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Intrapartum Guidelines for Nurse Midwives

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Table of Contents

Intrapartum Guidelines for Nurse Midwives 5

Abstract 5

Introduction and Background 6

Scope of Practice of Nurse-Midwives 7

State of Georgia Regulations 7

Problem Statement 7

Needs Assessment 8

Objectives and Aims 8

Clinical Questions 9

Review of Literature 9

Search Strategy 9

Medical Errors 10

Patient Safety 10

Communication 11

Theoretical Model 13

Measurement Tools 14

AGREE II 14

AGREE Reporting Checklist 18

Methodology 18

Data Collection 18

Guideline Selection Process 19

Setting and Resources 19

Results 20

Clinical Question One 20

Clinical Question Two 23

Additional Findings 24

Discussion 30

Strengths and Weaknesses 32

Implications for Future Research 33

Recommendations 33

Conclusion 34

References 36

Appendices 42

Appendix A: Theoretical Model 42

Appendix B: Link for AGREE II User's Manual 43

Appendix C: AGREE Reporting Checklist 2016 44

Intrapartum Guidelines for Nurse Midwives

Abstract

Intrapartum clinical practice guidelines for certified nurse-midwives (CNMs) can improve quality of care and patient outcomes. Such improvements, however, often relate to the level of rigor in guideline development, to assure quality and utilize the most recent and best evidence. This quality improvement project, introduced in three phases, aims to align existing clinical practice guidelines with national clinical practice guidelines and standards of care for certified nurse-midwives providing care in an intrapartum hospital setting. Phase One of this project will review existing clinical practice guidelines for midwifery care, accomplished by appraising 28 intrapartum guidelines. Phase Two includes revising and developing selected guidelines to meet the World Health Organization (WHO) recommendations for quality guideline development (WHO Guidelines Review Committee, 2020). Phase Three was the submission of the revised guidelines to medical professionals at a local hospital.

Keywords: clinical practice guidelines, advanced practice nurses, certified nurse-midwives, medical errors, and patient safety

Introduction and Background

The dictionary defines a midwife as a person educated to assist women in childbirth (Stevenson, 2010). However, there are three types of midwives with different skill levels and education. A certified nurse-midwife must have an advanced degree, at least a Master of Science in nursing with a specialty in midwifery, and be certified by The American Midwifery Certification Board (ACMB). A certified midwife has earned a bachelor's degree or higher in a different field, but is certified by ACMB. Finally, a certified professional midwife, who is not required to have a degree, is certified by a different body, the Midwifery Education Accreditation Council (MEAC) (American College of Nurse-Midwives, 2011). This translational project focuses on certified nurse-midwives (CNM) in an intrapartum hospital setting.

According to the American College of Nurse-Midwives (ACNM), about 35% of CNMs work in a hospital setting, 30% work in physician practices, and the remainder work in community health and other agencies (2011). CNMs must 1) demonstrate that they meet the Core Competencies for Basic Midwifery Practice of the American College of Nurse-Midwives upon completion of their midwifery education programs, 2) practice in accordance with ACNM Standards for the Practice of Midwifery, and 3) recertify every five years (2011). In addition, they must practice in an environment that provides for consultation, collaboration, and referral to medical care as indicated by the patient's needs (*ACNM and ACOG Joint Statement*, 2018). This joint statement links quality of care to a relationship based on mutual respect and trust.

Quality standardized clinical practice guidelines based on the best and most recent evidence can lay the foundation for such a supportive environment. While guidelines are not meant to dictate care, they direct the team in management decisions, clarify care team roles,

decrease the instance and consequences of medical errors, and improve communication among team members.

Guidelines can also positively affect patient safety by offering well-researched and quality direction to manage specific conditions. This safeguards the patient, improves the provider's safety culture, and controls the shifting of blame among the care team members, improving morale, caregiver resilience, and team efficacy.

Scope of Practice of Nurse-Midwives

Certified nurse-midwives provide an array of independent health care services for women. Their scope of practice includes primary care, gynecologic care, family planning, preconception care, prenatal care, childbirth, postpartum care, care of the newborn for the first 28 days of life, and treatment of male partners for sexually transmitted infections (ACNM, 2011).

State of Georgia Regulations

Georgia Secretary of State regulations require that a certified nurse-midwife provide independent management of women's healthcare. Georgia guidelines also mandate practice within a system that provides for consultation, collaborative management, or referral, as indicated by the client's health status. Finally, a CNM must practice within the Standards for the Practice of Midwifery (Georgia Secretary of State, 2019).

Problem Statement

Clinical practice guidelines (CPG) have the potential to improve the quality of care and patient outcomes. Such improvements, however, often relate to the level of rigor in guideline development to assure quality and utilize the most recent and best evidence. Variation in guidelines, notably across geographical areas and individual hospitals, does not reflect better outcomes (Institute of Medicine, 2013). Reducing this variation by standardizing well-developed

quality guidelines can improve these outcomes (Melnyk & Fineout-Overholt, 2011, pp. 20, 233–235), and contribute to practice safety culture and communication.

Needs Assessment

A perinatal assessment at a local hospital noted a lack of standard intrapartum guidelines that outline when it is appropriate for a CNM to consult, collaborate, or refer to medical care. Guidelines can provide a structure for assuring patients get the proper care at the right time, prevent medical errors, and improve patient outcomes and safety (Veltman, 2019).

Objectives and Aims

This quality improvement project, introduced in three phases, aims to align existing local, state, and national CPGs with certified nurse-midwives care standards in an intrapartum hospital setting. Such standardization can reduce medical errors, allow for a more robust safety culture, and improve communication and morale among healthcare workers.

