DEVELOPING A LABOUR AND BIRTH ORIENTATION PROGRAM

by © Katelyn Smallwood A Practicum Report submitted

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Abstract:

Developing a Labour and Birth Orientation Program

Purpose and Background: The purpose of this practicum was to re-develop the labour and birth orientation program at the Queen Elizabeth Hospital in Charlottetown, PE. The need for this practicum was identified following a substantial staff turnover. This potentiated a need for orientation of a number of registered nurses to labour and birth. During orientation, presentation of program content consisted of two days of traditional classroom style teaching followed by a six-week preceptorship, where the majority of labour and birth knowledge and content would be acquired during this time and facilitated by the preceptor. This led to inconsistencies in information provided to new learners. Evaluation was determined by a written exam and preceptor feedback; inconsistencies were noted by unit leaders and preceptors with these methods of evaluation.

Methods: A literature review was undertaken to explore the theoretical underpinnings for the program, Kolb's Experiential Learning theory, and to explore the literature on the benefits and orientations programs. Also, a consultation plan and report was conducted, which provided a theoretical and evidence-based framework program development.

Conclusion: The final program describes methods by which labour and birth content is presented to orientees, and includes 16 learning modules; 15 of which were developed. Additionally, the formal orientation process, method for evaluation of the orientee, and methods for remediation for individuals who are having difficulties with the orientation process are described throughout the program.

Keywords: labour and birth; orientation; learning modules; simulation; remediation

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The development of a labour and birth orientation program at the Queen Elizabeth Hospital (QEH) in Stratford, Prince Edward Island has been the focus of the practicum project to be described throughout this report. The QEH provides services for the majority of births that occur each year on Prince Edward Island; which is approximately 1000. A second hospital, in the west of the island, facilitates approximately half the number of births. Nurses working in labour and birth at the QEH are cross trained to mother-baby care and gynecology; this unit is physically separate from the labour and birth department.

The need for a revamped orientation program was identified through my interim role of clinical nurse educator, when a substantial staff turnover was experienced; necessitating a need for labour and birth orientation for a number of new RN staff. As clinical nurse educator, I was involved in the orientation process for several new staff, and was able to identify ways in which the program could be improved. While there were two didactic-style classroom days offered at the beginning of the orientation, the amount of information that was presented during these classroom days was overwhelming. Preceptors and former orientees had acknowledged that the content is often above and beyond the orientee's ability to understand and retain, as they have not been presented with such content in advance. Moreover, it is difficult to present all the knowledge and content required to work in labour and birth over a two-day period.

While orientees were encouraged to self-study with various resources provided by the unit, there was no way to monitor whether or not they had done this, nor was there a way to gauge what content they had acquired prior to beginning their preceptorship. Much of the pressure had been placed on the preceptor to teach content, while facilitating

the practical learning in the labour and birth setting. This has led to inconsistency of information for orientees. In addition, evaluation has been conducted through a skills checklist between the preceptor and orientee; these were generally not well completed and many of the skills or situations outlined on the checklist have been "discussed" only, as the orientee often may not have the opportunity to complete such skills during orientation. Moreover, an orientee has been deemed competent for clinical practice based primarily on the feedback and opinion of the preceptor; as well as a written test. There have been some inconsistencies between practical performance in the clinical setting and the results of a written exam, which has led to difficulties in determining whether an orientee is fit for independent practice. Finally, the process of remediation has varied greatly; there was no formal procedure to manage situations that arose when the orientee was experiencing challenges with the orientation process.

Therefore, in consultation with unit leaders; including the clinical nurse manager and clinical leader for the unit, it was decided that the redevelopment of the labour and birth orientation program would be a worthwhile endeavor. It was hoped the redevelopment would focus on delivery of consistent knowledge content, evaluation of the orientee to determine competency for independent practice, and processes for remediation. The obstetrical unit manager has agreed to purchase an obstetrical simulator, which will be of great value for the proposed practicum; particularly for evaluation of the orientee. Funding is currently underway for purchase of the simulator.

Throughout this practicum report, the process for development of the labour and birth orientation program will be described through a summary of the methods conducted; which included the literature review guided by Kolb's Experiential Learning theory, as

well as completion of a consultation report. Additionally, an overview of the program that has been developed will be presented and incorporation of advanced nursing practice competencies will be described. As this report concludes, steps to be taken to obtain approvals and implementation of the program will be discussed. Finally, the objectives outlined below demonstrate the outcomes of the program that has been developed and will be discussed throughout the report. The objectives for the practicum were to:

1. Undertake a comprehensive literature search and produce an integrated literature review.
2. Undertake a needs assessment to determine what staff, physicians, leaders, and managers deem relevant and important for labour and birth orientation.
3. Undertake consultation with appropriate stake holders to develop a plan that will help guide development of practicum.
4. Develop learning modules that incorporate evidence based information and address key learning requirements relevant to labour and birth orientation.
5. Develop a written outline for the orientation program that provides consistency to the orientation process
6. Identify evaluation processes through the incorporation of a pre-test/post-test, post-module quizzes, incorporation of simulation, completion of a written final examination, and preceptor feedback that will be used to measure labour and birth competency and readiness for independent practice.
7. Develop a template for a written remediation plan to be implemented when orientees are unable to demonstrate appropriate levels of competency following the orientation and evaluation processes.

8. Demonstrate the integration of advanced nursing competencies throughout the development of the labour and birth orientation program.

Overview of Methods

In developing the labour and birth orientation program, a literature review was conducted, as well as a consultation report. Firstly, the literature review was completed, which incorporated Kolb's Experiential Learning Theory. The theoretical underpinnings were used to guide the project. Literature findings focused on benefits of orientation programs, benefits of preceptorship, benefits of learning modules, simulation as a means for evaluation, and importance of remediation processes. Moreover, a consultation report was completed; which consisted of consultations with staff at the Queen Elizabeth Hospital, as well as an environmental scan of other labour and birth orientation programs throughout the Maritimes and Ontario. A total of four unit leaders, six staff nurses, and two physicians participated in the consultations; individuals from five programs participated in the environmental scan. Data was obtained through face-to-face interviews, telephone interviews, and email responses. Thematic analysis was used to analyze the data. Further information pertaining to the methods conducted throughout the development of the orientation program are described in the upcoming sections.

Summary of Literature Review

As one of the initial endeavors in developing the labour and birth orientation, a literature review was conducted in an effort to explore literature not only on support for the integration of orientation programs in nursing, but to also acquire evidence that could be used when developing specific constructs within the program. Literature pertaining to benefits of orientation programs; use of learning modules in health care orientation;

evaluation of orientees, specifically simulation; and finally, implications for remediation were explored throughout the literature review. The full literature review can be found in Appendix A.

Theoretical Underpinnings

The theoretical underpinnings of Kolb's Experiential Learning Theory (1984) were used to guide labour and birth orientation program, as its constructs pertain to adult learning. Kolb's theory recognizes that learning is a dynamic process involving interactions between person and environment; ultimately contributing to learning styles that have the potential to transform based on the interactions of learning modes. This is an important construct to consider with labour and birth orientation for experienced registered nurses, as it suggests a "one size-fits all" to orientation programs is not effective when facilitating learning. Therefore, incorporation of various methods of teaching and learning were essential when developing the labour and birth orientation program; as well as the incorporation of remediation techniques for individuals who require further opportunity and alternate methods of learning.

Kolb's theory is based upon six propositions that were inspired by the theoretical underpinnings of foundational scholars. These propositions included: (a) learning is best conceived as a process, not in terms of outcomes; (b) all learning is re-learning; (c) learning requires resolution of conflicts between dialectically opposed modes of adaptation to the world; (d) learning is a holistic process of adaptation to the world; (e) learning results from synergistic transactions between the person and the environment; and (f) learning is the process of creating knowledge (Kolb, 1984). Furthermore, Kolb (1984) defined learning as "the process whereby knowledge is created through the

transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). Grasping refers to the "process of taking in information", whereas transforming experience is defined as "how individuals interpret and act on information" (p. 7). The constructs of grasping and transforming experience are used to define four primary learning modes that are integral to the learning styles outlined in Kolb's theory. Furthermore, these constructs were expanded upon to encompass a nine-style typology encompass individuals who may not fit into the initial four modes previously described (Kolb & Kolb, 2013). It was essential to consider the interaction between learning styles (ways in which individuals experience learning) and learning modes when developing an orientation program for registered nurses as adult learners, where experiences of learning will vary.

Literature Search and Findings in the Literature

When conducting the literature search for the integrated literature review, the CINAHL, PubMed, and Cochrane databases were used. Key search terms that were used for the literature search included "labour and delivery orientation registered nurses"; "health care orientation registered nurses"; "labour and delivery competency"; "labour and delivery preceptorship"; "preceptorship"; "labour and delivery learning"; "labour and delivery modules"; 'learning modules"; remediation"; "evaluation"; and "simulation". The majority of the articles used were obtained from the CINAHL database and included literature that is primarily from the last five years. Literature included both qualitative and quantitative studies, literature reviews, and non-research based articles. Literature summary tables are presented in the appendices of the literature review, where research articles were critiqued using the Public Health Agency of Canada (2014) Critical

Appraisal Tool Kit for quantitative studies. Qualitative studies were evaluated using a framework outlined by Moralejo and Memorial University of Newfoundland (2016).

Firstly, findings from the literature review indicated that orientation programs have a positive impact in health care settings; such as improving staff retention and confidence of practitioner (Peltokoski et al., 2015). Though there are costs associated with orientation programs, Sorrentino (2013) concluded that comprehensive programs lead to decreased turn-over rates, resulting in cost-savings in the health care system. Moreover, Mollohan and Morales (2016) asserted that a comprehensive orientation framework within a nursing specialty would improve staff retention, competence, transition into practice, job satisfaction, and quality of care. Finally, it was suggested in the literature that orientation programs require ongoing updating and evaluation to ensure comprehensiveness of the processes; hence, providing further justification for re-development of the labour and birth orientation program (Peltokoski et al., 2015).

Additional constructs of orientation programs that were explored in the literature included lengths of orientation; which ranged from under four days (Peltokoski et al., 2015) to twenty weeks (Bortolotto, 2015). Length of orientation varied depending on the needs of the registered nurse. The current orientation program at the setting for the practicum is six weeks; hence falling within these parameters. It is also a comparable length of time when compared to other orientation programs across Canada, which will be discussed in the consultation report. A significant finding in the literature focused on the importance of preceptorship during orientation. As Peltokoski et al., (2015) asserted, an "appointed preceptor has a major influence on the comprehensive orientation process" (p. 619) leading to demonstration of role modelling and improved satisfaction of orientees.

This is a construct that will be continued to be utilized in the newly developed program; however, there are strategies developed within the program to promote strengthening of the partnership. In the orientation program described by Sorrentino (2013), an eight hour preceptor program was developed to promote consistency of the orientation process. Throughout the program, preceptors learned role expectations, and pertinent constructs that would help facilitate new nurses into a specialty setting.

Another component of the program that was explored through the literature involved incorporation of e-learning modules. Findings in the literature supported incorporation of this teaching approach, as this method of delivering consistent content to promote knowledge acquisition was found to be flexible and effective (Kleinpell et al., 2011). Furthermore, as Kobewka et al., (2014) asserted, online learning has been used globally to present standardized information, which has facilitated knowledge testing for learners who have received knowledge and skills training through this mode of learning.

A component of evaluation that has been incorporated in the developed program involves simulation; where implementation as a means of evaluation was supported by the literature. As Draycott et al., (2015) concurred, alternate forms of evaluation should be considered aside from written tests; such as simulation that is presented in a non-threatening environment. It was suggested that written tests can negatively affect confidence, but that they often lack predictive validity as they are usually graded using a pre-determined passing mark selected at random. Further findings in the literature indicated that the incorporation of simulation led to improved confidence, knowledge retention, and retention of skills (Nelissen et al., 2015; Vadnais et al., 2012).

Finally, remediation was explored through the literature, in order to address circumstances in which an orientee is not performing at a required standard. As stated by Harding and Connolly (2012), remediation in health care involves "providing explanation to a registered nurse regarding his/her deficiency in professional nursing scope and/or standards of practice accompanied with education on how to correct the practice" (p.49). According to Harding and Connolly (2012), it is suggested that the competency of a nurse can be assessed through direct observation, discussion, certification, peer review, root-cause analysis, simulation, testing, skills validation, role play, orientation, and return demonstration. The findings from the literature review helped guide the development of the labour and birth orientation program, which will be further discussed throughout this report.

Summary of Consultations

After analyzing findings from the literature review, a consultation plan was developed to provide further direction in the development of the labour and birth orientation program. From the consultation plan, a report was prepared once individuals were consulted and data were analyzed from responses obtained from consultations. The full consultation report can be found in Appendix B.

The consultation report consisted of consultations with staff at the setting for the practicum, as well as an environmental scan of other facilities and/or programs that utilize labour and birth orientation programs. The participants of the consultation included four unit leaders, six staff nurses, and two physicians. The participants of the environmental scan included individuals from five facilities or programs; two from Ontario; one from Prince Edward Island; one from Halifax, Nova Scotia; and one from Truro, Nova Scotia.

Responses were obtained via telephone, email, or face-to-face interviews; depending on convenience and preference of the participant. There were separate interview questions for the environmental scan and the consultations; question can be found in the appendices of the original report. Once data were obtained, they were kept secure and privacy and confidentiality of participants was maintained. Data were organized onto an Excel Spreadsheet, and thematic analysis was conducted to analyze the qualitative data. Findings from the analysis are summarized below.

In terms of the consultation report and environmental scan, the data obtained yielded valuable findings that were considered in the development of the labour and birth orientation program. Firstly, when examining length of orientation time, the environmental scan described lengths of orientation that were consistent with literature findings; between four weeks and six weeks. Additionally, data obtained both through the environmental scan and the consultations indicated that preceptorship is a vital component to the orientation process in labour and birth. With the environmental scan, many facilities determined competency based on feedback from the preceptor, completion of a skills checklist, and potentially a written test. One facility currently uses simulation as a means of evaluating orientees; while another site indicated that they use simulation for learning purposes. All sites used learning modules to some degree during labour and birth orientation. Finally, remediation processes varied, but many facilities indicated that additional support is offered through development of learning plans, additional preceptorship shifts, and review of knowledge content; for example, reviewing or completing learning modules again. Support is sought from managers and educators, and professional practice is addressed on an as needed basis.

Data obtained from the consultations of unit leaders, two physicians, and staff nurses also led to valuable information moving forward with the proposed program. In terms of preceptors, it was suggested that select individuals be responsible for this role, while ensuring an appropriate level of experience and current knowledge related to obstetrical guidelines and standards. Participants agreed that the six week orientation timeframe was adequate; though there were differing opinions as to whether a week of eight hour day shifts during orientation was beneficial in order to manage the clinic. All participants agreed that learning modules would be a beneficial method of facilitating accurate and consistent knowledge acquisition related to labour and birth. Additionally, participants suggested a need to implement additional methods of evaluation for the orientee at the completion of orientation; all participants supported the use of simulation to facilitate this. It was suggested that tests upon completion of learning modules, case studies, and a written test at the end of orientation could also serve as means of evaluation. Moreover, it was conveyed that there needed to be a more objective means for preceptors to evaluate orientees; a modified skills list was suggested in order to capture strengths and areas to improve on at the end of each shift.

Learning needs were also identified by participants, which primarily consisted of the ability to implement the nursing process for the normal labouring woman, the ability to assist with and facilitate a normal birth, the ability to manage obstetrical emergencies, and the ability to identify the abnormal and seek appropriate help and resources as necessary. Finally, in terms of remediation, participants shared that it was important for the preceptor to identify any issues with the orientee early in the process, followed by early intervention to facilitate additional learning needs through a learning plan. This

should occur along with support from the manger and/or nursing educator. It was also indicated that additional preceptored shifts could be offered within reason.

Summary of Developed Labour and Birth Orientation Program

In developing the resource for the labour and birth orientation program a clear, concise, and systematic program outline was compiled to guide orientees through the orientation process. The program outline consists of four phases that describe the process for orientation; including orientee self-study, preceptorship, evaluation, and remediation (if indicated). The outline provides specific time frames and criteria to be met through each phase of the program, in order for the orientee to be successful. The full program outline can be found in Appendix D of this report.

The first phase of the program involves orientee self-study. Throughout this phase, the orientee is required to review policies and procedures specific to the unit and encouraged to review unit resources. Additionally, the orientee is required to complete courses such as fetal health surveillance, and neonatal resuscitation at the next available opportunity. As outlined in the program outline, within a specified timeframe, the orientee will complete a pre-test to be reviewed with the clinical nurse educator. The pre-test can be found in Appendix A of the program outline, with answers for educators available in Appendix B. It should be noted that answers for this test, and all other tests, quizzes, and examinations to be discussed will not be available to orientees. There is no mark allocated to the pre-test; rather it is a means to help guide learning requirements throughout this phase. The orientee is then required to complete sixteen learning modules. One learning module on fetal health surveillance will be accessed through BC Provincial Health Services Authority. Permission was sought to utilize this module,

which can be found in Appendix C of the practicum report. The remaining fifteen modules have been developed through this program. They are in PowerPoint format, and will be accessed by orientees through the shared drive accessible to staff in the department. The modules will also be accessible through available on a memory stick, so that the orientee can access the content from home, or at their convenience. A link is provided for the fetal health surveillance module. The fifteen modules that were developed for this program can be found in Appendix G of the program outline, and cover the following topics:

1. Assessment of labour
2. Process of birth and stages of labour
3. Induction and augmentation of labour
4. Modes of birth: Spontaneous vaginal birth, assisted vaginal birth, and Caesarean birth
5. Supportive care and pain management options in labour
6. Immediate care of the newborn
7. Pre-labour Rupture of Membranes (PROM) and Group B Streptococcus
8. PPROM and premature labour and birth
9. Postpartum hemorrhage
10. Hypertensive disorders in pregnancy
11. Complications: Placenta previa, placenta accreta, placental abruption, uterine inversion, uterine rupture, and trauma
12. Umbilical cord prolapse and breech presentation
13. Gestational diabetes and shoulder dystocia

14. Management of twins

15. Miscarriage and perinatal loss

After each of the learning modules listed above are completed, there is a 10-question post-module quiz to be written by the orientee and submitted to the clinical nurse educator. These quizzes are available in Appendix C of the program outline, and answers for educators are available in Appendix D. Finally, a post-test, which is the same format and contains the same questions as the pre-test (Appendix A of the program outline) is written by the orientee following completion of the learning modules. The post-test is submitted to the clinical nurse educator. The orientee must receive a mark of at least 80 percent on each post-module quiz and the post-test quiz in order to proceed with the orientation process.

The second phase of the orientation process involves preceptorship. The orientation program outline provides recommendations for selection of a preceptor for the orientee; of which the nurse manager and other unit leaders may refer to. The six week length of preceptorship is outlined, as well as support offered during the preceptorship period. Support includes a midpoint meeting with the nurse manager, orientee, and preceptor to discuss progress. Another meeting will be facilitated at the end of the preceptorship. Additional meetings will be held as per request, on an as needed basis. Finally, the skills list from the previous program was revamped for the current program. Through the preceptorship progress record, the orientee will be required to document acquired learning, skills, and experiences obtained on a daily basis. They will also document self-identified areas of strengths and areas for improvement. The preceptor

will also document areas of strength and areas where the orientee could improve. This method of reflection captures learning, while also providing documentation should concerns arise regarding need for remediation. Finally, a skills list is attached to the preceptorship progress record, which the orientee and preceptor can refer to when documenting specific learning opportunities.

The third phase of the orientation process involves evaluation. There are various methods of evaluation incorporated throughout this orientation program. Firstly, the orientee will undergo an examination through high-fidelity simulation. The orientee will be tested on two real-life and/or high risk obstetrical scenarios. The orientee must obtain an 80 percent on both of these simulated scenarios in order to pass this method of evaluation. The simulations will be evaluated by the unit manager, clinical leader, and clinical nurse educator. Additionally, the orientee will complete a final examination, which has been developed for this program. The final exam can be found in Appendix E of the program outline, with answers for educators available in Appendix F. A passing mark of 80 percent is required for this written test. Moreover, preceptor feedback will be used to evaluate an orientee's readiness for independent practice. Nursing competencies, which have been incorporated from BC Perinatal Services, are listed in the program outline. Permission for incorporation of these competencies can be found in Appendix C of the practicum report. Preceptors may refer to these competencies to help determine whether or not an orientee is ready for independent practice. Finally, specific criteria are provided within the program outline that deem an orientee competent and ready for independent practice following successful completion of the program.

The final phase of the orientation program is remediation, if indicated. The program outline includes clear indications for remediation. Additionally, a process for remediation is proposed; which involves a meeting with the nurse manager and orientee to develop a plan for remediation. A template was developed for a learning plan, which will be utilized through remediation processes. Through the learning plan, nursing competencies requiring remediation will be identified (as outlined in the evaluation phase of the program). Additionally, goals for remediation will be identified; as well as methods to facilitate remediation, and finally method and time-frame for re-evaluation. Suggested remediation techniques are provided within the program outline that engage various learning styles of orientees. Finally, methods for evaluating readiness for independent practice post-remediation are outlined.

Discussion of Advanced Nursing Practice (ANP) Competencies

When examining the advanced nursing practice competencies; clinical, research, leadership, and consultation/collaboration, I have integrated those that have been applicable to my practicum. The first clinical competency is clinical, which is defined as "an advanced practice nurse integrates extensive clinical experience with theory, research and in-depth nursing and related knowledge" (Canadian Nurses Association, 2008, p. 22). Due to the nature of the program that has been developed, I was not able to directly integrate this competency throughout the duration of practicum development. However, it is hoped that the implementation of the program will promote the integration of clinical competency into practice. As an example, integration of the systematic program, which

provides evidence-based content through learning modules, will assist labour and birth nurses with the provision of care within this nursing specialty and critical care area.

The next advanced nursing practice competency is research, which involves "generating, synthesizing and using research evidence is central to advanced nursing practice" (CNA, 2008, p. 23). This competency has been demonstrated through completion of integrative literature review, where Kolb's Learning Theory was used to guide the project and area of interest. The literature search, retrieval of the literature, review of the literature, and critical appraisal of research articles obtained were all essential components when demonstrating this competency. Additionally, the process of data collection and analysis that was performed when preparing the consultation and environmental scan report further demonstrated integration of research as a clinical competency. Data collection through telephone, email, and face-to-face interviews; as well as thematic analysis of the data, demonstrates the integration of qualitative methods when developing this program. Hence, this clinical competency has been demonstrated through both the utilization and integration of research, as well as generating research through the methods discussed above.

The clinical competency of leadership, which asserts that advanced practice nurses "are agents of change, consistently seeking effective new ways to practice, to improve the delivery of care, to shape their organization, to benefit the public and to influence health policy" (p. 24). This competency has been demonstrated throughout the development of the practicum; primarily through the identification of, and initiative taken in developing an improved labour and birth orientation program to meet the needs of registered nurses new to the specialty. It is proposed that this program will improve the

way in which orientation of registered nurses in labour and birth will be facilitated, while providing the facility with a solid and systematic process for orientation. Moreover, it is hoped that the clinical competency and knowledge acquisition of new orientees will be improved through the orientation process; this will positively affect the provision of care for women and families who access labour and birth services.

The final clinical competency to be discussed is consultation/collaboration. This competency refers to "the ability to consult and collaborate with colleagues across sectors and at the organizational, provincial, national and international level is a characteristic of nurses in advanced practice" (CNA, 2008, p.26). Though this competency has not been integrated to its full capacity due to the independent nature of the practicum, it has been partially demonstrated through the consultations performed through the consultation and environmental scan report. Consultation was performed with colleagues; including both nurses and physicians within the organization. Additionally, consultations were performed across the country with individuals from facilities and/or programs associated with labour and birth orientation. Though the collaboration component of this competency has not been able to be demonstrated throughout the development of this practicum, it is hoped this opportunity will present in preparation of implementation. Collaboration with unit leaders; including the nurse manager, clinical nurse educator, and clinical leader will be essential in order to facilitate implementation of the program at the facility.

Future Directions

Following the development of the labour and birth orientation program described throughout this report, it is hoped the program will be implemented at the Queen

Elizabeth Hospital in the upcoming months. It has been requested by the unit nurse manager that a presentation on the new program be facilitated with staff this upcoming fall. Additionally, meetings will be arranged with the nurse manager, clinical nurse educator, and clinical nurse leader regarding process for implementation of the program in early fall. The unit is currently in the process of purchasing a high-fidelity simulator for the evaluation component of the program and it is hoped this will be purchased in the upcoming months. Furthermore, the project will be presented as an innovative program at the Canadian Association of Perinatal and Women's Health Nursing (CAPWHN) conference in October, 2017.

