider relationship for planning IA use ahead of time, instead of the nurse being responsible for determining eligibility and promoting IA use at the time of labor admission.

**Clinical significance.** The clinical significance of these findings demonstrate that nurses have an opportunity to expand their knowledge and understanding of labor support mechanisms and IA eligibility and protocols. Occurrences of medical interventions in the
project’s CEFM group aligns with findings from current literature, which demonstrate high Pitocin and epidural use for patients who receive CEFM due to decreased mobility and a lack of pain relief options, including access to hydrotherapy. This was not the intended measurable outcome of the project; however, the project findings confirm that women who have CEFM will subsequently have high rates of medical interventions. The overall average birth satisfaction score of 32.5 (scale 0-40) in the CEFM group can be interpreted that women had an average satisfaction with their birth and generally felt positive about their experience. It is possible that the part of the educational seminar discussing labor support methods influenced the CEFM group’s birth satisfaction, since nurses could use this knowledge with all patients, whether IA or CEFM was used. However, the satisfaction scores also indicate that there is room for improvement in the birth experience.

**Practical significance.** The importance of this project to the organization has a simple, practical application. Nurses benefit from education. Nurses need education to feel confident in their work, and their confidence and experience can be felt by their patients. This translates to better outcomes. Pregnant women will remember their birth experience for most of their lives and it is important for nurses to provide the most positive experience that they can. The overall birth experience determines if a woman decides to bring her family to that same hospital for future healthcare needs, and she will spread the word to her friends and family to promote her hospital of birth if her experience is positive.

It was interesting to note that the hospital’s tracking software of patient satisfaction scores from HCAHPS demonstrated a jump in satisfaction for the maternity unit during the implementation of this project. The first quarter of 2020 (January 1-March 31, 2020) demonstrated an 87% patient satisfaction rate, and ranked in the 92nd percentile compared with
other hospitals. In order to compare previous HCAHPS scores, the 3rd and 4th quarter percentages were also obtained from the hospital. The 2019 3rd quarter satisfaction scores were 77% and ranked in the 63rd percentile, and the 2019 4th quarter satisfaction scores were at 63%, ranking in the 12th percentile. There is no way to prove that the educational seminar directly led to this increase in satisfaction through a causal effect, however, it is important to take notice that there could be a correlation. Even though there appeared to be a low uptake of IA from the surveys collected, these surveys only represent a portion of all the births that occurred on the unit. It is possible that more IA was performed but the surveys were missed on these patients. There was also a portion of the educational seminar that focused on patient-centered care and labor support for both IA and CEFM patients which could have impacted the HCAHPS scoring in the first quarter of 2020.

Limitations. The limitations of the project included participation in the educational seminar, that a portion of the nurses did not attend. This limited the effect of applying evidence-based knowledge to every patient who gave birth on the unit during the project time frame. The educational seminar included mostly verbal instruction and little hands on instruction on how to use IA and labor support mechanisms. Nurses could have benefited from practice on real, laboring patients as a component of the seminar.

Challenges/alternative explanations. One of the main challenges was the collection of birth satisfaction surveys. Nurses captured surveys from less than 25% of the women who gave birth during the project time frame. Surveys often got lost between handing it to the patient upon labor admission and collecting it prior to discharge home. Another identifiable challenge was the rate of inductions for non-medical purposes on the unit. This provider practice impacts the eligibility of low-risk women to choose IA monitoring. Lastly, providers and nurses alike
appreciate seeing a fetal monitor tracing throughout labor because it gives them reassurance. This is a big practice change to trust and turn toward intermittent monitoring where there is no continuous tracing. The comfort level with this practice change takes a longer period of time than the three-month time frame given. An option in the future that might help with this transition could include education for providers, in addition to the nursing staff.

**Sustainability**

The sustainability of the project is influenced by nurses and providers’ values, beliefs, and the unit culture. Organizational priorities, such as determination for the market share of births in the community by increasing birth satisfaction, is a large component of sustainability. Without buy-in from the staff and organization, including the training of all nurses and providers on IA and labor support, the practice change may not have a large, sustainable impact on outcomes.

