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Adolescent Pregnancy: A Clinical Guideline for School Nurses in New Mexico

Karin Ludi

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ADOLESCENT PREGNANCY: A CLINICAL GUIDELINE FOR SCHOOL NURSES
IN NEW MEXICO

By

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A doctoral project submitted in partial fulfillment
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Doctor of Nursing Practice

School of Nursing
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Doctoral Project Approval

The Graduate College
The University of Nevada, Las Vegas

August 14, 2019

This doctoral project prepared by

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Adolescent Pregnancy: A Clinical Guideline for School Nurses in New Mexico

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Abstract

The National Association of School Nurses [NASN] (2016) describes the role of the school nurse as that of one who connects health care and education. The position statement by the NASN (2016) further indicates that the school nurse's role is essential in safeguarding the health and academic success of pregnant students. The school nurse has a responsibility to pregnant adolescents including providing health education, understanding and recognizing signs of pregnancy, discussing available options, providing emotional support, assisting the student in locating accessible care, and helping students and family. New Mexico has consistently ranked in the top 10 in the United States for teen births to women aged 15-19 years. The New Mexico School Health Manual is currently used to guide school nurses and health assistants in the care of pregnant adolescents; however, it only addresses emergencies such as labor and bleeding.

The overall purpose of this Doctor of Nursing Practice final project was to ensure that school nurses and health assistants are knowledgeable and have the resources to care for the non-emergent needs of pregnant adolescents in the New Mexico public school system. More specifically, the development of a clinical guideline, focused on the non-emergent care of pregnant adolescents, was the aim of this DNP project.

The outcome of this project was the developed clinical guideline focused on the non-emergent care of pregnant students. Content validity of the guideline was provided by three school nurse experts and the guideline was thereafter edited and subsequently presented to a group of school nurses and health assistants who evaluated the presentation. An evaluation from the presentation was overwhelmingly positive related to relevance and increased knowledge. Plans for further dissemination of the guideline throughout New Mexico are being considered.

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I would like to express my extreme gratitude to Dr. Marcia Clevesy, who began this Doctor of Nursing Practice (DNP) journey with me, for her constructive comments and occasional push when I needed it most. I am also extremely grateful to Dr. Mary Bondmass for stepping in as my chair to help me complete this journey. Thank you, Dr. Bondmass, for your continued support, encouragement, and motivation. I would also like to extend my gratitude to Dr. Marya Shegog and Dr. Rei Serifica for agreeing to be part of my committee and seeing me through to the end.

Dedication

To my amazing and loving husband and family, I thank you for your support, encouragement, and patience as I set out to make this dream a reality. I appreciate each of you stepping in when I needed you most to help make this dream possible. I will forever be grateful to all of you. Achieving my Doctorate in Nursing has been a lifelong dream that I was not sure would happen, and I could not have done it without the love and support of my family. To my children, remember that anything is possible as long as you set your mind to it and put the work in.

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Chapter 1

Introduction

The National Association of School Nurses [NASN] (2016) describes the role of the school nurse as that of one who connects health care and education. The school nurse should possess leadership characteristics to promote care coordination and quality improvement and be mindful of best practices related to school nursing. The position statement by the NASN (2016) further indicates that the school nurse's role is essential in safeguarding the health and academic success of pregnant students. The school nurse has a responsibility to pregnant adolescents including providing health education, understanding and recognizing signs of pregnancy, discussing available options, providing emotional support, assisting the student in locating access to care, and helping students and family.

Problem and Purpose

In the United States in 2017, it was estimated that 15.1 million students were enrolled in public secondary schools and the student-to-school nurse ratios were high. In 2007-2008, the student-to-school-nurse ratio was 640:1 (National Center for Education Statistics [NCES], n.d.). According to NASN (2016), school nurses are tasked with providing primary, secondary, and tertiary care to students, and this requires that the school nurses are provided with clear and specific evidence-based clinical guidelines for special situations. One such specialty situation is adolescent pregnancy; however, in New Mexico, the current pregnancy clinical guidelines, outlined in the New Mexico School Health Manual (2018), are specific only for pregnancy emergencies such as labor or bleeding. The current New Mexico School Health Manual does not

offer guidance to school nurses (or health assistants as their designee) who frequently may encounter other, non-emergency prenatal or pregnancy-related issues in adolescents.

The role of the school nurse is essential in ensuring the coordinated care of students requiring pregnancy-related care and follow-ups beyond what the school can provide. This role is important because the school nurse is concerned with the health needs of students and ensuring that students are receiving the care needed to address pregnancy issues but also the impact pregnancy issues may have on their school performance (Baisch, Lundeen, & Murphy, 2011). The school nurse may be the first point of contact for pregnant adolescents; therefore, clear and specific evidence-based clinical guidelines related to adolescent pregnancy may provide the school nurse and health assistants needed care direction.

The purpose of this Doctorate of Nursing Practice (DNP) project is to develop a clear and specific evidence-based clinical guideline to be utilized by school nurses and health assistants to better care for the non-emergent needs of pregnant adolescents in the public school system of New Mexico.

Significance

Adolescent pregnancy accounts for an increased risk of pre-term delivery and low birth weight babies (Chen et al., 2007). Additionally, studies have linked adolescent pregnancy to an increased risk of neonatal mortality (Chen et al., 2007). Poor outcomes with adolescent pregnancy may be associated with their environment, socioeconomic standing, or the fact that their bodies are not yet mature (Chen et al., 2007). Regardless of the etiology of the poor health outcomes related to adolescent pregnancy, the school nurse can play a critical role in addressing multiple issues while the pregnant adolescent is in school.

According to the Centers for Disease Control and Prevention (CDC) (2017), the birth rate for women aged 15-19 years in the United States was 22.3 per 1,000 in 2015. Over the past 20 years, while there has been a decline in adolescent pregnancies throughout the United States, the number of adolescents having babies remains alarmingly high. In comparison to other industrialized nations, the United States ranks number one among 21 countries with complete statistics for adolescent pregnancy rates, even with the documented decline (Sedgh, Finer, Bankole, Eilers, & Singh, 2015).

Moreover, the CDC (2017) identified that in 2015, there were twice as many births by Hispanic adolescents than by non-Hispanic White adolescents. New Mexico is a state with a large Hispanic population. In New Mexico, the number of Hispanic female adolescents between ages 15-19 is 55.1%, among all teens in this age group who gave birth, and of the 1,889 births to teens, 81% were to Hispanics (New Mexico Indicator-Based Information System [NM-IBIS], 2017). Factors contributing to high Hispanic adolescent pregnancy percentages include low education and low-income levels of families (NM-IBIS, 2017). Adolescent pregnancies occur in families at all socioeconomic levels, but they are more likely to happen in families who live in poverty, have limited educational attainment and low paying employment opportunities (Taylor, 2017). The rate of pregnancy in Hispanic adolescents is almost twice the national average (CDC, 2017) and statistics alarmingly indicate that about 53% of Hispanics under the age of 20 in the United States will become pregnant (Rocca, Doherty, Padian, Hubbard, & Minnis, 2010).

According to the NM-IBIS (2017), New Mexico's teen birth rates have declined 45% between 2010 and 2016, but the state still has one of the highest teen birth rates in the country. New Mexico's teen birth rates are amongst the highest for American Indians and Hispanics.

Reports indicate poverty as one of the most important contributing factors to teenage pregnancy, and New Mexico has one of the highest rates of children living in poverty (NM-IBIS, 2017).

The Bernalillo Public Schools, in Sandoval County, is the location for implementation of this project. Sandoval County has a population of 145,179 within the county; the town of Bernalillo has a population of 10,105. The town of Bernalillo is 63.2% Hispanic and 9.0% American Indian and Alaska Native. The percentage of individuals living in poverty is 19.0%.

Summary

Currently, the guideline outlined in the New Mexico School Health Manual (2018) regarding pregnancy only address emergencies such as labor or bleeding. Moreover, the current instructions do not guide school nurses or health assistants who often encounter non-emergent pregnancy issues in adolescents in their schools. It is believed, that the clinical guideline developed for this DNP project will serve as a clear and specific resource for school nurses and health assistants to holistically address non-emergent issues related to adolescent pregnancy for all students in New Mexico.

Chapter 2

Review of the Literature

This chapter provides a review of the current literature regarding adolescent pregnancy in the United States in general and for New Mexico, specifically. Evidence-based guidelines from other sources were also reviewed and appraised, and barriers to health-seeking behaviors were identified.