Phase One of this project involved the collection of guidelines, from two midwifery practices and the book *Clinical Practice Guidelines for Midwifery and Women's Health* (Tharpe et al., 2016). Content experts evaluated 28 CPGs on ten subjects for quality reporting using the AGREE II tool (2017). In Phase Two, the researcher revised and developed CPGs on the same ten subjects to meet the WHO's recommendations for guideline development, using the AGREE Reporting Checklist (Brouwers et al., 2016). Phase Three encompassed the submission of the developed guidelines to a local hospital for consideration of adoption.

Development and revision of the guidelines were accomplished by reviewing the literature and the existing guidelines and providing analysis on the context of statements from the American College of Nurse-Midwives (ACNM) and American College of Obstetricians and Gynecologists (ACOG), including:

1. *Core Competencies for Basic Midwifery Practice* (ACNM, 2020)
2. *Standards for The Practice of Midwifery* (ACNM, 2011)
3. *Definition of Midwifery and Scope of Practice of Certified Nurse-Midwives and Certified Midwives* (ACNM, 2011), and
4. *The Joint Statement of Practice Relations between Obstetrician-Gynecologists and Certified Nurse-Midwives/Certified Midwives* (2011).

This analysis was used to compile evidence-based practice guidelines for review.

Clinical Questions

1. Will the use of the AGREE II tool identify quality guidelines that reach the 70% benchmark for quality?
2. Will the ten revised guidelines reach the 70% threshold when scored by content experts?

Review of Literature

Search Strategy

This review's search strategy covered multiple databases, including Galileo, Ovid, Google Scholar, and ProQuest. Limits applied to articles included articles published between 2014 and 2020, peer-reviewed, scholarly, and English language. Keywords and search terms included 'clinical practice guidelines,' 'advanced practice nurses,' 'certified nurse-midwives,' 'midwife,' 'medical errors,' and 'patient safety,' and variations of these terms were used to ensure complete results. The most recent landmark articles addressing the importance of clinical practice guidelines were included in the review, and articles that did not address this topic were excluded.

The literature suggests three themes to consider regarding the importance of rigorous, standardized clinical practice guidelines: medical errors, patient safety, and communication.

Medical Errors

Medical errors can be defined as a failure to implement a plan or implementation of the wrong plan (Institute of Medicine, 2000). According to a landmark report by the Institute of Medicine (2000), an estimated 98,000 people die annually in hospitals from medical errors. Follow-up studies from 2010 and 2013 updated these numbers to an estimated 210,000 to 440,000 deaths per year (Medical Error, 2016). Johns Hopkins University estimated that medical errors are the third leading cause of death in the U.S. (Makary & Daniel, 2016). In a 2017 survey of 2,500 adults, 21% of respondents said they had personally experienced medical errors, and another 31% said they knew someone who had (Gandhi, 2018). These findings suggest a need to explore the causes of medical errors and the development and implementation of solutions. Standardized healthcare processes can help mitigate these concerns by assisting the healthcare provider in making the right decision at the right time.

Patient Safety

Safety culture is described as creating a safe space for practitioners to discuss errors, why these errors occur, and how systems science can effectively intervene. Research links safety culture to improved patient safety by improving communication and education about system science, which results in a lowered risk for errors and enhanced relationships among team members (*Medical Errors and Patient Safety*, 2016; Pham et al., 2012).

Waterson (2017) addressed the characteristics and components of safety culture, including regular discussion by managers and other administrators and their subsequent encouragement to healthcare workers to identify safety concerns. In an ideal safety culture, the

organization investigates all accidents and near misses and changes as needed. Kaplan et al. (2017) explained that leaders could enhance a culture of safety—for the patient and the workforce—by establishing a vision for safety, building trust, respect, inclusion, and rewarding a just culture. The workforce can be open and honest about safety, and blame is not used to remedy the concerns (Waterson, 2018, p. 3).

Such shifting of blame to others, a common incident in healthcare, can negatively affect safety culture. Fear of blame may prevent workers from properly documenting or disclosing errors to avoid repercussions, and emotional harm resulting from mistakes is pervasive. Reported consequences include disrespect, punitive action, criticism, bullying, and even physical harm, all of which can lead to caregiver fatigue and affect patient outcomes (Gandhi et al., 2018).

Multiple organizations and scholars are addressing this blaming culture in healthcare and the resulting issues of resilience and burnout, all of which can be exacerbated by medical errors. The Institute of Healthcare Improvement (Perlo et al., 2017, pp. 16–17) has developed a framework for organizations to encourage joy in work, which outlines methods to improve a worker's sense of physical and psychological safety.

Communication

Communication within a healthcare team creates a culture that supports a continuous learning environment and translates to better and more efficient care. Quality communications require trust, honesty, transparency, and timeliness (American College of Obstetricians and Gynecologists, 2016). Improved communication can be learned, if necessary, to foster better relationships among team members (Kohn et al., 2000, p. 180).

In March of 2016, the American College of Obstetricians and Gynecologists (AGOG) published a report outlining how to implement team-based care to improve patient care quality and improve outcomes. The report listed these guiding principles:

- Care should be patient-centered and respect the patient's values, preferences, and goals. Patients should be consulted when a situation warrants intervention and their consent obtained.
- The team should share a vision of the common goal and strive to see the team members as respected and essential to success.
- Each team member's roles and responsibilities must be defined based on patient needs and the member's qualifications.
- All members of the team should be accountable for their practice and to the team.
- Effective communication is the key to quality teams.
- Team leadership is situational and can change as needed to meet the needs of the patient.

These principles support ACNM's Standard, which requires that midwifery care occurs in a safe environment, within the context of the family, the community, and the system of healthcare (American College of Obstetricians and Gynecologists, 2016; Divisions of Standards and Practice, 2012).

Clinical practice guidelines (CPG) can improve quality of care and patient outcomes by providing a structure that 1) directs evidence-based care and 2) provides for when consultation, co-management, and referral to other specialties are indicated. Guidelines should clarify the team leader's role, suggesting that leadership is dynamic and determined by the patient's needs.

