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American College of Obstetricians and Gynecologists Postpartum Hemorrhage Protocol

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Walden University

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Abstract

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by

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MS, Southern Illinois University, 2013

BS, Southern Illinois University, 2010

Project Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

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December 2021

Abstract

Postpartum hemorrhage (PPH) is the most significant cause of maternal deaths during or after childbirth. Due to a high PPH rate, a tertiary care facility in the Southwest United States implemented the Association of Obstetricians and Gynecologist (ACOG) protocol anticipating decreasing PPH rates. This quality improvement project was designed to evaluate whether implementation of the ACOG PPH protocol reduced the incidence of PPH. The practice-focused question was “What is the effect of the implementation of the ACOG PPH protocol on the incidence of PPH?” The Iowa model was selected to guide the project toward accomplishing its goals. The incidence of PPH was evaluated 3 months before and 3 months after implementing the ACOG PPH protocol to establish the effect of implementing the ACOG PPH protocol in the project site. Descriptive statistics were used to determine whether there was a decrease in PPH after the implementation of the protocol in practice. PPH rates before the adoption of the ACOG PPH protocol were 18%, and the rates after the protocol’s adoption were 7%. A reduction of 11% in PPH confirmed the effectiveness of the ACOG PPH protocol in PPH management. Adopting the ACOG PPH protocol promoted positive social change by fostering patient safety and enhancing the overall care quality offered in the health care setting by reducing PPH prevalence.

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Section 1: Nature of the Project

The risk of women dying during childbirth is one of the greatest inequalities in health globally. Postpartum hemorrhage (PPH) is the most significant cause of maternal deaths during or after childbirth, as it can lead to severe loss of blood that is life threatening. Estimates indicate that it occurs in more than 10% of births and has a fatality rate of 1% (Smith, 2017). It is also estimated to account for 19.7% of all the deaths related to pregnancy globally (Prapawichar et al., 2020), and it causes 25% of all maternal deaths (Smith, 2017). Due to the unpredictability of the problem and its rapid progression, reducing the incidence of PPH and improving maternal health outcomes becomes a challenge. The World Health Organization's definition of primary PPH as loss of blood of more than 500 milliliters per vaginal within 24 hours of delivery is becoming irrelevant because the effects of blood loss vary from one woman to another (Smith, 2017). Most healthy mothers, especially from the developed world, can easily withstand a loss of more than 500 milliliters of blood without experiencing any hemodynamic compromise. However, any loss of blood for an anemic mother can be fatal (Smith, 2017). Controlling blood loss is especially important for mothers in developing countries where many women suffer from anemia.

In 2017, the rate of PPH deaths at a tertiary care facility in the Southwest United States was approximately 18% (Thorp, 2020). The figure was higher than the national level of 11.3%, although lower than the state level of 19% (Petersen et al., 2019). Due to the high rates of PPH deaths, the facility implemented several measures to decrease its incidence, including Modified Early Warning Signs (MEWS), a PPH in situ simulation

tool, and a policy for third stage labor oxytocin infusion. Implementation of the Association of Obstetricians and Gynecologist (ACOG) protocol for the recognition, reporting, response, and prevention of PPH was anticipated to decrease the rate of PPH (see Evensen et al., 2017). But it was unknown what the impact of the implemented protocol would have on the rate of PPH; thus, this project evaluated its effectiveness in decreasing the incidence of PPH. This doctoral project's findings may contribute to social change in the perinatal unit of the acute care hospital by enhancing readiness toward reducing incidences of PPH (see Allen, 2017). Section 1 presents the problem statement, purpose, nature of the doctoral project, and the significance.

Problem Statement

Due to the high rates of PPH deaths, the facility implemented measures to reduce its incidence. In June 2018, the hospital implemented MEWS and realized that nurses and physicians administered oxytocin inconsistently. In November 2018, the hospital introduced a PPH in situ simulation tool. The tool enhanced teamwork, communication, and technical skills among staff in the obstetric unit because they could practice using a sample scenario for labor and delivery. In March 2019, the unit adopted a policy of third stage labor oxytocin infusion since it reduces mean blood loss by 22% and lowers the frequencies of PPH by 40% (Zagorsk, 2017). In May 2019, the hospital initiated a quantitative blood loss and PPH risk assessment and stratification. Implementing the ACOG PPH protocol concerning risk assessment tools by the hospital in December 2019 was expected to reduce the maternal deaths linked to PPH. However, it was unknown whether the implemented protocol would reduce PPH, which led to this project to

evaluate the extent to which PPH incidence had decreased. Additionally, the ACOG protocol is an evidence-based strategy for preventing and managing PPH, but there is a shortage of studies analyzing the efficacy of the protocol in reducing PPH incidence among mothers—a gap this study addresses.

Purpose

The purpose of this project was to evaluate whether the implementation of the ACOG protocol would reduce the incidence of PPH in a tertiary care facility in the Southwest United States. The ACOG Making Pregnancy Safer Technical Update for the prevention of PPH is an evidence-based strategy for managing pregnancy and childbirth complications (Prapawichar et al., 2020). The project was needed because of the high rate of PPH and its associated maternal mortalities in the obstetrical unit in the tertiary care facility located in the Southwest United States. The maternal mortality rate in the facility was 18% in 2017 (Thorp, 2020), higher than the national level of 17.3%, and lower than the state level of 19% (Petersen et al., 2019). The hospital adopted interventions that included using MEWS scores and a PPH in situ simulation tool, which had not been successful. The other interventions adopted include the development of a policy for labor oxytocin infusion in the third stage of labor, PPH risk assessment, and stratification (Zagorsk, 2017).