Search engines utilized included CINAHL, Clinical Key, Cochrane Library, Google Scholar, Medline Plus, PubMed, Sage Research Methods, and World Cat. Keywords and elements searched in the systematic literature review included pregnancy in adolescence, teen pregnancy, clinical guidelines, practice guidelines, and school nursing.

In general, this review of the literature found few clinical guidelines available to school health personnel; however many studies addressed health risks and interventions related to pregnant adolescents along with barriers to seeking assistance faced by pregnant adolescents.

Health Risk Associated with Adolescent Pregnancy

The combination of age, substance use, and risky behavior make the pregnancy complex, but this combination mixed with other demographic factors increases the complexity (Forray, 2016). Social determinants such as racial/ethnic, poverty, being a victim of abuse, having a mother who was an adolescent when she became pregnant, lack of access to health care for prevention of pregnancy and geographical contributions influence the continuance of documented occurrences of adolescent pregnancies (Farber, 2016). There is an apparent link between parenting experiences in early adolescence and participation in risky behaviors. Risky behaviors such as early sexual debut, the low rate of use of contraceptives, and increased

numbers of partners can lead to negative outcomes. These adverse outcomes include sexually transmitted infections and unintended pregnancy. Research suggests that supportive parenting, including open communication and being present, reduces the likelihood of adolescents participating in risky sexual behaviors and closes the education gap (Basch, 2011; Connery, Albright, & Rodolico, 2014; Simons, Sutton, Simons, Gibbons, & Murry, 2016). Inability to access health care or resources needed can contribute to the lack of school connectedness, absenteeism, and dropout rates that have a negative effect on education. The school nurse as a resource and advocate for the student in school can alleviate negative effect on education. Clinical guidelines for school nurses regarding pregnancy issues is an effective school health initiative to meet the needs of students allowing them to stay in school and learn (Basch, 2011).

New Mexico was identified as one of the states with the highest rate of teen pregnancy, 29.8 per 1,000 in comparison to the average for the United States, 20.3 per 1,000 (CDC, 2018). At present, school nursing personnel in the state of New Mexico utilize the New Mexico School Health Manual as a document to guide their practice (New Mexico School Health Manual, 2018). The manual currently provides a brief section on the emergency care of pregnant students. Although beneficial, not all school nursing personnel encounters with pregnant adolescents require emergency services. School nursing personnel need to have resources available to them to address adolescent concerns and questions regarding their care, especially when pregnancy is an issue.

Current Guidelines

The literature is limited for clinical guidance for school nurses in caring for pregnant adolescents. In reviewing school health manuals for multiple states, several states do not address pregnancy in the school health manual, and others provide little guidance (Charlotte County

Public Schools Nursing Procedure Manual, 2014; Massachusetts Department of Health School Health Manual, 2007; Mississippi School Nurse Procedures & Standards of Care, 2013; New Mexico School Health Manual, 2018). The decision was made to use those school health manuals that provided guidance regarding pregnancy in adolescents. The literature review was able to identify school health manuals with similar adolescent pregnancy outcomes as New Mexico. The literature review also contains the school health manual for Massachusetts, which ranked number one for the fewest occurrences of adolescent births and Charlotte County Public Schools Nursing Procedure Manual in Florida, which ranked 25th among states for teen births (CDC, 2018).

The New Mexico school health manual (2018) addresses confidentiality services for minors and emergencies in pregnancy, including morning sickness with vomiting, cramping, seizures, and bleeding. The current guideline for the New Mexico school nurses provides instructions to contact school administration and parents if any issues related to pregnancy arise (New Mexico School Health Manual, 2018). The Mississippi School Nurse Procedures and Standards of Care (2013) address the need for adolescents to be cared for in the school setting, but the role of the school nurse is as a case manager. The procedure identifies interventions for referral of the pregnant adolescent to outside resources. It also stipulates that the school nurse may monitor the pregnant adolescent as necessary in collaboration with the student's health care provider; this includes routine vital signs, weight, and counseling regarding nutrition and care (Mississippi School Nurse Procedures & Standards of Care, 2013). The Massachusetts Department of Health School Health Manual (2017) provides a chapter on sexuality and reproductive health, including topics about adolescent pregnancy and pregnancy prevention. Although there are no specific guidelines for school nurses to follow in regards to the care of

pregnant adolescents, the manual does discuss pregnancy options concerning termination, adoption, and prenatal care resources. The Charlotte County Public Schools Nursing Procedure Manual (2014) lists student pregnancy under illness and injury. The guidance for school nurses is limited to encouraging the student to discuss the matter with their parents, and under no circumstance should pregnancy testing, birth control devices, or information regarding options be provided (Charlotte County Public Schools Nursing Procedure Manual, 2014).

The Illinois Department of Public Health provides the school nurse a guideline for obstetric emergencies (Guidelines for the Nurse in the School Setting, 2017). The clinical guideline offers specific assessment points for the school nurse to obtain and it simplifies the assessment findings into triage categories including emergent, urgent, and nonurgent (Guidelines for the Nurse in the School Setting, 2017). The triaging system offers interventions for the school nurse to follow, allows for critical thinking decision making to occur, and provides guidance in the event of an immediate delivery (Guidelines for the Nurse in the School Setting, 2017).

Lastly, the World Health Organization [WHO] (2016) offers recommendations on antenatal care for optimal pregnancy outcomes. The recommendations exist to assist in the development of clinical guidelines or protocols for entities who provide care to this population (WHO, 2016). The recommendations have corresponding interventions for nutrition, maternal and fetal assessment, preventative measures, common physiological symptoms, and health systems interventions (WHO, 2016). All recommendations have identified evidence to support the implementation and the evidence rating scale utilized is the GRADE and GRADE-CERQual tool (WHO, 2016).

Barriers to Health-Seeking Behaviors

Adolescents experience many barriers to access to primary care, but one with significant impact is the way adolescent perceived providers interacted with them (Schaeuble, Haglund, & Vukovich, 2010). Adolescents fear a breach of confidentiality as a reason for not seeking care. When confidentiality is validated, it improves how pregnancy care is provided (Santa Maria, Guilamo-Ramos, Jemmott, Derouin, & Villarruel, 2017). Establishment of trust and confidence is where this begins. It is essential that adolescents have access to nurses who have the knowledge and skills necessary to provide evidence-based counseling and services to adolescent and parents in all nursing practice sites. The ability of the nurse to provide knowledgeable information and the expertise to offer care will have a positive impact on pregnancy outcomes (Santa Maria, Guilamo-Ramos, Jemmott, Derouin, & Villarruel, 2017). The provider-patient interaction is vital to improving access and outcomes for adolescents seeking care (Schaeuble, Haglund, & Vukovich, 2010). Adolescents want to be involved in their care with a health care provider they can trust to be respectful and nonjudgmental. Adolescents also want their health care provider to protect their confidentiality and be their advocate (Santa Maria et al., 2017; Schaeuble et al., 2010).

Needs Assessment

To determine need, the rural Bernalillo Public School district in Bernalillo, New Mexico was contacted to determine current adolescent pregnancy clinical guidelines in use. Presently, there are no specific guidelines utilized by the Bernalillo Public School district. However, this school district does follow the New Mexico School Health Manual (2018), which provides minimal guidance about emergency care in pregnancy. The New Mexico School Health Manual also provides guidelines for pregnancy testing by the school nurse. Bernalillo Public Schools are

fortunate to have a school-based health center on campus to meet the physical and mental health needs of students. The school-based health center provides prenatal health care to students, although there are no specific guidelines followed (I. Fuller, personal communication, August 28, 2018).

Organizational Assessment

The superintendent and director of health services for the Bernalillo Public School district were approached about the need for additional education for school nurses and health assistants regarding the care of pregnant adolescents. Currently, there are no other clinical guidelines in place to assist school nurses or health assistants regarding this health concern. The superintendent explained that although the district is small, with only one high school, the need for education and training of school health personnel is necessary (K. Cowan, personal communication, August 18, 2018). The limitations of the New Mexico School Health Manual to assist school nursing personnel regarding the care of this student population was discussed, and the superintendent agreed that a more thorough education and training is needed. The clinical guideline proposed in this DNP project would serve as recommendations for school nurses and health assistants when providing care to pregnant adolescents.