Theoretical Model

The theoretical model used in this project was developed by the National Council of State Boards of Nursing (*Evidence-Based Regulation of Nursing Education*, 2020). The model, shown in Appendix A, demonstrates how evidence-based practice, regulation, and education fall under the umbrella of evidence-based healthcare, including nursing, allied health, and medicine, and are used to develop healthcare policy.

In this project evidenced-based practice takes center stage by developing guidelines that are based on the most current research adding to the body of knowledge of evidence-based nursing. Combining these evidence-based guidelines and educating the midwives using them, provides evidence for healthcare policy development and nursing regulation.

There are six steps of evidence-based healthcare regulation (Spector, 2010).

Step 1: Formulate the question of the regulatory problem.

Step 2: Identify and collect evidence.

Step 3: Appraise the quality of the evidence.

Step 4: Critically appraise and synthesize the data.

Step 5: Disseminate findings by reporting to a wide policy community, identifying best practices.

Step 6: Continuously evaluate effectiveness and efficiency to seek ways to improve steps one through five.

Using this theoretical model provides a roadmap for developing evidence-based healthcare and protecting the public from care that is not evidenced-based.

Measurement Tools

AGREE II

The AGREE II tool, an instrument developed to assess the methodological quality of practice guidelines and reporting, was used to evaluate the source guidelines. The original AGREE tool, developed by a team of researchers and guideline developers known as the AGREE (Appraisal of Guidelines, Research, and Evaluation) Collaboration, was published in 2003 (AGREE Enterprise website, n.d.). Upon adopting and using the AGREE instrument, the team continued to improve its usability for stakeholders, its measurement properties, and its feasibility of implementation. In 2010, the tool was revised, and the AGREE II was launched 2010 (Brouwers et al., 2010b).

The AGREE II tool contains 23 items grouped into six domains and uses a Likert seven-point scale to rate each item. The six domains evaluate the following aspects of guidelines: scope and purpose (three items), stakeholder involvement (three items), rigor of development (eight items), clarity and presentation (three items), applicability (four items), and editorial independence (two items), as seen in Appendix B. Cronbach's alpha scores, which measure the reliability of a set of test items, ranged from 0.64 to 0.89 across the six domains. Editorial independence, or the developers' independence from the funding organization, scored below 0.7, with a score of 0.64. Clarity of presentation also scored below 0.7, with a score of 0.68. This domain refers to whether 1) the management options were clearly presented, 2) the recommendations were clearly identifiable, and 3) the guideline was supported by tools for application. All other scores were above 0.7.

Inter-rater reliability was adequate overall, and the number of appraisers to reach inter-rater reliability of 0.7 ranged from two to five across the six domains (Brouwers et al., 2010a).

Although the AGREE Trust Collaboration does not have a set threshold for determining quality, some researchers suggest imposing the score of 70% or greater, in all six domains, in order for a clinical practice guideline to be recommended for use (Velásquez, 2020). This threshold was used for this study.

Table 1

AGREE II Domains and Questions

D1: Scope and Purpose	1. The overall objective of the guideline is specifically described. 2. The health question covered by the guideline is specifically described. 3. The population to whom the guideline is meant to apply is specifically described.
D2: Stakeholder Involvement	4. The guideline development group includes individuals from all relevant professional groups. 5. The views and preferences of the target population have been sought. 6. The target users of the guideline are clearly defined.
D3: Rigor of Development	7. Systematic methods were used to search for evidence. 8. The criteria for selecting the evidence is clearly described. 9. The strengths and limitations of the body of evidence is clearly described. 10. The methods for formulating the recommendations are clearly described. 11. The health benefits, side effects, and risks have been considered in formulating the recommendations.

	12. There is an explicit link between the recommendations and the supporting evidence. 13. The guideline has been externally reviewed by experts prior to its publication. 14. A procedure for updating the guideline is provided.
D4: Clarity of Presentation	15. The recommendations are specific and unambiguous. 16. The different options for management of the condition or health issues are clearly presented. 17. Key recommendations are easily identifiable.
D5: Applicability	18. The guideline describes facilitators and barriers to its application. 19. The guideline provides advice and tools on how the recommendations can be put into practice. 20. Potential resource implications of applying the recommendations have been considered. 21. The guideline presents monitoring and/or auditing criteria.
D6: Editorial Independence	22. The views of the funding body have not influenced the content of the guideline. 23. Competing interests of the guideline development group members have been recorded and addressed.

Overall Assessment question one	Overall quality rating of this guideline
Overall Assessment question two	Recommendation of this guideline: yes, yes with modifications, or no

AGREE Reporting Checklist

The AGREE Reporting Checklist can be used to inform the development of practice guidelines, to improve their comprehensiveness, completeness, and transparency of reporting. See Appendix B.

Methodology

This practice improvement project used a guideline appraisal tool to review existing guidelines and update or revise them to meet quality standards. The guidelines were sent to a Georgia midwifery practice for consideration of implementation.

Data Collection

The principal investigator sent 24 emails to midwifery practices around the United States requesting that they participate in this study by sharing their guidelines for the review process. Two sets of intrapartum guidelines were obtained from similar practices in the southeast region of the United States. Guidelines from the book *Clinical Practice Guidelines for Midwifery and Women's Health* (Tharpe et al., 2016) were also used.

Data was collected using the My AGREE PLUS platform on the AGREEtrust.org website (*AGREE Enterprise website*, n.d.). Four appraisers underwent training provided by the AGREE Trust Organization, consisting of a video and a practice session (*AGREE Enterprise Website*, 2020). Each appraiser spent approximately 70 minutes learning to use this tool.