In terms of evaluating the program, it is hoped that this process will take place within six months to one year post-implementation. Feedback from orientees regarding the process and knowledge content acquired prior to orientation will be beneficial. Also, feedback from preceptors regarding performance during preceptorship and whether acquired knowledge of the orientee is helpful in facilitating the preceptorship process will also be considered. Moreover, implementing a workshop or program for preceptors at the Queen Elizabeth Hospital would be beneficial as a future recommendation, as the partnership between orientees and preceptors could be further strengthened. Feedback from unit leaders regarding methods of evaluation, identification of orientees who may require remediation, as well as integration of remediation processes will be of interest when evaluating the program. Finally, long term evaluation of satisfaction of registered nurses who have participated in the program, as well as retention of labour and birth nurses would be beneficial.

Conclusion

This practicum report has outlined the process and key components of the labour and birth orientation program that has been developed for the Queen Elizabeth Hospital. Justification for such a program has been presented, as well as key objectives for development of the practicum project. Constructs that have been vital throughout the process of development have been presented; such as summaries of the literature review and consultation report with full reports available in the appendices. An overview of the program has been presented through discussion of the components of the program outline; again, the full program resource is available in the appendices. Development of the program that has been presented has allowed me to demonstrate various advanced nursing practice competencies, which have been discussed. Finally, recommendations and plans for implementation and evaluation of the program have been presented. I believe the final product of the labour and birth orientation program has resulted in a worthwhile program, and I value the learning opportunities that have been gained through the program development. I look forward to having the opportunity to implement the labour and birth orientation program at the Queen Elizabeth Hospital in the upcoming months.

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Appendix A

Literature Review:

Developing a Labour and Birth Orientation Program

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Authors Peltokoski, Vehvilainen-Julkunen, and Miettinen (2015) asserted that implementation of health care orientation programs are pertinent to staff retention and promotion of competency among health care workers; findings that have been well supported in the literature. This literature review will provide evidence and support for a proposed practicum project specifically aimed at the re-development of a labour and birth orientation program for registered nurses. Firstly, the theoretical underpinnings of Kolb's Experiential Learning Theory will be described as it relates to adult learning; vital constructs to the orientation program. Next literature related to orientation programs will be highlighted. It was evident through the literature search that learning modules are widely used in health care orientation; hence literature pertaining to this construct of the proposed program will be presented. Additionally, potential methods of evaluation of the orientee, specifically evaluation through use of simulation, will be described through literature findings. Finally, methods of remediation, for situations in which the orientee may be experience challenges with the proposed orientation program will be discussed through supportive literature.

Kolb's Experiential Learning Theory

Kolb's Experiential Learning Theory is discussed by Kolb (1984), whose theory was influenced by the work of foundational scholars who studied experience in learning; such as John Dewey, Kurt Lewin, Jean, Piaget, Lev Vygotsky, William James, Carl Jung, Paulo, Freire, Carl Rogers, an Mary Parker Follet (Kolb & Kolb, 2013). This theory is based upon six propositions that were inspired by the theoretical underpinnings of the aforementioned scholars. These propositions include: (a) learning is best conceived as a process, not in terms of outcomes; (b) all learning is re-learning; (c) learning requires

resolution of conflicts between dialectically opposed modes of adaptation to the world; (d) learning is a holistic process of adaptation to the world; (e) learning results from synergistic transactions between the person and the environment; and (f) learning is the process of creating knowledge (Kolb, 1984).

As a construct of his theory, Kolb (1984) defined learning as "the process whereby knowledge is created through the transformation of experience. Knowledge results from the combination of grasping and transforming experience" (p. 41). The concepts of grasping and transforming experience are further described; grasping is defined as the "process of taking in information", whereas transforming experience refers to "how individuals interpret and act on information (p. 7). The constructs of grasping and transforming experience are used to define learning modes that are integral to the learning styles outlined in the theory. Firstly, the learning modes of concrete experience (CE) and abstract conceptualization (AC) were derived from the grasping experience of learning; while reflective observation (RO) and active experimentation (AE) were derived from the transforming experience of learning.

Kolb (1984) also identified learning styles, which describe the ways in which individuals experience learning, based on interactions between the learning modes. It is asserted that many factors between individual and environment contribute to the ways in which individuals learn; learning is viewed as a dynamic state determined by interactions and individual preference for learning modes, as opposed to a fixed psychological state (Kolb & Kolb, 2013). It is further suggested that genetic makeup, life experiences, and environment can impact the way in which an individual chooses learning modes, and hence, learning style. Historically, the experiential learning theory has defined four

primary learning styles; diverging, assimilating, converging, and accommodating. As Kolb and Kolb (2013) described, learning styles are determined through interactions between culture, personality type, education specialization, career choice, and job role and tasks; described as patterns of behaviour. These patterns of behaviour can be used to describe likely learning styles in individuals, based on the four primary learning styles discussed above. A table summarizing the relationship between learning styles and the five patterns of behaviour can be found in Appendix A.

Finally, Kolb and Kolb (2013) further developed learning styles into a nine style typology. It is proposed that the expansion of identified learning styles can reduce confusion related to borderline cases that are not clearly defined by the four learning styles. These styles include: (a) initiating style, which is influenced by AE and CE learning modes; (b) experimenting style, which is primarily influenced by CE but balances AE and RO; (c) imagining style, which is influenced by CE and RO; (d) reflecting style, which is primarily influenced by RO but balanced CE and AC; (e) analyzing style, which is influenced by RO and AC; (f) thinking style, which is primarily influenced by AC but balances AE and RO; (g) deciding style, which is influenced by AC and AE; (h) acting style, which is primarily influenced by AE but balances CE and AC, and finally (i) balancing style, which balances CE, AC, AE, and RO.

As described in Kolb's Experiential Learning Theory, learning is a dynamic process that involves interactions between person and environment; ultimately contributing to learning styles that have the potential to transform based on the interactions of learning modes. This is an important construct to consider with labour and delivery orientation for experienced registered nurses. Consideration should be made to

patterns of behaviour that impact an individual's learning style. Moreover, it will be critical to ensure that an orientation framework meets the needs of the learning styles described in this theoretical framework. Such attention to the differences in learning styles can help customize the proposed labour and birth orientation for all learners, as opposed to a "one-size-fits-all" approach to learning.

Literature Search

The literature search for this integrated literature review was conducted using the CINAHL, PubMed, and Cochrane databases. Key search terms that were used included "labour and delivery orientation registered nurses"; "health care orientation registered nurses"; "labour and delivery competency"; "labour and delivery preceptorship"; "preceptorship"; "labour and delivery learning"; "labour and delivery modules"; 'learning modules"; remediation"; "evaluation"; and "simulation". The majority of the articles used were obtained from the CINAHL database and included literature that is primarily from the last five years. Literature discussed will include both qualitative and quantitative studies, literature reviews, and non-research based articles. Literature summary tables will be presented in the appendices, where research articles that have been discussed will be critiqued using the Public Health Agency of Canada (2014) Critical Appraisal Tool Kit for quantitative studies; qualitative studies will be evaluated using a framework outlined by Moralejo and Memorial University of Newfoundland (2016).

Orientation Programs: Background and Benefits

Orientation programs in the health care setting have been found to be of benefit through a variety of means; including staff retention and confidence of practitioners (Peltokoski et al., 2015). Authors Peltokoski et al., (2015) highlighted the educational

support and improved confidence that is experienced by nurses and physicians who attend hospital orientation programs. It was also suggested that management and/or organizations have a responsibility to provide orientation for new staff members in order to maintain competency of employees and promote safe, high quality care. Furthermore, the authors proposed that comprehensive orientation programs lead to improved staff retention among organizations. Sorrentino (2013) also acknowledged the benefits of orientation, such as regard for patient safety and satisfaction for both staff and patients. Additionally, the author highlighted the financial requirements of orientation programs, but did however, suggest that a comprehensive orientation program would lead to decreased staff turnover rates; hence decreasing the financial burden on health care systems overall.

Moreover, Kiel (2012) also described the high costs that exist with hiring, training, and rehiring and retraining that occurs with nursing turnover. Kiel (2012) suggested that a factor contributing to high turnover rates may be pressure for new nurses to perform to unit expectations in unrealistic time frames. The author suggested redevelopment of a nursing orientation program in order to promote retention of nurses and decrease turnover rates. It was proposed that a program with solid educational principles grounded in nursing theory would contribute to optimal outcomes. Similarly, Mollohan and Morales (2016) presented a nurse residency program for perioperative nurses as a framework for orientation into the specialty. It was suggested that such a framework would help decrease nursing turnover and enhance overall competence in the setting. Furthermore, it was proposed that the implementation of such a program would

better facilitate transition into practice, job satisfaction, and promote organizational benefits; including quality of care.

Authors Peltokoski et al., (2015) asserted that orientation programs require continual updating and evaluation in order to ensure comprehensiveness of processes. This is important for organizations to consider when facilitating orientation needs of staff members to a new clinical area. An orientation program for registered nurses to the obstetrics specialty was described by Bell, Henry, and Kirksey (2015). The authors acknowledged the need for development of such a program due to challenges in recruiting and retaining experienced registered nurses; a challenge that has been observed at the setting for the proposed practicum. Bell et al., (2015) further asserted that the inability to stabilize staff turnover can lead to negative impacts on staff morale, staffing patterns, organizational costs, and provision of care; hence emphasizing the need to implement a program that would promote recruitment and retention of experienced nurses. Finally, the benefits of cross-training in obstetrics were highlighted; which included acquisition of new skills, enhanced respect of colleagues, and improved confidence in provision of care. This is of interest, as staff who are orientated to the labour and birth unit at the setting for the proposed practicum are also cross trained to mother-baby care, as well as gynecology.

Peltokoski, Vehvilainen-Julkunen, and Miettinen (2016), examined hospital orientation for registered nurses, and prospective research challenges of such programs. The integrative review consisted of eleven papers between 2000 and 2013 which focused on various specialized hospital orientation programs for both new and experienced nurses. These orientation programs included both organizational or general orientation, as well as unit specific orientation programs. The overall findings were that there has been

insufficient research conducted on hospital orientation, and of the available research, a strong rating could not be proposed. Additionally, the abundance of research related to graduate nurse transition programs was acknowledged, while the gap in research related to hospital orientation processes was highlighted. Moreover, the authors discussed an identified gap in research pertaining to experienced registered nurses in a new clinical setting; a noteworthy finding as many nurses will change positions and specializations throughout their careers.

Through the integrative review, Peltokoski et al., (2016) identified four key research themes derived from the analysis of studies addressing orientation programs; one of those being framework. Evidence from the literature indicated that further research was required to identify a solid orientation framework. Constructs identified that are worthy of consideration included length of orientation time, orientation needs of graduate versus experienced nurses, and assigned preceptor to facilitate the orientation process. Firstly, the authors presented evidence that suggested length of orientation time was inadequate and that there was insufficient opportunity for orientees to practice new skills. As Peltokoski et al., 2015 asserted, length of orientation has been found to correlate with comprehensive orientation programs, and should also allow for the demonstration of safe, competent care by the orientee (Peltokoski et al., 2015).

Peltokoski et al., (2015) conducted a cross-sectional pilot study on newly hired nurses and physicians to determine their perceptions of comprehensive health care orientation. Study findings indicated that length of orientation for participants ranged from four days or under, to over 25 days. Additionally, an orientation program for graduate nurses in critical care described by Bortolotto (2015) lasted twenty weeks in

total, while an orientation program for new emergency nurses lasted eight to twelve weeks (Sorrentino, 2013). Furthermore, a labour and birth orientation program aimed at experienced nurses new to obstetrics lasted fourteen weeks (Bell, Henry & Kirksey, 2015). While Peltokoski et al., (2016) acknowledged that the first six months in a new nursing role is crucial for both graduate and experience nurses, the orientation needs for graduate nurses are usually greater in order to ensure adequate transition into the profession. Moreover, the authors asserted that experienced registered nurses will require differing lengths of orientation, depending on requirements of new clinical settings and time spent away from clinical practice settings. Finally, when considering orientation programs for experienced nurses, it is important to acknowledge past experience and skill set versus current needs; orientation should address what is needed to build upon existing knowledge. Sorrentino (2013) described how an orientation and preceptor program was developed to help address a nursing shortage, and suggested experienced nurses generally require eight weeks of orientation; the orientation program discussed was eight to twelve weeks based on the needs of the orientee. It is the variations discussed above that highlight the potential differences in orientation needs between graduate and experienced nurses; focusing on experienced nurses for the proposed practicum project.

Another construct to contemplate with the orientation framework, as suggested by Peltokoski et al., (2016), is the role of a preceptor. According to the authors, the preceptor has a vital role in the orientation process. In the study by Peltokoski et al., (2015), one of the most substantial findings focused on the crucial role of the preceptor. As the authors asserted, an "appointed preceptor has a major influence on the comprehensive orientation process" (p. 619). Peltokoski et al., (2015) found that

programs incorporating preceptorship led to demonstration of role modelling and improved satisfaction of orientees. Additionally, as the authors asserted, orientation programs led to decreased staff turnover. In the orientation program described by Sorrentino (2013), an eight hour preceptor program was developed to promote consistency of the orientation process. Throughout the program, preceptors learned role expectations, and pertinent constructs that would help facilitate new emergency nurses into this practice setting. Furthermore, preceptors learned effective communication styles and methods of providing positive feedback. Moreover, Kolb's learning styles were presented to help preceptors understand how adult learners learn, the strengths and weakness of each style, and how learning can be different based on how an individual experiences and processes information. Preceptors were chosen based on previous performance in the clinical practice setting, ability to demonstrate role modelling in the clinical setting, and adherence to patient care standards of the facility. Peltokoski et al., (2016) suggested further research be conducted to cohesively describe requirements of the preceptor, which would include competencies and teaching abilities; such findings may provide better understanding of the preceptor role, provide consistency, and provide overall benefits for the orientation process.

In an effort to examine the roles and responsibilities of the preceptor, from perspectives of both the preceptor and orientee, a descriptive and comparative study was conducted by Omer, Suliman, and Moola (2015). Study findings indicated that both the preceptor and the orientee perceived preceptor roles of protector, evaluator, educator and facilitator as important; protector was the highest rated role and educator was the lowest. The highest rated responsibility for both groups was protection of patients from health

care errors. The least important responsibility identified by both groups involved constructive critique of knowledge. There were, however, differences in the perception of frequency of attendance to roles and responsibilities. Firstly, preceptors rated the educator role as being more frequently attended to than important; a significant difference from orientees. Also, there were differences in perceived responsibilities of the preceptor's role as facilitator between the two groups.

Finally, while there was not an abundance of literature available specific to labour and birth orientation and/or preceptorship, a study was retrieved that explored mentoring as relational learning in perinatal nursing. This qualitative feminist phenomenological study conducted by Ryan, Goldberg, and Evans (2010) provided relevant findings that could be applied to the proposed orientation program. As the authors asserted, "Mentoring is a broad concept that may include constructs of preceptoring, role modelling and coaching" (p. 184). It is also acknowledged that the aforementioned constructs may only be considered components of a mentoring relationship. The study included five registered nurses who had worked on the labour and delivery unit for at least two years and had acted as either a mentor, mentee, or both. Through analysis, four themes were developed which included the meaning of nurse-to-nurse mentoring; mentoring as relational learning; mentoring as embodied learning; and a contextual understanding of nurse-to-nurse mentoring. The authors emphasized the integral relationship between nurse-to-nurse mentoring and between nurses and birthing women. Ryan et al., (2010) asserted that "Although structured orientation, theoretical knowledge and foundational nursing education provide a framework for becoming a perinatal nurse, experiential learning is embodied in the mentoring relational space between nurses and birthing

women" (p. 189). Such learning is applicable given the theoretical model of Kolb's Experiential Learning Theory discussed above. Finally, the authors suggested that findings from this study may improve mentoring processes, positively influence perinatal nursing settings resulting in improved recruitment and retention, and be considered through the development of programs; such as those related to preceptorship.

It is evident through the literature that preceptorship in orientation programs leads to beneficial outcomes for the orientee, contributes to patient safety, and fosters overall institutional cost savings through increased employee satisfaction and reduced turnover rates. It is also evident that there are roles, responsibilities, and minimum credentials required of the preceptor. The role of preceptors, as well as other constructs of health care orientation programs that have been described in the literature are discussed in the next section.

Orientation Programs: Frameworks in the Literature

Although Peltokoski et al., (2016) asserted that further research is required to identify solid orientation frameworks, there are health care orientation programs that have been developed and described through the literature. Firstly, Jeffery and Werthman (2015) presented an orientation program aimed at radiology nurses. To begin, the article discussed an overarching framework used to guide the program. This framework was a hybrid of various others that are common in the nursing profession; Kolb's experiential model being one of them. The uniqueness of this framework is that it could be used among many specialties; not solely radiology. From this, a tool was developed that could be used to assess five different competencies at the end of orientation; specifically addressing nursing process, medication administration, documentation, communication

and professional development. Next, the authors described how the orientation program was designed. This involved organizing a group of key stakeholders (ie: managers, educators, charge nurses, front line nurses, preceptors and physicians). The stakeholder group collaborated to develop the content that was included in orientation, using institutional policies and procedures to maintain thoroughness and highlight competencies for the program. This content was then translated into a competency assessment tool. When considering instruction tools to deliver orientation content, a variety of tools should be incorporated through creative means in order to target different learners and learning styles. In order to assess competency, Jeffery and Worthman suggested several methods to allow flexibility for the orientee; including classroom interactions, groups interactions, face-to-face interactions with preceptor or educator, skills laboratory or simulation, and performance with patients in the clinical setting. Finally, it was suggested that when evaluating competency, both the orientee and the evaluator should provide a signature indicating that a particular competency had been demonstrated; acknowledging whether or not it was completed to acceptable standards.

An orientation program developed by Bortolotto outlined a comprehensive critical care program for nursing graduates. Bortolotto's (2015) program offered didactic study, case study integration, a clinical staging program, active preceptor development, and care based simulation exercises. This program was re-developed in response to orientee feedback that suggested flaws with previous orientation checklists and feedback indicating difficultly in retention of information from the week long eight hour per day orientation program that had previously been in place. Furthermore, it was indicated that previous orientees preferred a model that would allow for a grading structure and provide

"real-time feedback and incremental knowledge verification so they could prove they were "on track" in their comprehension" (p. 204). Based on feedback, the revised orientation program addressed such needs. A didactic methodology was implemented, where online modules were assigned to orientees. These modules gradually built upon previous knowledge, were self-paced, and allowed the orientee to complete the learning at their convenience; even in the setting of their home if so desired. The orientees were compensated forty salary hours upon completion of the online modules. Next, orientees completed the case study integration, which consisted of a case studies at the end of each module. Case studies were completed in a classroom settings, facilitated by a clinical nurse educator or clinical nurse specialist; orientees worked in groups to complete. It was required that orientees complete the modules and pass the required test for each module before completing the case studies. While the concept of completing case studies is intriguing, there are limitations posed for the facility where only one employee is orientated to the labour and delivery setting at a time; therefore, it may be that case studies can be completed independently and a review with a clinical nurse educator is undertaken at the end of each module.

The next construct of the orientation program proposed by Borolotto (2015) involved clinical staging. Clinical staging referred to building upon prior knowledge and skills in the clinical setting and consisted of five stages throughout the program. A staging checklist was used to determine the best patient assignment for the orientee in the clinical setting based on acquired knowledge. The orientee is given the staging checklists at the beginning of orientation, and is tested on knowledge related to the staging material. Testing is completed at the end of each stage and evaluated by a clinical nurse educator or

consistent evaluator. This construct of the program identifies knowledge verification for clinical stages. Additionally, the orientee is assigned a preceptor throughout the orientation process. These preceptors are chosen from a preceptoring team who complete preceptor development courses. Finally, evaluation was also assessed through simulation, conducted at week eight and at the end of the program (week 20). As Bortolotto (2015) asserts, "simulation is an important tool to verify that GNR's [Graduate Nurse Residents] have the skill to recognize instability criteria and provide action plans to rescue their patients from further compromise" (p. 208). At the completion of the simulations, orientees are engaged in a debriefing session addressing various areas of performance. The author concluded that the implementation the orientation program being discussed led to increased confidence, critical thinking, and proficiency in the orientees who completed the program.

A final orientation program pertains to the transition of experienced registered nurses into the obstetrical setting as described by Bell, Henry, and Kirksey (2015). The authors developed an orientation program in an effort to transition nurses into the obstetrical specialty, as recruitment and retention of obstetrical nurses at the institution proved difficult. The aim was to "develop a program that built upon the baseline knowledge of the experienced nurse, using a shorter orientation time frame, to achieve competent performance, increased productivity, and safe patient care delivery" (p. 188). A needs assessment involving a director of nursing, clinical nurse educator, bedside nurses, and administrative personnel was conducted. Discussions were focused upon staffing, succession planning, length of orientation, credentials of preceptors and appropriateness of assignments, and strategies for recruitment. Goals and objectives were

then developed for the program. Four registered nurses, whose experience ranged between three and ten years, were chosen to complete the program. The program was eighteen weeks long and consisted of four phases; didactic education, a one-to-one preceptorship, buddying with an experienced obstetrical nurse for support, and an independent patient care assignments. The phase of didactic education began with a multiple choice questionnaire that assessed baseline labour and delivery knowledge. Based on the knowledge acquisition, training was facilitated using a variety of methods; including critical thinking exercises, problem-based learning, case studies, concept maps, role-playing, and e-learning. Additionally, there was an expectation for self-study through assignments such as multiple choice tests, or as previously mentioned, case studies.

During the preceptorship phase, the orientee was paired with an experienced obstetrical nurse who had volunteered to take on the mentorship. The preceptor was required to take several classes offered by the institution prior to the preceptorship. The orientees met regularly with the nurse educator and/or nurse manager to discuss progress and further learning that was required. Clinical competencies were assessed by the preceptor using a written evaluation tool; preceptors also met with the clinical educator to discuss further learning opportunities for orientees. For the third phase of the program, the orientee was buddied alongside an experienced obstetrical nurse, who may or may not have been her preceptor. This phase lasted seven weeks and allowed for increasing independent practice. For the final phase, independent patient assignments, orientees completed the questionnaire from the first day. Feedback from preceptors was also taken into account to determine readiness for independent practice. Bell et al., (2015)

acknowledged that a rigorous psychometric tool to assess didactic and clinical competencies would have been beneficial, however they were unable to access one leading to the development of the tool used in the program. While this program has several constructs that could be utilized in a proposed practicum, I believe there are some flaws within the program, particularly around evaluation of the orientee. It can be suggested that a ten question questionnaire and preceptor feedback may be inadequate in terms of assessing competency and readiness for independent practice. As has been discussed through the orientation programs presented in the literature, the use of online learning modules can be a viable option for delivery of learning content. This will be further explored in the next section.

Online Learning Modules

Online self-study learning modules and online resources have been integrated into medical education, in an effort to improve interactivity, while also increasing satisfaction of learners and efficiency of learning (Kleinpell et al., 2011). Online learning has been used globally to present standardized information, allowing for knowledge testing for learners who have received knowledge and skills training through this method of learning (Kobewka et al., 2014). Authors Kleinpell et al., (2011) conducted a literature review examining web-based resources for education in critical care. Greater than 250 citations were obtained from the search. Additionally, the authors surveyed critical care medicine fellowship directors and advanced practice nursing educators from eight countries, Canada included, to identify methods of web-based education used at the time in critical care education. Results indicated that greater than 135 web based education resources were identified including several forms of e-learning; tutorials, self-directed

learning modules, interactive case studies, webcasts, podcasts, and video-enhanced programs. Feedback from critical care educators and practitioners indicated that e-learning is being instituted throughout critical care medicine and nursing programs to enhance education and competency training. As the authors asserted, several benefits of e-learning training have been identified, including "having increased control over content learning and sequencing, the ability to pace learning, control over time allocated for learning activities, and the availability of enhanced media that allow the learner to tailor their personal learning experiences" (p. 551). Additionally, when compared to traditional lecture-based methods of teaching, e-learning has demonstrated equivalency in learning outcome. Finally, e-learning has led to enhanced learning, interactivity, and improved self-learning experiences.

A study by Kobewka et al., (2014) sought to determine whether or not e-learning computer based modules addressed gaps in quality of care, while also exploring the feasibility and acceptability of this instructional tool. A qualitative evaluation was conducted following a voluntary pilot e-learning program aimed at physicians and residents from six different medical teaching units at a facility in Ottawa, Canada. Participants were allotted four weeks to complete the modules, which addressed quality problems of compliance with poor hand hygiene (a behavioral issue) and failure to comply with treatment guidelines for community-acquired pneumonia (a knowledge defect); fifty five percent of participants completed at least one module. Findings indicated that forty four percent of the participants utilized the hand hygiene module, while fifty three percent utilized the community-acquired pneumonia module. Additionally, focus groups were implemented three weeks into the pilot project. Findings

from the focus groups indicated that e-learning was an effective method of learning and that learning in this manner would be beneficial for other staff members. While the authors acknowledged the uptake of the pilot program may appear moderate, they reinforced that fact that the program was voluntary and limited advertisement was conducted. Therefore, it was determined that the program outcomes were beneficial, especially when taking into account the positive feedback. Kobewka and colleagues concluded that the implementation of e-learning modules can be an effective means of providing and increasing knowledge, as well as improving quality of care outcomes. The authors suggested that further research could be beneficial in order to measure outcomes from the quality improvement initiative delivered through e-learning.