Summary

In reviewing the literature, a gap was identified in regards to resources available to school nurses and health assistants. The health risks associated with adolescent pregnancy makes it imperative that school nurses and health assistants have the resources to provide care to this vulnerable population. A clinical guideline specific to interventions to be carried out by the school nurse or health assistant is necessary to meet the needs of pregnant adolescents in the school setting. It is important to identify barriers that adolescents face in seeking assistance from

the school nurse and health assistants, so issues are identified early and addressed. The Bernalillo Public School District understands the need for implementation of a clinical guideline to assist the school nurse and health assistant in providing appropriate care to this population of students.

Chapter 3

Theoretical Framework

The theoretical frameworks used for this project were the Public Health Model and Framework for 21st Century School Nursing Practice (Wold & Selekman, 2013). The Public Health Model generally serves as a guide for school nursing. The model includes principles that focus on the population as a whole. These principles include achieving the greatest good for the greatest number, selection of activities that promote primary prevention, the creation of strategies for a healthy environment, obligation to reach out and identify those who might benefit from specific activities, and collaboration of stakeholders to promote health (Wold & Selekman, 2013). This model also includes essential services of which guided this project including providing information in the form of a clinical guideline and education on the use of the guideline to individuals, in this case, school nurses, to empower them to address health issues ensuring competency.

Wold and Dagg (1981) introduced a conceptual framework that was explicitly used for school nursing based on the Public Health Model (see Appendix A). The focus of the framework is school nursing, which is at the center of the model. The model then has five strands or concepts that overlap, including, public health, adaptation, helping relationships, tools, and systematic processes (Wold & Dagg, 1981). Each strand in the conceptual framework is defined concerning school nursing. The strand that relates to and guides this project is tools, which are the fourth strand of the framework. Tools are defined as actual equipment or protocols and guidelines that are used by the school nurse to assess and manage the care of individuals or the school community (Wold & Dagg, 1981). The provision of a clinical guideline as a tool to school nurses will contribute to the four remaining strands of the model. The clinical guideline would

serve as a prevention strategy to promote optimal health for the pregnant adolescent population. This project's clinical guideline addresses symptoms related to non-emergent issues for pregnant adolescents. Adaptation requires that the school nurse begin to change the culture of how the delivery of information regarding pregnancy occurs (Wold & Selekman, 2013). The use of the clinical guideline by the school nurse provides needed guidance to reduce anxiety and stress levels of the pregnant student. The clinical guideline would serve as a means to provide care to the pregnant student, so the student thrives in the educational system while ensuring that their pregnancy needs are met. If an issue arises regarding the pregnancy, the school nurse has the clinical guideline to follow to provide the student with timely care and referral to outside resources as necessary. The use of the clinical guideline for this project may improve the process for school nurses to guide students.

The framework for the 21st Century of School Nursing Practice (2016) provides a structure that integrates the complexity of the practice of school nursing (see Appendix B). The framework provides a description of the standards of practice for the school nurse and its relation to care coordination, leadership, quality improvement, and community/public health while keeping the students as the central focus (Framework for 21st Century School Nursing Practice, 2016). The American College of Obstetricians and Gynecologists' [ACOG] (2016) committee on obstetric practice referred to a clinical guideline as a tool to identify issues that need to be addressed by the provider. A guideline would provide the nurse with a resource regarding questions to ask the student and objective data to collect before deciding on the next steps to take. Open communication between the school nurse and student are essential to screen, refer, and ultimately promote the health of the pregnant student (Santa Maria, et al., 2017). This project's clinical guideline provides clear and concise questions that the school nurse must ask to

collect objective data. The school nurse can then take the data collected and make recommendations based on the clinical guideline (ACOG, 2016). The school nurse acts as an advocate for the student to ensure that concerns surrounding their pregnancy do not interfere with their academic performance (NASN, 2016). The goal of the clinical guideline is to provide the school nurse with a process to deliver quality student-centered care in regards to issues surrounding the student's pregnancy to optimize health and education outcomes. The framework for 21st Century School Nursing Practice (2016) served as a guide in developing this clinical guideline for school nurses, including the collection of data, ensuring proper management of the student's care, advocacy, and referral to community providers.

This framework guided the focus of this project to improve upon current resources used by school nurses. The improvement and implementation of these guidelines are intended to guide school nurses in safely and effectively providing non-emergent care to pregnant adolescents.

Chapter 4

Project Plan

Setting

The setting for this DNP project was the Bernalillo Public School district located in a rural community of New Mexico. The school district is comprised of nine schools with a population of 3,141 students. Bernalillo Public Schools serve many communities surrounding Bernalillo including seven Native American Pueblos, with students bussed in for school. Ninety-five percent of the district's high school enrollment is minority students with the majority being Hispanic students (53%) followed by Native American (42%) [Bernalillo High School Profile (2018-2019)].

Population of Interest

The population of interest for this DNP project are pregnant adolescents and the school nurses and health assistants that provide health services in school. Specifically, in the setting for this project, there are three registered nurses and six health assistants. Currently, the registered nurses and health assistants school locations can change based on district needs. In the state of New Mexico, the health assistant must be 18 years of age and hold a high school diploma or equivalency. The health assistant is required to have a valid certification in CPR and First Aid, and must obtain a certificate in New Mexico Department of Health and Public Education Department training for school health assistants. The implementation of the clinical guidelines would be beneficial to all health office staff to ensure proper non-emergent care of the pregnant adolescent.

Activities

The format for the proposed guideline was based on the Illinois Department of Public Health guidelines (Guidelines for the Nurse in the School Setting, 2017). An evidence table was developed, and an outline for the placement of topical areas was decided upon. An evidence rating scale was agreed upon, and each intervention was given an evidence rating. The evidence rating scale chosen for this project was the Grading of Recommendations Assessment, Development, and Evaluation (GRADE), which is often used in health care for grading clinical practice guidelines (Chauhan, Blackwell, & Society for Maternal-Fetal Medicine, 2013). This DNP project also utilized the GRADE-CERQual tool, which is similar in approach as the GRADE rating scale (Lewin, et al., 2015). The GRADE scale uses four levels of evidence, very low, low, moderate, and high (Guyatt, et al., 2008). The GRADE evidence rating scale determined if the recommendation or guideline has been developed from high-quality evidence; this transparency of grading makes it easier when deciding inclusion of recommendations (Guyatt, et al., 2008). The GRADE-CERQual allowed for establishing confidence in qualitative evidence (Lewin, et al., 2015). This approach to creating confidence requires the reviewer of the literature to use their judgment and understanding (Lewin, et al., 2015).

Timeline

The DNP project committee was established in February 2018. The first four chapters of the project were developed between March 2018 and December 2018. The following was the timeline for this project.

January 2019

- Defense of DNP project proposal

- Proposal revisions
- Apply for Institutional Review Board (IRB) approval

February 2019-July 2019

- Clinical Guideline development
- Establish content validity
- Disseminate the clinical guideline to school nurses and health assistants
- Solicit feedback from school nurses and health assistants

August 2019

- Complete DNP project paper
- Defense of DNP project

Project Tasks and Personnel

The project's tasks included developing the clinical guideline, soliciting content validity, and presenting the guideline to the school nurses and health assistance for feedback. The personnel involved in the project included the DNP student developing and presenting the guideline, three content experts, and the school nurses, and health assistants.

Resources and Supports

The DNP student used the Illinois Department of Public Health Guidelines for the Nurse in the School Setting (2017) as a template for the development of this project's guideline, along with the recommendation from the World Health Organization [WHO] (2016). The New Mexico School Health Manual (2018) was also used to determine gaps in information in regards to the non-emergent care needs of pregnant students. The DNP project relied on the use of audio and visual equipment to present the guidelines to the school nurses and health assistants.

Available Resources

The implementation of this project required resources, including space, supplies, and time. Space was needed to meet with school health personnel to provide training and direction regarding the use of the guideline. The resources utilized for this project included library materials such as textbooks, online databases, and available literature related to the project. Supplies were needed for printing the guideline for dissemination to the school nurses and health assistants; the DNP student supplied these. Time was required to present the guideline to the school nurses and health assistants and to get their feedback.

Costs

The cost of providing the training to school health personnel required limited teaching equipment (e.g., computer, projector, facility space, seating, etc.) provided by the school district at no cost. The clinical guideline materials were printed at the expense of the student. The total cost of printing did not exceed the estimated \$50.