Guideline Selection Process

Ten of the most-used guideline topics were chosen from each set. Topics included hypertensive disorders (HTN), chorioamnionitis (Chorio), fetal demise (FD), nausea and vomiting in pregnancy (N&V), labor dystocia (LD), shoulder dystocia (SD), preterm labor (PTL), prelabor rupture of membranes (PROM), induction of labor and ripening of the cervix (IOL), and postpartum hemorrhage (PPH). Two expert appraisers selected and appraised 28 guidelines using the AGREE II tool. The results of the appraisal were analyzed, and none met the set benchmark of 70% for quality in all domains. The PI reviewed the literature, developed and updated the existing guidelines to meet the World Health Organization recommendations (WHO Guidelines Review Committee, 2020), and used the AGREE II Reporting Checklist (Brouwers et al., 2016) to ensure their completeness and transparency.

Three content experts in inpatient obstetrical care completed the training. They did not participate in the development process and were recruited to appraise the newly developed guidelines using the AGREE II tool.

Setting and Resources

This review's setting is a 360-bed non-profit hospital located in the southeast United States, containing 14 labor and delivery beds and four obstetrical emergency beds. When a baby is born in the labor and delivery unit, the dyad is transferred to the postpartum unit, where they spend the next few days.

A total of 14 CNMs care for obstetrical patients across the labor and delivery unit, the postpartum unit, and the obstetrical emergency department. The hospital employs nine of these CNMs; the other five work for a private physician group. Approximately 2,400 births occur each year at this facility, and midwives attend 50% of these.

Data Analysis Methods

The results of each appraisal were exported as a CSV file from the My AGREE PLUS online tool into Excel; from there, they were imported into SPSS version 25. Data screening was performed before the conduction of the statistical analyses. The data was verified using the random verification method, checking at least every third data point to ensure accuracy. There were no missing data.

Quality scores were calculated for each of the six domains by calculating the sum of all scores for all questions in a domain and scaling the total as a percentage of the maximum possible score for that domain.

Results

The results of this practice improvement project will be reported over the following paragraphs. Findings include scaled domain percentages and mean ratings of the original and revised guidelines.

Clinical Question One

Will the use of the AGREE II tool identify quality guidelines that reach the 70% benchmark for quality?

Of the 28 guidelines reviewed, none reached the threshold of 70% in all domains of the AGREE II tool. Clarity of Presentation (Domain 4) had the highest scores, ranging from 36% to 100%, with 21 of 28 guidelines meeting or exceeding the 70% threshold. The second-highest scores were for Scope and Purpose (Domain 1), where 10 of the guidelines met the threshold, with scores ranging from 6% to 97%. Stakeholder Involvement (Domain two) had two guidelines above 70%, with scores ranging from 8% to 75%.

Interrater reliability was strong overall, as determined by using the intraclass correlation coefficient (ICC 0.94; 95% CI 0.91 - 0.96) across all guidelines(Harris, 1913). ICC was greater than .70 on all domains except Domain 5 (ICC 0.614; 95%CI 0.42 – 0.0.76).

Table 2

Scaled Domain Percentages for All Appraisers for Each Existing Guideline.

Guideline	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6	OA1
B-HTN (%)	86	61	20	92	19	42	67
1-HTN (%)	39	8	8	75	0	0	17
2-HTN (%)	44	14	5	72	0	0	33
B-Chorio (%)	94	61	20	92	19	42	58
1-Chorio (%)	19	19	3	67	6	0	25
2-Chorio (%)	47	11	7	83	0	0	33
B-FD (%)	94	44	20	92	19	42	58
1-FD (%)	36	8	0	50	0	0	17
2-FD (%)	47	11	13	78	6	0	33
B-N&V (%)	92	61	20	92	19	42	58
1-N&V (%)	25	11	7	81	0	0	17
2-N&V (%)	14	11	6	86	0	0	25
B-LD (%)	89	61	21	92	19	42	58
1-LD (%)	39	8	4	64	0	0	17
2-LD (%)	22	11	6	81	6	0	33
B-SD (%)	97	72	20	100	25	42	58
1-SD (%)	17	11	15	75	0	0	17
B-PTL (%)	97	75	31	92	38	42	75
1-PTL (%)	56	6	0	56	0	0	8
2-PTL (%)	31	19	3	47	0	0	25

B-PROM (%)	94	61	20	92	19	42	58
1-PROM (%)	14	8	4	56	0	0	8
2-PROM (%)	69	11	15	89	4	0	42
B-IOL (%)	97	61	20	92	19	42	58
1-IOL (%)	31	8	4	36	0	0	8
2-IOL (%)	6	11	6	81	6	0	33
B-PPH (%)	78	47	14	81	19	17	75
1-PPH (%)	33	8	10	72	0	0	25

Note. B=Guideline Book, 1=Midwifery Practice 1, 2=Midwifery Practice 2. OA1= Overall Assessment question one and represents the appraiser's overall score.

Clinical Question Two

Will the ten revised guidelines reach the 70% threshold when scored by content experts?

The highest scoring guidelines of the original 28 were used as a starting point, along with the AGREE Reporting Checklist's revision development strategy on the ten selected topics.

All revised guidelines met the 70% benchmark for quality. Scores ranged from 71% to 100%. Domain 1 (Scope and Purpose) scored highest, ranging from 93% to 100%. The second highest-rated was Domain 6 (Editorial Independence), with a score range of 92-100%. The lowest rating was Domain 2 (Stakeholder Involvement), with scores ranging from 70-76%.

Table 3

Scaled Domain Percentages for All Appraisers for Each Revised Guideline

Guideline	Domain 1	Domain 2	Domain 3	Domain 4	Domain 5	Domain 6	OA1
HTN (%)	98	71	74	98	74	92	83
Chorio (%)	100	74	76	98	74	92	83
FD (%)	98	74	70	89	78	94	72
N&V (%)	99	76	72	99	78	96	83
LD (%)	100	72	73	98	79	100	83
SD (%)	93	70	70	94	83	92	83
PTL (%)	100	72	79	98	85	94	78
PROM (%)	98	72	74	93	78	94	83
IOL (%)	98	76	70	100	79	100	83
PPH (%)	98	70	74	96	81	94	89

Note. Type your note content here.