**Dissemination Plan**

The plan for disseminating the results included emailing all the nursing staff on the labor and delivery unit with the outcomes of the project. Due to the Covid-19 pandemic, an in-person follow up session was not able to take place. The dissemination plan also included the submission of a manuscript for publication in the *Nursing for Women’s Health* journal. This is a clinical journal for obstetric nurses that highlights evidence-based practice information that can be applied to settings across the U.S. The intent is also to do either a podium or poster presentation at the American College of Nurse Midwives (ACNM) or Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) annual conference in 2021.
Conclusion

In conclusion, this project has highlighted the need to incorporate more strategies that help reduce medical interventions in labor, promote IA uptake in low-risk pregnant women, and increase patient satisfaction with the birth experience. More research is needed to explore this complex area of obstetric nursing. The link between the care that takes place during labor and birth and how the patient feels about their birth experience needs to be evaluated regularly for optimal and effective outcomes for mothers and their infants.
THE IMPACT OF INTERMITTENT AUSCULTATION

Figure 1 (top). Figure 2 (bottom).
Figure 3.
References


APPENDIX A

Evidence Table
<table>
<thead>
<tr>
<th>Article Title, Author, etc. (Current APA Format)</th>
<th>Study Purpose</th>
<th>Sample (Characteristics of the Sample: Demographics, etc.)</th>
<th>Methods</th>
<th>Study Results</th>
<th>Level of Evidence (Use Melnyk Framework)</th>
<th>Study Limitations</th>
<th>Would Use as Evidence to Support a Change? (Yes or No) Provide Rationale.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bohren, M.A., Hofmeyr, G.J., Sakala, C., Fukuzawa, R.K., &amp; Cuthbert, A.</td>
<td>To look at the effects of one-one continuous support during intrapartum</td>
<td>27 trials including 15,800 women in labor, over 17 countries</td>
<td>Systematic review</td>
<td>Continuous one-one labor support increases vaginal delivery, reduces cesarean section and operative deliveries, less likely to report negative labor experience. No harm occurred in relationship to the intervention of continuous labor support</td>
<td>Level 1</td>
<td>This systematic review was limited by the low-quality studies that were included</td>
<td>Yes. This shows no negative effects, only positive outcomes that are associated with the use of continuous labor support</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>To determine if continuous fetal monitoring on admission is safer for infants than intermittent auscultation</th>
<th>4 Randomize d and quasi-randomize d trials: 13,000 laboring women in Ireland and U.K.</th>
<th>Systemati c Review</th>
<th>20% higher risk of c-section when admission continuous monitor tracing was performed for 20 minutes vs. intermittent monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, this is high quality evidence to use in practice.</td>
<td>Level 1</td>
<td>Studies were done in industrialized countries in Europe; therefore it doesn't apply as much to low-income countries</td>
<td></td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>To determine if the birthing environment and mobility in labor effected pain coping mechanism, increased vaginal birth</th>
<th>1 systematic review, 5 cochrane reviews, and 3 RCT's</th>
<th>Multi-site RCT's, metanalysis</th>
<th>Women that were mobile in the first stage of labor had a reduced risk of abnormal fetal heart rate patterns, decreased operative vaginal birth. Women expect control, choice and emotional support from their labor nurse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited by the lower quality of the studies</td>
<td>Level 2</td>
<td>This study is valuable because it reveals what women expect from their labor experience. If the nurse can meet those expectations, she will have higher satisfaction levels</td>
<td></td>
</tr>
</tbody>
</table>

To determine if continuous fetal monitoring on admission is safer for infants than intermittent auscultation

Studies were done in industrialized countries in Europe; therefore it doesn't apply as much to low-income countries

Yes, this is high quality evidence to use in practice.

This study is valuable because it reveals what women expect from their labor experience. If the nurse can meet those expectations, she will have higher satisfaction levels.
| Jackson, C., Land, V., & Holmes, E. J. B. (2016;2017). | 26 women who had their labors videoed in English hospital, and the communication between health care providers and laboring women were analyzed, and then the patient was interviewed. | A sense of choice and control in decision made during labor increase satisfaction levels. Women that feel the provider is being assertive in the decision-making process will feel that they don't have as much control and leads to lower satisfaction. | Level 6 | This study is limited by small sample size and was a specific patient population in England that chose to televide their birth. |
| The purpose of the study was to recognize women’s responses to provider’s assertions and discover their perspective on the receiving end of that communication. | Conversation analysis- Qualititative | |
| Menichini, D., Longo, M., Chen, H., Viteri Molina, O. A., Blackwell, S. C., & Sibai, B. M. (2018). Factors associated with patient satisfaction during labor: A quality improvement study [28E]. Obstetrics & Gynecology, 131(1), 595-605. | 312 women in a large teaching hospital in Texas were given labor and delivery satisfaction index questionnaire postpartum while in the hospital. | Vaginal birth and knowing the delivering provider had statistically significant impact on maternal satisfaction. | Level 6 | The limitation was that it was done in 1 setting in the U.S., and it was a large teaching hospital. Not guaranteed to translate to medium or small sized labor and delivery unit. |
| To assess maternal satisfaction variables with the labor experience. | Qualitative single study | |