The meaningful gap in practice was the lack of a standard guideline that meant there was no structured approach to management of recognizing and treating PPH. In 2019, the hospital adopted the ACOG PPH protocol to decrease the incidence of PPH (Prapawichar et al., 2020). Since its adoption, it was unknown what the impact of the

implemented protocol would have on PPH. As a result, I evaluated the extent to which the incidence of PPH decreased, if any. The guiding question for this project was “What is the effect of implementation of the ACOG PPH protocol on the incidence of PPH?” This doctoral project addresses the gap in practice by showing the effectiveness of the ACOG PPH protocol in improving the incidence rate of PPH. The project also has the potential of providing evidence-based data on the effectiveness of the protocol for improving quality outcomes of care in the project site (see Sudhof et al., 2019).

Nature of the Project

To evaluate the effectiveness of the ACOG protocol on the incidence of PPH after its implementation, I used evidence obtained from the Cochrane Central Register of Controlled Trials, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, PubMed, National Guideline Clearing House, Medline, Ovid and the Cochrane Database of Systematic Reviews. The search terms used include *post-partum hemorrhage*, *ACOG PPH protocol*, *post-natal care*, and *pregnancy*. Inclusion criteria for the search included articles that contain information related to the practice-focused question, written in English, and published within the past 5 years. The exclusion criteria included those articles not containing relevant data on the project and those published earlier than 5 years.

For this quality improvement project, I evaluated the incidence of PPH 3 months before and 3 months after implementation of the ACOG PPH protocol. Data on the incidence of PPH before and after the implementation of the ACOG PPH protocol was obtained from the monthly reports from the Quality Improvement Department from the

clinical director. The data on the incidence rate of PPH were entered into an Excel spreadsheet that stored on a password-protected computer kept in a secured room in the project site. Descriptive statistics were used to determine whether there was a decrease in PPH after implementation of the protocol in practice showing that the ACOG PPH protocol led to the improvement in the incidence rate of PPH.

The need for the project was informed by the fact that the primary site had a high incidence rate of PPH despite adopting various practice interventions to curb the rates. The implementation of the ACOG-PPH protocol can bridge the existing gap in practice by providing evidence-based practice (EBP) to enhance identification, prevention, and effective management of PPH. If effective, the ACOG-PPH protocol will be incorporated into the current practice to improve obstetric outcomes in the project site.

Significance

The stakeholders affected by the project include pregnant women and obstetrical/postpartum nurses and obstetricians. The nurses and physicians can be affected by the increased collaboration, satisfaction with the use of the protocol, and improved communication on the management of PPH. The nurses and physicians will now be able to provide high quality care to pregnant mothers to reduce the risk of adverse outcomes following delivery since the guideline is effective (Prapawichar et al., 2020). Pregnant mothers can benefit from the improvement in the outcomes of their delivery through early identification, prevention, and management of PPH since the guideline is effective.

The contribution of the doctoral project to nursing practice is that it determined if the use of the guidelines decreased the incidence of PPH, promoting quality and safe care to pregnant mothers. The project also informs the practice interventions that nurses utilize in recognizing the risks, preventing, and managing PPH (Sudhof et al., 2019). One of the potential contributions of the project to nursing practice is the promotion of safety and quality in obstetrical and postpartum care. The protocol ensures that nurses provide high quality care to mothers at risk of developing PPH following delivery. The project also standardizes nursing practice utilized in the identification and management of PPH. Nurses can now develop a uniform approach toward risk management in PPH to promote the health and wellbeing of the mothers. The project provides reliable evidence on the effectiveness of the ACOG PPH protocol in reducing the risk and incidence of PPH in hospitals.

The doctoral project has high possibility of transferability. The project involved standard processes that can be applied to other maternity settings. The ACOG PPH protocol evaluated in the project is also universally applicable to any setting involved in the provision of obstetrical and postpartum care, as seen from the use of standardized approaches to PPH identification and management (Sudhof et al., 2019). The ACOG PPH protocol also builds on the existing practices used in obstetrical nursing to identify, prevent, and manage PPH.

The project also contributes to positive social change. The project supports the adoption of the ACOG PPH protocol in the reduction of the incidence of PPH through specific interventions. As such, maternal delivery may be safer with the confidence that

consumers have in hospital labor and delivery units increasing for the enhanced uptake of maternal healthcare services (Sudhof et al., 2019). The project also contributes to social change by fulfilling the mission and vision of the university the hospital is affiliated with in creating a positive impact on the communities. One of the mission statements of the university is to promote the safety and quality in nursing practice. The project contributes positively to the nursing practice and community well-being by proposing the implementation of a quality initiative to enhance the outcomes of maternal health in the project site.

Summary

PPH is one of the leading causes of mortality and morbidity in mothers after childbirth. Prior to implementation of the ACOG guidelines for PPH, the project site had no reliable guidelines to reduce the incidence of PPH, leading to a gap in the practice of obstetrical nursing. Further, despite numerous interventions to address PPH, the site still had a high incidence rate. The purpose of this project was to evaluate the effectiveness of implementation of the ACOG protocol in reducing the PPH incidence rate by examining the incidence rate 3 months before implementation and 3 months after implementation. This project can lead to improved safety and quality of care by indicating the importance of the PPH protocol, which decreased incidence of PPH. The project thus has positive impact on social change by encouraging safe practices in maternity practice to optimize the health outcomes of the pregnant mothers.

Section 2 discusses the background and context of the practice problem, the chosen theory for the project, and relevance of the practice-focused problem. In addition,

the description of my role as a DNP student and the role of the project team in the implementation of the ACOG-PP project will be presented.