Additional Findings

Rating scores on the seven-point Likert scale for each guideline were below the overall mean on all existing guidelines, except the preterm labor guideline from the book. These are shown in Table 4.

Table 4

Overall Ratings for Each Existing Guideline in Descending Order.

Guideline	Mean Rating	SD
Book Preterm labor	4.38	1.89
Book Induction of labor	3.81	2.16
Book Chorioamnionitis	3.79	2.13
Book Pre labor rupture of membranes	3.79	2.07
Book Labor Dystocia	3.77	2.10

Book Nausea and Vomiting	3.77	2.05
Book Hypertension	3.75	2.01
Book Fetal Demise	3.67	2.05
Book Postpartum Hemorrhage	3.25	1.98
Practice 2 Pre labor Rupture of membranes	2.70	2.05
Practice 2 Fetal Demise	2.41	1.81
Practice 2 Chorio	2.21	1.85
Practice 2 Hypertension	2.17	1.7
Practice 2 Labor Dystocia	2.13	1.6
Practice 1 Postpartum Hemorrhage	2.13	1.70
Practice 1 Hypertension	2.13	1.64
Book Shoulder Dystocia	2.10	1.74
Practice 1 Shoulder Dystocia	2.10	1.64
Practice 1 Nausea and Vomiting	2.06	1.70
Practice 2 Nausea and Vomiting	2.02	1.80
Practice 2 Induction of Labor	2.00	1.75
Practice 1 Chorio	1.98	1.72

Practice 1 Labor Dystocia	1.96	1.54
Practice 1 Preterm Labor	1.90	1.57
Practice 2 Preterm Labor	1.85	1.29
Practice 1 Fetal Demise	1.75	1.27
Practice 1 Pre labor Rupture of Membranes	1.69	1.20
Practice 1 Induction of Labor	1.67	1.20

Table 5

Overall Ratings for Each Revised Guideline in Descending Order

Guideline	Mean Rating	SD
PTL	6.3	1.62
IOL	6.2	2.04
N&V	6.1	1.80
PPH	6.1	1.63
Labor Dystocia	6.0	1.89
Chorio	6.0	1.64
HTN	6.0	1.20
Shoulder Dystocia	6.0	1.28
PROM	5.9	1.27
Fetal Demise	5.8	1.32

Note. Type your note content here.

Table 6

Overall Ratings for Each Domain in the Original 28 Guidelines.

Domain	Mean Rating	SD
Clarity of Presentation	5.58	1.26
Scope and Purpose	4.06	1.77
Stakeholder Involvement	2.59	1.72
Overall Assessment Q1	1.82	1.08
Editorial Independence	1.75	1.82
Rigor of Development	1.68	0.75

Applicability	1.51	0.86

The rating scores for the revised guidelines were above the mean on each domain, as shown in Table 7.

Table 7

Mean Rating Score for Each Domain in the Ten Revised Guidelines.

Domain	Mean Rating	SD
Scope and Purpose	6.8	0.15
Clarity of Presentation	6.7	0.19
Editorial Independence	6.0	0.19
Overall Assessment Q1	5.9	0.26
Applicability	5.7	0.29
Rigor of Development	5.4	0.32
Stakeholder Involvement	5.3	0.27

Overall assessment question two asks if the appraiser would

1. Recommend this guideline
2. Recommend with modifications
3. Would not recommend this guideline for use in clinical practice, as shown in Table 8.

Table 8

Appraiser Recommendations for the use of Original Guidelines in Clinical Practice.

Guideline	Appraiser 1	Appraiser 2
Hypertensive Disorders		

Guideline Book	Recommended with modifications	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Recommended with modifications	Not Recommended
Chorioamnionitis		
Guideline Book	Recommended	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Not Recommended	Not Recommended
Fetal Demise		
Guideline Book	Recommended with modifications	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Recommended with modifications	Not Recommended
Nausea and Vomiting		
Guideline Book	Recommended with modifications	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Recommended with modifications	Not Recommended

Labor Dystocia		
Guideline Book	Recommended with modifications	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Recommended with modifications	Not Recommended
Shoulder Dystocia		
Guideline Book	Recommended	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Guideline not available	Guideline not available
Preterm Labor		
Guideline Book	Recommended with modifications	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Not Recommended	Not Recommended
Prelabor Rupture of Membranes		
Guideline Book	Recommended	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended

Midwifery Practice 2	Recommended with modifications	Not Recommended
Induction of Labor		
Guideline Book	Recommended with modifications	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Recommended with modifications	Not Recommended
Postpartum Hemorrhage		
Guideline Book	Recommended with modifications	Recommended with modifications
Midwifery Practice 1	Not Recommended	Not Recommended
Midwifery Practice 2	Guideline not available	Guideline not available

All appraisers agreed that the ten revised guidelines were recommended for use in practice.

Discussion

Intrapartum clinical practice guidelines for certified nurse-midwives (CNMs) can improve the quality of care and patient outcomes. Such improvements, however, often depend upon the level of rigor in guideline development, to assure quality and utilize the most recent and best evidence. This section discusses the results of this study.

The AGREE II tool was used initially to evaluate the quality of 28 intrapartum guidelines and secondly to evaluate ten revised guidelines for nurse-midwives. In general, none of the 28

guidelines met the benchmark we chose as a mark of high quality. All of the revised guidelines met or exceeded the benchmark. This improvement suggests that use of a rigorous development strategy improves the quality of the guideline. This relationship between a strong development process and quality was noted repeatedly in the literature (*Clinical Practice Guidelines*, n.d.; *Committee on Standards for Developing Trustworthy Clinical Practice Guidelines et al. - 2011 - Clinical Practice Guidelines We Can Trust.Pdf*, n.d.; *Institute for Healthcare Improvement*, 2020; Gandhi, 2017; Graham et al., 2011; Institute of Medicine (US) Committee to Advise the Public Health Service on Clinical Practice Guidelines, 1990; Millen et al., 2014; Nygaard et al., 2020; Polus et al., 2012).