Velan, Goergen, Grimm, and Shulruf (2015) completed a multicentre, randomized, crossover trial consisting of two volunteer groups of medical students and recent graduates in which they sought to compare the efficacy and perceived impact of interactive e-learning modules versus traditional learning methods for appropriate imaging referrals. Participants were all required to complete an e-module to acquire baseline knowledge pertaining radiography clinical decision rules. From there, participants were placed into two groups; the first group completed an interactive e-learning module related to referrals for suspected pulmonary embolism. The second group reviewed PDF flowcharts related to clinical decision making rules, completed an online test, and provided feedback upon submission of a question; comparable to first group. An assessment of knowledge related to imaging referrals for pulmonary embolism was completed for both groups at the end of the week. For the second week, the groups switched learning methods focusing on the topic of cervical spine trauma in adults;

knowledge assessments were repeated and participant feedback was sought. Results indicated that the e-learning modules led to significantly increased understanding of imaging related to pulmonary embolism, and improved understanding related to cervical spine trauma in adults. Evaluation of participants through a questionnaire indicated positive responses for the e-learning; particularly for the pulmonary embolism module. Responses suggested that the module framework, application of clinical scenarios, and real time feedback were favourable for the e-learning modules. The authors concluded that the implementation of modules proved to be an effective e-learning tool where future integration moving forward could be warranted.

The use of e-learning modules in obstetrics was also explored by Young and Randall (2013), who discussed the use of e-modules as a construct of blended learning. Pre-registration midwifery students completed a two week electronic learning module focusing on systematic approaches to assessing ill-health in childbearing. Students were able to access content at different points of the program, which offered flexibility. Accessing the e-learning content could be achieved in a variety of ways; such as printing of hard copies, saving to a memory stick, or completing the curriculum online. Clinical situations were presented within the learning modules, which enhanced critical thinking and allowed further exploration of various pathology related to ill-health in pregnancy. The authors reported that the students appreciated the flexibility e-learning had to offer, although some disliked having to read the content on the screen (therefore printed the content) and others disliked the amount of reading that was required. Content from the learning modules was reinforced through other methods of learning, which included formal case presentations and skills and drills simulation.

It has been determined from the literature that the use of e-learning has been deemed a beneficial and effective method of learning in the health care setting. It offers flexibility for the learner, while incorporating different learning styles than traditional classroom teaching. As suggested, incorporation of learning modules can enhance learning and allow for the incorporation of critical thinking strategies; such as the integration of case studies or application of clinical situations. As previously discussed through orientation programs presented from the literature, evaluation of orientees is of consideration upon completion of an orientation program. Therefore, support for evaluation through the use of simulation will be presented.

Use of Simulation for Evaluation of Orientee

As Draycott et al., (2015) asserted, written tests at the completion of training can lead to a sense of threat for staff and affect confidence; particularly if confidence in the clinical setting has been a pre-existing issue. Additionally, written tests often lack predictive validity and are presented with a pre-determined pass mark, chosen by an evaluator, which may be selected at random (Draycott et al., 2015) It is suggested by the authors that such a method of evaluation should not be utilized; instead simulation training should be offered in an environment that is non-threatening, with the aim of promoting staff participation and improved outcomes. For the current orientation program at the setting for this practicum, labour and delivery orientees complete a written exam at the end of orientation that was compiled by the clinical nurse educator and nurse manager for obstetrics. A pass mark for this exam is 80 percent; this exam, along with recommendations from the assigned preceptor determine whether or not an orientee is deemed competent for independent practice.

Sittner, Hertzog, and Ofe Fleck (2013) conducted a pre-experimental design study to assess the transfer of acquired labour and delivery knowledge and clinical judgment in a simulated environment in nursing students. Additionally, the perceptions of students' experience through simulation was explored through self-reported narratives and rating on a Likert scale. The research team involved with this study developed a 91-item checklist to evaluate clinical judgement and knowledge. Content validity of this questionnaire was verified by a five woman panel from the Women's Health faculty, who possessed expertise in labour and birth, teaching, and simulation in obstetrics. Furthermore, a simulation experience questionnaire was implemented to measure student satisfaction with the simulation. The simulation was conducted in four phases; orientation, participant training, simulation operations, and participant debriefing. Study findings indicated that the developed checklist may be a viable option for evaluating learners participating in simulation, with the percentage of agreement for raters ranging from 72 to 82 percent. It was suggested that further training for raters may be warranted to improve consistency with evaluation. Additionally, students rated their simulation experience from one to five on a Likert scale; one being strongly agree and five being strongly disagree. Mean satisfaction score was 1.57. Moreover, two themes of immersive learning and confidence building were identified through descriptive feedback. Sittner and colleagues concluded that simulation allowed for application of knowledge and clinical judgment for students, while facilitating increased confidence and acquisition of skills. Additionally, it offered an effective means for evaluation of performance. It was also suggested that further research is warranted in order to develop standardized and validated checklists for evaluation.

Student perceptions of simulation was further explored through a quantitative descriptive study examining student ratings of simulation components that impact clinical judgement (Kelly, Hager, & Gallagher, 2014). Nursing students from three types of study programs participated in a surgical simulation, which followed the same orientation format utilized by Sittner et al., (2013); orientation, participant training, simulation activity, and participant debriefing. At the completion of the simulation, students completed a post-simulation survey, where eleven components of simulation were ranked in terms of contributing to clinical judgement. Findings indicated that the top three simulation components found to contribute to clinical judgement were facilitated debriefing, post-simulation reflection, and guidance by the academic. The three components that scored the lowest were participation in a role, viewing of the simulation audiovisual playback, and patient care notes. This highlights the importance of debriefing following simulation, as it is suggested it can prove valuable when transferring clinical judgement into practice.

Nelissen et al., (2015), explored retention of knowledge, skills, and confidence nine months post obstetric simulation-based training using the Helping Mothers During Bleeding After Birth model. Participants included clinicians, nurse-midwives, medical attendants, ambulance drivers, and other staff involved in maternity care; some of whom did not have formal medical training. This pre-, post-, and nine month intervention study tested knowledge, skills, and confidence immediately prior to training, immediately post training, and nine months post training. Knowledge was tested through use of a 26-item multiple choice questionnaire with a reference score of greater or equal to 70 percent to pass. Obstetrical knowledge that was tested included basic delivery skills, active

management of third stage of labour, and management of postpartum hemorrhage. Participant confidence was assessed by a self-reported questionnaire. A low-cost, low-tech birthing simulator was used by participants, who were evaluated using a checklist for assessment of skills performance. Study findings indicated that mean knowledge scores increased immediately post training, however decreased to near pre-training scores nine months post-simulation. Additionally, basic delivery skills, postpartum hemorrhage management and skills, and bimanual compression skills all increased post training and were all sustained nine months post training. Finally, confidence skills increased immediately post training, and were also maintained nine months post-training. The authors concluded that while simulation was beneficial for retention of skills and improved confidence, additional and increased frequency of training may be warranted to maintain long term knowledge acquisition. It was suggested that further research is warranted to determine acceptable training schedules required for knowledge retention.

Vadnais et al., (2012) explored long-term knowledge retention following simulation for uncommon but critical obstetrical clinical situations. This pre- and post-test intervention study examined retention of knowledge of residents and physicians, related to obstetrical outcomes including management of eclampsia, shoulder dystocia, postpartum hemorrhage, and vacuum-assisted vaginal deliveries. A pre-test and post-test, including 35 multiple choice questions was completed immediately prior to, and at completion of the four task simulation. Participant comfort level was assessed using a ten point Likert scale. Post-tests were also completed at four months and twelve months by residents and at twelve months by attending physicians. Results indicated that increased knowledge and comfort were observed immediately post simulation. At one year,

residents demonstrated sustained scores for both acquired knowledge and comfort; attending physicians' maintained comfort, however there was a decrease in knowledge retention within the year. Additionally, simulation training repeated once again at one year led to higher knowledge and comfort scores than what was observed at the twelve month post-test; which was administered prior to the repeat simulation. The authors concluded that study findings support use of simulation for knowledge attainment and comfort; it was also asserted that repeat simulation at one year led to increased scores. Like Nelissen et al., (2015), Vadnais et al., (2012) recommended further research to determine appropriate frequencies of repeat simulation to maintain acquired knowledge. A final construct of orientation programs to be explored involves circumstances by which orientees do not demonstrate adequate competencies during the orientation progress. Therefore, the concept of remediation will be discussed.

Remediation

At the setting for the proposed practicum, there have been situations experienced within the current orientation program where a staff member had been identified as having difficulty with orientation, and competency and/or performance has been called into question. Various strategies have been used to address such issues with these individuals. A study by Maxfield, Lyndon, Kennedy, O'Keefe, and Zlatnik (2013) supported the assertion that, unfortunately, incompetence and inadequacies in practice exist in the clinical setting. The authors explored safety gaps among labour and delivery teams, consisting of physicians, midwives, staff nurses, charge nurses, and nurse managers. Safety concerns that were of interest included shortcuts, missing competencies, disrespect, and performance problems. Findings indicated that 98 percent

of the 1884 nurse participants reported at least one of these safety issues within the past year. It was reported by participants that these issues had a negative impact on patient safety, contributed to patient harm, and resulted in the contemplation, by nursing staff, of transferring from or exiting the clinical practice area. These findings suggest the need for the development of remediation processes to address competency and performance issues and maintain patient safety.

According to Harding and Connolly (2012), remediation in health care involves "providing explanation to a registered nurse regarding his/her deficiency in professional nursing scope and/or standards of practice accompanied with education on how to correct the practice" (p.49). The competency of a nurse should be assessed based on knowledge acquisition and clinical performance, taking into account the expectations and optimal outcome for a given clinical situation. The authors suggested that such constructs can be assessed through direct observation, discussion, certification, peer review, root-cause analysis, simulation, testing, skills validation, role play, orientation, and return demonstration. Furthermore, it is important to distinguish between incompetence and negligence, as it is possible for a registered nurse to practice incompetently without intention; such a situation would not be deemed as negligent (Harding & Connolly, 2012). Incompetence involves failure to perform at an expected level or failure or perform effectively, where negligence involves failure to perform as a reasonably prudent registered nurse would in the same situation (Harding & Connolly, 2012). Moreover, it is further suggested that the act of remediation may not be appropriate for registered nurses who do not take accountability or responsibility for their actions in given clinical situations (Harding & Connolly, 2012).

Upon identification of the need for remediation, clinical nurse specialists or nurse educators may be solicited by nurse managers to provide remedial education for staff members (Walker-Cillo & Harding, 2013). Walker-Cillo & Harding suggested that upon assessment of competency and performance, an education needs assessment be performed to address deficiencies. Remediation should then focus on the specific needs of the individual, as identified by the needs assessment. From this, additional education and information would be given, and/or demonstration or explanation of expected practices and behaviours. (Walker-Cillo & Harding, 2013). Bortolotto (2015) discussed assessment of competency following a proposed orientation program. Upon testing of orientation material, if the orientee demonstrated difficulty in demonstration of knowledge or skills, feedback and remediation was provided. Bortolotto suggests coaching, remediation sessions, a professional development plans, and supportive sessions would be offered to the orientee. If after such interventions the orientee still did not meet knowledge and clinical practice standards, the individual would not be deemed successful in completion of orientation, nor would the individual be able to integrate into independent practice.

Conclusion

Throughout this literature review, support for orientation programs in health care has been presented, which has provided justification for comprehensive programs. As suggested through the literature discussed, there were research articles identified through the literature search that addressed the need for orientation programs. More so, there were articles retrieved, which were not of a research design, that outlined varying orientation programs developed in health care settings. It was noted in the literature that

there appears to be a gap in research related to orientation programs; specifically, labour and birth programs, which is the focus of the proposed practicum. Moreover, much of the available research is aimed at nursing students or new registered nurses transitioning into the profession. In essence, there was a lack of available literature on experienced registered nurses moving into a new clinical setting; the population of interest for the proposed practicum. Additionally, several concepts have been discussed, which may be considered for the proposed re-development of a labour and delivery orientation program. Kolb's Experiential Learning Theory provided a framework that described the interaction between learning modes and styles; this is will be an important component to contemplate in the process of program development, in order to ensure the program encompasses all learning styles.

Literature addressing various components of orientation frameworks have been presented; particularly pertaining to length of orientation, needs of experienced nurses versus graduate nurses, and the integral role of preceptors. The length of orientation of health care programs varied throughout the literature presented. For the current labour and birth orientation program at the setting where the practicum is to take place, length of orientation is six weeks; therefore, consideration will be given to adequate length of orientation moving forward. Additionally, for the orientation program currently used at the practicum setting, a preceptor is assigned by the manager based on varying factors. There are currently no formal roles or responsibilities communicated to the preceptor; nor are there resources available to the preceptor to address learning needs of this role. These may all be considerations to contemplate throughout the development of the proposed practicum.

Orientation programs available in the literature have also been presented; constructs of which may be considered moving forward with the proposed practicum. Furthermore, e-learning modules as a means of providing educational content has been explored; such learning methods haven been found to be flexible and effective in providing required learning and evaluation of competency. Finally, benefits of evaluation of the orientee through simulation has been highlighted, which may also prove to be a viable option for the proposed program. As of recently, funding has been allotted for the obstetrical unit to purchase a birthing simulator. As suggested through literature findings, completion of simulated scenarios by the orientee, reflecting real-life obstetrical situations and emergencies may be a better method of assessing competency at the completion of the allotted orientation time. There is evidence available in the literature that supports the use of simulation in practice. Once the obstetrical simulator is obtained for the proposed practicum, it has been proposed that regular obstetrical team training will be implemented. It can be suggested that knowledge obtained through completion of learning modules and preceptorship experience may help improve knowledge retention; though this would require formal evaluation. Finally, the topic of remediation in the orientation process has been discussed, with an emphasis on early identification of instances in which remediation may be required, and development of strategies to address knowledge or practice gaps. Findings obtained from this literature review will prove vital moving forward with the proposed practicum, as development will, in part, encompass orientation constructs that have been presented. Moreover, conclusions from this review will be considered for the upcoming consultation plan, as part of the development of the proposed program.

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Appendix A

Relationship Between Learning Styles and Five Levels of Behaviour

Behaviour Level	Diverging	Assimilating	Converging	Accommodating
Personality Types	***Introverted Feeling***	***Introverted Intuition***	***Extraverted Thinking***	***Extraverted Sensation***
Educational specialization	***Arts, English, History, Psychology***	***Mathematics, Physical, Science***	***Engineering, Medicine***	***Education, Communication, Nursing***
Professional career	***Social service, Arts***	***Sciences, Research, Information***	***Engineering, Medicine, Technology***	***Sales, Social Service, Education***
Current jobs	***Personal jobs***	***Information jobs***	***Technical jobs***	***Executive jobs***
Adaptive competencies	***Valuing skills***	***Thinking skills***	***Decision skills***	***Action skills***

(Kolb & Kolb, 2013, p. 10)

Appendix B

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
What matters most? Students' rankings of simulation components that contribute to clinical judgement Kelly, Hager, & Gallagher (2014) Study aim was to investigate the contribution of eleven simulation components used to enhance clinical judgement of nursing students from three different study streams	Setting was at a large Australian university Convenience sample included of 150 nursing students from three different study streams, which included six classes over two years Sample included mostly female students (82%), aged 19-26 years (68.9%), and of whom had two years or less of nursing experience (63%) Greater than 70% of participants had previously participated in simulation	Study design was a qualitative descriptive study Ethical approval was obtained A survey was developed by authors to assess students' ratings of simulation components that contributed to clinical judgement Survey consisted of a five point Likert scale assessing eleven components of simulation that were compiled using findings from the literature review and a clinical judgement model; pilot testing was conducted on 30 students and five	Findings indicated that the top three rated simulation components contributing to clinical judgement were identified as facilitated debriefing, post-simulation reflection, and guidance by the academic The three components that scored the lowest were participation in a role, viewing of the simulation audiovisual playback, and patient care notes	*Strengths:* Findings have addressed an identified gap in the literature Pilot testing of the survey Response rate of 68% captured the majority *Limitations:* Possibility of self-reporting bias Opportunity for refection between participation and observer roles; could have impacted responses A higher response rate would have been optimal Potential for decreased generalizability of findings as	<u>Study Design:</u> Weak <u>Quality of Study:</u> Medium (PHAC, 2014) Study conclusions indicated that components of simulation that were perceived to contribute to clinical judgement were identified by students, regardless of year of study Further research would be beneficial to determine if similar findings would be obtained in other settings

		questions were modified Data was analyzed using SPSS software; data was summarized using percentages for categorical data and means, standard deviations or medians and range for continuous data ANOVA was used to determine differences in study stream, nursing experience, and gender with significance level of $p < 0.05$		study was conducted at one site only	

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Web-based resources for critical care education Kleinpell et al. (2011) Aim of the study, as identified by the authors was to identify, catalog, and critically evaluate web-based resources for critical care education	Setting unknown Review included greater than 250 citations Critical care medicine fellowship directors and advanced practice nursing educators were sought for input related to web-based critical care education	Systematic review of web-based resources for critical care was conducted using a multilevel search of databases Eight search terms were used among three databases and eight websites; internet searches were also conducted Queries were sought from critical care medicine fellowship directors and advanced practice nursing educators from eight countries (including Canada); methods and use of web-based	Greater than 135 web based education resources were identified including several forms of e-learning; tutorials, self-directed learning modules, interactive case studies, webcasts, podcasts, and video-enhanced programs Feedback from critical care educators and practitioners indicated that e-learning is being instituted throughout critical care medicine and nursing programs to enhance	*Strengths:* Web sites were reviewed by three independent reviewers in order to ensure credibility *Limitations:* Unable to provide a rating for study design due to systematic review Authors acknowledge results of the review are not exhaustive of web-based resources despite a comprehensive multi-purpose search strategy	<u>Study Design:</u> No rating <u>Quality of Study:</u> Medium (PHAC, 2014) A multitude of web-based resources in a variety of formats exist for critical care education E-learning pertaining to critical care is being integrated into medical and nursing training programs E-learning methods may lead to enhanced learning and clinical competence, although further research is warranted to

		education used in critical care education were sought No information regarding ethical approval (not applicable) Data synthesis of websites included review of literature indicating basis of the criteria of authority, objectivity, authenticity, accuracy, timeliness, relevance, and efficiency	education and competency training		further explore this

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
The feasibility of e-learning as a quality improvement tool Kobewka et al. (2014) Aim of the study was to investigate the feasibility and acceptability of e-learning (computer-based learning modules); with a goal of addressing gaps in quality of care	Setting involved six general medicine medical teaching units at a tertiary care teaching hospital in Ottawa, Ontario Sample included 55 physicians and medical students; participation was voluntary Of the physicians, 11 were staff internists, 6 were senior residents, 24 were junior residents and 14 were medical students Nine medical students, two residents and two staff participated in	Qualitative evaluation of participants in a pilot e-learning program Ethical approval was obtained Participants were recruited to complete two different learning modules (in a four week time frame) aimed at quality improvement; one on hand hygiene practices and the second on management of community acquired pneumonia; module usage data was obtained Focus groups were conducted three weeks into the study to determine perceptions of the module,	Findings indicated 55% of participants completed at least one module; 44% percent of the participants utilized the hand hygiene module, while 53% percent utilized the community-acquired pneumonia module. Modules took between 15 and 30 minutes to complete Additionally, focus groups revealed that several participants voiced the modules were easy to	*Strengths:* Response rate of 55% captured the majority; promising since completion was voluntary Analysis conducted by two independent reviewers *Limitations:* Lack of generalizibility of findings since only physicians were participants and study was site specific Potential for self-reporting bias A higher response rate would have been optimal Small sample size	Overall moderate qualitative study that included both strengths and limitations Study does not have any apparent missing data Study perhaps could have been improved through stronger recruitment for focus group (Moralejo & MUN, 2016) Study conclusions indicated that e-learning is a viable option for quality improvement initiatives that is desirable for learners

	five separate focus groups	mode of content, and suggestions for improvement Focus group data was recorded and transcribed; qualitative data was analyzed using ATLAS software and two independent reviewers analyzed transcripts; codes and themes were identified following consensus by reviewers	use and that e-learning was an effective method of learning; it was also proposed the learning would be beneficial for other staff members		Future research should focus on outcomes from implementation of quality improvement programs through modules

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Confronting safety gaps across labor and delivery teams Maxfield, Lyndon, Kennedy, & O'Keefe (2013) Aim of the study was to investigate the occurrence of clinician concerns about safety and performance in labor and delivery units; the study also sought to determine whether or not concerns were voiced	Various labor and delivery settings in the United States A random convenience sample was sought using email addresses from members of four professional organizations who attend to labor and delivery A total of 3282 participants included 985 physicians, 414 midwives, 898 staff nurses, 420 charge nurses, and 386 nurse managers or directors	Descriptive study conducted using a multiple choice survey to determine how common, costly, and discussable four safety problems were in practice; problems included shortcuts, missing competencies, disrespect, and performance problems The Western Institutional Review Board determined the study to be exempt Survey was complied by an expert panel of labor and delivery physicians, nurse, and midwives and adapted from previous studies	Findings indicated that 98% of nurses, 92% of physicians, and 93% of midwives reported at least one of these safety issues within the past year. Concerns were deemed costly by 66% of physicians, 59% of midwives, and 77% of nurses; it was indicated by participants that such concerns had a negative impact on patient safety, contributed to patient harm, and resulted in contemplation regarding transferring or exiting the	*Strengths:* Large sample size Random sample (although was convenient) *Limitations:* Analysis of data not well described Convenience sample could have introduced non-response bias; could have impacted generalizibility of findings Survey delivery impeded ability to calculate a response rate If multiple respondents	<u>Study Design:</u> Weak <u>Quality of Study:</u> Low (PHAC, 2014) Conclusions indicated that study findings were consistent with others in the literature in terms of organizational silence; it is suggested that staff members need to speak up to safety concerns in order to maintain safe patient care and morale Authors recommend further research aimed at communication related to safety concerns in labour and delivery

			clinical practice area Only 9% of physicians, 13% of midwives, and 13% of nurses who witnessed one or more concern spoke to the person of concern; staff nurses were more likely to discuss the concern with managers rather than the individual of concern	were from the same hospital, there was a potential for the same incident being accounted for multiple times	

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Helping mother survive bleeding after birth: Retention of knowledge, skills, and confidence nine months after obstetric simulation-based training Nelissen et al. (2015) Aim of the study was to measure the level of knowledge, skills, and confidence before, after, and nine months after the simulation-based training in an effort to explore the impact of training on these outcomes	Setting was at a rural referral hospital in Northern Tanzania A total of 38 participants formed the sample Participants included six ambulance drivers, 13 medical attendants, 14 nurse midwives, and five clinicians Participants, on average, assisted in 118 births, performed an average of 1.3 bimanual compression, one person participated in simulation three times, and one person attended an education day	A pre- post-intervention study was conducted to assess knowledge, skills and confidence related to basic delivery skills, postpartum hemorrhage (PPH), and active management of the third stage A 26 item multiple choice questionnaire was administered pre-simulation, immediately post-simulation, and nine months post-simulation to assess knowledge; a pass mark was ≥70% for correct answers Skills performance	Study findings indicated that mean knowledge scores increased immediately post training, however decreased to near pre-training scores nine months post-intervention Basic delivery skills, PPH management, and skills, and bimanual compression skills all increased post training and were all sustained nine months post training Confidence in skills increased immediately post training, and were also maintained nine months post-training	*Strengths:* Assessment tool to assess knowledge was tested for face, content, and construct validity Validity for skills checklist was identified Control for confounding variables *Limitations:* Small sample size Before and after design without a control group and randomization weakened study design Study only conducted at one hospital which decreased generalizibility of findings Potential for larger learning	<u>Study Design:</u> Weak <u>Quality of Study:</u> High (PHAC, 2014) Study conclusions indicated that while simulation was beneficial for retention of skills and improved confidence, additional and increased frequency of training may be required to maintain long term knowledge of content. Further research was suggested to determine acceptable training schedules required for

		was assessed though two simulated scenarios of PPH and basic delivery skills; a validated checklist was used Confidence of skills was assessed using a five point Likert-scale Statistical analysis was completed using various computer programs; descriptive statistics were used; results reported as number, percentage, mean, standard deviation, and range; McNemar's test for categorical values and paired t-test for continous variables were used		effect due to test being taken multiple times	knowledge retention