Risks and Threats

No significant risks or threats to this project were anticipated, nor did any major risks or threats occur. The DNP student was mindful to avoid discussing methods of contraception to avoid extending beyond the scope of this project. The focus of the project was non-emergent care of pregnant adolescents. A small threat would be the comfort level of the school nurse and health assistant in caring for this population of students and possible unwillingness to utilize the clinical guideline for whatever reason.

Financial Plan

There was no need for a financial plan for this project. The cost of this project was minimal. The cost of printing the guideline was estimated to be no more than \$50 and was paid by the DNP student.

IRB Approval

This study was approved by the Internal Review Board (IRB) at the University of Nevada Las Vegas, on March 27, 2019, and deemed as *Excluded* (see Appendix C).

Evaluation Plan

The purpose of the project was to create a clinical guideline for school nurses to refer to when caring for pregnant adolescents. The need for a clinical guideline was established due to limited non-emergency guidance provided by the New Mexico Student Health Manual (2018). After the clinical guideline was complete, it was disseminated to the school nurses and health assistants at Bernalillo Public Schools. The dissemination included an in-service regarding the use of the clinical guideline. The evaluation plan for this DNP project consisted of the establishment of content validity via obstetric nurses with experience working with the adolescent population to establish credibility and quantitative and qualitative feedback from the school nurses and health assistants who attended the presentation.

Chapter 5

Implementation and Dissemination

Summary of Implementation

The overall goal of this project was to ensure that school nurses and health assistants were provided with a resource that assists in ensuring the ability to care for the non-emergent needs of pregnant adolescents in the school system. The development, evaluation and dissemination of a clinical guideline was the path decided upon to achieve this goal.

Upon completion of the development of the clinical guideline, three experts were identified to review the clinical guideline to provide feedback regarding the content. The experts identified have experience working in obstetrics and with the adolescent population. The experts completed a worksheet to evaluate the clinical practice guideline (see Appendix D). The feedback and recommendations received from the experts were considered when revising the guideline before the dissemination to the school nurses and health assistants.

A date and time were identified during a professional development in-service to present the clinical guideline and obtain feedback on the effectiveness of using the clinical guideline as a resource for school nurses and health assistants. The clinical guideline was presented to a group of school nurses and health assistants, from the Bernalillo school district, during a professional development in-service on July 11, 2019. The school nurses and health assistants completed a demographics document prior to the dissemination of the clinical guideline to determine the composition of the group (see Appendix E).

Table 1. Demographics for School Nurses and Health Assistants

School Nurses and Health Assistants (n=6)	
Gender	
Female	100%
Male	0%
Age (years)	
21-30	0%
31-40	33%
41-50	67%
Years of Experience	
<1-5	17%
6-10	50%
11-15	17%
16-20	17%
>20	0%
Grade Level Responsible	
Preschool	12.5%
K-2 nd	25%
3 rd -5 th	25%
6 th -8 th	12.5%
9 th -12 th	25%
Highest Degree Earned	
Less than a high school diploma	0%
High school degree or equivalent	33%
Some college, no degree	17%
Associate degree	33%
Bachelor's degree	17%
Master's degree	0%
Professional degree	0%
Doctorate	0%
Comfort using NM School Health Manual	
Strongly agree	50%
Agree	50%
Neither agree nor disagree	0%
Disagree	0%
Strongly disagree	0%
Comfort working with pregnant adolescents	
Strongly agree	50%
Agree	33%
Neither agree nor disagree	0%
Disagree	17%
Strongly Disagree	0%

The school nurses and health assistants were also provided with the current guideline from the state of New Mexico regarding the care of pregnant students (see Appendix F). School nurses and health assistants were asked to review the current guideline for later comparison to the clinical guideline developed for this project. After a discussion about the current guideline and the comfort level of the school nurses and health assistant use of it, a copy of the clinical guideline developed for this DNP project was introduced (see Appendix G). The background of the project was discussed and the determined need for the development of a clear and specific clinical guideline. Each section of the developed clinical guideline was discussed with the school nurses and health assistants, allowing an opportunity to ask questions throughout the in-service.

Threats and Barriers

There were concerns about the implementation of the project due to the timing of completion of the clinical guideline during the summer months. The DNP student was able to communicate these concerns with the school nurses and health assistants before the end of the school year. It was determined that the school district chosen for the implementation of this DNP project participates in an extended school year (ESY). Although not all school nurses and health assistants work ESY, the majority were available and willing to participate in the project.

Monitoring of the Project

The DNP student was available at the in-service to provide a background to the project and introduce the content of the clinical guideline. A demographic worksheet was provided at the beginning of the in-service to gather data on the participants. After the in-service, time was allotted for questions from the school nurses and health assistants. Each of the school nurses and health assistants that participated in the in-service completed an evaluation.

Giving Meaning to the Project

The goal of this DNP project was the development of a clear and specific resource for school nurses and health assistants to holistically address non-emergent issues related to adolescent pregnancy for students in New Mexico. Experts in the field of obstetrics and school nursing both provided feedback as to the content matter, understanding of the material presented, and usefulness of the clinical guideline. The feedback was used to make improvements to the clinical guideline while ensuring that the clinical guideline provided school nurses and health assistants with the means to care for pregnant adolescents with the physical resources available to them. All experts agreed that this was a needed project and identified the content as appropriate (see Appendix H). The evaluation completed by the school nurses and health assistants provided the DNP student with information about the ‘take-aways’ from the in-service (see Appendix I). The feedback received from the in-service was positive. The evaluations of the in-service showed a consensus of all participants agreeing that developed clinical guideline contained useful information to help school nurses and health assistants better understand the health issues facing their students. After the dissemination of the clinical guideline to the participants, the consensus was that they felt better qualified and more comfortable utilizing the developed guideline. The school nurses and health assistants were appreciative of the time and effort taken in developing the clinical guideline. Several of the participants shared comments on their evaluation stating that not only was the in-service helpful but it was a necessity of have a resource for school nurses and health assistants when caring for this population.

Table 2. Results of Evaluation of School Nurse/Health Assistant In-service

5=Strongly agree 4=Agree 3=Neither agree nor disagree 2=Disagree 1=Strongly Disagree

School Nurses and Health Assistants (n=6)

	5	4	3	2	1
The information was useful for me as a school nurse/health assistant	100%	0%	0%	0%	0%
The information will help me better understand the health issues facing my students	100%	0%	0%	0%	0%
I feel better qualified as a school nurse/health assistant to recognize when a student has the specific health issue reviewed today	100%	0%	0%	0%	0%
I feel comfortable with understanding when parents/provider or emergency services must be notified regarding the specific health issue reviewed today	100%	0%	0%	0%	0%
I feel more comfortable discussing the specific health topic reviewed today with my students	100%	0%	0%	0%	0%
The goals of the in-service were clear	100%	0%	0%	0%	0%
The in-service fulfilled my expectations	100%	0%	0%	0%	0%
<p>Additional Comments:</p> <p>I have such a better understanding, if and when this may happen in my office!</p> <p>The information would be a big help to not only the school nurse and health assistant, but to other staff in the school. It would be great to have a “go to page” about this information.</p> <p>Often, even as nurses, we are not comfortable in situations in which we have little experience. This guideline would definitely make it easier for me to refresh my memory about important questions to ask when providing care to a pregnant adolescent.</p> <p>As a new school health assistant, this would make me feel more confident when calling my supervisor or emergency services. I would feel that I have useful information to provide them about my student.</p> <p>Although we have seen a slight decline in adolescent pregnancies in the state, the development of this clinical guideline serves as an important resource for times when it may be needed.</p>					

The need for a clear and specific resource for school nurses was desired, and this project served to meet the needs for caring for pregnant adolescents in the school setting. The review of the literature showed that there are few data available regarding non-emergent care specific to pregnant adolescents in the school setting. The development of this clinical guideline may facilitate school nurses/health assistant to provide safe and competent non-emergent care to the pregnant student. The role of the school nurse is to promote care coordination and quality improvement and be mindful of best practices related to school nursing. The implementation of this clinical guideline in schools would serve the purpose of meeting the needs of this student population. Students spend a significant amount of their day in school, and having this resource available to school nurses/health assistants fosters better outcomes for the pregnant adolescent.