Clarity of Presentation scored the highest of all domains, with a mean score of 5.6 out of 7 possible points in the original guidelines, and a 6.7/7 in the revision. This can be explained by the crucial nature of this communication: care recommendations are the reason midwives use guidelines. Both authors and users prioritize this section because it advises users on the specific care to provide under different circumstances.

Rigor of Development scored low in the original guidelines (1.7/7), possibly because of failures to document the development strategy. All of the original guidelines had up-to-date recommendations based on this PI's literature review, suggesting that the original authors performed a literature review but neglected to document it. A strong development strategy with carefully reported citations can improve the overall quality of the guidelines.

Though the revised guidelines utilized and documented a rigorous development strategy, this domain remained one of the lowest-scoring (5.4/7), just above Stakeholder Involvement. In consideration of time limits, the PI made recommendations based on existing meta-analyses, rather than performing new meta-analyses on the literature for each topic.

Midwives must practice in an environment that provides for consultation, collaboration, and referral to medical care as indicated by the patient's needs (ACOG and ACNM, 2018). Clinical practice guidelines serve as a decision-making tool that team members, or stakeholders, can use to agree on the safest path forward for the patient. When all stakeholders, such as maternal-fetal medicine physicians and backup physicians, have input in this process and form a consensus on the recommendations, patient safety is enhanced.

In the original guidelines, Stakeholder Involvement scored an overall rating of 2.59 out of 7, which rose to a 5.9 of 7 in the revised version. This increase was accomplished by asking midwives and physicians to review the revised guidelines and offer input before they were completed. These stakeholders will be offered another opportunity to provide feedback on desired changes before the guidelines are adopted into practice.

Once all stakeholders approve the revised guidelines, they can be adopted into use. This gives the midwife and physician agreed-upon documentation to refer to when planning and providing patient care. If opinions differ on how a given patient should be managed, the team can use the accepted guidelines to find a solution.

Strengths and Weaknesses

This project's strength was the exhaustive literature search done, both in preparation for the project and during the revision of the guidelines. All available databases were searched, as well as the American College of Nurse-Midwives, American College of Obstetrics and Gynecology, the World Health Organization, National Institutes of Health, and other websites favored by medical providers.

The AGREE Collaboration suggests that to reach adequate inter-rater reliability, two to four raters are needed. In this study, two raters scored the original 28 guidelines, and three

appraised the ten revised guidelines. This proved to be an adequate number to achieve strong inter-rater reliability.

The AGREE II tool has been tested for reliability and validity. However, there is no benchmark recommended for determining the "quality" of a guideline, leaving interpretation up to the reviewer. This would suggest using caution and viewing the results in context. In this study, the original guidelines did not reach the benchmark chosen by this author. However, when the topics were researched for appropriate recommendations for the revised guidelines, most of the original guidelines' recommendations were evidence-based. This suggests that a CPG can score low using the AGREE II tool while making quality recommendations. The opposite is also true. A CPG can score high, while conveying recommendations of low quality. Therefore, it's essential to document the complete development process, which can be accomplished by using a guideline development tool.

Implications for Future Research

For time limitation reasons, this study was unable to determine the effect of the use of these guidelines on patient safety. A study evaluating the implementation of the guidelines can guide this process. Researchers have documented the importance of the implementation process in determining whether providers use the guidelines and if these guidelines improve patient outcomes (Castellini et al., 2020).

Also, future work should consider the salience of using content experts to review the guidelines, as this study did. MacDermid et al. (2005) found no difference in how guidelines scored when using content experts compared to those unfamiliar with guideline content. These findings have not been demonstrated in other studies and require further research.

Recommendations

Developing high-quality clinical practice guidelines can protect healthcare providers from litigation, improve patient care, promote patient safety, and save valuable time when caring for vulnerable patients. Using a tool such as the AGREE Reporting Checklist provides a pathway for a robust systematic development process (Brouwers et al., 2016).

1. Construct a detailed timeline for updating.
2. Seek and document stakeholder involvement.
3. Use a systematic development process and connect evidence to recommendations.
4. Consider a summary document to include sections that apply to all guidelines, such as development strategy, applicability, stakeholder involvement, and editorial independence.

A CPG's lengthy development process can mean that is outdated by the time of publication and may not reflect the most current evidence. Also, in the field of midwifery, each practice must develop and revise its own guidelines, which wastes resources and allows for the consideration of non-evidence-based recommendations. Furthermore, most midwifery practices do not allot the necessary administrative time for the development and revision of CPGs. Castellini et al. (2020) urged the creation of a universal database, much like that used for RCTs at clinicaltrials.gov. Such a living systematic review approach for guideline development, registration, and recommendations could better ensure midwives and other specialists access to the most up-to-date CPGs.

Conclusion

Clinical practice guidelines (CPG) provide research-based recommendations and protocols for the treatment of particular disorders. Certified nurse-midwives, who provide and manage an array of independent health care services for women, including primary care, gynecologic care, family planning, preconception and prenatal care, childbirth, postpartum care, and care of the newborn, rely on quality guidelines for patient care and safety.

Consistent with the literature, this project reestablishes that using a rigorous guideline development strategy and revising and updating those guidelines based on the most up-to-date evidence-based recommendations improves the quality of clinical practice guidelines. This study looked, introduced in three phases, looked to align existing local, state, and national CPGs with certified nurse-midwives care standards in an intrapartum hospital setting. Hopefully, future research will check for the impacts of this quality improvement study on the occurrence of medical errors, the establishment of a more robust safety culture, and improved communication and morale among healthcare workers.