Section 2: Background and Context

PPH remains one of the leading causes of mortality and morbidity, with etiologies that include genital tract tear, uterine rupture, retained tissue, and uterine atony (Sebghati & Chandraharan, 2017). PPH exposes mothers to extended periods of hospital stays, Sheehan's syndrome, the need for blood transfusion, and it can lead to death (Muñoz et al., 2019). The problem has been classified as a critical public health concern that risks patient safety and imposes substantial financial costs on society (Habitu et al., 2019). All obstetrical facilities must have strategies instituted to minimize the risk. But despite the adoption of numerous interventions in a tertiary care facility in the Southwest United States, including MEWS scores, PPH risk assessment and stratification, and a PPH in situ simulation tool, the incidence rate of PPH remained unchanged, prompting the adoption of the ACOG protocol in 2017. This project addressed the effectiveness of the ACOG protocol as an evidence-based and problem-centered intervention to prevent and reduce the incidence rate of PPH at the project site. Practical interventions were necessary to enhance mothers' safety in obstetric clinics. Section 2 discusses theories guiding the evaluation of the effectiveness of the ACOG protocol, relevance to nursing practice, local background and context, and the roles of the DNP student and the project team.

Concepts, Models, and Theories

In health practice, EBP represents the application of a systematic and patient-oriented approach to address patients' concerns holistically (Duff et al., 2020). As a widely used concept in clinical practice, EBP integrates the best external evidence in decision making supplemented by practitioners' clinical expertise and patients'

preference. The dominant concepts in this project are external evidence and expertise to influence a positive change to reduce PPH incidence.

In practice, the EBP triad encourages identification of patients' problems through an accurate assessment of the situation. A detailed assessment of the interventions used to reduce the incidence rate of PPH at the care facility revealed high levels of inefficiencies, justifying the need for a new approach. Previous interventions such as the use of MEWS scores, a PPH in situ simulation tool, and the development of a policy for labor oxytocin infusion in the third stage of labor had all been ineffective. In response, the health care facility adopted the ACOG protocol, but its effectiveness was unknown, prompting this project to evaluate it.

The Iowa Model

For better outcomes, it was important to use an evidence-based model to direct the evaluation of the ACOG PPH protocol in decreasing the incidence rates. The Iowa model is suitable for assessing the outcomes of evidence-based changes since care providers find it intuitively understandable (Iowa Model Collaborative et al., 2017). It has been successfully used in the past in academic and health care institutions. The basic structure and key principles of the Iowa model indicate that it can help to translate research findings into clinical practice, with the primary objective being to improve patient outcomes.

The Iowa model consists of several interrelated steps relevant in reducing incidence rates of PPH. The first step is identifying a problem-focused or a knowledge-focused trigger that necessitates the application of EBP (El et al., 2019). The current

project was based on a problem-focused trigger, which stems from identifying a clinical problem such as high incidents rates of PPH, risk management data, or financial data (see Iowa Model Collaborative et al., 2017). Knowledge-focused triggers emerge after a care provider or a researcher in the health practice presents new research findings. They also represent triggers emerging from situations warranting new practice guidelines.

After identifying the trigger, the Iowa model obligates a nurse, change agent, or a project team to determine whether the issue is a priority for an organization, unit, or department (El et al., 2019). The step involves assessing whether the problems necessitating change are severe in terms of outcomes or are associated with high costs of care provision (El et al., 2019). Evaluating the effectiveness of the ACOG PPH protocol to decrease PPH incidence was a priority given that the maternal mortality rate in the facility was higher than the national and state levels. A background check of the severity of the problem also indicated that interventions should be instant.

After determining the priority, the Iowa model's next step is forming a team to develop, evaluate, and implement the EBP change (El et al., 2019). The team's composition depends on the problem and should include the interested interdisciplinary stakeholders (El et al., 2019). In response, the project's evaluation team consisted of various members knowledgeable in health care matters. Depending on the complexity of the problem, team players outside the nursing field can also be accommodated. The nursing team also worked closely with the quality improvement department members in the project site to assess the progress after the healthcare facility adopted the ACOG protocol and propose the way forward depending on the findings.

Relevant to this project, the next step of the Iowa model involved gathering and analyzing the research related to the desired practice change. Critiquing and synthesizing the research follows, including its review to determine whether the proposed change is scientifically sound (El et al., 2019). In this case, the effectiveness of the ACOG protocol should be supported by research. The next step is deciding whether there is adequate research to implement a practice change, followed by implementing the change and evaluating the results if the change is feasible. These steps justify applying the ACOG framework, but it was crucial to determine its effectiveness to examine whether it was feasible.

Spradley's Change Theory

Spradley's change theory was the theoretical framework for this project. It is a derivative of the Lewin's theory of change but advocates for constant evaluation of change after implementation to ensure success. Spradley's change theory's basic steps include recognizing the need for change, diagnosing the problem, analyzing alternative solutions, selecting change, planning, implementing, and evaluating (Martinez, 2017). The theory also recommends change stabilization. Throughout the change process, there is a constant evaluation to examine the change's effectiveness.

In this project, change represents ACOG protocol's implementation, which has been in place in the hospital since 2017. The protocol's implementation was justified by the ineffectiveness of other interventions, such as the use of MEWS scores, a PPH in situ simulation tool, and the development of a policy for labor oxytocin infusion in the third

stage of labor. As Spradley's theory recommends, evaluation was essential to determine whether the ACOG protocol was effective in decreasing PPH incidence.