Sustainability

The availability of resources for school nurses/health assistants is vital to ensuring proper care of pregnant adolescent students in the school setting. This project's clinical guideline may serve that purpose by being accessible in situations where its use is deemed necessary. Available resources are especially important for school nurses/health assistants with no previous experience or background in obstetrics. The sustainability of this clinical guideline in the setting in which it was disseminated is encouraging. The New Mexico School Health Manual is a resource already developed for school nurses in New Mexico to utilize to guide them in caring for a multitude of emergency situations that may occur in the school setting. The use of this project's clinical guideline, specific to non-emergent care of the pregnant adolescent fills a knowledge gap. The amount of time needed to educate the participants was minimal compared to the potential to achieve better outcomes. The New Mexico Office of School and Adolescent Health is currently constructing a section of the school health manual to include clinical

guidelines. Sustainability of this project has the potential to impact school nursing through the dissemination of this project's clinical guideline to a larger group of stakeholders.

Dissemination of the Results

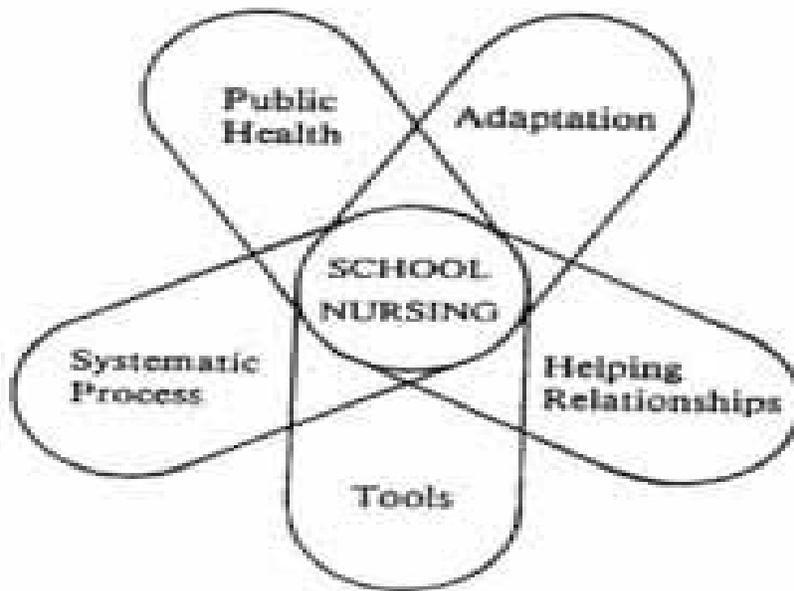
Information about this project will be disseminated at local and national conferences for school nursing. The New Mexico School Nurses Association (NMSNA) holds an annual conference each summer to allow school nurses/health assistants an opportunity to meet in one location and engage with colleagues. The NMSNA's conference will be an avenue to disseminate the information about this project's clinical guideline. Presenting at NMSNA's conference could then facilitate dissemination at the National School Nursing Conference, also held each summer. Additionally, the submission of a manuscript of the DNP project for publication in a peer-reviewed publication specific to school nursing would also help in the dissemination of the clinical guideline. The dissemination of the project through this type of journal reaches a broader audience of school nurses/health assistants and addresses the need for specific and clear clinical guidelines.

Appendices

Appendix A

Conceptual Framework for School Nursing Practice

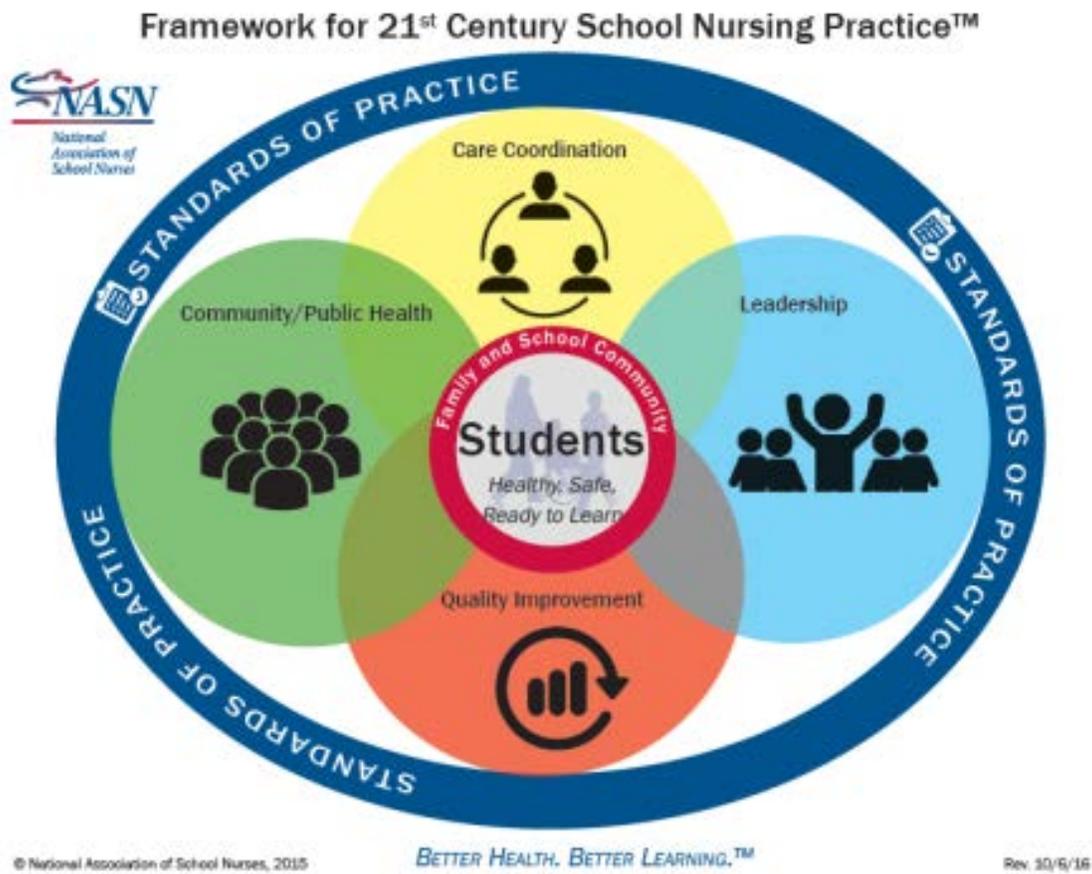
Adapted from Wold et al. (2013, p. 91).



Appendix B

Framework for 21st Century School Nursing Practice

Adapted from NASN (2016).



Appendix C

IRB Approval



UNLV Biomedical IRB - Administrative Review Notice of Excluded Activity

DATE: March 27, 2019

TO: Mary Bondmass, PhD
FROM: UNLV Biomedical IRB

PROTOCOL TITLE: [1414128-1] ADOLESCENT PREGNANCY: A CLINICAL GUIDELINE FOR SCHOOL NURSES
SUBMISSION TYPE: New Project

ACTION: EXCLUDED - NOT HUMAN SUBJECTS RESEARCH
REVIEW DATE: March 27, 2019
REVIEW TYPE: Administrative Review

Thank you for your submission of New Project materials for this protocol. This memorandum is notification that the protocol referenced above has been reviewed as indicated in Federal regulatory statutes 45CFR46.

The UNLV Biomedical IRB has determined this protocol does not meet the definition of human subjects research under the purview of the IRB according to federal regulations. It is not in need of further review or approval by the IRB.

We will retain a copy of this correspondence with our records.

Any changes to the excluded activity may cause this protocol to require a different level of IRB review. Should any changes need to be made, please submit a Modification Form.

If you have questions, please contact the Office of Research Integrity - Human Subjects at IRB@unlv.edu or call 702-895-2794. Please include your protocol title and IRBNet ID in all correspondence.

Office of Research Integrity - Human Subjects
4505 Maryland Parkway . Box 451047 . Las Vegas, Nevada 89154-1047
(702) 895-2794 . FAX: (702) 895-0805 . IRB@unlv.edu

Appendix D

Worksheet to Evaluate Clinical Practice Guidelines

Use this worksheet to evaluate a clinical practice guideline to determine whether it can be helpful in providing care for pregnant adolescents. Answering “no” to questions does not necessarily mean a guideline is poor, but it may limit how the recommendations are applied in various settings.