Yes, this very useful because it reveals the perception of care women have and their desire to be involved in making decisions.

Yes. It can be gleaned that most women desire vaginal birth and report higher satisfaction when they receive that outcome as compared to c-section.
<table>
<thead>
<tr>
<th>Source</th>
<th>Methodology</th>
<th>Findings</th>
<th>Evidence Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macpherson, I., Roqué-Sánchez, M. V., Legget, F.O, Fuertes, F., &amp; Segarra, I. (2016). A systematic review of the relationship factor between women and health professionals within the multivariant analysis of maternal satisfaction. <em>Midwifery, 41</em>, 68-78. doi:10.1016/j.midw.2016.08.003</td>
<td>To understand the factors that affect maternal satisfaction between a woman and her provider in labor. 24 studies that used multivariate analysis, sample sizes ranged from 100-2,500.</td>
<td>Personal control, self-efficacy, emotional support, and fulfillment of expectations are the main indicators for maternal satisfaction with labor experience. Women that participate in questionnaires are more likely to have higher satisfaction.</td>
<td>Level 1</td>
</tr>
<tr>
<td>Jones, L. V. (2015). Non-pharmacological approaches for pain relief during labour can improve maternal satisfaction with childbirth and reduce obstetric interventions. <em>Evidence Based Nursing, 18</em>(3), 70-70. doi:10.1136/eb-2014-101938</td>
<td>To assess the effects of nonpharmacologic pain approaches to pain relief in comparison to usual care. 57 studies were included.</td>
<td>Nonpharmacologic approaches such as water immersion and relaxation increase satisfaction with childbirth. Usual care needs to be defined to understand what the comparison group is.</td>
<td>Level 1</td>
</tr>
<tr>
<td>Erenoğlu, R., &amp; Başer, M. (2019). Effect of expressive touching on labour pain and maternal satisfaction: A randomized controlled trial. <em>Complementary Therapies in Clinical Practice, 34</em>, 268-274. doi:10.1016/j.ctcp.2019.01.002</td>
<td>To measure the effect of pain relief and satisfaction with expressive touching during labor on satisfaction. 40 women at hospital in Egypt were randomized to either expressive touching, or usual care.</td>
<td>Expressive touching is a simple intervention that nursing staff can provide to decrease a woman’s perception of pain in labor and increase her satisfaction with the birth experience. This was only done in a hospital in Egypt. Many patients were scheduled for labor induction so this would need to be replicated to see if applies to spontaneous labors.</td>
<td>Level 2</td>
</tr>
</tbody>
</table>

Yes, this research is very important to take into consideration when trying to deliver a satisfying birth experience.

Yes, this high-quality evidence suggests that non-pharmacologic means increase satisfaction and reduce obstetric intervention.

Yes. This study reveals how the support of the nurse through hands on touch, even if it using a handheld doppler to listen to the fetal heart rate every 15-30 min, can increase maternal satisfaction.
| A questionnaire was sent to 733 women (599 responded) in Western Australia on their perception of birth experience |
| Mixed methods study |
| The mode of birth affected the satisfaction level. Vaginal births had higher levels of satisfaction |
| Level 6 |
| Limited by 1 site in Australia at a facility that handles more high-risk pregnancies |
| Yes, this research corroborates with all the other literature that maternal satisfaction is related to vaginal birth |

| Review and identify childbirth satisfaction measurement tools for reliability and validity |
| 46 articles identified with 36 measurement tools, most tested in the U.S. and U.K |
| Systematic Review, mix of quantitative and qualitative |
| Due to the large range of foci of what each tool measured exactly, a conclusion cannot be made for the more valid and reliable tool |
| Level 2 |
| Too vast of tools to evaluate specifically for labor |
| No. This is not enough information to make a decision on which tool is the most effective based on the evidence |

| Identify and assess the most robust instruments for measuring childbirth satisfaction |
| An overview of the most up-to-date valid tools for measuring childbirth satisfaction |
| Systematic review |
| There are a moderate number of measuring tools that exist that are valid and helpful for measuring childbirth satisfaction |
| Level 1 |
| Very broad and generalize, not just 1 or 2 tools were selected as the most useful |
| Yes, this is a good article to identify the various tools to use for satisfaction |