Relevance to Nursing Practice

The overall objective of the nursing practice is providing care that meets all the quality standards. However, the severity of some illnesses makes it challenging to achieve the intended outcomes. The impacts of primary PPH on the mother are far-reaching. Evensen et al. (2017) noted that PPH belongs to the group of preventable events. Besides causing maternal deaths, PPH may precipitate severe psychological problems, including fear and depression. According to Pranal et al. (2019), the fear of PPH recurrence makes mothers wary of subsequent pregnancies, and frequent memories of PPH can cause depression. Accordingly, it is crucial to adopt mechanisms that reduce the incidence rate to manageable levels to reduce PPH and maternal deaths. As a result, evaluating the effectiveness of the ACOG protocol determined whether its adoption succeeded in reducing the incidence rate of PPH in the project site.

The practice site recognizes PPH as a high-risk health threat and a leading cause of maternal deaths or severe maternal morbidity. Accordingly, the nursing practice focuses on lowering PPH risks through state and federal programs. The most PPH-centered program in the Southwest US is the TexasAIM. Through the Department of State Health Services, Texas Hospital Association, and the Alliance for Innovation on Maternal Health (AIM), TexasAIM commits resources to help hospitals in the area carry out maternal safety projects (Texas Health and Human Services, 2020). Improving obstetric care is among the central components of the TexasAIM to prevent PPH. The

Joint Commission averages the national PPH incidence rate at 3%-5% (Gavigan et al., 2019). To ensure that the state is within or performing better than the national benchmarks, the ACOG launched a program to provide survey services for healthcare facilities in the Southwest US. After a hospital visit, ACOG surveyors provide confidential consultation based on hospital performance and provide recommendations of how to improve maternal services (ACOG, 2019). Such programs help tertiary facilities to reduce PPH-related maternal mortality and morbidity.

Due to the severity of PPH sequelae, several strategies and standard practices have been used in the past to decrease its incidence. The first strategy was the use of MEWS scores to determine the degree of illness to ascertain whether a patient needs a high level of care. Through MEWS, it was discovered nurses and physicians administered oxytocin inconsistently and practice improvement was necessary. The other method trialed was a PPH in situ simulation tool. According to Lutgendorf et al. (2017), the PPH in situ simulation tool provides the opportunity for the obstetrical and postpartum staff to practice teamwork, communication, and technical skills in their units. Despite improving communication and teamwork, PPH incidence rates did not decrease as expected. A third intervention was the development of a policy for oxytocin infusion during the third stage of labor to promote contraction of the uterus to reduce blood loss (Charles et al., 2019). The policy helped in breastfeeding but could not reduce the PPH incidence significantly, hence the need for supplementary procedures. The project evaluated if the implementation of the ACOG protocol was effective in decreasing the incidence of PPH.

Local Background and Context

In the tertiary care facility located in the Southwest US, the rate of PPH in the obstetrical and postpartum units was 18% as compared to the national level of 17.3% and was slightly lower than the State level of 19% (Thorp, 2020; Petersen et al., 2019).

Whites (non-Hispanics) are the dominant race, although there is a significant portion of Hispanics and African Americans. The Asian (non-Hispanics) population occupies the largest underserved ethnic group. Overall, this Southwest region is a high resource setting governed by the more extensive State laws. As the State health laws recommend, the facility must adhere to practices that promote quality of care and patient safety. It also strives to enhance access to all, particularly women and the elderly. The hospital's mission is to be a leading health care provider in the area while meeting quality, safety, and access standards. Its strategic vision is to ensure accessible and affordable quality health care and develop to be the center of excellence for medical research in Houston.

The State in which the facility is located envisions a situation where PPH rates should be below 1% (Texas Health and Human Services, 2020). Considering that the rates were approximately 5%, the objective was to achieve the lowest figures possible by implementing appropriate health practices (Evans & Essig, 2018). As a recommendation applicable to the health facility, the State recommends hospitals adopt practices that zero-rate PPH in health facilities, including pre-and post-delivery techniques (Texas Health and Human Services, 2020). Practices include helping mothers to breastfeed babies immediately after birth to promote the release of oxytocin, applying uterus contraction procedures, expelling the placenta, and removing blood clots using strategies such as

massaging (Abedi et al., 2016). For better outcomes, obstetrical nurses should check uterine tone immediately after delivery to prevent excessive bleeding. Sebghati and Chandraharan (2017) described poor uterine tone as a considerable risk factor of PPH since it causes more than 70% of PPH cases.

Definition of Terms

Postpartum Hemorrhage (PPH): loss of blood in the postpartum period exceeding 500 milliliters (ml) (Abedi et al., 2016).

Uterine atony: failure of the uterus to contract after the delivery of the placenta (Munoz et al., 2019).

Uterotonics: pharmacological agents for inducing contraction or greater tonicity of the uterus (Munoz et al., 2019).

Role of the DNP Student

As a health practitioner, I am professionally and legally mandated to promote positive social change. One way of promoting social change is by engaging in health-centered projects to enhance practice outcomes (Andermann & CLEAR Collaboration, 2016). The doctoral project responded to this call by examining the ACOG protocol's effectiveness in the tertiary care facility. The evaluation's findings were the basis for recommending the use of ACOG protocol in other health care facilities. The findings would also be the basis for recommending other program interventions if the ACOG protocol turned out to be ineffective.