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Roles and responsibilities of nurse preceptors: Perception of preceptors and preceptees Omer, Suliman, & Moola (2015) Aim of the study was to describe the expectations of nurse preceptors roles and responsibilities through the perceptions of both nurse preceptors and preceptees; also to identify areas of consensus and disagreement related to importance of and how frequently preceptors attended to roles and responsibilities	Study setting was a 900 bed general hospital where students completed clinical placements for five different courses, as well as a college of nursing Study sample was comprised of 130 nursing students and 80 preceptors who had been paired with the students during clinical rotations for one of the five nursing courses	Descriptive and comparative design to compare similarities and differences in perceptions of preceptor roles and responsibilities between preceptors (clinical teaching assistants and hospital employed nurses) and preceptees (nursing students) Ethics approval was obtained A two part questionnaire was administered; part 1 focused on four important roles and 43 responsibilities of the preceptor using two, four	Findings indicated both the preceptor and the orientee perceived preceptor roles as important; protector was the highest rated role and educator was the lowest The highest rated responsibility for both groups was protection of patients from health care errors The least important responsibility identified by both groups involved constructive critique of knowledge Preceptors rated the educator role as being more frequently attended to than important; a significant	*Strengths:* Construct and content validity of data tools assessed Reported reliability testing for importance and frequency of attendance scales Detailed data collection tools and analysis *Limitations:* Possible confounding by cultural and authoritative differences between groups Potential for bias due to self-reporting Small sample size Limited generalizibility due to small scale study	<u>Study Design:</u> Weak <u>Quality of Study:</u> High (PHAC, 2014) Study conclusions indicated both preceptors and preceptees deemed the four roles and all responsibilities as important; both rated the same in terms highest and lowest role There were differences between groups related to preceptor frequency and attendance to roles and responsibiliti

		point Likert scales were used to assess both importance and frequency of attendance- the questionnaire included two sections; one for preceptors and one for preceptees; part 2 of the form included demographic information SPSS software was used for statistical analysis of numerical data; descriptive and inferential statistical methods were used; significance was $p<0.05$ with a cutoff scale of 3	difference from orientees; there were differences in perceived responsibilities of the preceptor's role as facilitator between the two groups		es as educators and facilitators Replication of study on a larger scale to using probability sampling may increase validity

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Newly hired nurses' and physicians' perceptions of comprehensive health care orientation process: a pilot study Peltokoski, Vehvilainen-Julkunen, & Mietinen (2015) Aim of the study was to examine the perceptions of newly hired nurses and physicians of their hospital orientation process, and to explore correlations between background variables and four aspects of a comprehensive orientation program	Setting was at two Finnish hospitals between May 2009 and June 2010; one hospital was a 755 bed university hospital and the second a 601 bed central hospital Both settings had similar orientation programs Physicians and registered nurses who were employed in May 2009 or later, were in permanent or temporary positions, and working for at least three months were eligible for the study A convenience sample of 145 registered nurses and 37 physicians comprised the	Design is a cross-sectional, descriptive questionnaire survey Data collection instrument was complied by an expert group and tested for reliability Questionnaire included 54 questions with four subscales; goals and responsibilities, standardized content, implementation, and evaluation; a five point Likert-type scale was used; also included 17 background variables assessing demographics and characteristics of orientation Data analysis was conducted using computer software; descriptive	Length of orientation ranged between under 4 days to 25 days Perceptions of the orientation processes for both nurses and physicians ranged from low to moderate An assigned preceptor and profession were correlated positively and significantly with a comprehensive orientation program 27% of participants reported that competence level was not assessed before or after the orientation	*Strengths:* Reliability of data collection tool rated as good using Cronbach's alpha Pilot testing of data collection tool prior to implementation in the study Documented inclusion criteria *Limitations:* Small sample size Low response rate of 45% Possible self selection bias Other than the pilot testing, this study was the first time data collection instrument was used	<u>Study Design:</u> Weak <u>Quality of Study:</u> High (PHAC, 2014) Study conclusions indicated that the current orientation program was deemed non-comprehensive The importance of updating orientation programs was emphasized, ensuring comprehensive-ness of processes; the use of preceptorship of orientation programs was suggested for future programs

	sample; this was based upon return of questionnaires	statistics, non-parametric tests, and exploratory factor analysis were used	process; 51% reported that the orientation process was not evaluated		

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Nurses' hospital orientation and future research challenges: an integrative review Peltokoski, Vehvilaninen-Julkunen, & Miettinen (2016) Aim of the study was to describe research on orientation programs for registered nurses in specialized hospital settings in an effort to define further research needs	Setting unknown Search strategies of databases led to 995 studies that were initially retrieved	An integrative literature review served as the design for this study Ethical approval not applicable Search strategy included seven key search terms; CINAHL and PubMed databases were accessed Of the 995 studies retrieved, 746 were retrieved from CINAHL and 249 were retrieved from PubMed; after factoring in inclusion and exclusion criteria and removing duplicate studies, 11 studies were chosen for review Narrative synthesis was	Overall, evidence from the research was not able to be evaluated as strong The definition and concepts of orientation programs proved to be complex Research topics focused on four main constructs of orientation processes; framework, implementation, related variables, and outcomes The primary outcomes of hospital orientation programs were retention	*Strengths:* Strict inclusion criteria identified Integrative review design can be beneficial in identifying gaps in research *Limitations:* Strict inclusion criteria may have led to exclusion of relevant studies Potential reporting bias, only English-language studies with abstracts were considered for the review Concept definitions of hospital orientation may have	<u>Study Design:</u> No rating <u>Quality of Study:</u> Medium (PHAC, 2014) Study conclusions indicated that there is a gap in evidence based, comprehensive orientation frameworks used to develop orientation programs It is suggested that future research should focus on interventions that will improve job satisfaction and recruitment of registered nurses

		used for data analysis, which was conducted by two researchers; data was reviewed independently and coded into themes pertinent to the study aim; final analysis was conducted by three researchers where four themes emerged	and job satisfaction	further limited the inclusion of applicable studies	

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Wise women: mentoring as relational learning in perinatal nursing practice Ryan, Goldberg, & Evans (2010) Aim of the study was to explore relational learning through the mentoring relationships of nurses in the intrapartum setting	Setting was at a tertiary level labour and delivery unit in eastern Canada Participants were chosen from purposeful sampling; included five registered nurses Inclusion criteria involved registered nurses working in the labour and delivery unit, who completed orientation on the unit and worked on the unit for at least two years; participants were also either in the mentor or mentee role, or both Participants were a diverse groups with varying educational and professional backgrounds and years of experience	Qualitative feminist phenomenological study that accounted for gender-centred, embodied exploration of human lived experiences Ethics approval was obtained Five unstructured, conversational interviews guided by six questions were conducted with participants, ranging between 60-90 minutes; all interviews were audiotaped and transcribed Two practice observations took place lasting six to 12 hours; the researcher kept a reflective journal to connect theoretical, professional and personal	Study findings led to the development of four themes, which included the meaning of nurse-to-nurse mentoring; mentoring as relational learning; mentoring as embodied learning; and a contextual understanding of nurse-to-nurse mentoring	*Strengths:* Sample size appropriate for qualitative study design Purposeful sampling was fitting with the qualitative study design Well defined inclusion criteria Well described theoretical framework *Limitations:* Limitations to generalizibility of findings	Overall moderate qualitative study that included both strengths and limitations Study does not have any apparent missing data Study perhaps could have been improved through a more thorough description of the data analysis (Moralejo & MUN, 2016) Study conclusions indicated that mentoring and experiential learning in intrapartum nursing is crucial; may lead to improved recruitment and retention;

		knowledge with obtained data Data analysis involved thematic analysis of interview data; commonalties between narrative interviews were used to explore the lived experiences of mentoring; reflective notes were taken following interviews; analysis of contextual data led to findings of perinatal nurse-to-nurse mentoring relationships			findings from may improve mentoring processes

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Enhancing labour and delivery learning experiences through simulation Sittner, Hertzog, & Ofe Fleck (2013) Aim of the study was to formatively evaluate transfer of knowledge and clinical judgement, related to labour and delivery, into a simulated clinical environment for student nurses	Setting for the study was a midwestern university in the United States Participants were composed of a convenience sample of 38 baccalaureate nursing students Participants had completed the labour and delivery classroom content before participation in the simulation Simulation groups consisted of seven to eight students; groups were the same as in the clinical setting	A pre-experimental study design was conducted to explore transfer and knowledge and clinical judgement in simulation, as well as student perceptions of the simulation Ethics approval was obtained A 91 item low-risk labour checklist developed by the research was used to evaluate knowledge and clinical judgement and was used by raters evaluating student simulations; a 15 item questionnaire was used to measure student satisfaction with	Study findings indicated that the low-risk labour checklist may be a viable option for evaluating learners participating in simulation, with the percentage of agreement for raters ranging from 72 to 82 percent Mean satisfaction score reported by students was 1.57 (one being strongly agree and five being strongly disagree) Two themes of immersive learning and confidence building were identified through descriptive feedback	*Strengths:* Content validity was supported for the low-risk labour checklist Content validity was assess for simulation experience questionnaire Methodological rigour for qualitative data was maintained through validation strategies and reliability perspectives Study measures and analysis were well described *Limitations:* Small sample size Convenience sample may have introduced bias Small scale and sample size may reduce	<u>Study Design:</u> Weak <u>Quality of Study:</u> Medium (PHAC, 2014) Study conclusions suggested that simulation led to application of knowledge and clinical judgment for students, while facilitating increased confidence and acquisition of skills It is suggested that future studies are warranted in order to evaluate learning strategies and outcomes through use of performance checklists

		simulation using a Likert-type scale and narrative responses Both quantitative data analysis was conducted using computer software, using descriptive statistics, the kappa statistic, and average of group performance was averaged across raters; qualitative data analyzed through bracketing, coding, and identification of emerging themes		generalizibility of findings	

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Assessment of long-term knowledge retention following single-day simulation training for uncommon but critical obstetrical events Vadnais, Dodge, Awtrey, Ricciotti, Golen, & Hacker (2012) Aim of the study was to explore whether single-day, intensive, multiple-task simulation training leads to shor and long-term knowledge and self-reported comfort level for management of uncommon, critical obstetrical events	Setting for the study was unclear A convenience sample of 43 attending obstetricians and 20 resident physicians comprised the study sample; all of whom attended the obstetrical workshop and completed the four simulations	Study was a pre-post-intervention design Ethics board determined study was a quality improvement imitative as opposed to study on human subjects All physicians completed a pre-test prior to simulation, a post-test immediately following simulation; residents repeated the post-test four and twelve months following, attending physicians repeated the post-test twelve months following as well as a repeat simulation at twelve months	Results indicated that increased knowledge and comfort were observed immediately post simulation At one year, residents demonstrated sustained scores for both acquired knowledge and comfort; attending physicians maintained comfort, however there was a decrease in knowledge retention within the year Simulation training repeated once again at one year led to higher knowledge and comfort scores than what was observed at twelve months	*Strengths:* Strong scores for completion of post-tests at four and twelve months (70-93%) *Limitations:* Small sample size Convenience sample may have introduced bias Limited generalizibility of findings Reliability and validity of assessment tools were not described	<u>Study Design:</u> Weak <u>Quality of Study:</u> Medium (PHAC, 2014) Study conclusions supported use of simulation for knowledge attainment and comfort; which has been shown to increase in the short term and up to one year post simulation. It was suggested that simulation repeated at one year may lead to increased scores Further research was recommended to determine appropriate frequencies for repeat simulation in order to sustain knowledge

		Knowledge and comfort levels were assessed through management of eclampsia, shoulder dystocia, postpartum hemorrhage, and vacuum assisted delivery simulations Data collection tool consisted of 35 multiple choice questions to assess knowledge; comfort level was measured through a 10 point Likert scale Data was analyzed using computer software; p values were identified and t-tests and linear regression were used			

Name, Author, Date, Study Objective	Sample/ Groups Size, Setting, Characteristic	Design and Methodology	Key Results/ Findings	Strengths/ Limitations	Conclusion and Rating
Impact of interactive e-learning modules on appropriateness of imaging referrals: a multicenter, randomized, crossover study Velan, Gorgen, Grimm, & Shulruf (2015) Aim of the study was to compare the efficacy and perceived impact of interactive e-learning modules, as opposed to static versions of clinical decision rules (CDR), when learning about appropriate imaging referrals	Settings included a university teaching hospital in Australia, three Australian medical schools, and an Australian education program for medical graduates Participants included a sample from 216 medical students who volunteered for the study following recruitment Participants included 98 men and 118 women Participants were randomized into two groups; group one consisted of 111 participants and group two 105 participants	Study design was a randomized cross-over trial Unclear whether ethical approval was obtained All participants completed a module prior to the intervention to acquire baseline CDR knowledge; participants were then randomly assigned to groups where group one completed an online learning module of pulmonary embolism (PE) and group two completed PDF flowcharts containing CDR's for suspected PE where online quizzes were submitted; week two the	Results indicated that the e-learning modules led to significantly increased understanding of imaging related to pulmonary embolism, and improved understanding related to cervical spine trauma in adults Evaluation of participants through a questionnaire demonstrated positive responses for the e-learning; particularly for the pulmonary embolism module Responses suggested that the module framework, application of clinical scenarios, and real time	*Strengths:* Content validity of knowledge tests was identified Strong study design with randomization Generalizability of findings *Limitations:* Substantial dropout rate; participants declined from 216 to 138 Possible carryover effect may have benefited the performance of group one for spine knowledge assessment Differences in educational background of participants may have impacted outcomes	<u>Study Design:</u> Strong <u>Quality of Study:</u> Medium (PHAC, 2014) The authors concluded that the implementation of modules proved to be an effective learning tool when compared to static PDR presentation of CDRs It was suggested that future work should aim to improve accessibility of e-modules through point of care and evaluation of this intervention

		groups crossed over and explored the topic of acute cervical spine trauma in adults After both weeks one and two, both groups participated in a time-limited (20 minute) online knowledge test consisting of ten multiple choice questions related to the topic for the corresponding week; at the end of week two participants also completed a questionnaire exploring perceptions of e-learning and PDF flowcharts Statistical analysis was conducted using computer software; cross-sectional analyses and stepwise linear	feedback were favourable for the e-learning modules		

		regression analysis and longitudinal analyses were used; Wilcoxon signed-rank tests, and Student's t test were used to analyze data from questionnaires; thematic analyses was conducted for open-ended questions of questionnaires			

Appendix B

Consultation Report:

Developing a Labour and Birth Orientation Program

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An important component of the development of a labour and birth orientation program at the Queen Elizabeth Hospital in Charlottetown, PE, has been the completion of consultations with staff nurses, unit leaders, and physicians at the facility; as well as an environmental scan of other facilities across Canada. This report will highlight the background of the proposed practicum; provide a summary of the participants who were recruited for both the consultations and environmental scan; provide an overview of the data collection, management, and analysis; highlight the ethical considerations that were considered; present the results of the environmental scan and consultations; and finally, highlight how the results of this report will impact the proposed practicum.

Background

Throughout the literature, it has been asserted that implementation of health care orientation programs are pertinent to staff retention and promotion of competency among health care workers (Peltokoski, Vehvilainen-Julkunen, & Miettinen, 2015). Additionally, Peltokoski, et al. (2015) affirmed that orientation programs require continual updating and evaluation in order to ensure comprehensiveness of processes. Hence, for the proposed practicum, the project is aimed at the redevelopment of a labour and birth orientation program. The setting for this practicum is an obstetrical unit at the Queen Elizabeth Hospital in Charlottetown, Prince Edward Island, where 800-1000 births per year occur. Registered nurses, who range in various levels of experience, staff the labour and birth unit at this facility. All staff are cross trained to both mother-baby care and gynecology; staff are generally trained in these areas before labour and birth training is commenced. The current labour and birth orientation consists of two classroom days with a nurse educator, where various labour and birth topics are covered through slideshow

presentations and learning modules facilitated by the educator. After the completion of these days, the orientee is assigned to an experienced labour and birth nurse, where further teaching is completed at the discretion of the preceptor, facilitated by an orientation checklist of various topics and skills to be covered. At the end of the six week preceptorship, the orientee completes a written exam, which has been previously developed by the nurse educator and nurse manager; an 80 percent pass rate is required. A successful pass of this written exam and evaluation from the preceptor, in consultation with the nurse manager, deems whether or not an orientee is considered competent for independent practice.

Throughout the past year, I had the opportunity to act as clinical nurse educator for obstetrics, including labour and birth. The unit had experienced a substantial staff turnover, hence facilitating labour and birth orientation for multiple new staff was warranted. Informal feedback from staff, preceptors, physicians, and new orientees suggested that revamping of the program was needed in order to address various issues. Some issues that were identified included consistency of information provided, modes of delivery of information, methods to assess competency at the end of orientation, burden for the preceptor in assessing readiness for independent practice, and remediation for staff who are experiencing challenges during the orientation process. Additionally, I had suggested the idea of purchasing an obstetrical simulator to the obstetrical manager, both to facilitate team training for obstetrical emergencies, as well as potential use for evaluation post orientation. The manager agreed to this purchase, and funding for the simulator is currently underway.

Through the literature review, the benefits of orientation programs were

highlighted, hence justifying the proposed practicum. Kolb's Experiential Learning Theory was presented, which provided a framework describing the interaction between learning modes and styles; this is will be an important component to consider in the process of program development, in order to ensure all learning styles are considered. Literature was presented describing various orientation programs in healthcare, where length of orientation, mode of content delivery, preceptorship, and evaluation of orientee were described. The importance of a preceptored experience during orientation was particularly strong in the literature. Additionally, learning modules were presented as a valid teaching and learning tool to facilitate delivery of content and knowledge acquisition. Moreover, the benefits of obstetrical simulation as a mode of evaluation of the orientee was presented, as was the importance of remediation of registered nurses as required.

The findings from the literature review described above will be important to consider moving forward with the development of the proposed labour and birth orientation program. Additionally, the results of consultations conducted with staff nurses and unit leaders at the setting for the proposed practicum has been beneficial in assessing the needs of staff the facility. Moreover, the results of the environmental scan of other facilities across Canada has identified methods by which other orientation programs are presented and facilitated for new staff working in labour and birth settings. The literature review was useful in identifying questions used in both the consultations and environmental scan; particularly relating to the constructs of learning modules, simulation, and evaluation. The methods, results, and overall impact for the proposed

practicum that have been derived from the consultations and environmental scan will be presented throughout this report.

Environmental Scan: Participants

As part of the environmental scan for the proposed practicum, input was sought from various hospitals who provide labour and birth services. Information pertaining to the provision of organizational labour and birth programs was of interest. Firstly, Prince County Hospital in Summerside, Prince Edward Island was contacted, as it is the only other hospital in the province that provides obstetrical services. Additionally, the IWK Health Centre in Halifax, Nova Scotia was contacted, as this facility is used frequently as a resource for the Queen Elizabeth Hospital. Moreover, hospitals in Moncton, New Brunswick and Truro, Nova Scotia were contacted for further comparison of Maritime hospitals that provide similar services as the setting of interest. While there was no response obtained from the hospital contacted in Moncton, a response was obtained from the Colchester East Hants Health Authority in Truro, Nova Scotia. Additionally, Mount Sinai Hospital in Toronto, Ontario was contacted, as this is a large hospital with the potential for unique orientation program constructs that differ from the Maritimes. Finally, contact was made through CAPWHN to seek further input of orientation programs throughout Canada. While there was no response obtained from Mount Sinai Hospital, there were responses obtained from Humber River Hospital in Toronto Ontario, as well as a participant from the Champlain Regional Program that services Eastern Ontario; these participants were recruited via CAPWHN. In addition, facilities were also asked whether they currently use learning modules; if so, permission was sought as to whether or not such modules could be used or adapted. Individuals and organizations

included in the environmental scan were contacted via email, as well as discussion forums through CAPWHN. A letter of participation was provided for participants, which can be found in the Appendix A.

Consultation: Participants

The sample for the consultation plan included unit leaders, such as the obstetrical unit manager, clinical nurse educator for obstetrics, and obstetrical clinical leader, and a staff nurse who rotates in the role of charge nurse of labour and birth were included. These individuals were sought, as they have played key roles in orientation of past labour and birth staff, and will be instrumental in the implementation of a revised program. In addition, a convenience sample was obtained, which included three staff nurses who have acted in the preceptor role, as well as three staff nurses who have undergone labour and birth orientation within the past three years. Finally, two obstetrician and gynecologists were consulted. The first has been working at the facility for approximately six months and had completed her residency at the IWK Health Centre. The second physician is the former chief of obstetrics. Both physicians have expressed interest in the redevelopment of labour and birth orientation for registered nurses. A letter of information was provided for participants of the consultations, which can be found in Appendix B.

Data Collection

Data collection was achieved through key informant interviews, which allow for "discovery and exploration when little is known about a topic of interest" (DeChesnay, p. 153, 2014). For the environmental scan, interviews took place through email communication or via telephone interviews; whichever was more convenient for individual participants. For the consultations, interviews took place either face-to-face,

through email communications, or via telephone; again, this was based on participant preference. In total, eight face-to-face interviews were conducted, one via telephone, and three via email communication. Interview questions for participants of the environmental scan can be found in Appendix C; interview questions for participants of the consultation plan can be found in Appendix D. Structured questions were used to obtain information; however, participants also had the opportunity to add any additional information they deemed worthy of contributing.

Data Management and Analysis

Data obtained from the interviews following the environmental scan and consultations at the site of the practicum were transcribed both on paper, as well as through the use of Microsoft Word. Data was then organized through an Excel spreadsheet. As previously mentioned, data was obtained through email responses, and face-to-face and telephone interviews. Participant responses through face-to-face and telephone interviews were recorded by myself as a means of data collection for analysis. Data from each of the above areas of interest were analyzed separately. Thematic analysis was used to analyze the data. Steps that were taken to conduct this analysis included: familiarization of data (transcribing data, reading, and rereading the data); identifying initial codes (coding interesting features of the data systematically into Excel); searching for themes (placing codes into potential and actual themes); reviewing themes (determining whether or not the themes work); defining and renaming themes (revision and enhancement of specific themes); and final analysis, which will be presented in the consultation report (DeChesnay, 2014).

Ethical Considerations

In terms of ethical considerations, a completed copy of the Health Research Ethics Authority Screening Tool can be found in Appendix E. Because the sum of Line B of the tool is greater than Line A, it was determined that the proposed project is most likely of a quality or evaluation purpose and did not require approval from a Research Ethics Board (Memorial University of Newfoundland, 2017). Permission to proceed with the proposed practicum project had previously been obtained from management of the obstetrical unit at the Queen Elizabeth Hospital. In the emails that were sent out to participants, it was indicated that voluntary participation will be assumed if responses to questions are received via email correspondence, or if the participant agrees to an interview. It was also stated that participants could withdraw their participation at any time, and that they had the right to omit questions if they did not wish to provide a response pertaining to a certain topic. In order to maintain confidentiality, there were no names associated with responses obtained (DeChesnay, 2014).

Data was transcribed into Word and Excel and has been password protected; original transcripts and/or emails obtained through hard copy have been kept secure under lock and key (DeChesnay, 2014). Additionally, correspondence via email has been conducted under a secure internet network in order to avoid breach of confidentiality and ensure data security. Any emails obtained onto a smart phone has been password protected. Emails will be deleted to maintain anonymity. Computer firewalls have also been updated regularly to maintain security. Due to the small sample size and professional designations (ie: obstetrical manager, educator, physicians, etc.), maintaining anonymity has proved difficult; however, every effort has been made to achieve this.

Responses have been analyzed without divulging professional designations. Information will be kept for up to three years, where it can then be destroyed; either by shredding or burning of hard copy information. Information stored electronically will be deleted from the device's hard drive (DeChesnay, 2014).

Results: Environmental Scan

The results of the environmental scan of facilities offering orientation programs to labour and birth yielded valuable results. It was somewhat challenging recruiting participants for the environmental scan. As mentioned above, contact was sought for five hospitals in the Maritimes and Eastern Canada. It was alluded to in the letter of participation that a response indicated agreement for participation; therefore, it was understood that no response indicated a decision to not participate. Because many policies and procedures at the practicum setting are guided by the IWK Health Centre, a response from this facility was desired if at all possible. Therefore, when a response was not obtained initially, additional individuals were sought and a response was obtained. Moreover, when initially posting on the CAPWHN forum under labour and birth, requesting participation in the environmental scan, very little interest was expressed. I then also posted under the educator forum and received responses. Finally, even though I did not receive a response from Mount Sinai Hospital, I did receive a response from Humber River Hospital in Toronto, Ontario; as well as a response from a coordinator at the Champlain Regional Program in Eastern Ontario. An educator from The Ottawa Hospital provided clarification for a couple of responses to questions provided by the participant from the Champlain Regional Program, which pertained to evaluation of orientees and length of preceptorship.

In terms of findings from the environmental scan, all five respondents indicated that registered nurses receive orientation to labour and birth. Length of orientation varied between four weeks and six weeks; depending on the facility and level of experience of the orientee. Cross-training to mother-baby care and/or special care nursery was conducted at three of the facilities. For another, mother-baby care and the birthing unit were separate. For the regional program, it depended on the level of the hospital; level one and two hospitals may cross-train, whereas level three would not. None of the facilities required courses prior to beginning orientation; however, courses such as neonatal resuscitation, fetal health surveillance, period of purple crying (education pertaining to normal newborn crying and shaken baby syndrome), and breastfeeding were recommended upon hire. All respondents indicated that learning modules were used within their programs; two also indicated the incorporation of classroom teaching in their orientation programs as well. Learning modules were either developed by individual facilities or used provincially. Permission was obtained from two facilities to use or adapt existing modules. In terms of simulation, one facility indicated that simulation was used for learning, but not for evaluation. Another respondent indicated that their facility does use simulation for evaluation, stating that it provides a safe environment for learning; the facility was in the process of purchasing a new simulator. Moreover, other facilities indicated that they use simulation for courses such as neonatal resuscitation and through interdisciplinary mock codes, but not specifically for labour and birth orientation evaluation purposes. One respondent specified that it was difficult to integrate the use of simulation, as the facility did not have the appropriate equipment/learning mannequins facilitate this.