Scope and purpose	Comments and Notes
Is the overall objective of the guideline clear?	
What clinical questions does it address?	
Does it apply to an identified population?	
Does it apply to the population I serve?	
Stakeholders	
Who developed the guideline?	
Is it sponsored by commercial interests?	
Who is the intended user of the guideline?	
Was there an external review of the guideline?	
Evidence-based methodology	
Was there a systematic strategy to search for evidence?	
Are evidence tables available?	
Do recommendations match the evidence presented?	
Ease of use and clarity of presentation	
Can you identify key recommendations easily?	
Are recommendations specific and unambiguous?	
Is the guideline easy to read and understand?	

Implementation	
What would be needed to implement this guideline?	
Can it be done in a school setting?	
What would it cost?	
Editorial independence	
Is the guideline process independent from project funding?	
Are potential conflicts of interest clearly stated?	

Appendix E
Demographics

1. Indicate gender:
2. Indicate age:
3. Indicate number of years practicing as a school nurse/health assistant:
4. What is the grade level of students you are responsible for?
Preschool K-2nd 3rd-5th 6th-8th 9th-12th
5. What is the highest degree or level of school you have completed?
 - Less than a high school diploma
 - High school degree or equivalent
 - Some college, no degree
 - Associate degree (e.g., AA, AS)
 - Bachelor's degree (e.g., BA, BS)
 - Master's degree (e.g., MA, MS, MEd)
 - Professional degree (e.g., MD, DDS, DVM, CNP, CNM)
 - Doctorate (e.g. PhD, EdD, DNP)
6. I am comfortable using the NM School Health Manual

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree
7. I am comfortable working with pregnant adolescents in the school setting

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

Appendix F

New Mexico School Health Manual Emergency Services/First Aid

Pregnancy

Keep in mind that any student who is old enough to be pregnant might be pregnant.

Pregnancy may be complicated by any of the following.

- Morning Sickness:
 - Treat as vomiting. See “*Vomiting*.”
 - If severe, contact responsible school authority & parent/legal guardian.
- Severe Cramps (Labor):
 - Short, mild cramps in a near term student may be normal.
 - If NOT near term or if due date unknown, contact responsible school authority & parent/legal guardian.
- Vaginal Bleeding
 - This should be considered abnormal and requires further evaluation.

Seizure: See “*Seizure*” and contact responsible school authority & parent/legal guardian.

Amniotic Fluid Leakage:

This is **NOT** normal and may indicate the beginning of labor.

Contact responsible school authority & parent/legal guardian.

Appendix G

Recommendations for non-emergent care of pregnant adolescents in the school setting

Guideline Title

Recommendations for care of pregnant adolescents in the school setting

Bibliographic Source(s)

- Airola, G., Allais, G., Castagnoli, G., Rolando, S., Mana, O., & Benedetto, C. (2010). Non-pharmacological management of migraine during pregnancy. *Neurological Sciences : Official Journal of the Italian Neurological Society and of the Italian Society of Clinical Neurophysiology*, *31*, 63-5. doi:10.1007/s10072-010-0276-7
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- Marcus, D. (2007). Headache in pregnancy. *Current Treatment Options in Neurology*, *9*(1), 23-30. doi:10.1007/s11940-007-0027-0
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Sabino, J., & Grauer, J. N. (). Pregnancy and low back pain. *Current reviews in musculoskeletal medicine*, 1(2), 137–141. doi:10.1007/s12178-008-9021-8

Viljoen, E., Visser, J., Koen, N., & Musekiwa, A. (2014). A systematic review and meta-analysis of the effect and safety of ginger in the treatment of pregnancy-associated nausea and vomiting. *Nutrition Journal*, 13, 20. doi:10.1186/1475-2891-13-20

World Health Organization. (2016). *WHO recommendations on antenatal care for a positive pregnancy experience*. Geneva, Switzerland: World Health Organization. (2016). Retrieved December 15, 2018, from <https://apps.who.int/iris/bitstream/handle/10665/250796/9789241549912-eng.pdf;jsessionid=B22B5195F34197923AF566C95A0FE931?sequence=1>

Method Used for Analysis of Evidence

The Grading of Recommendations Assessment, Development and Evaluation (GRADE) system was utilized to grade the quality of evidence used. The quality of the evidence was defined as the degree of confidence one could ascertain that the association was correct. The quality of the results of outcomes for the studies were graded as high, moderate, low or very low.

Categories of Evidence

Level of Evidence	Rationale
High	Further research is very unlikely to change confidence in the estimate of effect
Moderate	Further research is likely to have an important impact on confidence in the effect
Low	Further research is very likely to have an important impact on estimate of effect and is likely to change the estimate
Very Low	Any estimate of effect is very uncertain

The decision to include recommendations and their strength were chosen based on the risks and benefits of implementing the recommendations. The strength of the recommendations was based on the “Strength of Recommendation Taxonomy.”

Strength of Recommendations

Strength of Recommendation	Rationale
A	Recommendation based on consistent and good-quality patient-oriented evidence
B	Recommendation based on inconsistent or limited-quality patient-oriented evidence
C	Recommendation based on consensus, usual practice, opinion, disease-oriented evidence, or case series for studies of diagnosis, treatment, prevention, or screening

Guideline Objective

To provide clear and specific recommendations for school nurses and health assistants to provide non-emergent care to pregnant adolescents in the school setting

Target Population

School nurses and health assistants who provide care to pregnant adolescents in the school setting

Interventions and Practices Considered

1. Care of the pregnant student with nausea
 - Assessment of the pregnant student
 - Provide Interventions
 - Need for further evaluation
2. Care of the pregnant student with a headache
 - Assessment of the pregnant student
 - Provide Interventions
 - Need for further evaluation
3. Care of the pregnant student with lower back pain
 - Assessment of the pregnant student
 - Provide Interventions
 - Need for further evaluation
4. Care of the pregnant student with pain in abdomen
 - Assessment of the pregnant student
 - Provide Interventions
 - Need for further evaluation

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Method of Guideline Validation

Peer Review

Peer reviewers were identified for evaluation of the clinical guideline. The peer reviewers reviewed the final recommendations and provided their feedback. Modifications were made based on the review of the comments.

Guideline Developer

Karin Ludi, MSN, RN

Source of Funding

Financial support not needed to complete guideline

Primary assessment questions of pregnant student:

What is the reason for visiting the nurse's office?

Is there leaking of fluid?

Is there vaginal bleeding?

Are you experiencing contractions/abdominal cramping?

Have you felt fetal movement?

When was the last time you experienced fetal movement?

Any history of gestational diabetes, high blood pressure, or complications with this pregnancy?

Anticipated due date:

Prenatal care (name/phone number of provider):

Where will you deliver?

Action: Take vital signs to include temperature, pulse, respirations, blood pressure, and pain level

Nausea

Assessment questions for pregnant student presenting with complaints of nausea:

How long have you had symptoms?

How often do you experience bouts of nausea?

Can you keep food down?

When and what did you last eat?

Do you notice certain triggers for your nausea?

Do you experience your symptoms at certain times during the day or all the time?

Are you taking prenatal vitamins?

Are you urinating more or less frequently and can you describe the color of your urine?

What makes it feel better?

What makes it feel worse?

Recommendation	Quality of Evidence and strength of the recommendation
Allow pregnant student to rest	Moderate; A
Offer sips of water or ginger ale	Moderate; A
Offer saltines	Moderate; B
Provide fresh air	Moderate; B
Educate to avoid greasy, spicy, and fatty foods. Snack often to avoid an empty stomach, maintain good body posture, drink plenty of liquids, and avoid foods or smells that may be triggers	Moderate; A

When to notify parents for further evaluation of symptoms by their provider:

1. Nausea or vomiting is severe
2. Urinating a small amount or urine is dark in color
3. Unable to keep liquids down
4. Feeling dizzy or faint when standing up
5. Low blood pressure or rapid heart rate

Headache

Assessment questions for pregnant student presenting with complaints of headache:

How often do you have headaches?

How long does it last?

What is the location of the headache?

How severe is the headache on a scale from 0 to 10?

Can you describe the pain?

What makes the pain worse?

What relieves the pain?

What other symptoms do you experience with the headache?

Can you think of anything (triggers) that may be causing the headache?

When did you eat last?

How many hours of sleep did you get last night?