My roles included introduction of the project and its purpose, composing the project's team, data collection, and analysis. The tertiary facility's administration must

have understood the project in-depth for approval. Presenting the project as an evidence-based change process earns stakeholder support if the change is projected to improve health outcomes (O'Rourke et al., 2016). During the half-day orientation session, I presented the doctoral team members with background information regarding the benefits and purpose of the project, evidence detailing its projected outcomes, and previous projects' performance. I obtained the relevant data about the PPH rate before and after implementation of the ACOG protocol from the clinical director as recorded in the Quality Department's monthly reports. Next, I uploaded the data into a Microsoft Excel spreadsheet to facilitate analysis of the pre-and post-implementation data on the PPH incidence rates to determine whether adopting the ACOG PPH protocol in the project site was effective in decreasing the rate of PPH. I used descriptive statistics to establish whether there was a significant decrease in PPH after implementing the ACOG protocol. Descriptive statistics describe or summarize features from a collection of information (Bartolucci & Singh, 2015). From the analysis, the senior management got adequate data to deduce whether the tertiary facility can continue using the ACOG protocol to reduce PPH rate or consider other options.

Engaging in a time-consuming project requires some motivation. My drive came from the desire to be involved in solving health problems. Evidence-based projects provide scientific research enabling health care providers to make informed decisions when solving health care problems (Lehane et al., 2019). The results obtained from the ACOG protocol assessment can be used as the foundation for recommending the use of such protocols in other health care facilities to improve health outcomes. The second

motivation was my passion for discovering and learning new things. The project allowed me to play an instrumental role in integrating evidence-based findings into clinical practice.

The Role of the Project Team

The project team consisted of my preceptor, director of quality improvement, and the department heads of the obstetric and research departments. The project team provided resources and skills to collaboratively evaluate the outcomes of the ACOG protocol. My preceptor identified and provided a safe working space for the project leaders and team members. The preceptor was be involved in organizing and scheduling meetings with the department heads and members of the obstetric and research departments, including unit managers, nurses working in the obstetric department, and the hospital research team. The director of quality improvement provided data on the facility's incidence of PPH before and after the ACOG protocol. The director of quality improvement also worked closely with the project leader to secure data by preventing access to people who are not part of the project. Unauthorized data access breaches the privacy and confidentiality ethical principles since data can be used maliciously (DeRenzo et al., 2020). Other roles were assigned as the project progressed, and the team's composition was adjusted depending on what situations necessitated. Overall, the team worked together to assess how the ACOG protocol impacted the incidence of PPH. The team met once a week for an hour on a convenient day to all. Team members shared their expertise and contextual insight relative to the doctoral project during these meetings.

Summary

PPH is among the leading causes of high maternal mortality rates globally. Due to its far-reaching consequences, the project implementation site used the MEWS scores, a PPH in situ simulation tool, a policy for labor oxytocin infusion in the third stage of labor, and PPH risk assessment and stratification to decrease the incidence of PPH. These methods did not reduce PPH incidence as required, implying that none could be used as a guideline to reduce the rates of PPH in the facility. From a practice viewpoint, the project site had no guidelines to reduce the incidence of PPH, leading to a practice gap in the practice of obstetrical nursing. With PPH rates remaining high, the tertiary facility did not provide care that meets all the quality standards. In response, the facility adopted the ACOG protocol, but the impacts were not yet known. Project evaluation determined the ACOG protocol's effectiveness. The project relied on evidence-based concepts and was guided by the fundamental principles of the Iowa Model and Spradley's Change Theory. The Iowa model provides a structural practice change for the project, and Spradley's Change Theory identifies the care activities required to decrease PPH incidence. My roles included the introduction of the project and its purpose, composing the project's team, data collection, and analysis. The project team provided resources and skills to collaboratively evaluate the outcomes of the ACOG protocol. Section three discusses the practice-focused questions, sources of evidence, procedures and analysis and synthesis of the project procedures.

Section 3: Collection and Analysis of Evidence

PPH is among the leading causes of obstetric mortalities in the United States (Evensen, 2017). In 2017, the rate of deaths due to PPH at the tertiary care facility in the Southwest United States was approximately 18% (Thorp, 2020), higher than the national level of 11.3%, though lower than the state level of 19% (Petersen et al., 2019). Because the facility's high rate of PPH is a risk to mothers' safety and lowers the overall quality of health, practical interventions to reduce the rate were necessary. The facility tried several measures to reduce the incidence that included the MEWS Scores, a PPH in situ simulation tool, and a policy for third stage labor oxytocin infusion. However, these interventions did not reduce the rate to the required levels prompting the tertiary care facility to implement the ACOG protocol (see Evensen et al., 2017). This doctoral project was developed to determine the effectiveness of the ACOG protocol. In this section, I will discuss the practice-focused question, sources of evidence, and the project procedures.

Practice-Focused Question

In the obstetrical areas of the tertiary care facility, the gap in practice was the absence of a standard guideline to decrease PPH incidence, contributing to the lack of a reliable structured approach to recognizing, managing, and treating PPH. The adoption of the ACOG protocol was meant to address the gap in practice; however, the impact of the ACOG protocol was yet to be evaluated. The primary purpose of the project was to evaluate the effectiveness of the ACOG PPH protocol in reducing the incidence of PPH. The practice-focused question was centered on the impact of implementation of the

protocol: What is the effect of implementation of the ACOG PPH protocol on the incidence of PPH? The project evaluated the difference in PPH rate before and after implementation of the ACOG protocol.