### Synopsis of the legal and nursing repercussions of implementing IA usage

**1 author’s opinion based on the evidence that currently exists with IA**

**Expert Opinion**

**Getting informed consent on the type of fetal monitoring as well as educating nursing providers and staff is important for successful adoption of IA**

**Level 7**

**Limited evidence as this is written by 1 author, it is an opinion based on the evidence**

Yes, the tips the author includes are helpful to consider when implementing IA into nurse’s common practice.

---


### Outcomes were assessed for women who were either IA monitoring or continuously monitored

200 low risk pregnant women randomized to 100 in continuous monitoring group and 100 in IA group.

**Prospective randomized control study**

**C-section rate and operative delivery were increased in continuous monitoring group. No increase in neonatal morbidity/mortality was observed**

**Level 2**

1 isolated study, was not a multi-center trial, small sample size

Yes, this seems to show a link that IA reduces c-sections without compromising neonates at delivery.

---


### Recommendations to limit interventions in labor

Consensus from the recent research shows IA in low-risk women as well as continuous labor support

**Committee opinion**

**Increased IA use and continuous labor support, ambulation/position changes decrease medical intervention s in low-risk women**

**Level 7**

**Lowest level of evidence**

Yes, the committee opinion sites large RCT trials in their references for making a stance.

| To develop a short survey for patient satisfaction based off the 30 question BSS survey that already exists | 2014 National survey in England gave out the BSS-R satisfaction survey to 10,000 women | Cross-sectional descriptive design | Validity and reliability remained strong in the testing of a 6-question survey for patient satisfaction – a psychometrically robust indicator | Level 6 | The questionnaire is only applicable to labor and birth, not antenatal or postnatal care | Yes, this is a short questionnaire that adequately assesses for patient satisfaction and shows excellent validity and reliability |
APPENDIX B

From: Kimberly Jordan - University of Iowa Hospitals and Clinics <noreply@qualtrics-survey.com>
Sent: Saturday, July 6, 2019 4:10 PM
To: heathern0523@hotmail.com <heathern0523@hotmail.com>
Subject: Permission to Use The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care

You have permission, as requested today, to review and/or reproduce The Iowa Model Revised: Evidence-Based Practice to Promote Excellence in Health Care. Click the link below to open.

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Please contact UIHCNursingResearchandEBP@uiowa.edu or 319-384-9098 with questions.
APPENDIX C

CITI Training Certificates

This is to certify that:

**Heather Soper**

Has completed the following CITI Program course:

- **LUCOM Biosafety Training** (Curriculum Group)
- **Initial Biosafety Training** (Course Learner Group)
- **1 - Biosafety/Biosecurity** (Stage)

Under requirements set by:

**Liberty University**

This is to certify that:

**Heather Soper**

Has completed the following CITI Program course:

- **Biomedical Research - Basic/Refresher** (Curriculum Group)
- **Biomedical & Health Science Researchers** (Course Learner Group)
- **1 - Basic Course** (Stage)

Under requirements set by:

**Liberty University**
This is to certify that:

Heather Soper

Has completed the following CITI Program course:

- Biomedical Responsible Conduct of Research (Curriculum Group)
- Biomedical Responsible Conduct of Research (Course Learner Group)
- 1 - RCR (Stage)

Under requirements set by:

Liberty University
APPENDIX D

Letter of Organizational Support

May 22, 2019

Attention: IRB

Liberty University Lynchburg,
Virginia

IRB Members:

Heather Soper, CNM, Liberty University Doctor of Nursing Practice Student (Principal Investigator) and Dr. Vickie Moore, DNP, FNP-C, Assistant Professor of Nursing, and DNP Scholarly Project Chair have proposed to conduct Heather Soper’s Doctor of Nursing Practice Scholarly Project: Improving patient and nursing staff satisfaction through intermittent fetal monitoring and increased labor support of low-risk pregnant women.