Of the five respondents who participated, all indicated a significant orientation process was conducted through 1:1 preceptorship with an experienced labour and birth nurse. Competency was evaluated through a variety of methods; the use of competency skill checklists completed by the orientee and the preceptor was one of the predominant method of evaluation, which may or may not be reviewed by a nurse manager or educator. In addition, completion of specific skills or learning objectives were identified in order to measure competency; including completion of five successful vaginal examinations, completion of one to two births with a physician, completion of fetal health surveillance course and all learning modules, and ability to manage care for mother and baby from admission to transfer from labour and birth. One facility specified that competency was identified by combined experiences in labour and birth, as well as feedback from the preceptor and self-evaluation completed by the orientee. Finally, one respondent emphasized the importance of completing a self-evaluation prior to orientation in order to identify learning needs. When asked about remediation practices in existing labour and birth orientation programs, respondents indicated that additional support is offered through development of learning plans, additional preceptorship shifts, and review of knowledge content; for example, reviewing or completing learning modules again. Support is sought from managers and educators, and professional practice is addressed if needed. One facility highlighted their 420 hour probation period

Results: Consultations

As with the results from the environmental scan, responses obtained from the consultations conducted at the setting for the practicum proved to be worthy of consideration for the proposed labour and birth orientation program. A total of eight

face-to-face interviews were conducted, as well as one interview via telephone, and three responses via e-mail. In total, twelve individuals were consulted at the site of the practicum; including unit leaders, staff nurses who had acted as preceptors, and staff nurses who had been recently orientated to labour and birth within the last three years. In addition, two physicians participated in the consultation; one of whom was approached regarding participation at various points throughout the process and did ultimately provide a response.

In terms of benefits of the existing labour and birth orientation program, it was acknowledged that the appointment of an experienced preceptor over a six week orientation period was of significant value. Respondents reported that it is predominantly the same preceptor throughout the orientation period; but this may not always be the case. It was indicated that one preceptor during the preceptorship was preferred; both to benefit the orientee in terms of consistency, as well as the preceptor who is to evaluate the learner. One individual, however, did state she had two preceptors who "did things differently", and hence was able to learn different strategies in the setting. Additionally, there were comments regarding the benefit of the two classroom days, in an effort to acquire labour and birth knowledge before beginning the preceptorship; as well as a post-test at the end of orientation. There has also been a workshop day offered at the facility focusing on obstetrical emergencies and management that participants deemed beneficial.

Interestingly, two respondents who have been practicing for a number of years shared the fact that they did not receive an orientation when beginning in the area, or had received a lesser orientation that what is currently offered. Hence, it was stated that the fact that the facility offers orientation is a benefit. Additionally, two respondents shared

that they were unsure of what the current orientation process is, as it seems to change or vary quite frequently. One respondent stated she has seen variations to the program including a pre-test and/or post-test, as well as differences in time offered during preceptorship, such as a week or weeks of eight hour day shifts during the six week period; versus twelve hour day and night shifts over the six weeks. Other respondents commented on the variations of shifts offered during orientation; some commented that there was benefit to the eight hour shifts from Monday to Friday, as they are able to participate in the clinic work of labour and birth, as well as prioritize patients who presented. Others, however, felt that the week of eight hour days took away from the experiences with labouring women and was not very beneficial. One respondent suggested that a week of eight hour days be completed at the end of orientation, to focus on the clinic work as well taking on the role of the baby nurse; a role that respondents felt is often neglected during orientation or left until the very end, meaning orientees do not receive a great deal of experience with this role. Finally, respondents commented how the orientation allows for hands on experience that allows them to "see it, learn it, do it", while also allowing them to become familiar with the physical space of the department. Finally, one respondent commented that the orientation and preceptorship allows orientees to realize that the setting is one in which they must "think on their feet" and recognize the "roller coaster" of labour and birth; a setting that can be "busy, happy, sad, and intense".

In terms of limitations to the program, participants indicated that there is a lack of consistency and continuity of information for orientees prior to beginning their labour and birth preceptorship. It was stated that "more emphasis needs to be placed on basic

knowledge and theory before starting the preceptorship". Additionally, it was acknowledged that orientees need to be made aware of the expectations of orientation prior to beginning the program. All respondents supported the use of learning modules for a future program and felt the incorporation of such would be beneficial; one individual stated that learning modules would be "great way to improve continuity and consistency" of information provided. The incorporation of case studies was also suggested by a few respondents. One participant indicated that there is no need to "reinvent the wheel", that there are modules available from other facilities that could be easily adapted, and what is not can be developed for the site using clinical practice guidelines that are readily available. Other suggestions of resources that could be incorporated included textbooks and nursing policies/guidelines. Another common theme in terms of limitations included the lack of availability for pertinent courses required to work in labour and birth; primarily fetal health surveillance, neonatal resuscitation, and ALARM (Advances in Labour and Risk Management). There was concern expressed by staff over the legality of practicing in labour and birth without having fetal health surveillance; currently the course is only offered once a year, and until then orientees review the course book and learn to interpret fetal heart tracings from their preceptor. It was suggested that some form of formal teaching on fetal heart rate tracings that are consistent with the newest guidelines be incorporated.

When discussing the preceptorship aspect of orientation, it was expressed by one respondent that attention should be placed on choosing an appropriate preceptor; it has been observed that nurses with only a couple years of experience have been chosen as a preceptor, which may not be ideal. It was suggested by two participants that every effort

should be sought to ensure an orientee is paired with an experienced nurse during the preceptorship, as well as experienced staff following orientation. Additionally, there needs to be mechanisms put in place to ensure the preceptor is sharing appropriate and accurate information; as it has been observed that this is not always the case. It was suggested that preceptorship should be dedicated to a select number of staff to improve consistency and continuity of the process. Moreover, while there is benefit to the six week preceptorship in terms of continuity, it is often a "fly by night" experience, as the orientee learns what they have been presented with in practice, but not necessarily how to manage other situations and/or obstetrical emergencies that they were not exposed to during orientation. Additionally, another respondent indicated that the current program relies heavily on the preceptor's opinion to determine competency of the orientee; hence this places a lot of pressure on the preceptor. Therefore, it was put forth that more objective data is needed to evaluate competency at the end of orientation. Finally, it was suggested that a preceptor should not initially be accounted for as core staff during the initial days of the preceptorship. It was stated that it is difficult to facilitate orientation during the first few days when preceptors are expected to take on a patient assignment, and may not have the opportunities to explain the basics of the department to the orientee; such as layout and routines. Finally, it was suggested by one participant that some sort of recognition or reward should be offered to preceptors, as there is often a great deal of work and effort put into the process.

In terms of key learning objectives, it was stated that basic labour and birth knowledge that demonstrates the ability to safely assess, plan, implement, modify, and evaluate the plan of care for women presenting with varying chief complaints, including

labour, was of importance. Additionally, knowledge surrounding the stages of labour, induction protocols, pregnancy loss, pain management, hypertension in pregnancy, management of eclamptic seizures, preterm labour and birth, and twin pregnancies were deemed to be key learning needs. Furthermore, there was an emphasis placed on the need to be able to manage high risk obstetrical emergencies and to be able to "identify the abnormal"; all while recognizing who needs to be contacted in a timely manner and accessing equipment and protocols specific to the setting. Moreover, ability to facilitate a healthy, normal birth if a physician was not present was deemed as a key learning objective, as well as knowing and recognizing when to ask for help. Skills such as vaginal examinations were deemed as important, as well as the ability to provide a concise, accurate report to physicians; it was suggested that practice reports during orientation may be of benefit. Ability to interpret fetal heart rate tracings and ability to manage the clinic aspect of labour and birth were also key learning objectives. Finally, ability to conduct oneself in a professional manner, prioritize care, communicate effectively, multi-task, act as an effective member of the team, and feel comfortable and confident in one's ability were all deemed important outcomes for a new orientee to labour and birth. There was a common theme among newer staff working in labour and birth that one should not be expected to act as an "experienced" nurse from the get go, which has been the experience of some in the past. It was suggested that staffing ratios should be increased to allow a new staff the opportunity to gain experience, while having adequate support from senior staff. It was also stated that orientation should be long enough so that the new orientee feels comfortable in the setting.

In terms of evaluation of an orientee for competency for independent practice, it was acknowledged that the current written exam completed at the end of orientation was of some benefit, but that it should not be the only form or evaluation. An oral exam was suggested, as well as case studies, tests following learning modules, a self-evaluation completed by the orientee, and an objective structured clinical examination (OSCE). Midpoint evaluations were suggested, in an effort to evaluate competency in a timely manner. Feedback from preceptors was also deemed as an important method of evaluation; although one respondent suggested it can often lead to "opinions" from the preceptor and other staff as opposed to objective feedback. It was further suggested that the skills list currently used by the preceptor and orientee be re-developed to capture knowledge and skills that are completed or demonstrated each shift. The skills list, as suggested, should also have a narrative space available for the preceptor and orientee to document strengths and weakness identified each shift, which can be built upon throughout the orientation process. It was also proposed that feedback from other team members, such as obstetricians could be sought. Furthermore, all participants indicated that the use of simulation at the end of orientation would be a beneficial method of evaluating competency of the orientee; one participant commented that simulation "adds a component of stress that more realistically mimics real life scenarios". This participant also commented that high-fidelity simulation may not be needed to facilitate this; emphasis was placed on incorporation of some sort of model or simulator as well, as incorporation of team members into the scenario. It was suggested that simulation be used following orientation at least yearly, and that it involve a multidisciplinary approach so

that all disciplines know their roles and the roles of others during obstetrical situations that may arise.

In terms of remediation, it was stated by one respondent that the facility has struggled with this issue in the past, and that a clear process needs to be implemented to address it. It was clear that early identification of challenges or concerns was important. It was suggested that frequent meetings with the nurse manager or educator, for example at the beginning, midpoint, and near the end of orientation would be beneficial in identifying any concerns. Additionally, it was noted that there is a difference between an individual who may need more hands-on practice or knowledge acquisition in the setting, versus an individual who is unsafe. It was also stated that sometimes concerns from the preceptor may not be tangible in terms of skills, but may be issues related to trust or learning disabilities that may be more difficult to remediate. Moreover, one participant stated that the "emotion needs to be taken out of it, you cannot be friends with the preceptor; the student [orientee] needs to be told you are not meeting expectations and this is why". Regardless, once identified, it was suggested that a learning plan be put into place to help address the needs of the orientee. The learning plan may include specific objectives that can be attempted to be remediated through knowledge review, such as completing specific learning modules again, and/or a longer preceptorship. It was suggested that there be a specific timeframe identified, by which the orientee must be able to demonstrate competency in areas of concern that were identified. Finally, one participant stated that if there are areas of concern, it might be best to end the orientation and try again at a later time.

Conclusion

In conclusion, the environmental scan that has been conducted at other facilities providing labour and birth orientation, as well as the consultations that were conducted at the setting for the proposed practicum, have provided valuable information that will be used throughout the development of the labour and birth orientation program. Results from a literature review previously conducted has validated the importance of orientation programs in health care; as well as the use of learning modules, simulation, and consideration for remedial processes within programs. Input from various facilities, as well as multidisciplinary staff at the setting for this practicum have further supported such constructs for the proposed program. In particular, the feedback obtained has justified the incorporation of learning modules into the proposed program, with specific learning needs of new orientees identified. Use of modules from other facilities will be sought moving forward, and those that are unable to be obtained will be developed. Furthermore, methods of evaluation of the orientee will be redeveloped.

As indicated throughout the consultations, use of simulation has been supported as a beneficial means of evaluating orientees for competency for independent practice; this will be implemented in the new program upon purchase of a simulator. Additionally, other methods of evaluation, including self-assessments and/or pre-tests for orientees at the beginning of orientation, post-tests and case studies following completion of modules, written test following preceptorship, and re-development of a skills list to be used during the preceptorship will be developed as part of the orientation program. Moreover, a process for remediation of staff experiencing challenges during the labour and birth orientation program will be identified. In terms of length of orientation, the current

length of the six week orientation program will be considered moving forward, as it within the range of what other facilities offer; between four weeks and six weeks, as well as the findings from the literature; ranging between under four days to twenty weeks. Finally, there has been significant findings in the literature that has discussed the critical role preceptorship plays in the orientation process. This has also been identified through the environmental scan and consultations. Degree of experience will be considered moving forward for preceptors, as well as guidelines for expectations from the preceptor, in an effort to improve consistency in the new program. The data obtained from the consultations and environmental scan have been crucial to the development of the proposed program, and will continue to be essential moving forward.

References

DeChesnay, M. (2014). *Nursing research using data analysis: Qualitative designs and methods in nursing.* New York: Springer Publishing Company. Retrieved from http://www.ebrary. com.proxy.library.upei.ca

Memorial University of Newfoundland. (2017). Plan for consultation template. Retrieved from https://online.mun.ca/d2l/le/content/235246/viewContent/2129907/View

Peltokoski, J., Vehviläinen-Julkunen, K., & Miettinen, M. (2015). Newly hired nurses' and physicians' perceptions of the comprehensive health care orientation process: A pilot study. *Journal of Nursing Management, 23*(5), 613-622. doi:10.1111/jonm.12187

Appendix A

Email Inquiry: Participants of Environmental Scan

To whom it may concern,

My name is Katelyn Smallwood and I am a Master's of Nursing student at Memorial University of Newfoundland. I am currently completing my practicum component of the program, where I am seeking to re-develop a labour and birth orientation program at the Queen Elizabeth Hospital in Charlottetown Prince Edward Island. As part of an environmental scan I am completing, I am requesting information related to labour and birth orientation programs from facilities that provide this service. Your participation through providing such information would be greatly appreciated.

I have attached interview questions that you can complete at your convenience. Due to time constraints, I am **requesting responses be returned within seven days from today** in order to move forward with the project. Please note your participation is completely voluntary, and completion of these questions will indicate your participation. However, you can withdraw your participation at any time. If there is a question(s) you wish to not answer, please omit. Also, please note that all efforts will be sought to ensure confidentiality and anonymity of responses you provide.

Again, I very much appreciate your consideration in participating in the re-development of a labour and birth orientation program. Please know your responses will be extremely valuable moving forward with this project. If you have any questions, please feel free to contact me via email or telephone at my contact information below.

Kind regards,

Katelyn Smallwood

email: kts665@mun.ca

phone: 902-213-6555

Appendix B

Letter of Information: Participants of Consultation Plan

To whom it may concern,

My name is Katelyn Smallwood and I am a Master's of Nursing student at Memorial University of Newfoundland. I am currently completing my practicum component of the program, where I am seeking to re-develop the labour and birth orientation program here, at the Queen Elizabeth Hospital. As part of a consultation plan I am completing, I am requesting input related to the benefits of the current program, as well as how the orientation process can be improved. Your participation through providing such information would be greatly appreciated.

If you agree to participate, I can conduct interviews either face-to-face, or provide the questions via email; whichever is of more convenience for you. Due to time constraints, I am requesting you indicate whether or not you wish to participate **within seven days from today** in order to move forward with the project. Also, please indicate your preferred method of participation (ie: face-to-face or email) and we can make the appropriate arrangements for completion of the interview. Please note your participation is completely voluntary and you can withdraw your participation at any time. If there is a question(s) you wish to not answer, this/these can be omitted. Also, please note that all efforts will be sought to ensure confidentiality and anonymity of responses you provide.

Again, I very much appreciate your consideration in participating in the re-development of the labour and birth orientation program. Please know your responses

will be extremely valuable moving forward with this project. If you have any questions, please feel free to contact

me via email or telephone at my contact information below.

Kind regards,

Katelyn Smallwood

email: kts665@mun.ca

phone: 902-213-6555

Appendix C

Interview Questions for Participants of Environmental Scan

Structured interview questions sent via email will include:

1) Do registered nurses who work in labour and birth receive an orientation to the area?

2) Are registered nurses cross-trained to mother-baby care and/or gynecology and/or any other nursing area? If so, are they required to be trained in these areas before labour and birth?

3) Are there any requirements your staff must meet before beginning labour and birth orientation (ie: completion of courses?); if so, what are they?

4) What is the length of labour and birth orientation at your facility?

5) What orientation processes do you follow at your facility?

6) Do you use learning modules at your facility, and if so, what topics are covered?

7) If you do use learning modules, where have you obtained these? If developed at your facility, could permission be sought to utilize and/or adapt these modules?

8) What are your methods of evaluation of the orientee during and post labour and birth orientation?

9) What are your processes of remediation during and post orientation for staff who have had challenges with the orientation process?

10) Do you use simulation in your facility as a method of evaluating orientees, and if so, do you find this process beneficial for evaluating competency and readiness for independent practice?

11) How do you deem a registered nurse competent for independent practice in labour and birth?

12) Are there any additional components of the labour and birth orientation program at your facility that you might deem useful or beneficial for the proposed program to be developed?

Appendix D

Interview Questions for Participants of Consultation Plan

1) What are some benefits of the current labour and birth orientation for registered nurses at the Queen Elizabeth Hospital (QEH)?

2) How can the current labour and birth process at the Queen Elizabeth Hospital be improved?

3) What are key learning objectives or learning needs for new registered nurses being orientated to labour and birth?

4) What are some methods of learning that could be beneficial for the new program? Do you believe learning modules as a means of presenting consistent labour and birth information would be beneficial? Why or why not?

5) How do you think registered nurses could be evaluated for competency or readiness for independent practice in labour and birth? Do you think simulated labour and delivery scenarios could facilitate this? Why or why not?

6) How do you think nurses who require remediation should be identified during orientation? What processes would be beneficial to: a) identify orientees who require remediation, and b) facilitate remediation?

7) Do you have any further suggestions or ideas that may be worthy of considering for the proposed labour and birth orientation program?

Appendix E

Health Research Ethics Authority Screening Tool

	Question	Yes	No
1.	***Is the project funded by, or being submitted to, a research funding agency for a research grant or award that requires research ethics review?***		☑
2.	***Are there local policies which require this project to undergo review by a Research Ethics Board?***		☑
	If YES to either of the above, the project should be submitted to a Research Ethics Board. ***If NO to both questions, complete the checklist.***		
3.	***Is the primary purpose of the project to contribute to the growing body of knowledge regarding health and/or health systems that are generally accessible through academic literature?***		☑
4.	***Is the project designed to answer a specific research question or to test an explicit hypothesis?***		☑
5.	***Does the project involve a comparison of multiple sites, control sites, and/or control groups?***		☑
6.	***Is the project design and methodology adequate to support generalizations that go beyond the particular population the sample is being drawn from?***	☑	
7.	***Does the project impose any additional burdens on participants beyond what would be expected through a typically expected course of care or role expectations?***		☑
	LINE A: SUBTOTAL Questions 3 through 7 = (Count the # of Yes responses)		
8.	***Are many of the participants in the project also likely to be among those who might potentially benefit from the result of the project as it proceeds?***	☑	
9.	***Is the project intended to define a best practice within your organization or practice?***		☑
10.	***Would the project still be done at your site, even if there were no opportunity to publish the results or if the results might not be applicable anywhere else?***	☑	
11.	***Does the statement of purpose of the project refer explicitly to the features of a particular program, organization, or region, rather than using more general terminology such as rural vs. urban populations?***	☑	
12.	***Is the current project part of a continuous process of gathering or monitoring data within an organization?***		☑

	LINE B: SUBTOTAL Questions 8 through 12 = (Count the # of Yes responses)		

(Memorial University of Newfoundland, 2017)

Appendix C

Permission for Use:

Fetal Health Surveillance Learning Module: BC Provincial Health Services Authority

Fetal Health Surveillance Modules

Smallwood, Katelyn Theresa <kts665@mun.ca> May 23

to phsacomm

Hello,

I am wondering who I may be able to contact re: permission to use your fetal health surveillance modules as part of a re-development of the labour and birth orientation program at the Queen Elizabeth Hospital in Charlottetown, PEI. Any assistance you could provide me would be greatly appreciated.

Kind regards,
Katelyn Smallwood

PHSA Communications <phsacomm@phsa.ca> May 24

to Melanie, me

Hi there
Our Fetal Health Course is available on the Internet and is free of charge for anyone to use. The content is geared towards our institution as it reflects the policies of BC Women's hospital, but it is evidenced based and in alignment with the national guideline.

Copied here is our Senior Practice Leader – Perinatal for BC Women's Hospital and Health Centre.

Thanks for asking,
PHSA Communications

From: Smallwood, Katelyn Theresa [mailto:kts665@mun.ca]
Sent: Tuesday, May 23, 2017 5:36 AM
To: PHSA Communications
Subject: Fetal Health Surveillance Module

Permission for Use:

Core Nursing Competencies: BC Perinatal Services

Katelyn Smallwood **<ksmallwood@upei.ca>** Jun 27

to Janet

Hello Janet,

I just wanted to follow up re: our communication regarding inclusion of the core nursing competencies from your BC perinatal document.

I have attached the document I have developed and have utilized your competencies in their current form. I have acknowledged your document as the source for these competencies. They are outlined in pages 26-32 in the program outline attached. If you could advise whether or not I have appropriately captured the permission to use these competencies throughout the document, it would be greatly appreciated. If not, I am wondering what would be further required to include these.

I appreciate your assistance and resource in helping to develop my labour and birth orientation program outline.

Kind regards,
Katelyn Smallwood

Walker, Janet E. [Prov Lead] **<jwalker@phsa.ca>** Jul 11

to me

Great resource Katelyn, thanks for letting me see it. It looks fine the way it is. Janet

Janet E. Walker, RN, MSN
Perinatal Services BC
Phone: 604.877-2121 ext. 223777
Email: jwalker@phsa.ca
Web: www.perinatalservicesbc.ca
Follow us on Twitter @perinatalbc

From: Katelyn Smallwood [mailto:ksmallwood@upei.ca]
Sent: Tuesday, June 27, 2017 1:46 PM

Appendix D

QUEEN ELIZABETH HOSPITAL

LABOUR AND BIRTH

ORIENTATION PROGRAM OUTLINE

Developed by:
Katelyn Smallwood RN BScN

INTRODUCTION

This labour and birth orientation program was developed for Registered Nurses at the Queen Elizabeth Hospital in Charlottetown, Prince Edward Island. This evidence-based program has been developed in an effort to provide consistency and continuity of information presented during orientation, while encompassing various learning styles and methods of evaluation. There is also support for the learner through the ongoing self-evaluation and evaluation from the preceptor which is required, follow-up with the unit manager and/or educator regarding progress, and remedial processes when required. It is expected that all orientees will participate in the program as it is presented in this document. This outline will highlight the phases of the QEH labour and birth orientation program.

Front cover picture obtained from Wikimedia Commons
Free image by Andres Nieto Porras- Líneas de unas horas de vida/baby feet a few hours after birth (public domain). Link provided below:
https://commons.wikimedia.org/wiki/File%3AL%C3%ADneas_de_unas_horas_de_vida_(5539855844).jpg

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PHASE 4: REMEDIATION (IF INDICATED)

PHASE 1: ORIENTEE SELF-STUDY

PRETEST:

A pretest will be competed **one (1) week** prior to when the orientee will commence the learning modules for the program, and **five (5) weeks** prior to the orientee beginning the preceptorship. It is expected that the orientee will complete this pretest independently and submit to the clinical nurse educator upon completion. It is also expected that the orientee will draw upon his/her experience from mother-baby and antepartum care, of which he/she will have practiced prior to commencing labour and birth orientation. Additionally, the orientee should refer to online policies and procedures, orientation manuals, and other available resources on the unit.

Once the nurse educator has reviewed the pretest, the results will be reviewed with the orientee. This is meant to guide the orientation needs of the orientee and develop specific areas for knowledge acquisition prior to

completion of learning modules. There will not be a grade associated with the pre-test.

LEARNING MODULES:

Upon completion of the pre-test and review with clinical nurse educator, the orientee will commence the learning modules. It is expected that the orientee will commence the learning modules **four (4) weeks** before the preceptorship will begin. Modules will be provided to the orientee on a jump drive, therefore the orientee will have access to the modules at their convenience; such as at the work site when time permits or at home. One module, on fetal health surveillance, will be accessed online through the BC Provincial Health Services Authority.