Sources of Evidence

The project used evidence obtained from the Cochrane Central Register of Controlled Trials, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, PubMed, National Guideline Clearing House, Medline, Ovid, and the Cochrane Database of Systematic Reviews. The search terms used include *post-partum hemorrhage*, *ACOG PPH protocol*, *postpartum care*, and *pregnancy*. Inclusion criteria for the search included articles that contain information related to the practice-focused question, written in English, and published within the past 5 years. Additionally, peer-reviewed sources are recommended in evidence-based research since they are written by experts and reviewed by other experts in the same or related field before publication (Koshy et al., 2018). The key terms were selected to ensure that the reviewed literature will support the project effectively.

Importance of Practice Protocols

Based on a study in southern Ethiopia, the overall prevalence of primary PPH was 16.6%, and practice protocols were instrumental in preventing the problem from worsening (Kebede et al., 2019). As part of the ACOG's PPH protocol central components, all obstetrical unit members need to be adequately prepared to manage mothers experiencing PPH since it is relatively common (Kedebe et al., 2019). PPH management protocols like the ACOG framework decrease the requirement of labile

blood products and postpartum hysterectomy (Colluci et al., 2018). In addition to obstetric units having standard guidelines to improve treatment comprehension and outcomes, PPH training should also include instructions on initial steps to improve treatment comprehension and outcomes (Zea-Prado et al., 2019).

PPH Management Recommended Practices

The most effective steps in PPH management include manual exploration of the uterus, visual assessment of genital tract, bladder indwelling catheter, and measures to maintain maternal temperature (Sentilhes et al., 2017). Continuous monitoring of pulse, blood pressure, and respiratory rate is also highly recommended. However, it is crucial to compare guidelines and underline their discrepancies for effective management of PPH (Sentilhes et al., 2017). Research has shown a vast discrepancy between international guidelines and context-tailored PPH guidelines; thus, obstetric health care providers and stakeholders should develop context-tailored protocols to reduce PPH incidence (Verschueren et al., 2019).

Practice Improvement Strategies

Risk assessment is essential and overall outcomes can be improved through nurse education and simulation (Severi et al., 2018). As part of risk assessment and interventions, PPH management protocols can be used to protect women at risk of PPH.

Evidence Generated for the Project

The DNP project's team included my preceptor, director of quality improvement, and the department heads of the obstetric and research departments. Members of the obstetric and research departments including unit managers, nurses working in the

obstetric department, and the hospital research team were also involved in the project, and their roles varied depending on job specifications. The director of quality improvement provided data on the facility's incidence of PPH before and after implementation of the ACOG protocol. The director of quality improvement worked closely with me to analyze and secure data by preventing being accessed by unauthorized members of the project. Using their nursing experience, members of the obstetric and research departments shared their expertise and contextual insight relative to the doctoral project during weekly meetings. Nursing support staff was not included in the DNP project.

Procedure

In this quality improvement project, I evaluated the incidence of PPH three months before and three months after implementation of the ACOG PPH protocol. After receiving the hospital management's approval I obtained the data on the incidence of PPH before and after the implementation of the ACOG PPH protocol from the monthly reports from the quality improvement department from the clinical director through email and USB flash drive. The data on the incidence rate of PPH was entered into an Excel spreadsheet stored on a password-protected computer kept in a secured room in the project site. The pre- and post-implementation data on the incidence rate of PPH was analyzed to establish the effect of implementing the ACOG PPH protocol in the project site. Descriptive statistics were used to determine whether there was a decrease in PPH after implementation of the protocol in practice.

Analysis and Synthesis

The principal objective was to determine the incidence of PPH before and after the adoption of the ACOG protocol. Retrospective data included the incidence of PPH 3 months before implementation of the ACOG protocol, and prospective data included the incidence of PPH 3 months after the adoption of the ACOG protocol. Descriptive statistics were used to compare the incidence before and after implementation of the ACOG protocol the effectiveness of the guidelines.

The project's purpose was to determine whether the implementation of the ACOG PPH protocol resulted in a decrease in the incidence rate of PPH in the practice site. The need for the project was based on the premise that the practice site experienced a high incidence of PPH despite adopting various practice interventions to curb the rates. Evaluating the ACOG PPH protocol revealed whether the practice site should continue using the ACOG protocol or whether new interventions were necessary.

Summary

The ACOG protocol is an evidence-based strategy for PPH management. This project was needed because of the high rate of PPH in the obstetrical unit in the tertiary care facility located in the Southwest United States. The project's aim was to determine the effectiveness of the ACOG protocol on reducing PPH incidence. A literature search was conducted on PPH and the ACOG protocol, and I obtained retrospective and prospective data from the clinical director through email or flash drive, which was compared to determine the effectiveness of the ACOG protocol. Section 4 discusses the

implications and findings, recommendations, and the strengths and limitations of the project.

Section 4: Findings and Recommendations

PPH remains one of the leading causes of mortality and morbidity (Sebghati & Chandraharan, 2017). Despite interventions like MEWS scores, PPH risk assessment and stratification, and a PPH in situ simulation tool, the project site still struggles with the incidence rate of PPH, prompting the adoption of the ACOG protocol in 2017. In response, this project evaluated the effectiveness of ACOG protocol as an evidence-based and problem-centered intervention to prevent and reduce the incidence rate of PPH at the project's site. The practice-focused question was "What is the effect of the implementation of the ACOG PPH protocol on the incidence of PPH?" Section 4 will address findings and implications, recommendations, contribution of doctoral project team, and strengths and limitations of the project.

Findings and Implications

The evidence for the project was obtained from the Cochrane Central Register of Controlled Trials, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Google Scholar, PubMed, National Guideline Clearing House, Medline, Ovid, and the Cochrane Database of Systematic Reviews. Evidence also included data that the director of quality improvement provided on the facility's incidence of PPH before and after the ACOG protocol. The data relevant to the project was PPH incidence 3 months before and 3 months after the adoption of the ACOG PPH protocol. Descriptive analysis was used to determine whether the ACOG PPH protocol adoption reduced PPH incidence to deduce that it was effective.