[Name Redacted] is committed to providing excellent, comprehensive care for our patients, facilitated by the pursuit of quality improvement. Heather Soper's Doctor of Nursing Practice Scholarly Project reflects our commitment that every patient receives optimal quality health care.

[Name Redacted] is pleased to support Heather Soper's Scholarly project: Improving patient and nursing staff satisfaction through intermittent fetal monitoring and increased labor support of low-risk pregnant women.

Feel free to contact me if I can be of further assistance.

[Name Redacted]
Hi Barbara,

Can I get your permission to use the nursing self-efficacy labor support scale for use in my doctoral scholarly project? Do you evaluate it with a Likert-scale for their responses?

Thank you!

My email is [redacted]

Heather Soper, CNM

Barbara L Davies to you

2 days ago

Yes, you have my permission to use the nursing self-efficacy labor support scale.

Yes it used a Likert scale. Attached is the publication from JOGNN and the tool.

Barbara Davies
RE: Permission

Hollins Martin, Caroline <C.HollinsMartin@napier.ac.uk>
Fri 8/16/2019 3:55 AM

To:

• Heather Soper <[redacted]>
  Cc:  
  • Colin R Martin <[redacted]>

2 attachments (297 KB)

Dear Heather,

Thank you for your interest in using the US-BSS-R, which is the appropriate validated scale for you to use with a Virginia US population. I attach a copy of the US-BSS-R and the validation paper for this particular scale. I have also copied in Prof Colin Martin who is my BSS-R partner. Both of us are delighted for you to use this scale for your PhD project. Please stay in touch with us and let us know how you are progressing. We would also be very willing to collaborate in a paper with you. Either way, good luck with your studies.

Best Cj

Prof Caroline J Hollins Martin
PhD MPhil BSc RM RGN MBPsS Senior Fellow HEA
Professor in Maternal Health
CONSENT FORM
The Impact of Intermittent Auscultation and Labor Support Education for Nurses on Patient Satisfaction and Nurse Self-Efficacy
Heather Soper, MS, CNM
Liberty University
School of Nursing

You are invited to be in an evidence-based project on intermittent auscultation and labor support education for nurses. You were selected as a possible participant because you are a Labor and Delivery Registered Nurse. Please read this form and ask any questions you may have before agreeing to be in the project.

Heather Soper, a doctoral candidate in the School of Nursing at Liberty University, is conducting this project.

Background Information: The purpose of this evidence-based practice project is to increase patient satisfaction with the birth experience through increasing nurse knowledge and self-efficacy by implementing intermittent auscultation and labor support.

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Take a short, written test on your current knowledge of intermittent auscultation and labor support mechanisms.
2. Take a brief survey on your comfort with labor support mechanisms.
3. Participate in a 1-hour lecture to obtain knowledge on intermittent fetal monitoring protocols and labor support techniques, and take a post-test at the completion of the session.
4. Implement this knowledge over a three-month time frame, and distribute/collect birth satisfaction surveys prior to discharge from the hospital.
5. Take a brief survey at the end of the three-month project.

Risks: The risks involved in this project are minimal, which means they are equal to the risks you would encounter in everyday life.

Benefits: The direct benefits participants should expect to receive from taking part in this study are increased knowledge of intermittent auscultation and labor support mechanisms and confidence using these skills.

Benefits to society: The benefits to society include: increased patient satisfaction with the birth experience, and lower medical interventions during labor.
**Compensation:** Participants will not be compensated monetarily for participating in this study; however, one catered meal will be provided at the beginning during the educational session, and treats will be brought in at the end of the project in celebration of its completion. The nurse that has her name on the most patient surveys providing intermittent auscultation will win a $50 Visa gift card. The gift card will be given at the end of the project in March 2020.

**Confidentiality:** The records of this study will be kept private and anonymous. Research records will be stored securely, and only the project coordinator will have access to the records.

**Voluntary Nature of the Study:** Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University or [redacted]. If you decide to participate, you are free to not answer any question or withdraw at any time prior to submitting the tests and surveys without affecting those relationships.

**How to Withdraw from the Study:** If you choose to withdraw from the project, please inform the project coordinator that you wish to discontinue your participation. Your responses will not be recorded or included in the project.