The labour and birth learning modules will cover the following topics:

1. **Fetal Health Surveillance**

   (***Link:*** https://learninghub.phsa.ca/Courses/2387/fetal-health-surveillance-recertification-course-online)

2. **Assessment of labour**

3. **Process of birth and stages of labour**

4. **Induction and augmentation of labour**
5. **Modes of birth: Spontaneous vaginal birth, assisted vaginal birth, and Caesarean birth**
6. **Supportive care and pain management options in labour**
7. **Immediate care of the newborn**
8. **Pre-labour Rupture of Membranes (PROM) and Group B Streptococcus**
9. **PPROM and premature labour and birth**
10. **Postpartum hemorrhage**
11. **Hypertensive disorders in pregnancy**
12. **Complications: Placenta previa, placenta accreta, placental abruption, uterine inversion, uterine rupture, and trauma**
13. **Umbilical cord prolapse and breech presentation**
14. **Gestational diabetes and shoulder dystocia**
15. **Management of twins**
16. **Miscarriage and perinatal loss**

It is expected that all learning modules will be completed within the allotted **four (4) weeks** prior to commencement of the preceptorship. There will be a short quiz to be completed at the end of each quiz; except

for the fetal health surveillance module as there are quiz questions built within this module. All quizzes are to be submitted to the clinical nurse educator upon completion of all learning modules. The orientee must obtain at least **80% (percent)** on **each** quiz. If the orientee does not do so, he/she must repeat the module and quiz again.

The orientee should note that he/she is required to complete courses that are offered through the institution that relate to labour and birth and/or newborn care. These courses primarily include Fetal Health Surveillance, Neonatal Resuscitation (NRP), and Advances in Labour and Risk Management (ALARM). Please note that these modules in no way replace the content of, or knowledge acquired from these courses, but rather are used as a means of presenting information required for labour and birth orientation. Contact your clinical nurse educator to access the required courses when offered.

POST-TEST:

A post-test will be completed **within one (1) week** prior to when the orientee will commence the preceptorship. It is expected that the orientee

will complete this post-test independently and submit to the clinical nurse educator upon completion. It is also expected that the orientee will draw upon his/her knowledge obtained through completion of the learning modules.

Once the clinical nurse educator has reviewed the post-test, he/she will review the results with the orientee. The orientee must obtain a grade of at least **80% (percent)** on the post-test before commencing the preceptorship. If the orientee fails to do so, areas for review will be identified by the orientee and clinical nurse educator. The orientee must then repeat the learning module(s) that address the gaps in knowledge and review with the clinical nurse educator before proceeding to labour and birth for preceptorship.

PHASE 2: PRECEPTORSHIP

CHOOSING A PRECEPTOR:

Choice of preceptor will be decided in collaboration between the unit nurse manager, clinical leader, and clinical nurse educator. Every effort should be made to ensure that the orientee is paired with an experienced labour and birth registered nurse. The preceptor should have a minimum of **five (5)** years labour and birth experience (Jeangsawang, Malathum, Panpakdee, Brooten, & Nityasuddhi, 2012). Additionally, every effort should be made to ensure and appropriate preceptor is chosen based on previous performance in the clinical practice setting, ability to demonstrate role modelling in the clinical setting, and adherence to patient care standards of the facility (Sorrentino, 2013).

LENGTH OF PRECEPTORSHIP:

The length of preceptorship will consist of **twenty (20)** twelve hour shifts over a six week period. Any additional allotted time will be decided in collaboration with the unit nurse manager, preceptor, and orientee.

PRECEPTORSHIP PROGRESS RECORD:

A preceptorship progress record will be provided to each orientee and preceptor, and it is expected that it will be completed in collaboration between both the orientee and preceptor. The progress record will be completed **each shift** and summarize what has been completed and experienced by the orientee. It is also expected that both the orientee and the preceptor identify areas of strengths and areas for improvements for the orientee following each shift. Additionally, a list of skills and areas of knowledge relevant to the labour and birth setting will be provided at the

end of the progress record (adapted from the former program). A copy of the progress record will be found in the subsequent pages.

QUEEN ELIZABETH HOPSITAL:

LABOUR AND BIRTH

PRECEPTORSHIP PROGRESS RECORD

NAME OF ORIENTEE: _____

NAME OF PRECEPTOR: _____

DATES OF PRECEPTORSHIP: _____

PRECEPTORSHIP PROGRESS RECORD

Date: _____

Summary of experiences/skills/learning by the orientee:

Strengths and areas for improvement identified by the orientee:

Strengths and areas for improvement identified by the preceptor:

The following skills and labour and birth topics/areas of knowledge can help guide your daily summary of progress:

Skills/Knowledge
Admission to Birth Unit (L&B)
Perinatal Assessment & Triage Form
Antenatal record
Nursing history
Vital signs
FHR (auscultate)
Reflexes
Urine test (Protein, glucose, ketones)
Venipuncture (CBC, Group & Screen, X-match)
Lab data
Fundal height
Leopold maneuver
Group B Strep Status
Public Health Referral Form
Assessment of labour
Stages of Labour (normal progression)
Contractions

Membranes Nitrazine paper Assist with Sterile Speculum
Vaginal Exam Accuracy Appropriateness Cervical dilatation & effacement Stations & position
Notify Physician
Documentation
Chart Forms
Admission Hx on Cerner
Fetal Health Surveillance
Intermittent Auscultation (IA)
Frequency during labour stages
Electronic Fetal Monitoring
Applying Toco
External Ultrasound transducer
Internal Scalp electrode
Interpretation & Intervention(s)
Accelerations
Variability Absent/Minimal Moderate Marked
Decelerations Early Variables Late

Classification Normal Atypical Abnormal
Documentation
Assessment of vital signs during labour
Intake & Output
Nutrition & Hydrations during active labour
Pain Management
Comfort measures Breathing Positioning Support
Nitronox Indications Proper use
IM analgesics
Epidural
Assisting with procedure
Monitoring following Top ups PCA
Removal of catheter
Induction & Augmentation
Indications/Contraindications
Bishops Score
Initiate IV

Preparing medication
Use of IV pump
Monitoring
Nursing care during infusion
Complications
Cervical ripening Indications Care following insertion Pt teaching
Preparing for Birth
Coaching mother
Pushing
Monitoring during 3rd stage
Notify physician
Medications to mother
Preparing for infant Warmer ready Suction Oxygen Blankets Stethoscope
Cord gas Cord blood
Documentation
Care of the Newborn
Use of warmer(s)
Infant resuscitation cart

Initial Care of the Infant Skin to Skin or warmer
Drying/changing blankets Assess respirations Assess heart rate
Indications to suction Use of: suction on warmer bulb suction
Bag & Mask Ventilation
T-piece Resuscitator Use Location
Free flow oxygen
Indications for Narcan Administration of Narcan (dosage/route) Contraindications for Narcan
Meconium Birth Equipment needed Who should be at delivery
Apgar score
Identification of Newborn
Notify pediatrician, RT, nursery (if necessary)
Care Following the Birth
Postpartum Assessment Fundus Lochia Episiotomy Vital signs Bladder
Pain control
Peri care
Assist with breast feeding

Complications Postpartum bleeding Haematoma Cervical tear
Completion of chart
Transfer of mother/baby to unit
Complications & High Risk Situations
Diabetes in Pregnancy Complications Insulin Infusion Monitoring blood sugars
Hypertension in Pregnancy
Signs & Symptoms
Maternal Complications
Fetal Complications
Magnesium Sulfate
Indications
Preparing IV
Bolus and Infusion
Monitoring
Complications
Lab work
Preterm Labour Assessment of uterine activity
Tocolysis: Adalat Protocol

Fetal Fibronectin
MgS04 for Fetal Neuroprotection
Antenatal Corticosteroids
Intrauterine Growth Restriction Possible Causes Complications
Twin Pregnancy Monitoring Extra equipment/resources
Location of birth Complications
Abruptio placenta Prepare for stat C-Section Who to call
Prolapse Cord Interventions Prepare for stat C-Section Who to call
Placenta Previa
Antepartum Hemorrhage
Shoulder dystocia
Signs
Nursing interventions Positioning of mother
Monitoring FH
Neonatal team
Assisted Vaginal Birth Location of Vacuum Location of Forceps Management of 3rd stage of labour
Hemorrhage

Nursing interventions
Massage fundus
PPH Tray
Medications i.e. Oxytocin Ergot Hemabate
Bakri balloon
PPH record
Retained placenta Nursing Interventions
Emergency C-Birth Indications Notify personal
Lab work Preparing Consent OR checklist (Cerner)
Transport to another institution Ambulance Air
Care of the Stillborn Infant ***(Refer to SB Binder)***
Policy Care of the infant Swabs to take Identification of infant, footprints Support for parents Documentation and forms to complete
Ambulatory Patients
Non-stress test Classify Nursing Interventions
Inpatient Documentation

Outpatient Documentation
Biophysical Profile
Assessing Labour
Assisting with sterile spec
Birth Room setup clean up care of instruments case cart(s)
Equipment & Supplies use &/or location
Oxygen portable tanks (on & off)
Nitronox tanks
Panda Warmer
Infant scales
Emergency Delivery Cart & Tray
SPD carts
Instrument cart
Epidural cart/IV cart
Medication Cupboard
Crash Cart
MgSO4 Box
Labour & Delivery beds, stirrups
Monitors using loading paper

Communicating Well With Physicians Coworkers Families Other supports
Resources: ALARM book Online P&P Online SOCG guidelines Fetal Health Surveillance Book Procedure kardex NRP book Orientation manual Learning modules

SUPPORT DURING PRECEPTORSHIP:

Throughout the preceptorship, the orientee and preceptor will meet with the unit nurse manager who will monitor progress during this process. The first meeting will take place **three (3) weeks** into the preceptorship. At this time, the nurse manager will review the preceptorship progress record with the orientee and the preceptor. Additionally, a meeting will take place within the final week, **week six (6)** of the preceptorship. At this time, the unit manager will once again review the preceptorship progress record and consider readiness for independent practice of the orientee.

Please note that additional meetings should be sought with the unit manager at any other interval during the preceptorship, if deemed necessary by the preceptor or orientee.

PHASE 3: EVALUATION

SIMULATION:

Upon completion of the preceptorship, the orientee will participate in simulated labour and birth clinical scenarios. High fidelity simulation will be the means through which the simulations are facilitated. It is expected that the orientee will participate in **two (2)** scenarios, simulating real life and/or high risk obstetrical emergencies. The orientee's performance during the simulation will be evaluated by the unit nurse manager, unit clinical leader, and the clinical nurse educator. The orientee must achieve an overall **80% (percent)** in **both** simulations to pass the simulation component of the evaluation. If the orientee fails to do so, he/she must meet with the unit nurse manager to discuss remedial processes.

WRITTEN EXAMINIATION:

Upon completion of the preceptorship, the orientee will complete a written examination. The examination may be written before or after completion of the simulation. The orientee must achieve an overall **80% (percent)** in the written exam. If the orientee fails to do so, he/she must meet with the unit nurse manager to discuss remedial processes.

PRECEPTOR FEEDBACK:

Evaluation of the orientee and consideration for readiness for independent practice will in part be determined by preceptor feedback. Feedback should be given to the orientee on an ongoing basis and should be reflected on the preceptorship progress record. If any concerns arise throughout the preceptorship process, these should be communicated immediately to the orientee through written feedback. Additionally, if concerns persist, these should be brought to the attention of the nurse manager. Preceptor should refer to nursing competencies when evaluating

orientees. Processes of remediation may be considered on a case to case basis.

NURSING PRACTICE COMPETENCIES:

The following nursing competencies have been incorporated from the Perinatal Services BC document ***Guidelines for Registered Nurses Core Competencies and Decision Support Tools: Management of Labour in an Institutional Setting if the Primary Maternal Care Provider is Absent*** (2011). These competencies can be used as a means to assist in the determination of whether a registered nurse may be deemed competent for independent practice, or if he/she requires additional remediation. Orientees may refer to the competencies during orientation in order to identify ongoing learning needs. Additionally, the clinical nurse manager, clinical nurse educator, and preceptors can refer to the competencies throughout the evaluation process of the orientee. Competencies may be

referred to in the event learning plans are required during remediation.

Core nursing competencies can be found in the subsequent pages.

NURSING PRACTICE COMPETENCIES

Assessment

The registered nurse working in labour and birth shall be able to demonstrate **knowledge** of:

- Maternal anatomical and physiological adaptation to pregnancy, labour, and birth
- Psychosocial adaptations of pregnancy and in labour and birth
- Fetal growth and developmental pattern during pregnancy, including placental function and fetal heart rate adaptation
- Comprehensive assessment of fetal well-being including gestational age and fetal growth assessment
- Comprehensive maternal assessment including demographic, obstetrical, medical, surgical, psychosocial, religious, spiritual and cultural factors
- Risk factors for maternal/fetal complications
- Social determinants of health and their impact on access to care and perinatal outcomes
- Process and stages of normal labour and birth
- Process of initiation of breastfeeding
- Assessment for urgent and emergent conditions

The registered nurse working in labour and birth shall be able to demonstrate **skill** in:

- Protecting and supporting the normal labour and birth process

- Providing evidenced based car
- Identifying psychosocial support needs
- Performing a comprehensive assessment of maternal/fetal/newborn wellbeing using a variety of sources
- Assessing fetal heart rate
- Promoting maternal-newborn interaction and attachment behaviors

The registered nurse working in labour and birth shall be able to demonstrate **judgement or reasoning** in:

- Assessing the appropriateness of labour admission
- Identifying maternal-fetal risk factors
- Recognizing the signs, symptoms, and progression of the labour and birth process
- Evaluating progress in labour
- Recognizing normal and variances in fetal wellbeing in labour
- Recognizing the need for transfer or transport to a higher level of care
- Selecting the appropriate method of intrapartum maternal and fetal assessment (appropriate use of technology)

The registered nurse working in labour and birth shall be able to demonstrate appropriate **attitude** by:

- Valuing childbirth as a healthy, normal physiologic event
- Providing Woman-Centered Care
- Respecting the woman's preferences, choice, and cultural beliefs

- Demonstrating self-awareness of own beliefs and values and their impact on perinatal care

Organization, Coordination, and Provision of Care

The registered nurse working in labour and birth shall be able to demonstrate **knowledge** of:

- Methods used to promote labour progress and comfort
- Physical and psychological needs during labour and birth
- Non-pharmacological comfort techniques pharmacologic pain relief options
- Maternal and neonatal levels of care and transport

The registered nurse working in labour and birth shall be able to demonstrate **skill** in:

- Assessing woman's knowledge, expectations of care and capacity to manage her labour and birth
- Using clinical reasoning and judgement in decision making
- Providing a safe physical and therapeutic labour and birth environment in expected and unplanned situations
- Supporting the woman and her support person(s) using therapeutic support measures and providing evidenced based care
- Implementing appropriate comfort measures to the labouring woman
- Monitoring woman's response to pain relief options
- Administering appropriate medications/treatment
- Collecting specimens, and interpreting laboratory data
- Initiating intravenous access

- Facilitating breastfeeding initiation and maternal-newborn interaction
- Performing neonatal resuscitation

The registered nurse working in labour and birth shall be able to demonstrate **judgement or reasoning** in:

- Advocating for spontaneous labour
- Ensuring freedom of movement as a means of promoting normal labour
- Recognizing indications for and effects of non-pharmacological or pharmacological pain relief options
- Selecting appropriate interventions to promote maternal/fetal/newborn wellbeing
- Interpreting laboratory test and ultrasound results and taking appropriate action

The registered nurse working in labour and birth shall be able to demonstrate appropriate **attitude** by:

- Promoting normal labour and birth
- Keeping mother and baby together
- Promoting early skin-to-skin contact
- Demonstrating self-awareness of own attitudes and beliefs about labour support strategies and use of comfort measures and/or pain relief options

Communication and Documentation

The registered nurse working in labour and birth shall be able to demonstrate **knowledge** of:

- Effective and systematic communication
- Documentation and reporting requirements

The registered nurse working in labour and birth shall be able to demonstrate **skill** in:

- Communicating the woman's assessment and care plans with the Primary Care Provider (in a thorough and timely manner)
- Utilize a systematic method of communication
- Using PSBC documentation tools and institutional records

The registered nurse working in labour and birth shall be able to demonstrate **judgement or reasoning** in:

- Appropriate consultations to:
    - Primary care provider
    - Other health care disciplines
    - Referrals to community services
- Guiding the woman through the informed decision-making process
- Providing evidenced based information to the woman and her support person(s)

The registered nurse working in labour and birth shall be able to demonstrate appropriate **attitude** by:

- Demonstrating respect to others
- Celebrating birth
- Respecting the woman's choice
- Discussing with the woman her wishes, concerns and questions regarding birth plans

Urgent and Emergent Maternal/Fetal/Newborn Conditions

The registered nurse working in labour and birth shall be able to demonstrate **knowledge** of:

- Maternal/fetal/newborn urgent and emergent conditions
- Guidelines for maternal/fetal/newborn urgent and emergent conditions

The registered nurse working in labour and birth shall be able to demonstrate **skill** in:

- Initiating appropriate treatment for urgent and emergent conditions
- Effective and timely communication with primary care provider
- Facilitating transfer to another facility
- Keeping mother and support person(s) informed of condition
- Participating in post birth debriefing with the woman and her support person(s)

The registered nurse working in labour and birth shall be able to demonstrate **judgement or reasoning** in:

- Recognizing the onset of urgent and emergent complications

The registered nurse working in labour and birth shall be able to demonstrate appropriate **attitude** by:

- Demonstrating Woman-Centered Care principles

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Pages 3-5

Perinatal Services BC (2011). *Guidelines for registered nurses core competencies and decision support tools: Management of labour in an institutional setting if the primary maternal care provider is absent*. Retrieved from http://www.perinatal servicesbc.ca/Documents/Guidelines-Standards/Standards/Competencies/Core CompMngmentofLabourCompetenciesOnly.pdf

READINESS FOR INDEPENDENT PRACTCE:

An orientee will be deemed competent for independent practice once the following requirements have been met:

1) Successful completion of learning modules and quizzes with an overall **80% (percent)** obtained with each quiz
2) Successful completion of the post-test following learning modules with an overall **80% (percent)** obtained
3) Successful completion of preceptorship with feedback from preceptor indicating readiness for independent practice, while taking into account nursing competencies
4) Successful completion of **two (2)** simulations reflecting real life obstetrical scenarios/obstetrical emergencies
5) Successful completion of the written examination achieving an overall grade of at least **80% (percent)**

PHASE 4: REMEDITATION

(IF INDICATED)

IDENTIFYING NEED FOR REMEDIATION:

Remediation for orientees will be considered on a case-to-case basis. Remediation may be facilitated under the following scenarios:

1) Failure to achieve at least **80% (percent)** in learning module quizzes
2) Failure to achieve at least **80% (percent)** in the post-test following completion of learning modules
3) Situations in which a preceptor deems the orientee is not meeting outlined nursing competencies
4) Failure to achieve at least **80% (percent)** in the simulated obstetrical scenarios
5) Failure to achieve at least **80% (percent)** in the written examination
6) Any other circumstance by which concerns arise regarding the competency or ability for the orientee to practice independently

PROCESS FOR REMEDIATION:

Upon identification of the need for remediation, as per the criteria outlined in the previous section, a meeting with the nurse manager and orientee will be facilitated. At this time, a plan will be developed to help facilitate optimal outcomes for the orientee; this may include further knowledge attainment to facilitate knowledge acquisition, or further practical time under a preceptored experience in the clinical setting. This process will in part, incorporate a learning plan, which will be discussed in the next section. Once a plan has been developed, the clinical nurse educator may be consulted to facilitate further learning opportunities. Remediation techniques may include:

1) Re-doing learning modules and quizzes for areas that were identified as knowledge deficits
2) Completing a classroom day with the clinical nurse educator to review areas that were identified as knowledge deficits

3) Completing practical skills with the clinical nurse educator as a means of review
4) Completing simulated obstetrical scenarios with clinical nurse educator as a means of review
5) Facilitating additional preceptorship shifts with another preceptor assigned by the unit nurse manager

LEARNING PLANS

In the case of remediation, learning plans will be developed in collaboration with the unit nurse manager and orientee. The learning plan will highlight specific nursing competencies that require remediation, goals for remediation process, methods to facilitate remediation, and method and date for re-evaluation of competency of independent practice for the orientee. A template for learning plans can be found on the subsequent page.

Queen Elizabeth Hospital

Labour and Birth Orientation Learning Plan

Name of orientee: _____

Dates of orientation: _____

Nursing competencies requiring remediation:

Goals for remediation:

Methods to facilitate remediation:

Method and date for re-evaluation of competency for independent practice:

EVALUATING READINESS FOR INDEPENDENT PRACTICE POST-REMEDIDATION:

Upon completion of the learning plan, the orientee will follow the plan outlined for remediation. Upon the date discussed between the unit nurse manager and the orientee, a meeting will be facilitated between the two parties to re-evaluate readiness for independent practice. At this time, components from the learning plan will be reviewed; specifically, the method for re-evaluation of competency and readiness for independent practice. The unit nurse manager will have consulted either the clinical nurse educator and/or second assigned preceptor prior to meeting with the orientee to discuss readiness and level of competency.

At this time, the unit nurse manager will review nursing competencies and determine whether or not the orientee is deemed competent for independent practice, requires further remediation, or if the situation requires further interventions from other individuals (i.e.: human resources) when considering competency of the orientee. Further

processes and decisions will be made in accordance with the facility and union procedures and protocols.

References

Jeangsawang, N., Malathum, P., Panpakdee, O., Brooten, D., & Nityasuddhi, D. (2012). Comparison of outcomes of discharge planning and post-discharge follow-up care provided by advanced practice, expert-by-experience, and novice nurses, to hospitalized elders with chronic healthcare conditions. *Pacific Rim International Journal of Nursing Research, 16*(4), 343-360

Perinatal Services BC (2011). *Guidelines for registered nurses core competencies and decision support tools: Management of labour in an institutional setting if the primary maternal care provider is absent*. Retrieved from http://www.perinatalservicesbc.ca/Documents/Guidelines-Standards/Standards/Competencies/CoreCompMngmentofLabourCompetenciesOnly.pdf

Sorrentino, P. (2013). Preceptor: Blueprint for successful orientation outcomes. *JEN: Journal of Emergency Nursing, 39*(5), e83-90. doi:10.1016/j.jen.2012.05.029

Appendix A

Pre-Test/Post-Test

Name: _____ Date: _____

Pre-Test / Post-Test

(circle the applicable test option)

1. What is the difference between labour induction and augmentation? *(2 pts)*

2. List three risk factors where EFM is indicated (3 pts)

3. A woman presents for assessment. You have established fetal well-being. Her contractions are every 8 to 10 minutes lasting 30-40 seconds, mild to palpate. Her cervix is 2 cm dilated, 25% effaced. What would be the expected management and what advice would you give her? *(3 pts)*

4. List the stages and phases of labour; include at which point each stage/phase begins and ends *(5 pts)*

5. List three indications where a Caesarean birth would be indicated at the QEH *(3 pts)*

6. List five options for pain control during labour *(5 pts)*

7. Which of the following options would be the most appropriate option for a woman who ruptured her membranes and is positive for Group B Streptococcus? *(1 pt)*
   a) Administer PO antibiotic prophylaxis and allow the woman 24hrs to see if labour begins spontaneously before arranging an induction of labour
   b) Administer prostaglandin gel to try to induce labour

c) Initiate IV antibiotic prophylaxis and oxytocin induction protocol
d) A or C would be appropriate
e) None of the above

8. List three medications that may be used to help manage postpartum hemorrhage *(3 pts)*

9. List three potential causes of bleeding in pregnancy *(3 pts)*

10. True or False (circle the correct answer) *(1 pt)*

A woman who had a previous classical or T-shaped uterine incision would be eligible for a trial of labour after Caesarean

11. Which of the following statements is true about breech presentation? *(1 pt)*
a) A trial of vaginal breech birth may be performed at the QEH
b) An external cephalic version may be performed in cases of breech presentation if the gestation is less than 34 weeks
c) Complete breech is the most common breech presentation
d) Risk factors for breech presentation include previous breech presentation and if either parent were breech themselves
e) None of the above

12. True or False (circle the correct answer) *(1 pt)*

In the event of maternal trauma, stabilizing the baby is the number one priority

13. What are three risk factors for umbilical cord prolapse? *(3 pts)*

14. True or False (circle the correct answer) *(1 pt)*

An insulin drip is always required in labour for gestational diabetic mothers on insulin

15. What are the signs of a shoulder dystocia? *(3 pts)*

16. What criteria is used to classify a stillbirth? *(1 pts)*

17. Which of the following statements about twin pregnancies is false? *(1 pt)*
    a) Monochorionic-monoamniotic twins are usually born via Caesarean birth between 32-33 weeks gestation
    b) Dichorionic-diamniotic twins are at the highest risk for twin-to-twin transfusion syndrome
    c) Monochorionic-diamniotic twins share the same placenta but each have their own amniotic sac
    d) The perinatal mortality rate for monochorionic-monoamniotic twins is about 50-60%
    e) None of the above

18. What can be used to provide a mechanical option for cervical ripening? *(1 pt)*

19. What do early decelerations indicate? *(1 pt)*

20. What is the indication for the cuddle cot? *(1 pt)*

21. What is the purpose of magnesium sulfate in the treatment of preeclampsia? *(1 pt)*

22. What is the purpose of magnesium sulfate in the treatment of preterm labour? *(1 pt)*

23. A woman presents with bleeding at 22 weeks gestation. What is an important piece of information you would want to know? *(1 pt)*

24. <u>True</u> or <u>False</u> (circle the correct answer) *(1 pt)*

    After three pop-offs, the use of a vacuum should be halted

25. At the time of birth, what are the three questions you want to know in order to guide your initial assessment of the newborn? *(3 pts)*