Reported PPH Cases: ACOH PPH Protocol Pre-Implementation

Data prior to implementation of the ACOG protocol included the incidence of PPH 3 months before the implementation of the ACOG PPH protocol. I obtained the data from the monthly reports provided by the clinical director through email and a USB flash drive. In the first month before the implementation of the ACOG protocol, the reported PPH cases were 24 out of 120 deliveries (Table 1). The total reported PPH cases in the month that followed were 21 out of 120 deliveries. Reported cases of PPH for the third month were 19 out of 114 deliveries. Therefore, the total reported PPH cases for the three months were 64 or 18%, which was higher than the national level of 11.3%.

Table 1

Pre-Implementation Data for Postpartum Hemorrhage Incidence

	Month 1 PPH Cases	Month 2 PPH Cases	Month 3 PPH Cases
Week 1	7	6	3
Week 2	4	4	5
Week 3	6	4	3
Week 4	7	7	8
Total (T)	24	21	19
Weekly average	6	5	4
Monthly deliveries	120	120	114

Reported Cases ACOG PPH Protocol Post-Implementation

I also obtained the data after the implementation of the ACOG PPH protocol from the monthly reports provided by the clinical director through email and a USB flash drive. In the first month after the implementation of the ACOG PPH Protocol, there were 12 reported cases of PPH (Table 2). The PPH incidence reduced to eight cases in the second month and six cases in the third month. The total monthly deliveries were 125,

113, and 131 respectively. Therefore, the percentage incidence of PPH was 7%, well below the national level.

Table 2

Post-Implementation Data for Postpartum Hemorrhage Incidence

	Month 1 PPH Cases	Month 2 PPH Cases	Month 3 PPH Cases
Week 1	5	2	2
Week 2	2	3	1
Week 3	1	0	2
Week 4	4	3	1
Total (T)	12	8	6
Weekly average	3	2	1
Monthly deliveries	125	113	131

The outcome difference was determined by comparing the PPH incidence with the total deliveries before and after implementation of the ACOG PPH protocol. There was a significant difference between PPH incidence before and after adoption of the ACOG PPH protocol. The rates before the adoption were 18%, posing a huge risk to mothers' lives, but the rates after the adoption were 7%. A reduction of 11% shows a great improvement towards reducing the rates to the desired levels.

The primary objective of adopting the ACOG PPH protocol was to reduce PPH incidence. The incidence of PPH at the state level was 19%, and the desired state level is below 5% (Petersen et al., 2019). Despite reducing PPH incidence from 18% to 7%, a rate above 5% shows that more improvements are necessary since the rate of PPH is still below the desired level. Accordingly, there is a practice gap that should further be addressed to ensure that the facility reduces the incidence of PPH to a level that is locally and nationally accepted. All mothers should be protected from PPH-related dangers to

reduce maternal mortality. Despite the current success of the ACOG PPH protocol, further interventions are crucial to further reduce PPH incidence as low as possible.

The health practice faces numerous challenges, and evidence-based interventions are vital to enhancing outcomes. From these findings, the quality of individual and community lives can be improved by evidence-based approaches in health care institutions. Adopting clinical guidelines like the ACOG PPH protocol is a suitable way of making health care systems more efficient to reduce PPH incidence in health care settings (Morris & Khatun, 2019). Reducing PPH incidence makes communities more productive by reducing maternal mortality. Accordingly, adopting the ACOG PPH protocol achieves positive social change by promoting patient safety and enhancing the overall care quality offered in health care facilities by reducing PPH prevalence (Liu et al., 2021). The project encourages safe practices in maternity practice to optimize the health outcomes of pregnant women.

Recommendations

Reducing the PPH incidence from 18% to 7% shows the effectiveness of the ACOG PPH protocol in management of PPH. Since the ACOG PPH protocol had a significantly better impact than the previously applied strategies, the facility should continue using it to manage PPH along with other strategies to decrease the incidence of PPH. For instance, risk assessment is vital to identify pregnant women at risk before admission. Risk factors such as suspected accreta, clinically significant bleeding disorders, and pre-pregnancy BMI should be assessed and appropriate interventions identified before admitting pregnant women. Adequate education of obstetric nurses is

essential to ensure that they are adequately prepared to follow all the ACOG PPH guidelines.

Contribution of the Doctoral Project Team

The doctoral project team included my preceptor, director of quality improvement, and the department heads of the obstetric and research departments. Members of the obstetric and research departments included unit managers, nurses working in the obstetric department, and the hospital research team. The director of quality improvement provided data on the facility's incidence of PPH 3 months before and after the ACOG protocol, which ensured that patient data was safe and used only for clinical purposes (Kasperbauer, 2020). Using their nursing experience, members of the obstetric and research departments shared their expertise during weekly meetings. Jointly, the project team proposed the need for continuous education and risk assessment to reduce PPH incidence to the desired levels.

Strengths and Limitations of the Project

Regarding strengths, the project had a good and supportive team. Team members, including my preceptor, director of quality improvement, and the obstetric and research department members, participated, and collaborated as expected. Data related to the incidence of PPH was also readily available through the director of quality improvement. Additionally, the obstetric department had a vested interest in the project as they wanted to know if the PPH protocol was effective.