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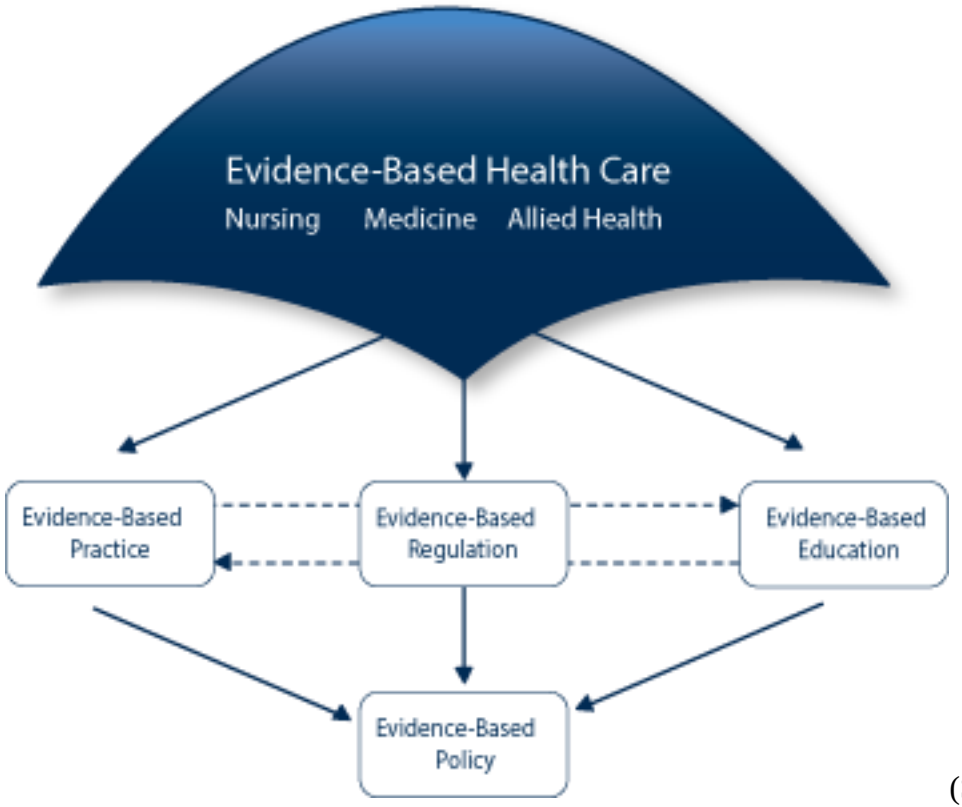
Appendices

Appendix A: Theoretical Model



(Spector, 2010)

Appendix B: Link for AGREE II User's Manual

https://www.agreetrust.org/wp-content/uploads/2013/06/AGREE_II_Users_Manual_and_23-item_Instrument_ENGLISH.pdf

Appendix C: AGREE Reporting Checklist 2016

AGREE Reporting Checklist 2016

This checklist is intended to guide the reporting of clinical practice guidelines.

CHECKLIST ITEM AND DESCRIPTION	REPORTING CRITERIA
1. OBJECTIVES *Report the overall objective(s) of the guideline. The expected health benefits from the guideline are to be specific to the clinical problem or health topic.*	☐ Health intent(s) (i.e., prevention, screening, diagnosis, treatment, etc.) ☐ Expected benefit(s) or outcome(s) ☐ Target(s) (e.g., patient population, society)
2. QUESTIONS *Report the health question(s) covered by the guideline, particularly for the key recommendations.*	☐ Target population ☐ Intervention(s) or exposure(s) ☐ Comparisons (if appropriate) ☐ Outcome(s) ☐ Health care setting or context
3. POPULATION *Describe the population (i.e., patients, public, etc.) to whom the guideline is meant to apply.*	☐ Target population, sex and age ☐ Clinical condition (if relevant) ☐ Severity/stage of disease (if relevant) ☐ Comorbidities (if relevant) ☐ Excluded populations (if relevant)
4. GROUP MEMBERSHIP	☐ Name of participant

Report all individuals who were involved in the development process. This may include members of the steering group, the research team involved in selecting and reviewing/rating the evidence and individuals involved in formulating the final recommendations.	☐ Discipline/content expertise (e.g., neurosurgeon, methodologist) ☐ Institution (e.g., St. Peter's hospital) ☐ Geographical location (e.g., Seattle, WA) ☐ A description of the member's role in the guideline development group
5. TARGET POPULATION PREFERENCES AND VIEWS *Report how the views and preferences of the target population were sought/considered and what the resulting outcomes were.*	☐ Statement of type of strategy used to capture patients'/publics' views and preferences (e.g., participation in the guideline development group, literature review of values and preferences) ☐ Methods by which preferences and views were sought (e.g., evidence from literature, surveys, focus groups) ☐ Outcomes/information gathered on patient/public information ☐ How the information gathered was used to inform the guideline development process and/or formation of the recommendations
6. TARGET USERS	☐ The intended guideline audience (e.g. specialists, family physicians, patients,

Report the target (or intended) users of the guideline.	clinical or institutional leaders/administrators) ☐ How the guideline may be used by its target audience (e.g., to inform clinical decisions, to inform policy, to inform standards of care)
7. SEARCH METHODS *Report details of the strategy used to search for evidence.*	☐ Named electronic database(s) or evidence source(s) where the search was performed (e.g., MEDLINE, EMBASE, PsychINFO, CINAHL) ☐ Time periods searched (e.g., January 1, 2004 to March 31, 2008) ☐ Search terms used (e.g., text words, indexing terms, subheadings) ☐ Full search strategy included (e.g., possibly located in appendix)
8. EVIDENCE SELECTION CRITERIA *Report the criteria used to select (i.e., include and exclude) the evidence. Provide rationale, where appropriate.*	☐ Target population (patient, public, etc.) characteristics ☐ Study design ☐ Comparisons (if relevant) ☐ Outcomes ☐ Language (if relevant) ☐ Context (if relevant)