Appendix B

Pre-Test/Post-Test Answers

Answers /50

Pre-Test / Post-Test

(Circle the applicable test option)

1. What is the difference between labour induction and augmentation? *(2 pts)*
    - ***Induction:*** *Involves the initiation of contractions in pregnant women, who are not in labour, in the effort of achieving a vaginal birth within 24 to 48 hours*
    - ***Augmentation:*** *Involves the implementation of methods to enhance the strength, frequency, and duration of contractions in pregnant women already in labour*

2. List three risk factors where EFM is indicated (3 pts)
    - *Hypertension disorders of pregnancy*
    - *Diabetes in pregnancy*
    - *Antepartum hemorrhage*
    - *Maternal medical disease*
    - *Trauma or MVA*
    - *Morbid obesity (BMI >35-40)*
    - *Reduced or absent fetal movement*
    - *IUGR*
    - *Prematurity*
    - *Oligohydramnios*
    - *Abnormal umbilical Doppler*
    - *Isoimmunization*
    - *Breech presentation*
    - *Significant congenital anomaly*

- *Single umbilical artery*
- *3 or more nuchal loops of cord*
- *Vaginal bleeding in labour*
- *Infection*
- *Previous C-birth*
- *Prolonged rupture of membranes (> 24 hours)*
- *Induced or augmented labour*
- *Hypertonic uterus*
- *Preterm labour*
- *Post-term pregnancy (>42 weeks)*
- *Meconium fluid*
- *Abnormal FHR on auscultation*

3. A G1P0 woman presents for assessment. You have established fetal well-being. Her contractions are every 8 to 10 minutes lasting 30-40 seconds, mild to palpate. Her cervix is 2 cm dilated, 25% effaced. What would be the expected management and what advice would you give her? *(3 pts)*
    - *Latent labour*
    - *Encourage her to go home and try comfort measures (ie: ambulation, Tylenol, hot bath)*
    - *Provide teaching re: normal progress and stages of labour*
    - *Return if contractions increase to at least every 5 minutes or less for 2 hours, unable to cope with contractions, vaginal bleeding occurs, decreased fetal movement occurs, ruptured membranes occurs, or any concerns arise*

4. List the stages and phases of labour; include at which point each stage/phase begins and ends *(5 pts)*
    - *Stage 1: Onset of contractions to fully dilated*
        i. *Phase 1: Latent labour (first 3 cm)*
        ii. *Phase 2: Active labour (3-4 cm for primip; 4-5 cm for multip)*
        iii. *Phase 3: Transitional labour (8-10 cm)*
    - *Stage 2: Fully dilated to birth of the baby*
    - *Stage 3: Birth of the baby to birth of placenta*

- *Stage 4: Birth of placenta to 1 hr postpartum*

5. List three indications where a Caesarean birth would be indicated at the QEH *(3 pts)*
    - *Breech or transverse presentation*
    - *Previous Caesarean not wishing for a TOLAC*
    - *Previous Caesarean not eligible for a TOLAC (ie: previous C-Birth less than 18 months ago; previous myomectomy or classical or T-incision)*
    - *Placenta previa*
    - *Vasaprevia*
    - *Active herpes outbreak*
    - *Significant trauma*
    - *Uterine rupture*
    - *Twins where the presenting twin is breech or transverse*
    - *Atypical or abnormal FHR*
    - *Labour dystocia*

6. List five options for pain control during labour *(5 pts)*
    - *Ambulation, relaxation, breathing techniques, mental stimulation, hydrotherapy, cutaneous stimulation (any combination)*
    - *TENS*
    - *Entonox*
    - *IM Dilaudid/IV Fentanyl*
    - *Epidural*
    - *Pudendal block*
    - *Local anesthesia*

7. Which of the following options would be the most for a woman who ruptured her membranes and is positive for Group B Streptococcus? *(1 pt)*
    a) Administer PO antibiotic prophylaxis and allow the woman 24hrs to see if labour begins spontaneously before arranging an induction of labour
    b) Administer prostaglandin gel to try to induce labour

c) Initiate IV antibiotic prophylaxis and oxytocin induction protocol

d) A or C would be appropriate

e) None of the above

8. List three medications that may be used to help manage postpartum hemorrhage *(3 pts)*
    - *Hemabate*
    - *Ergot*
    - *Misoprostol*
    - *Oxytocin*
    - *Cyklocapron*

9. List three potential causes of bleeding in pregnancy *(3 pts)*
    - *Placenta previa*
    - *Vasaprevia*
    - *Abruption*
    - *Uterine rupture*
    - *Show (dilating cervix)*
    - *Friable cervix (intercourse)*
    - *Abortion*

10. True of ***False*** (circle the correct answer) *(1 pt)*

    A woman who had a previous classical or T-shaped uterine incision would be eligible for a trial of labour after Caesarean

    ANSWER: *A woman with a previous classical or T-shaped uterine incision would not be eligible for a trial of labour after Caesarean due to increased risk of rupture*

11. Which of the following statements is true about breech presentation? *(1 pt)*

    a) A trial of vaginal breech birth may be performed at the QEH

    b) An external cephalic version may be performed in cases of breech presentation if the gestation is less than 34 weeks

    c) Complete breech is the most common breech presentation

d) Risk factors for breech presentation include previous breech presentation and if either parent were breech themselves

e) None of the above

12. True or ***False*** (circle the correct answer) *(1 pt)*

In the event of maternal trauma, stabilizing the baby is the number one priority

ANSWER: *The mother is the number one priority*

13. What are three risk factors for umbilical cord prolapse? *(3 pts)*

- *Malpresentation*
- *Unstable lie*
- *Polyhydramnios*
- *Preterm*
- *Preterm rupture of membranes*
- *Grand multiparity*
- *Male gender*
- *Low lying placenta or placenta previa*
- *Pelvic tumours*
- *Multiple gestation*
- *Cephalopelvic disproportion*

14. True or ***False*** (circle the correct answer) *(1 pt)*

An insulin drip is always required in labour for gestational diabetic mothers on insulin

ANSWER: Insulin drip is typically only indicated for mothers with type 1 diabetes

15. What are the signs of a shoulder dystocia? *(3 pts)*

- *Classic "turtle sign"*
- *No evidence of spontaneous restitution*
- *Shoulders do not deliver with maternal pushing efforts and gentle downward traction with the next contraction*

16. What criteria is used to classify a stillbirth? *(1 pts)*
    - *Greater than 20 weeks gestation or 500 g*

17. Which of the following statements about twin pregnancies is false? *(1 pt)*
    a) Monochorionic-monoamniotic twins are usually born via Caesarean birth between 32-33 weeks gestation
    b) Dichorionic-diamniotic twins are at the highest risk for twin-to-twin transfusion syndrome
    c) Monochorionic-diamniotic twins share the same placenta but each have their own amniotic sac
    d) The perinatal mortality rate for monochorionic-monoamniotic twins is about 50-60%
    e) None of the above

18. What can be used to provide a mechanical option for cervical ripening? *(1 pt)*
    - *Foley catheter*

19. What do early decelerations indicate? *(1 pt)*
    - *Head compression*

20. What is the indication for the cuddle cot? *(1 pt)*
    - *To cool the stillborn so that he/she can remain in the room with mother*
      and family as long as they wish

21. What is the purpose of magnesium sulfate in the treatment of preeclampsia? *(1 pt)*
    - *Prevention of seizures (eclampsia)*

22. What is the purpose of magnesium sulfate in the treatment of preterm labour? *(1 pt)*
    - *Fetal neuroprotection*

23. A woman presents with bleeding at 22 weeks gestation. What is an important piece of information you would want to know? *(1 pt)*
    - *Location of placenta (look up ultrasound)*

24. ***True*** or False (circle the correct answer) *(1 pt)*

    After three pop-offs, the use of a vacuum should be halted

25. At the time of birth, what are the three questions you want to know in order to guide your initial assessment of the newborn? *(3 pts)*
    - *Is the baby term?*
    - *Is the baby breathing or crying?*
    - *Does the baby have good tone?*

Appendix C

Post-Module Quizzes

Name: _____ Date: _____

Post-Module Quiz:
Assessment of Labour

1. At the QEH, women of what gestation can be assessed in the labour and birth department? *(1 pt)*

2. True or False (circle the correct answer) *(1 pt)*

   It is never appropriate to give telephone advise in labour and birth

3. List three reasons that women should be advised to present to labour and birth for assessment *(3 pts)*

4. True or False (circle the correct answer) *(1 pt)*

   With true labour, contractions usually decrease in frequency and intensity with activity

5. What is the purpose of palpating contractions during a labour assessment? *(2 pts)*

6. When performing your assessment, a woman reports that she has felt three fetal movements over the last 3 hours. What would you do? *(1 pt)*

7. What lab results would you want to obtain as part of your assessment? *(4 pts)*

8. List the components to be assessed during a vaginal examination *(4 pts)*

9. During a vaginal examination, you palpate the presenting part and it feels spongy. What might you suspect and what would you do? *(2 pts)*

10. List and describe the components of SBAR *(4 pts)*

Name: _____ Date: _____

Post-Module Quiz:
Process of Birth and Stages of Labour

1. List the 4P's associated with the process of birth *(2 pts)*

2. True or False (circle the correct answer) *(1 pt)*

   A longitudinal lie occurs in 99% of cases

3. True or False (circle the correct answer) *(1 pt)*

   A face presentation is the most common cephalic presentation

4. Name two risk factors for a shoulder presentation *(2 pts)*

5. List two factors that could affect a woman's psyche during the birthing process *(2 pts)*

6. List the three phases of the first stage of labour *(3 pts)*

7. Define active labour *(2 pts)*

8. List the nursing interventions during active second stage of labour *(4 pts)*

9. Define labour dystocia and obstructed labour *(3 pts)*

10. Define the third stage of labour *(1 pt)*

Name: _____ Date: _____

Post-Module Quiz:
Induction and Augmentation of Labour

1. What is induction of labour? *(1 pt)*

2. What is augmentation of labour? *(1 pt)*

3. List five indications for IOL *(5 pts)*

4. List one indication that would not be appropriate for IOL *(1 pt)*

5. List three contraindications for IOL *(3 pts)*

6. What is the purpose of cervical ripening? What options are available at the QEH? *(5 pts)*

7. The oxytocin induction protocol at the QEH runs as follows: *(3 pts)*

   Oxytocin _____ IU in _____ of Ringer's Lactate beginning at _____ mL per hour. May be increased by _____ mL every _____ minutes to a maximum of _____ mL per hour.

8. What is amniotomy and what is the procedure for this? *(2 pts)*

9. What is tachysystole? *(1 pt)*

10. If tachysystole with fetal heart rate changes occurs, what nursing management is indicated? *(3 pts)*

Name: _____ Date: _____

Post-Module Quiz:
Modes of Birth:
Spontaneous Vaginal Birth, Assisted Vaginal Birth, Caesarean Birth

1. How many birthing rooms are there at the QEH? What happens if the unit is at capacity? *(2 pts)*

2. Once the head is born during a spontaneous vaginal birth, what should you assess for? *(2 pts)*

3. True or False (circle the correct answer) *(1 pt)*

   Oxytocin 5 IU IV is given with birth of the anterior shoulder at the QEH

4. What is an assisted vaginal birth? *(1 pt)*

5. List three indications for an assisted vaginal birth *(3 pts)*

6. List two contraindications for an assisted vaginal birth *(2 pts)*

7. True or False (circle the correct answer) *(1 pt)*

   Vacuum assisted births are most often performed in the OR at the QEH

8. List three indications for a Caesarean birth *(3 pts)*

9. List three potential risks of Caesarean birth *(3 pts)*

10. Define TOLAC *(1 pt)*

Name: _____ Date: _____

Post-Module Quiz:
Supportive Care and Pain Management in Labour

1. List one way in which ambulation can be beneficial in labour *(1 pt)*

2. List one benefit of hydrotherapy *(1 pt)*

3. List three different options that can be used for cutaneous stimulation *(3 pts)*

4. What are the benefits to IM narcotics in labour and when is the ideal time for them to be administered? *(3 pts)*

5. What are the indications for the use of IV Fentanyl in labour? *(3 pts)*

6. True or False (circle the correct answer) *(1 pt)*

   It is not necessary to perform a vaginal examination prior to administering pharmacological pain options in labour, as the priority is managing the pain

7. If a neonate exhibits depressed respirations at the time of birth, what actions should you take? *(2 pts)*

8. List two contraindications for an epidural *(2 pts)*

9. What are your maternal assessments post-epidural? *(4 pts)*

10. What is the most common side effect following an epidural? What medication may be given to treat this (if ordered by anesthesiologist)? *(2 pts)*

Name: _____ Date: _____

Post-Module Quiz:
Immediate Care of the Newborn

1. True or False (circle the correct answer) *(1 pt)*

   Approximately 10% of newborns will require some assistance with breathing at birth

2. What is the difference between primary apnea and secondary apnea? *(2 pts)*

3. List the equipment that is required when preparing for a birth *(6 pts)*

4. What three questions do you ask at the time of birth as part of your initial assessment? *(3 pts)*

5. What five assessments are performed when determining the APGAR score? *(5 pts)*

6. True or False (circle the correct answer) *(1 pt)*

   It is appropriate to administer Narcan in any event respiratory depression occurs that is not resolved by PPV, especially in babies whose mothers have used narcotics in pregnancy *(1 pt)*

7. What are the indications for the initiation of PPV? *(3 pts)*

8. What are the indications for the initiation of chest compression? *(1 pt)*

9. Name three indications where the pediatrician, neonatal RN, and RT should attend births *(3 pts)*

10. If the baby is born and vigorous, what are your initial steps? *(3 pts)*

Name: _____ Date: _____

Post-Module Quiz:
Prelabour Rupture of Membranes (PROM) and GBS

1. How is PROM defined? What gestation is considered term PROM? *(2 pts)*

2. List two potential risks associated with PROM? *(2 pts)*

3. True or False (circle the correct answer) *(1 pt)*

   A vaginal examination should not be performed when PROM is suspected
   or confirmed in the absence of labour

4. Describe your assessment of a women who presents with query PROM *(6 pts)*

5. What is the purpose of a sterile speculum exam to diagnose PROM? What is nursing's role with this? *(3 pts)*

6. What is GBS? What is the concern with GBS in pregnancy? *(2 pts)*

7. What is the screening involved with GBS and when is it performed? *(2 pts)*

8. What is the prophylaxis for GBS in pregnancy and what medication/dosage is used (providing there are no allergies)? *(1 pt)*

9. When is GBS prophylaxis initiated? *(1 pt)*

10. True or False (circle the correct answer) *(1 pt)*

If a woman ruptures her membranes and she is GBS positive, it would be most appropriate to send her home for 24 hours to see if labour begins spontaneously, as opposed to initiating IV antibiotics and induction of labour

Name: _____ Date: _____

Post-Module Quiz:
PPROM and Preterm Labour and Birth

1. Define preterm prelabour rupture of membranes (PPROM) *(1 pt)*

2. When is antibiotic prophylaxis indicated with PPROM? *(1 pt)*

3. What is the indication for glucocorticoids? When are they usually administered and what is the usual dosage and frequency? *(3 pts)*

4. Define preterm labour *(1 pt)*

5. List three risks of fetal morbidity and mortality associated with preterm birth *(3 pts)*

6. What is fetal fibronectin? When is it performed? *(2 pts)*

7. What is an indication for Nifedipine administration in obstetrics? *(1 pt)*

8. What is the purpose of magnesium sulfate for women with threatened preterm birth (*1 pt)*

9. At what gestation would an out-of-province transfer be indicated at the QEH? *(1 pt)*

10. List three contraindications to an out-of-province transfer *(3 pts)*

Name: _____ Date: _____

Post-Module Quiz:
Postpartum Hemorrhage

1. Define postpartum hemorrhage *(1 pt)*

2. What is the difference between primary and secondary PPH? *(2 pts)*

3. True or False (circle the correct answer)

   Incidence of PPH occurs in about 1% of births

4. List and define the four causes of PPH *(8 pts)*

5. What is the most common cause of PPH? *(1 pt)*

6. List the blood loss volume associated with severe, the blood pressure range, and signs and symptoms associated with this degree of shock *(3 pts)*

7. Describe the expected management associated with a postpartum hemorrhage *(6 pts)*

8. When should Hemabate be used with caution? When is Ergot contraindicated? *(2 pts)*

9. What is a Bakri balloon? How is it inserted and how long does it remain in situ? *(3 pts)*

10. If PPH is unable to be resolved, what is the subsequent management? *(1 pt)*

Name: _____ Date: _____

Post-Module Quiz:
Hypertensive Disorders of Pregnancy

1. Define the systolic and diastolic parameters for hypertension in pregnancy and severe hypertension in pregnancy *(4 pts)*
2. Define gestational hypertension *(1 pt)*
3. How is preeclampsia classified? *(4 pts)*
4. List four risk factors for the development of preeclampsia *(4 pts)*
5. What is HELLP? *(2 pts)*
6. List three symptoms of maternal organ dysfunction associated with hypertensive disorders of pregnancy *(3 pts)*
7. What is the indication for magnesium sulfate? *(1 pt)*
8. What is the antidote for magnesium sulfate? *(1 pt)*
9. List three signs of magnesium toxicity *(3 pts)*
10. Define eclampsia *(1 pt)*

Name: _____ Date: _____

Post-Module Quiz:
Complications:
Placenta Previa, Vasa Previa, Placenta Accreta, Placental Abruption, Uterine Inversion, Uterine Rupture, and Trauma

1. Define placenta previa *(1 pt)*

2. Define vasa previa *(1 pt)*

3. Define placenta accrete, increta, and percreta *(3 pts)*

4. Define placental abruption *(1 pt)*

5. List three risk factors for placenta abruption *(3 pts)*

6. Define uterine inversion *(1 pt)*

7. Define uterine rupture *(1 pt)*

8. List three risk factors for uterine rupture *(3 pts)*

9. List the potential causes of trauma in pregnancy *(5 pts)*

10. True or False (circle the correct answer) *(1 pt)*

    A perimortem Caesarean should be performed within 7 minutes after onset of a cardiac arrest

Name: _____ Date: _____

Post-Module Quiz:
Umbilical Cord Prolapse and Breech Presentation

1. What is the difference between an occult and an overt cord prolapse? *(2 pts)*

2. Name three risk factors for a cord prolapse *(3 pts)*

3. How is a cord prolapse diagnosed? *(2 pts)*

4. If you discover a cord prolapse, which of the following should you **not** do? *(1 pt)*
    a. Keep your hand in place
    b. Try to push the cord back into the vagina as much as possible
    c. Place the woman in knee-chest or Trendelenburg position
    d. Discontinue oxytocin if running

5. True or False (circle the correct answer) *(1 pt)*

    Approximately 18% of cases of cord prolapse are caused by medical management and interventions

6. List the three different types of breech presentation *(3 pts)*

7. List three risk factors for breech presentation *(3 pts)*

8. How is a breech presentation diagnosed? *(1 pt)*

9. What is an external cephalic version and what is the procedure for this? *(5 pts)*

10. What is the management for women who present with breech presentation at the QEH? *(2 pts)*

Name: _____ Date: _____

Post-Module Quiz:
Diabetes in Pregnancy and Shoulder Dystocia

1. List the three types of diabetes a woman may have during pregnancy *(3 pts)*

2. List three risk factors for developing gestational diabetes *(3 pts)*

3. List three maternal risks for women who have diabetes in pregnancy *(3 pts)*

4. List three fetal risks for diabetes in pregnancy *(3 pts)*

5. What are the treatment options for women with diabetes in pregnancy? *(2 pts)*

6. How may women with diabetes be managed during labour? *(2 pts)*

7. True or False (circle the correct answer) *(1 pt)*

   Up to 50% of cases of shoulder dystocia do not have any associated risk factors and cannot be predicted

8. List three risk factors for shoulder dystocia *(3 pts)*

9. How is shoulder dystocia diagnosed? *(1 pt)*

10. How are McRobert's maneuver and suprapubic pressure preformed? *(4 pts)*

Name: _____ Date: _____

Post-Module Quiz:
Management of Twins

1. True or False (circle the correct answer) *(1 pt)*

   Chorionicity is best determined in the second trimester.

2. List the three types of twins. Describe the chorionicity associated with each type *(6 pts)*

3. List two risks that are associated with twin pregnancies *(2 pts)*

4. List two reasons why monochorionic-monoamniotic twin pregnancies are most risky *(2 pts)*

5. At the QEH, in order for twins to be born vaginally, which presentation(s) are required? *(2 pts)*

6. Where do mothers of twins labour and give birth at the QEH? Who needs to be present at the time of birth? *(4 pts)*

7. True or False (circle the correct answer) *(1 pt)*

   After birth of the first twin, noise in the room should be kept to a minimum, as it is crucial time to assess the fetal-wellbeing of Twin B and decide appropriate mode of birth based of assessment

8. True or False (circle the correct answer) *(1 pt)*

   Oxytocin 5 IU IV should be administered with the anterior shoulder of the first twin

9. What considerations and preparations are necessary for a vaginal birth of twins? *(7 pts)*

10. Name a maternal complication that a mother may be at risk for following the birth of twins *(1 pt)*

Name: _____ Date: _____

Post-Module Quiz:
Miscarriage and Perinatal Loss

1. Which of the following refers to loss of a pregnancy that is non-induced where the products of conception are less than 20 weeks gestation and less than 500 grams in weight *(1 pt)*
   a) Therapeutic abortion
   b) Threatened abortion
   c) Spontaneous abortion
   d) Incomplete abortion
   e) None of the above

2. Describe the management options for first trimester losses *(3 pts)*

3. List two risk factors for an ectopic pregnancy *(2 pts)*

4. True or False (circle the correct answer) *(1 pt)*

   A salpingostomy involves surgical management of an ectopic pregnancy, where the fallopian tube is removed in the case of rupture or threatened rupture

5. List two potential causes of second trimester loss *(2 pts)*

6. List two potential causes of third trimester loss *(2 pts)*

7. What criteria are used to classify a stillbirth? *(2 pts)*

8. Other than prostaglandin gel or oxytocin, what medication can be used to induce labour in the event of a loss and how is it administered? *(1 pt)*

9. List five considerations for following second or third trimester losses *(5 pts)*

10. List two potential causes of neonatal death *(2 pts)*

Appendix D

Post-Module Quiz Answers

ANSWERS /23 pts

Post-Module Quiz:
Assessment of Labour

1. At the QEH, women of what gestation can be assessed in the labour and birth department? *(1 pt)*
   - *20 weeks gestation and over*

2. True or ***False*** (circle the correct answer) *(1 pt)*

   It is never appropriate to give telephone advise in labour and birth
   ANSWER: *Telephone advise can be given with appropriate assessment and documentation*

3. List three reasons that women should be advised to present to labour and birth for assessment *(3 pts)*
   - *Contractions <5 minutes apart for more than 2 hours increasing in frequency, intensity, or duration*
   - *Ruptured membranes occur*
   - *Bright red vaginal bleeding occurs*
   - *Fetal movements are less than 6 in 2 hour period*
   - *Signs and symptoms related to other pregnancy concerns (ie: epigastric pain, visual disturbances)*
   - *If concerned and would like to present for assessment*

4. True or ***False*** (circle the correct answer) *(1 pt)*

With true labour, contractions usually decrease in frequency and intensity with activity
ANSWER: *This pertains to false labour*

5. What is the purpose of palpating contractions during a labour assessment? *(2 pts)*
   - *Assess strength of contractions*
   - *Accurately assess frequency and duration as tocotransducer can be inaccurate*

6. When performing your assessment, a woman reports that she has felt three fetal movements over the last 3 hours. What would you do? *(1 pt)*
   - *Initiate EFM*
   - *Give clicker to monitor movements during assessment*

7. What lab results would you want to obtain as part of your assessment? *(4 pts)*
   - *GBS status*
   - *Blood type*
   - *Varicella status*
   - *Rubella status*

8. List the components to be assessed during a vaginal examination *(4 pts)*
   - *Dilation*
   - *Effacement*
   - *Station*
   - *Position of cervix*
   - *Consistency of cervix*
   - *Presenting part*
   - *Membrane status*

9. During a vaginal examination, you palpate the presenting part and it feels spongy. What might you suspect and what would you do? *(2 pts)*
   - *Question breech presentation*
   - *Notify physician (confirm by ultrasound)*

10. List and describe the components of SBAR *(4 pts)*
    - ***S (Situation):*** Refers to a concise statement of the problem
    - **B (Background):** Refers to pertinent and brief information pertaining to the situation
    - ***A (Assessment):*** Refers to your findings and analysis (what you think/found)
    - ***R (Recommendation):*** Refers to action requested/recommended (what you want)

ANSWERS /21 pts

Post-Module Quiz:
Process of Birth and Stages of Labour

1. List the 4P's associated with the process of birth *(2 pts)*
   - *Powers*
   - *Passage*
   - *Passenger*
   - *Psyche*

2. ***True*** or False (circle the correct answer) *(1 pt)*

   A longitudinal lie occurs in 99% of cases

3. True or ***False*** (circle the correct answer) *(1 pt)*

   A face presentation is the most common cephalic presentation
   - ***ANSWER:*** *Vertex or occiput*