On limitations, only quantitative data were used to evaluate the effectiveness of the ACOG PPH protocol. Other factors that could have influenced health outcomes after

the facility adopted the ACOG PPH protocol were not considered. Such factors include the health and age of pregnant women and the facility's resources. Another limitation is that the literature review is not broad since previous research on the use of ACOG PPH protocol is not extensive. Most studies provide a general view of how the ACOH PPH protocol can reduce PPH but do not assess the protocol's effectiveness by comparing data. Section 5 will discuss the dissemination plan, analysis of self, challenges, and interventions, and provide a summary of the project.

Section 5: Dissemination Plan

Dissemination spreads the knowledge of the associated evidence-based interventions (Brownson et al., 2018). Due to the critical role the EBP project played in influencing positive health outcomes, the results should be shared within the practice setting and to the broader nursing profession. Likewise, the outcomes of the ACOG PPH protocol in reducing PPH incidence should be shared on a broad scale, targeting end-users such as health care providers and professional associations' members.

Several approaches can disseminate this project to the tertiary care facility in the Southwest United States. The first approach is unit-level dissemination to ensure that the impacts and effectiveness of the ACOG PPH protocol in reducing PPH incidence are adequately understood. Unit-level dissemination primarily focuses on the health care unit requiring quality improvement (Ashcraft et al., 2020). Therefore, dissemination will focus on the obstetric department. Unit-level presentations can be effective in ensuring that the obstetric department staff receives appropriate education about the ACOG PPH protocol. Second, a small group presentation to the management can minimize distraction and ensure that the management gives the project the attention and response required. The management can also provide appropriate feedback as any unclear issues get clarified.

Despite working in the same facility, different health care providers understand information differently based on the dissemination methods. As a result, information dissemination methods should be mixed to improve delivery and information retention (Ludden et al., 2020). Educational materials, including posters, brochures, and reports,

would be appropriate. Posters and brochures may not provide detailed data on ACOG PPH protocol but will have a summarized version of the outcomes of the protocol in managing PPH. Reports will be more explicit with the necessary illustrations, and education materials can be printed and others distributed electronically.

To the broader nursing profession, the most effective strategy would be a presentation to nursing professional bodies such as the American Nurses Association. Although it is challenging to get a platform to present the project to such organizations, they are appropriate for reaching a broader audience. The other strategy is publishing the DNP project in scholarly nursing journals. Although publishing information in scholarly journals is costly and tedious, it is an effective way of disseminating information to nursing students, professionals, and scholars (Ramírez-Castañeda, 2020). Generally, combining dissemination strategies will ensure that the project reaches the widest audience possible. A wider reach will promote the adoption of the ACOG PPH protocol in health care settings to reduce PPH incidence.

Analysis of Self

Practitioner

As primary health care providers, nurses play an influential role in promoting health outcomes. As a nurse practitioner, I was able to participate in an evidence-based project that allowed the health care organization to integrate scientific evidence with clinical expertise and patient preferences to improve patient outcomes (Chien, 2019). Evaluating the effectiveness of the ACOG PPH protocol produces the evidence necessary to guide PPH reduction in the health care setting.

Scholar

As scholars, nurses should participate in activities that systematically advance research and nursing practice through rigorous inquiry that can be documented and replicated in health practice (Maier et al., 2018). Through the DNP project, I was able to advance the nursing practice at the practice site by exploring the effectiveness of the ACOG PPH protocol and providing solutions significant to the nursing profession. I engaged in various scholarly activities in developing the DNP project including formulating the practice-focused question, conducting literature review, synthesizing literature, and relating the project with relevant theories. Furthermore, publishing the DNP project in scholarly sources will allow replication in health practice and appropriate settings.

Project Manager

As the project manager, I was committed to ensuring that the DNP project succeeded. As a result, I coordinated roles as appropriate and ensured that timelines were followed. I also mobilized the necessary resources and brought teams together to work collaboratively. As a health practitioner committed to promoting positive changes in nursing practice to enhance patient outcomes, the project taught me the importance of resilience, goal setting, and teamwork. The DNP project's primary role was to compare PPH incidence before and after the adoption of the ACOG PPH protocol in the tertiary care facility in the Southwest United States. One of the most significant challenges was bringing the project team together to ensure that it worked collaboratively. Team members had busy schedules, and being committed fully was a huge challenge. Adhering

to the timelines was another challenge. Evidence-based projects also require massive resource facilitation (Bach-Mortensen et al., 2018), which was the case with this project. Despite these challenges, interventions such as continuous communication and reminders and attending the weekly meetings online helped accomplish the set goals and complete the project within the set timelines. I also learned to be flexible enough to accommodate changes that emerge during the project. For instance, some instances forced me to reschedule the weekly meetings to facilitate maximum attendance.

Summary

In 2017, the rate of PPH deaths at a tertiary care facility in the Southwest United States was approximately 18% (Thorp, 2020), which was higher than the national level of 11.3%, although lower than the state level of 19% (Petersen et al., 2019). Due to the high rates of PPH deaths, the facility implemented several measures to decrease its incidence, including the MEWS Scores, a PPH in situ simulation tool, and a policy for third stage labor oxytocin infusion. Implementation of the ACOG protocol for the recognition, reporting, response, and prevention of PPH was anticipated to decrease the rate of PPH (Evensen et al., 2017). A comparative analysis of data for PPH incidence 3 months before and after the implementation of the ACOG PPH protocol showed that the PPH incidence in the facility reduced from 18% to 7%. As a result, adopting the ACOG PPH protocol effectively reduced the PPH incidence in the facility. Since the ACOG PPH protocol had a significantly better impact than the previously applied strategies, the facility should continue using it to manage PPH.

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