Are you experiencing any visual changes? (If the student answers yes, proceed to urgent category)

Do you have any complaints of pain below your ribs near the upper right abdomen? (If the student answers yes, proceed to urgent category)

Recommendation	Quality of Evidence and strength of the recommendation
Allow pregnant student to rest	Moderate; B
Offer crackers or light snack	Moderate; B
Offer fluids	Moderate; C
Apply cold or warm pack to head	Low; C
Educate about getting plenty of sleep, eating small frequent meals, drinking plenty of fluids, and reducing stress	High; C

When to notify parents for further evaluation of symptoms by their provider:

1. If student does not experience relief from the interventions above
2. The headache gets worse or more persistent
3. The student reports the headache as different than normal
4. The headache is accompanied by blurry vision, pain in the upper right abdomen, and there is swelling in the hands and face
5. Blood pressure >140 systolic and/or >90 diastolic

Lower Back Pain

Assessment questions for pregnant student presenting with complaints of lower back pain:

What is the severity of the pain on a scale from 0 to 10?

When does the pain occur?

Does the pain occur suddenly or gradually?

Where do you feel the pain?

Does the pain radiate to other parts of your body?

Can you describe the pain?

What makes the pain worse?

What relieves the pain?

Recommendation	Quality of Evidence and strength of the recommendation
Allow pregnant student to rest with feet elevated	Moderate; B
Allow student to rest on left side, using a pillow between the knee	Moderate; B
Apply warm or cold pack to area	Low; C
Educate about squatting to pick up something instead of bending over, wear comfortable shoes, avoid sleeping on back, get plenty of rest, and ask provider for safe exercises to support and strengthen the back and abdomen	High; A

When to notify parents for further evaluation of symptoms by their provider:

1. Severe back pain
2. Abrupt onset of back pain
3. Radiating rhythmic cramping pains (could be a sign of preterm labor)

Pain in Abdomen

Assessment questions for pregnant student presenting with complaints of pain in abdomen:

What is the severity of the pain on a scale from 0 to 10?

Does the pain come and go?

Does the pain radiate to other parts of your body?

How long does the pain last?

How often does it occur?

Can you describe the pain?

What makes the pain worse?

What makes it better?

Have you been pregnant before? If yes, do you have a history of preterm labor?

In most cases, cramping is a normal part of pregnancy, in second and third trimester they may be known as Braxton Hicks contractions. Braxton Hicks contractions are irregular in intensity, infrequent, unpredictable and non-rhythmic

Recommendation	Quality of Evidence and strength of the recommendation
Allow student to rest on their side with pillow between the knees	Moderate; B
Offer water as dehydration can cause contractions to occur	High; A
Encourage to empty bladder	Low; C
Change position and offer to walk with student (changing position generally relieves pain, differentiates true vs. false contractions)	High; B
Educate about emptying bladder frequently, resting, drinking plenty of fluids	Moderate; B

When to notify parents for further evaluation of symptoms by their provider:

1. If student does not experience relief from the interventions above
2. Contractions occur more frequent, longer duration, and greater intensity
3. Student unable to walk or talk during contraction

Evaluate Student and Categorize as Emergent, Urgent, or Non-Emergent

Determine category and implement interventions

ACTIVATE EMS AS SOON AS THE NEED BECOMES APPARENT!

EMERGENT

- S/S of shock (cool, clammy skin; ashen or pale skin; rapid pulse; rapid breathing; confusion; sweating)
- Seizure activity (see seizure protocol)
- S/S of preeclampsia:
 - BP equals or exceed 140/90; visual changes
- Crowning of fetal head
- Known Breech presentation
- Prolapsed umbilical cord
- Vaginal Bleeding
- S/S of premature labor
 - Leaking of fluid
 - Pressure in lower pelvis
 - Constant low, dull backache
 - Regular or frequent contractions (tightening of the belly like a fist)
 - Vaginal bleeding

INTERVENTIONS

- Activate EMS
- Place student in left lateral recovery position
- Directly and continuously observe student. Do not leave unattended
- Notify school administrator and parent/guardian
- Follow up

URGENT

- History of pregnancy-induced hypertension
- History of trauma
- History of preterm labor
- Signs of active labor, but amniotic sac remains intact
- Contractions more than 10 minutes apart
- Headache unrelieved with fluids, rest, hot/cold compress
- No fetal movement for last 12 hours if ~22 weeks gestation

INTERVENTIONS

- Determine need for EMS
- Observe student closely
- Notify parent/guardian and request transport of student for evaluation
- Follow-up upon return to school

NON-EMERGENT

- Infrequent contractions
- No leaking of fluid
- Vomiting with stable vital signs
- Nausea relieved with rest and/or snack
- Lower back pain relieved with rest and/or heat/cold applied
- Headache relieved with fluids, rest, hot/cold compress
- Feeling fetal movement

INTERVENTIONS

- Observe student
- Contact parent/guardian to determine if student should be taken in for evaluation
- Follow-up upon return to school

Appendix H

Worksheet to Evaluate Clinical Practice Guidelines

Use this worksheet to evaluate a clinical practice guideline to determine whether it can be helpful in providing care for pregnant adolescents. Answering “no” to questions does not necessarily mean a guideline is poor, but it may limit how the recommendations are applied in various settings.

Scope and purpose	Comments and Notes
Is the overall objective of the guideline clear?	<p>Reviewer 1: Stated clearly that the guideline is to provide clear and specific recommendations for school nurses and health assistants to provide care to pregnant adolescents in the school setting.</p> <p>Reviewer 2: Yes, the guidelines are clear and provide detailed steps to provide care.</p> <p>Reviewer 3: Yes</p>
What clinical questions does it address?	<p>Reviewer 1: Care of the pregnant student with nausea, headache, lower back pain, and pain in the abdomen. These are all common complaints in pregnancy and could also indicate a serious health problem.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: What recommended care should be provided to pregnant adolescents in the school setting</p>
Does it apply to an identified population?	<p>Reviewer 1: Pregnant adolescents attending school</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3:</p>

	Yes, pregnant adolescents presenting with complaints as outlines in guideline
Does it apply to the population I serve?	<p>Reviewer 1: Yes</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: Not at this time</p>
Stakeholders	
Who developed the guideline?	<p>Reviewer 1: Karin Ludi, MSN, RN</p> <p>Reviewer 2: Karin Ludi based on evidence</p> <p>Reviewer 3: Nurse with OB and school health experience</p>
Is it sponsored by commercial interests?	<p>Reviewer 1: No</p> <p>Reviewer 2: No</p> <p>Reviewer 3: No</p>
Who is the intended user of the guideline?	<p>Reviewer 1: School nurses and health assistants who provide care to pregnant adolescents in the school setting.</p> <p>Reviewer 2: School nurses</p> <p>Reviewer 3: School nurses working with adolescents</p>

<p>Was there an external review of the guideline?</p>	<p>Reviewer 1: Concurrently being done.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: Peer reviewers; unknown number or background</p>
Evidence-based methodology	
<p>Was there a systematic strategy to search for evidence?</p>	<p>Reviewer 1: There appears to have been a search for current literature related to assessment and recommendations for routine interventions related to the common pregnancy complaints addressed in the guideline; nausea, headache, lower back pain, and pain in the abdomen.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3:</p>
<p>Are evidence tables available?</p>	<p>Reviewer 1: Evidence tables on quality of evidence and strength of recommendation provided for each of the recommendations.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: Unknown</p>

<p>Do recommendations match the evidence presented?</p>	<p>Reviewer 1: Recommendations do match the evidence provided. Some recommendations have been noted as ‘Low; C’ and have been retained in the guideline because ‘usual practice’ and no evidence to show that the ‘usual practice’ causes harm though further research is needed.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: Yes</p>
Ease of use and clarity of presentation	
<p>Can you identify key recommendations easily?</p>	<p>Reviewer 1: Key recommendations are clearly identified in table format.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: Yes</p>
<p>Are recommendations specific and unambiguous?</p>	<p>Reviewer 1: Identifying the needed assessment questions to ask before implementing the recommendations make the recommendations specific and for the most part unambiguous.</p> <p>Reviewer 2: Yes, provide a detailed plan of care.</p> <p>Reviewer 3: Might want to make the headache questions more specific related to other symptoms being experienced as teen might not think to tell you about visual changes or epigastric pain when coming in for a headache. These are listed in the “when to notify parents” section, but are not specific in the recommended questions.</p>