9. STRENGTHS & LIMITATIONS OF THE EVIDENCE *Describe the strengths and limitations of the evidence. Consider from the perspective of the individual studies and the body of evidence aggregated across all the studies. Tools exist that can facilitate the reporting of this concept.*	☐ Study design(s) included in body of evidence ☐ Study methodology limitations (sampling, blinding, allocation concealment, analytical methods) ☐ Appropriateness/relevance of primary and secondary outcomes considered ☐ Consistency of results across studies ☐ Direction of results across studies ☐ Magnitude of benefit versus magnitude of harm ☐ Applicability to practice context
10. FORMULATION OF RECOMMENDATIONS *Describe the methods used to formulate the recommendations and how final decisions were reached. Specify any areas of disagreement and the methods used to resolve them.*	☐ Recommendation development process (e.g., steps used in modified Delphi technique, voting procedures that were considered) ☐ Outcomes of the recommendation development process (e.g., extent to which consensus was reached using modified Delphi technique, outcome of voting procedures) ☐ How the process influenced the recommendations (e.g., results of Delphi technique influence final

	recommendation, alignment with recommendations and the final vote)
11. CONSIDERATION OF BENEFITS AND HARMS *Report the health benefits, side effects, and risks that were considered when formulating the recommendations.*	☐ Supporting data and report of benefits ☐ Supporting data and report of harms/side effects/risks ☐ Reporting of the balance/trade-off between benefits and harms/side effects/risks ☐ Recommendations reflect considerations of both benefits and harms/side effects/risks
12. LINK BETWEEN RECOMMENDATIONS AND EVIDENCE *Describe the explicit link between the recommendations and the evidence on which they are based.*	☐ How the guideline development group linked and used the evidence to inform recommendations ☐ Link between each recommendation and key evidence (text description and/or reference list) ☐ Link between recommendations and evidence summaries and/or evidence tables in the results section of the guideline
13. EXTERNAL REVIEW *Report the methodology used to conduct the external review.*	☐ Purpose and intent of the external review (e.g., to improve quality, gather feedback on draft recommendations, assess

	applicability and feasibility, disseminate evidence) ☐ Methods taken to undertake the external review (e.g., rating scale, open-ended questions) ☐ Description of the external reviewers (e.g., number, type of reviewers, affiliations) ☐ Outcomes/information gathered from the external review (e.g., summary of key findings) ☐ How the information gathered was used to inform the guideline development process and/or formation of the recommendations (e.g., guideline panel considered results of review in forming final recommendations)
14. UPDATING PROCEDURE *Describe the procedure for updating the guideline.*	☐ A statement that the guideline will be updated ☐ Explicit time interval or explicit criteria to guide decisions about when an update will occur ☐ Methodology for the updating procedure

15. SPECIFIC AND UNAMBIGUOUS RECOMMENDATIONS *Describe which options are appropriate in which situations and in which population groups, as informed by the body of evidence.*	☐ A statement of the recommended action ☐ Intent or purpose of the recommended action (e.g., to improve quality of life, to decrease side effects) ☐ Relevant population (e.g., patients, public) ☐ Caveats or qualifying statements, if relevant (e.g., patients or conditions for whom the recommendations would not apply) ☐ If there is uncertainty about the best care option(s), the uncertainty should be stated in the guideline
16. MANAGEMENT OPTIONS *Describe the different options for managing the condition or health issue.*	☐ Description of management options ☐ Population or clinical situation most appropriate to each option
17. IDENTIFIABLE KEY RECOMMENDATIONS *Present the key recommendations so that they are easy to identify.*	☐ Recommendations in a summarized box, typed in bold, underlined, or presented as flow charts or algorithms ☐ Specific recommendations grouped together in one section
18. FACILITATORS AND BARRIERS TO APPLICATION	☐ Types of facilitators and barriers that were considered

Describe the facilitators and barriers to the guideline's application.	☐ Methods by which information regarding the facilitators and barriers to implementing recommendations were sought (e.g., feedback from key stakeholders, pilot testing of guidelines before widespread implementation) ☐ Information/description of the types of facilitators and barriers that emerged from the inquiry (e.g., practitioners have the skills to deliver the recommended care, sufficient equipment is not available to ensure all eligible members of the population receive mammography) ☐ How the information influenced the guideline development process and/or formation of the recommendations
19. IMPLEMENTATION ADVICE/TOOLS *Provide advice and/or tools on how the recommendations can be applied in practice.*	☐ Additional materials to support the implementation of the guideline in practice. For example: ○ Guideline summary documents ○ Links to check lists, algorithms ○ Links to how-to manuals ○ Solutions linked to barrier analysis (see Item 18) ○ Tools to capitalize on guideline facilitators (see Item 18) ○ Outcome of pilot test and lessons learned

20. RESOURCE IMPLICATIONS *Describe any potential resource implications of applying the recommendations.*	☐ Types of cost information that were considered (e.g., economic evaluations, drug acquisition costs) ☐ Methods by which the cost information was sought (e.g., a health economist was part of the guideline development panel, use of health technology assessments for specific drugs, etc.) ☐ Information/description of the cost information that emerged from the inquiry (e.g., specific drug acquisition costs per treatment course) ☐ How the information gathered was used to inform the guideline development process and/or formation of the recommendations
21. MONITORING/ AUDITING CRITERIA *Provide monitoring and/or auditing criteria to measure the application of guideline recommendations.*	☐ Criteria to assess guideline implementation or adherence to recommendations ☐ Criteria for assessing impact of implementing the recommendations ☐ Advice on the frequency and interval of measurement ☐ Operational definitions of how the criteria

	should be measured
22. FUNDING BODY *Report the funding body's influence on the content of the guideline.*	☐ The name of the funding body or source of funding (or explicit statement of no funding) ☐ A statement that the funding body did not influence the content of the guideline
23. COMPETING INTERESTS *Provide an explicit statement that all group members have declared whether they have any competing interests.*	☐ Types of competing interests considered ☐ Methods by which potential competing interests were sought ☐ A description of the competing interests ☐ How the competing interests influenced the guideline process and development of recommendations