**Contacts and Questions:** The project coordinator conducting this project is Heather Soper. You may ask any questions you have now. If you have questions later, you are encouraged to contact her at 540-569-6745 or hnbuck@liberty.edu. You may also contact the researcher’s faculty chair, Dr. Vickie Moore, at vbmoore@liberty.edu.

If you have any questions or concerns regarding this project and would like to talk to someone other than the project coordinator, you are encouraged to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

*Please notify the project coordinator if you would like a copy of this information for your records.*

**Statement of Consent:** I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the project.

________________________________________  ________________________________
Signature of Participant                          Date

________________________________________  ________________________________
Signature of Investigator                          Date
Dear Labor and Delivery RN,

You are invited to take part in an evidence-based practice project on the Labor and Delivery unit at Augusta Health. The project includes a 10-15-minute pretest of your knowledge of intermittent auscultation and labor support mechanisms. A 1-hour educational seminar will be given immediately after the pre-test, with instruction on the unit’s intermittent auscultation (IA) policy, protocols, and evidence behind the usage. Labor support mechanisms and tools will also be discussed, including hands on use. A meal will be catered for the event. At the end of the seminar you will take a post-test; the exact same test as the pre-test.

Over the following three months (December 15, 2019-March 15, 2020), you will be expected to utilize and implement your new knowledge to increase the use of IA and labor support mechanisms for term, low-risk, laboring women. The nurse that implements the most IA during the implementation period will receive a $50 Visa gift card.

Please respond back to Heather Soper, CNM by November 30th via email or phone if you would like to be included in this project. Include which session you plan to attend.

The dates for the educational seminars are EITHER (only attend one session):

**December 2nd 12:00-1:45pm @ 3 West Conference Room**

**December 2nd 7:00-8:45pm @ 3 West Conference Room**

**December 9th 5:00-6:45pm @ 3 West Conference Room**

Contact information:

Phone/text: 540-569-6745

Email: hnbuck@liberty.edu

Thank you!

Heather Soper, CNM
Appendix I

Notice of IRB EXEMPTION

Principal Investigator: Heather Soper, CNM
Protocol Title: The Effects of Intermittent Auscultation and Continuous Labor Support Education for Nurses on Patient Satisfaction and Nurse Self-Efficacy; Maternity Unit
IRB study#: 19-02
Type of Review: Initial EXEMPT
Date of Approval: N

The Institutional Review Board Chairman of has reviewed your study submission and has determined that it is EXEMPT from IRB submission, review and approval.

Exemption from IRB Committee review is based on the fact that there are no patient identifiers and no risk to patients. This is strictly a Quality Improvement study which uses existing knowledge to improve patient outcomes, nursing satisfaction, and patient satisfaction with their birth experience.

When an activity involving data is intended to evaluate an existing practice and attempt to improve it based upon existing knowledge, the IRB would not classify this activity as research and the activity would not be subject to the Department of Health and Human Services (DHHS) human research regulations.

is duly constituted, fulfilling all requirements for diversity, and has written procedures for initial and continuing review of human subjects research protocols. The IRB complies with all US regulatory requirements related to the protection of human research participants, specifically 45CFR46, 21CFR56, 21CFR312* 21CFR812, 45CFR164.08-14. In addition, the AH IRB complies with the guidelines of the Office of Human Subjects Protection of the OHRP.

IRB Signature Date
Heather Soper, MS, CNM


Dear Heather Soper, MS, CNM,

The Liberty University Institutional Review Board has reviewed your application in accordance with the Office for Human Research Protections (OHRP) and Food and Drug Administration (FDA) regulations and finds your study does not classify as human subjects research. This means you may begin your research with the data safeguarding methods mentioned in your IRB application.

Your study does not classify as human subjects research because evidence-based practice projects are considered quality improvement activities, which are not considered “research” according to 45 CFR 46.102(d).

Please note that this decision only applies to your current research application, and any changes to your protocol must be reported to the Liberty IRB for verification of continued non-human subjects research status. You may report these changes by submitting a new application to the IRB and referencing the above IRB Application number.

If you have any questions about this determination or need assistance in identifying whether possible changes to your protocol would change your application’s status, please email us at irb@liberty.edu.

Sincerely,

G. Michele Baker, MA, CIP
Administrative Chair of Institutional Research
Research Ethics Office