	<p>Same for lower back pain- I would specifically ask if it comes and goes. On last page, when listing non-urgent symptoms- might want to quantify “infrequent” contractions</p>
<p>Is the guideline easy to read and understand?</p>	<p>Reviewer 1: There is a ‘When to notify parents for further evaluation by provider’ section at end of each assessment/recommendation specific to a common complaint. Then there is a chart at end on ‘evaluate student and categorize as emergent, urgent, or non-urgent’. The chart is a nice summary but confusing when ‘emergent, urgent, and non-urgent’ weren’t identified earlier in each section while contacting parents was included earlier.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: Yes, though maybe each section could be its own page, with clear labeling, so the complaint can be easily matched with the guidelines without flipping through pages.</p>
Implementation	
<p>What would be needed to implement this guideline?</p>	<p>Reviewer 1: Access to guideline and education on how to use it.</p> <p>Reviewer 2: Nothing</p> <p>Reviewer 3: Only things that school health nurses already have access to such as cots, snacks, ice packs, printing, blood pressure cuff and thermometer</p>
<p>Can it be done in a school setting?</p>	<p>Reviewer 1: Definitely could be done in a school setting if the school nurses and health assistants are educated on use.</p> <p>Reviewer 2:</p>

	<p>Yes</p> <p>Reviewer 3: Yes</p>
What would it cost?	<p>Reviewer 1: Cost would be minimal and related to education about the use which could be done at a mandatory inservice day. The assessment is done through questioning. The recommendations incorporate common, inexpensive, usually available items such as saltines, ginger ale, water, cold or warm packs.</p> <p>Reviewer 2: Nothing</p> <p>Reviewer 3: Nothing extra</p>
Editorial independence	
Is the guideline process independent from project funding?	<p>Reviewer 1: Defer to developer of the guideline. Reviewer unaware of any project funding so presuming that the guideline process is independent.</p> <p>Reviewer 2: Yes</p> <p>Reviewer 3: Unknown</p>
Are potential conflicts of interest clearly stated?	<p>Reviewer 1: Nothing in guideline about conflicts of interest.</p> <p>Reviewer 2: N/A</p> <p>Reviewer 3: No</p>

Additional comments related to clinical content:

Reviewer 1:

Recommend that in headache assessment questions, ask those same general questions that are in the lower back pain and abdominal pain areas: 'Can you describe the pain?'; 'What makes the pain worse?' 'What makes the pain better?'. Rationale: Unrelieved headache (especially with visual changes) is serious warning sign that preeclampsia may be advancing to eclampsia. Along the same lines, on the 'Emergent, Urgent, or Non-Urgent' chart, add headache unrelieved with fluids, rest, hot/cold compress to the Urgent section.

Noticed in the nausea section that there is a point about notifying parents for further evaluation when urinating a small amount urine or urine is dark in color which is important as this could be indicative of severe dehydration. Recommend adding an assessment question about urination so this information is being solicited as part of the assessment.

In the complaints of pain in abdomen section, noticed that there is not a question related to history of preterm birth. If this is not the first pregnancy, important to assess for history of preterm labor/birth as if there is a history, then even infrequent contractions can put this student in the urgent/emergent category and shouldn't wait to see if rest and fluids work.

Wondering about the evidence that when recommending rest that it has to be on the left side? Have seen evidence showing that it doesn't matter which side is used (no difference between right and left). The important piece is to not lay on back to rest.

And one last thing related to fetal movement. There is a general assessment question about fetal movement and that is good. Recommend that more attention be paid to this after that ~22 week point where fetal movement can be perceived. If reporting not feeling fetal movement in last 12 hours, should be in the 'emergent' category. The converse side of that is that 'non-urgent' should include feeling fetal movement.

Reviewer 2:

Notification of parents is important, but guideline should state that you are notifying parents regarding symptoms. In New Mexico, a pregnant female does not need parental consent.

Reviewer 3:

This is a great project idea and I think high school nurses would love to have this information!

Appendix I

School Nurse/Health Assistant In-Service Evaluation

Please complete the following evaluation for the in-service information received. Your feedback is important, helps to evaluate the effectiveness of the clinical guideline, and allows for improvements based on participant evaluation. Please respond to the following statement using the 5-point scale to indicate the extent to which you agree or disagree with each statement. Please circle the number that applies.

5=Strongly agree 4=Agree 3=Neither agree nor disagree 2=Disagree 1=Strongly Disagree

1. The information was useful for me as a school nurse/health assistant

5 4 3 2 1

2. The information will help me better understand the health issues facing my students

5 4 3 2 1

3. I feel better qualified as a school nurse/health assistant to recognize when a student has the specific health issue reviewed today

5 4 3 2 1

4. I feel comfortable with understanding when parents/provider or emergency services must be notified regarding the specific health issue reviewed today

5 4 3 2 1

5. I feel more comfortable discussing the specific health topic reviewed today with my students

5 4 3 2 1

6. The goals of the in-service were clear

5 4 3 2 1

7. The in-service fulfilled my expectations

5 4 3 2 1

8. Additional comments:

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Curriculum Vitae

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EDUCATION

2017 - Present	University of Nevada Las Vegas Las Vegas, NV	DNP	Nurse Executive Track
2005	University of New Mexico, College of Nursing Albuquerque, NM	MSN	Nursing Education
2000	Luna Community College Las Vegas, NM	ADN	Nursing
1995	New Mexico Highlands University Las Vegas, NM	BS	Biology

LICENSURE & CERTIFICATIONS

Registered Nurse: NM, 2000 - 2020

PROFESSIONAL EXPERIENCE

Academic and Research Experience

2017 - Present	University of New Mexico Albuquerque, NM	Principal Lecturer 1 College of Nursing
2011 - 2016	Breckinridge School of Nursing Albuquerque, NM	Nursing Instructor Obstetrics and Pediatrics
2002 - 2008	Luna Community College Las Vegas, NM	Nursing Faculty Obstetrics and Pediatrics Clinical & Classroom
2007	Santa Fe Community College Santa Fe, NM	Nursing Faculty Pediatrics Clinical

Clinical Experience

2008 - 2017	Bernalillo Public Schools Bernalillo, NM	School Nurse
2005 - 2012	Lovelace Women's Hospital Albuquerque, NM	Registered Nurse Obstetrics/Postpartum/ Newborn/Prenatal
1998 - 2002	St. Vincent Hospital Santa Fe, NM	Registered Nurse Orthopedic/Surgical

SPECIALIZED TRAINING

Professional Development

2018	Academy of Neonatal Nursing New Orleans, LA	21st National Mother Baby Nurses Conference, Conference Attendance
2018	NM Center for Nursing Excellence Albuquerque, NM	10th Annual New Mexico Nursing Educators Conference, Conference Attendance
2018	NM Nursing Education Consortium Las Cruces, NM	Statewide Meeting & Workshops, Workshop
2018	NM Nursing Education Consortium Albuquerque, NM	Statewide Meeting & Workshops, Workshop
2017	Academy of Neonatal Nursing Las Vegas, NV	20th National Mother Baby Nurses Conference, Conference Attendance
2017	New Mexico Center for Nursing Excellence Albuquerque, NM	2017 New Mexico Statewide Nursing Educators Conference, Conference Attendance
2017	Simulation Faculty Development Albuquerque, NM	Debriefing Training, Workshop
2017	OMED Albuquerque, NM	How to Incorporate Flipped Learning into your Teaching, Workshop
2017	OMED Albuquerque, NM	Transforming Your Lecture to Enhance Conceptual Learning, Workshop
2017	OMED Albuquerque, NM	Learning in Small Groups: What Teachers Need to Know to Make it Work, Workshop

2017

OMED
Albuquerque, NM

Teaching with Clickers,
Workshop

Software / Applications

Microsoft Office

Certifications

Languages Skills

English, Native or Bilingual, Spanish, Limited Working

PROFESSIONAL ORGANIZATIONS

Memberships

National League for Nursing

Sigma Theta Tau International Honor Society

ACADEMIC SERVICE

The University of New Mexico

The University of New Mexico Health Sciences Campus

The University of New Mexico College of Nursing

2018 - Present

Undergraduate Curriculum
Taskforce

Member

2017 - Present

Testing Committee

Member

TEACHING AND MENTORING

Major Teaching Responsibilities:

NURS 201: Intro to Nursing Concepts	Spring, 2019
	Fall, 2018
NURS 401L: Clin Int I: Maternal Child	Spring, 2019
	Fall, 2018
	Spring, 2018
	Fall, 2017
NURS 469: Special Populations in OB	Spring, 2018
	Spring, 2018

Other Teaching Responsibilities:

NURS 332: Evidence-Based Practice	Fall 2018
NURS 220L: Principles of Nursing Practice	Spring 2019
	Fall 2018