4. Name two risk factors for a shoulder presentation *(2 pts)*
   - *Preterm*
   - *High parity*
   - *Hydramnios*
   - *Placenta previa*

5. List two factors that could affect a woman's psyche during the birthing process *(2 pts)*
   - *Anxiety*
   - *Culture and expectations*
   - *Experiences*
   - *Support*

6. List the three phases of the first stage of labour *(3 pts)*
    - *Latent phase*
    - *Active phase*
    - *Transition phase*

7. Define the active phase of labour *(2 pts)*
    - *Second phase of the first stage of labour characterized by cervical effacement and dilation of 4-8 cm for a primipara; 4-5 to 8 cm in a multipara*

8. List the nursing interventions during active second stage of labour *(4 pts)*
    - *Establish maternal and fetal wellbeing*
    - *Provide support and coaching during pushing stage*
    - *Monitor FHR and progress with pushing; change maternal position as necessary*
    - *Notify appropriate personnel as needed and in timely manner*
    - *Note time of birth*

9. Define labour dystocia and obstructed labour *(4 pts)*
    - ***Labour Dystocia:*** *Progress of labour that is delayed or has halted regardless of cause*
        i. ***Active first stage:*** *Greater than 4 hours of less than 0.5 cm/hour dilation* ***OR*** *no dilation in a two hour period*
        ii. ***Active second stage:*** *Greater than 1 hour of active pushing without fetal descent*
    - ***Obstructed Labour:*** *No cervical dilation or fetal descent over two hours in the presence of strong uterine contractions*

10. Define the third stage of labour *(1 pt)*
    - *Birth of the baby until birth of the placenta*

ANSWERS /25 pts

Post-Module Quiz:
Induction and Augmentation of Labour

1. What is induction of labour? *(1 pt)*
    - *Involves the initiation of contractions in pregnant women, who are not in labour, in the effort of achieving a vaginal birth within 24 to 48 hours*

2. What is augmentation of labour? *(1 pt)*
    - *Involves the implementation of methods to enhance the strength, frequency, and duration of contractions in pregnant women already in labour*

3. List five indications for IOL *(5 pts)*
    - *Preeclampsia ≥ 37 weeks*
    - *Significant maternal disease that has not responded with treatment*
    - *An antepartum hemorrhage that is significant but stable*
    - *Chorioamnionitis*
    - *Suspected fetal compromise*
    - *Term PROM with positive GBS colonization*
    - *Postdates (> 41 + 0 weeks) or post-term (> 42 + 0 weeks) pregnancy*
    - *Uncomplicated twin pregnancy ≥ 38 weeks*
    - *Diabetes mellitus (urgency may depend on glycemic control)*
    - *Alloimmune disease at or near term*
    - *Intrauterine growth restriction*
    - *Oligohydramnios*
    - *Gestational hypertension ≥ 38 weeks*
    - *Intrauterine fetal death*
    - *PROM at or near term with a negative GBS status*

- *Logistical concerns*
- *Intrauterine death in a previous pregnancy*

4. List one indication that would not be appropriate for IOL *(1 pt)*
    - *Care provider or patient convenience*
    - *Suspected fetal macrosomia (estimated weight > 4000 g) in non-diabetic woman*

5. List three contraindications for IOL *(3 pts)*
    - *Placenta or vasa previa*
    - *Cord presentation*
    - *Abnormal fetal lie*
    - *Prior classical or inverted T uterine incision*
    - *Significant prior uterine surgery*
    - *Active genital herpes*
    - *Pelvic structure deformities*
    - *Invasive cervical carcinoma*
    - *Previous uterine rupture*

6. What is the purpose of cervical ripening? What options are available at the QEH? *(5 pts)*
    - *Involves the use of pharmacological or mechanical methods to soften, efface, and/or dilate the cervix*
        i. *The goal is to adequately ripen the cervix for induction of labour, in an effort to achieve a vaginal birth*
    - *PGE2: **Prostin gel:** Gel is inserted into the posterior fornix of the vaginal canal by the physician*
    - *PGE2: **Prepidil gel:** Gel is inserted into the inner cervix by the physician*
    - *PGE2: **Cervidil:** A controlled release gel; medication resembles a small tampon and is inserted vaginally into the posterior fornix by the physician*
    - *Mechanical: **Insertion of foley catheter into the cervix:** Applies pressure to the internal os of the cervix in an effort to stretch the*

lower uterine segment and promote the release of local prostaglandins

7. The oxytocin induction protocol at the QEH runs as follows: *(3 pts)*

   Oxytocin ***10*** IU in ***1000 mL*** of Ringer's Lactate beginning at ***10*** mL per hour. May be increased by ***10*** mL every ***30*** minutes to a maximum of ***120*** mL per hour.

8. What is amniotomy and what is the procedure for this? *(2 pts)*
   - *Also referred to as artificial rupture of membranes or ARM; occurs when the physician intentionally ruptures the amniotic sac using an amniohook*
   - *Procedure*
     i. *Assess baseline FHR*
     ii. *Physician will perform vaginal exam and assess cervix as well as station of presenting part*
     iii. *Physician will use amniohook to rupture membranes*
     iv. *Assess FHR following membrane rupture*
     v. *Document time of ARM, amount, colour, and consistency of fluid (note any odour)*

9. What is tachysystole? *(1 pt)*
   - *Tachysystole refers to > 5 contractions in a ten minute period averaged over 30 minutes*

10. If tachysystole with fetal heart rate changes occurs, what nursing management is indicated? *(3 pts)*
    - *Notify physician*
    - *Discontinue oxytocin*
    - *Increase rate of main line if indicated by physician*
    - *Change maternal position*
    - *Perform a vaginal examination*
    - *If abnormal FHR persists, may need to prepare for a C-Birth*

ANSWERS /19 pts

Post-Module Quiz:
Modes of Birth:
Spontaneous Vaginal Birth, Assisted Vaginal Birth, Caesarean Birth

1. How many birthing rooms are there at the QEH? What happens if the unit is at capacity? *(2 pts)*
   - *Two birthing rooms*
   - *Would go to vascular room off the OR if department at capacity*

2. Once the head is born during a spontaneous vaginal birth, what should you assess for? *(2 pts)*
   - *Check for nuchal cord*
   - *Assess for spontaneous restitution*

3. ***True*** or False (circle the correct answer) *(1 pt)*

   Oxytocin 5 IU IV is given with birth of the anterior shoulder at the QEH

4. What is an assisted vaginal birth? *(1 pt)*
   - *Involves the use of forceps or a vacuum to assist in achieving a vaginal birth*

5. List three indications for an assisted vaginal birth *(3 pts)*
   - *Atypical or abnormal fetal heart rate*
   - *Medical indications to avoid the valsalva maneuver when pushing*
   - *Inadequate progress in the presence of adequate contractions*
   - *Inadequate progress without evidence of cephalopelvic disproportion*
   - *Lack of adequate maternal effort*
   - *Sub-optimal attitude or position of fetal head* ***(forceps only)***

6. List two contraindications for an assisted vaginal birth *(2 pts)*
   - *Non-cephalic, face or brow presentation*
   - *Unsure of fetal position*
   - *Fetal conditions (ie: bleeding disorder)*
   - *Any contraindication to vaginal birth*
   - *Gestation less than 34 weeks* ***(vacuum only)***

7. True or ***False*** (circle the correct answer) *(1 pt)*

   Vacuum assisted births are most often performed in the OR at the QEH
   ANSWER: *Vacuum assisted births most often occur in the birthing room; trail of forceps most often occur in the OR*

8. List three indications for a Caesarean birth *(3 pts)*
   - *Abnormal FHR*
   - *Obstructed labour*
   - *Breech presentation (at QEH)*
   - *Placenta previa/vasa previa*
   - *Previous Caesarean birth (not eligible or wishing for a TOLAC)*
   - *Previous uterine surgery*
   - *Previous severe shoulder dystocia*
   - *Active herpes outbreak*
   - *Maternal medical condition where a vaginal birth is not indicated*

9. List three potential risks of Caeasaren birth *(3 pts)*
   - *Increased risk for maternal mortality*
   - *Anesthetic risk (ie: aspiration)*
   - *Infection*
   - *Increased blood loss*
   - *Thromboembolism*
   - *Injury to bowel or bladder*
   - *Increased risk for placenta previa or accreta with subsequent pregnancies*
   - *Increased risk for uterine rupture with subsequent pregnancies*

- *Respiratory difficulties in neonates and increased need for ventilation at birth*

10. Define TOLAC *(1 pt)*
    - *Trial of labour after Caesarean (formally VBAC)*

ANSWERS /22 pts

Post-Module Quiz:
Supportive Care and Pain Management in Labour

1. List one way in which ambulation can be beneficial in labour *(1 pt)*
    - *Decreases risk of venacava depression which can impact fetal oxygenation*
    - *Encourages descent of the fetal head; can help improve strength, regularity, and frequency of uterine contractions*
    - *Can help improve a woman's sense of control, as well as increase a labouring woman's comfort during the first stage*

2. List one benefit of hydrotherapy *(1 pt)*
    - *Can help equalize the pressure on the body*
    - *Can help with muscle relaxation*
    - *Can be an effective comfort measure in latent labour*

3. List three different options that can be used for cutaneous stimulation *(3 pts)*
    - *Self-massage*
    - *Massage by others*
    - *Counterpressure*
    - *Touch*
    - *Thermal stimulation*
    - *Acupressure*

4. What are the benefits to IM narcotics in labour and when is the ideal time for them to be administered? *(3 pts)*
    - *Can lessen the perception of pain in labour without loss of consciousness*
    - *Can help a woman relax in between contractions*

- *Sometimes given in latent labour for sedation in women who are not able to cope with non-pharmacological methods*
- *Often given early on once active labour is established in women who are not wishing for an epidural, or who may be awaiting an epidural*

5. What are the indications for the use of IV Fentanyl in labour? *(3 pts)*
    - *For pain relief in active labour and in early second stage for nulliparous women*
    - *Often effective as an alternate to epidural (active first stage) in multiparous women with rapid, intense labours or while awaiting epidural*
    - *Can be considered when an epidural is contraindicated in labour*

6. True or ***False*** (circle the correct answer) *(1 pt)*

    It is not necessary to perform a vaginal examination prior to administering pharmacological pain options in labour, as the priority is managing the pain
    ANSWER: *It is necessary to determine progress of labour and offer appropriate main management options*

7. If a neonate exhibits respiratory depression or apnea at the time of birth, what actions should you take? *(2 pts)*
    - *Initiate PPV; follow NRP*
    - *Call for help (ie: Nursery, RT, Peds if necessary)*
    - *May administer Narcan if directed by physician (as long as there is no history of narcotic use with the mother)*

8. List two contraindications for an epidural *(2 pts)*
    - *Coagulopathy or anticoagulant therapy*
    - *Back pain*
    - *Infection (local and systemic)*
    - *Skeletal or spinal abnormalities*
    - *Allergy to local anesthetic*

- *Hypovolemia*
- *Fetal compromise requiring emergency intervention*
- *Fixed cardiac output*
- *Patient unable to give informed consent*
- *Elevated intracranial pressure*

9. What are your maternal assessments post-epidural? *(4 pts)*
    - *Check and record blood pressure every 5 minutes x3; every 15 minutes x1 and then every 30 minutes thereafter if stable*
    - *Perform sensory blockade assessments and modified Bromage scale as per orders*
    - *Assist the patient with repositioning as needed; a lateral tilt should be maintained at all times*
    - *Assess for bladder distention every two hours; notify physician if patient unable to void*
    - *Monitor and record intake and output*
    - *Provide one-to-one labour support*
    - *Refer to Fetal Health Surveillance Guidelines for fetal heart monitoring*
    - *Document how patient tolerated procedure*

10. What is the most common side effect following an epidural? What medication may be given to treat this (if ordered by anesthesiologist)? *(2 pts)*
    - *Maternal hypotension*
    - *Ephedrine IV*

ANSWERS /28 pts

Post-Module Quiz:
Immediate Care of the Newborn

1. ***True*** or False (circle the correct answer) *(1 pt)*

   Approximately 10% of newborns will require some assistance with breathing at birth

2. What is the difference between primary apnea and secondary apnea? *(2 pts)*
   - ***Primary Apnea:*** *Characterized by the absence of breathing or gasping where stimulation will resume breathing*
   - ***Secondary Apnea:*** *Caused by further cardiorespiratory compromise where the resumption of breathing will not begin with stimulation and positive-pressure ventilation is required*

3. List the equipment that is required when preparing for a birth *(6 pts)*
   - *Turn on warmer*
   - *Check Neopuff (PIP set at 18-20 cmH20; PEEP set at 4 cmH20)*
   - *Masks for Neopuff size 1 and 01 (medium and large)*
   - *Check ambu bag (including pop-off valve) connected to oxygen*
   - *Check suction (80-100 mmHg); 12F suction catheter*
   - *Check medical air tank (at least 500 in the tank)*
   - *Size 3.5 precut ET tubes with stylets*
   - *Pulse oximeter and probe is present*
   - *Meconium aspirator available*
   - *Ensure stethoscope is present*
   - *Newborn resuscitation cart is locked (indicates ready for use)*
   - *Warm blankets*

4. What three questions do you ask at the time of birth as part of your initial assessment? *(3 pts)*
    - *Is the baby term?*
    - *Is the baby breathing or crying?*
    - *Does the baby have good tone?*

5. What five assessments are performed when determining the APGAR score? *(5 pts)*
    - *Respiratory effort*
    - *Assess tone*
    - *Assess colour*
    - *Assess reflex irritability*

6. True or ***False*** (circle the correct answer) *(1 pt)*

    It is appropriate to administer Narcan in any event respiratory depression occurs that is not resolved by PPV, especially in babies whose mothers have used narcotics in pregnancy *(1 pt)*
    ANSWER: *It is not appropriate as it can induce seizures in the newborn*

7. What are the indications for the initiation of PPV? *(3 pts)*
    - *Apnea or gasping*
    - *HR less than 100 bpm*
    - *Persistent central cyanosis*

8. What are the indications for the initiation of chest compression? *(1 pt)*
    - *HR is below 60 bpm following 30 seconds of effective PPV (as per NRP guidelines)*

9. Name three indications where the pediatrician, neonatal RN, and RT should attend births *(3 pts)*
    - *Meconium fluid*
    - *Preterm births*
    - *Emergency Caesarean*
    - *Assisted vaginal birth*

- *Known anomalies in the newborn that may indicate need for resuscitation*
- *Shoulder dystocia*
- *Atypical or abnormal fetal heart rate tracings*
- *Other indications where there is a potential for neonatal resuscitation*

10. If the baby is born and vigorous, what are your initial steps? *(3 pts)*
    - *Baby can be placed skin-to-skin*
    - *Provide warmth, dry the baby well*
    - *Position the head to open the airway and suction any secretions as necessary*

ANSWERS /21 pts

Post-Module Quiz:
Prelabour Rupture of Membranes (PROM) and GBS

1. How is PROM defined? What gestation is considered term PROM? *(2 pts)*
    - *The rupturing of membranes where the onset of contractions do not begin for at least an hour post rupture*
    - *≥37 weeks gestation*

2. List two potential risks associated with PROM? *(2 pts)*
    - *Risk of infection increased for both mother and baby*
    - *Risk for cord compression or prolapse*

3. ***True*** or False (circle the correct answer) *(1 pt)*

    A vaginal examination should not be performed when PROM is suspected
    or confirmed in the absence of labour

4. Describe your assessment of a women who presents with query PROM *(6 pts)*
    - *Review prenatal record and obtain self-report*
    - *Establish term gestation*
    - *Vital signs and urine dip*
    - *Assess for presence of labour*
    - *Establish fetal wellbeing*
    - *IA is appropriate in the absence of risk factors*
    - *Note self-reported time of suspected membrane rupture*
    - *Note amount and colour of fluid*
    - *Note any odour to the fluid*
    - *Attempt to obtain fluid on slide (if membrane rupture is not obvious)*

- *Notify physician of your assessment*

5. What is the purpose of a sterile speculum exam to diagnose PROM? What is nursing's role with this? *(3 pts)*
    - *Can be used to help diagnose PROM if assessment is inconclusive*
    - *Sterile speculum exam: Speculum is placed inside the vagina by the physician*
        i. *Physician examines for pooling of fluid in the posterior fornix*
        ii. *Trickling or flowing of fluid from the cervix*
        iii. *Fluid may be obtained on a slide by the physician to assess for ferning*
    - *Nursing role involves*
        i. *Collecting supplies: vaginal speculum tray, slide, cotton swab, nitrazine swab, light*
        ii. *Helping to position the patient; help the patient relax*
        iii. *Helping the physician with positioning ie: breaking the bed if required*

6. What is GBS? What is the concern with GBS in pregnancy? *(2 pts)*
    - *Group B streptococci are gram-positive aerobic diplocci found in the lower urogenital tract*
    - *Part of the normal vaginal microbiome*

7. What is the screening involved with GBS and when is it performed? *(2 pts)*
    - *Screening involves collecting a vaginal-rectal swab (one swab first to the vagina and then through the anal sphincter)*
    - *Collected between 35 and 37 weeks gestation*

8. What is the prophylaxis for GBS in pregnancy and what medication/dosage is used (providing there are no allergies)? *(1 pt)*
    - *IV antibiotic prophylaxis*
    - *Pen G 5 million IU IV then 2.5 million IU IV q4hrs until birth*

9. When is GBS prophylaxis initiated? *(1 pt)*

- *In GBS positive women at the onset of labour or ruptured membranes*

10. True or ***False*** (circle the correct answer) *(1 pt)*

If a woman ruptures her membranes and she is GBS positive, it would be most appropriate to send her home for 24 hours to see if labour begins spontaneously, as opposed to initiating IV antibiotics and induction of labour

ANSWER: *IOL and treatment with antibiotics most appropriate management*

ANSWERS /20 pts

Post-Module Quiz:
PPROM and Preterm Labour and Birth

1. Define preterm prelabour rupture of membranes (PPROM) *(1 pt)*
   - *Refers to the rupture of membranes before the onset of labour that occurs before 37 weeks gestation*

2. When is antibiotic prophylaxis indicated with PPROM? *(1 pt)*
   - *Management of PPROM 32-34 weeks gestation*

3. What is the indication for glucocorticoids? When are they usually administered and what is the usual dosage and frequency? *(3 pts)*
   - *Promote fetal lung maturity when women are at risk for preterm birth*
   - *Usually administered less than 24-34 weeks gestation*
   - *Dose of Celestone is 12 mg IM q24 hours x2 doses; dose of Dexamethasone 6 mg IM every 12 hours x4 doses*

4. Define preterm labour *(1 pt)*
   - *Refers to presence of regular uterine contractions with cervical dilation and/or effacement occurring between 20 and 36+6 weeks gestation*

5. List three risks of fetal morbidity and mortality associated with preterm birth *(3 pts)*
   - *Respiratory distress syndrome (RDS)*
   - *Intraventricular hemorrhage (IVH)*
   - *Necrotizing enterocolitis (NEC)*
   - *Long term CNS effects (ie: cerebral palsy)*
   - *Neurodevelopmental delays*
   - *Respiratory effects (ie: bronchopulmonary dysplasia)*
   - *Blindness*

- *Deafness*

6. What is fetal fibronectin? When is it performed? *(2 pts)*
   - *Glycoprotein found in the presence in cervicovaginal secretions before 34 weeks gestation associated with preterm labour and birth*
   - *Collected by physician to screen for risk of preterm birth between 24 and 34 weeks gestation*

7. What is an indication for Nifedipine administration in obstetrics? *(1 pt)*
   - *Calcium channel blocker that inhibits preterm labour by blocking the influx of calcium into the uterine smooth muscle which decreases contractility of the uterus*

8. What is the purpose of magnesium sulfate for women with threatened preterm birth (*1 pt)*
   - *Fetal neuroprotection*

9. At what gestation would an out-of-province transfer be indicated at the QEH? *(1 pt)*
   - *Less than 32 weeks*

10. List three contraindications to an out-of-province transfer *(3 pts)*
    - *Unstable mother*
    - *Abnormal fetal surveillance*
    - *Imminent birth*
    - *Unavailability of experienced attendants to accompany mother on transfer*
    - *Hazardous weather or travel conditions*

ANSWERS /28 pts

Post-Module Quiz:
Postpartum Hemorrhage

1. Define postpartum hemorrhage *(1 pt)*
   - *Blood loss following a vaginal birth of greater then 500 mL and greater than 1000 mL for a Caesarean birth*

2. What is the difference between primary and secondary PPH? *(2 pts)*
   - **Primary PPH:** Occurs within 24 hours following birth
   - **Secondary PPH:** Occurs between 24 hours after birth and six weeks postpartum

3. True or ***False*** (circle the correct answer) *(1 pt)*

   Incidence of PPH occurs in about 1% of births
   ANSWER: Occurs in about 5% of births

4. List and define the four causes of PPH *(8 pts)*
   - ***Tone:*** *Lack of uterine muscle tone caused by atony*
   - ***Trauma:*** *Involves trauma to the birth canal*
   - ***Tissue:*** *Retained products of conception or formation of blood clots inside the uterus can result in PPH*
   - ***Thrombin:*** *Refers to coagulation abnormalities that can result in PPH*

5. What is the most common cause of PPH? *(1 pt)*
   - *Uterine atony*

6. List the blood loss volume associated with severe, the blood pressure range, and signs and symptoms associated with this degree of shock *(3 pts)*
   - ***Blood volume loss:*** *2000-3000 mL (35-45%)*
   - ***BP:*** *Marked decrease (50-70 mmHg)*

- ***S&S:*** *Collapse, air hunger, anuria*

7. Describe the expected management associated with a postpartum hemorrhage *(6 pts)*
   - *Call for help*
   - *Fundal massage*
   - *Obtain vital signs and O2 saturation q5mins*
   - *Assess LOC and CAB's*
   - *Administer oxygen via rebreather 5-10 L/min*
   - *Empty bladder*
   - *Ensure IV access; may consider starting second line*
   - *Run oxytocin (30-40 IU in 1L or RL) wide open*
   - *May run RL bolus if ordered by physician*
   - *Ensure CBC, Group & Screen, X-match have been drawn; may consider coags*
   - *Obtain PPH bin*
   - *Pharmacological management as ordered by physician*
   - *Prepare for the OR if PPH is not resolving*

8. When should Hemabate be used with caution? When is Ergot contraindicated? *(2 pts)*
   - ***Hemabate:*** *Asthma*
   - ***Ergot:*** *Hypertension*

9. What is a Bakri balloon? How is it inserted and how long does it remain in situ? *(3 pts)*
   - ***If atony and PPH is persistent, tamponade by Bakri balloon may be indicated***
   - *Physician inserts catheter-like device into the cervical canal*
   - *Balloon is filled with 250-500 mL of normal saline until bleeding stops and it stays in place*
   - *End of the catheter is connected to a foley catheter bag*
   - *Generally left in place for 24 hours (can be left in 8-48 hours)*
   - *Removed slowly by physician*

10. If PPH is unable to be resolved, what is the subsequent management? *(1 pt)*
    - *Surgical intervention in the OR by physician*

ANSWERS /24 pts

Post-Module Quiz:
Hypertensive Disorders of Pregnancy

1. Define the systolic and diastolic parameters for hypertension in pregnancy and severe hypertension in pregnancy *(4 pts)*
   - ***Hypertension:*** *Systolic BP ≥ 140 mmHg* ***and/or*** *Diastolic BP ≥ 90 mmHg*
   - ***Severe hypertension:*** *Systolic BP ≥ 160 mmHg* ***or*** *Diastolic BP ≥ 110 mmHg*

2. Define gestational hypertension *(1 pt)*
   - *Hypertension that develops after 20 weeks gestation with no other maternal organ dysfunction*

3. How is preeclampsia classified? *(4 pts)*
   - *Chronic or gestational hypertension with new onset of one or more the the following:*
     i. *Proteinuria*
     ii. *Other maternal organ dysfunction (ie: renal, hepatic, neurologic or hematologic)*
     iii. *Uteroplacental dysfunction (ie: IUGR)*

4. List four risk factors for the development of preeclampsia *(4 pts)*
   - *Previous preeclampsia*
   - *Preexisting medical diseases (ie: diabetes)*
   - *Multiple pregnancy*
   - *Maternal age >40 or <18*
   - *Ethnicity (Black, South Asian)*
   - *Lower socioeconomic status*
   - *Obesity (BMI >35)*
   - *Family history of preeclampsia*

- *Non-smoking*
- *Heritable thrombophilias (ie: Factor V Leiden)*
- *Pregnancies < 2 years apart*
- *IVF*
- *New partner*
- *Infection during pregnancy (ie: UTI or periodontal disease)*

5. What is HELLP? *(2 pts)*
   - ***HELLP is a variant of preeclampsia characterized by:***
     i. *Hemolysis*
     ii. *Elevated liver enzymes*
     iii. *Low platelets*

6. List three symptoms of maternal organ dysfunction associated with hypertensive disorders of pregnancy *(3 pts)*
   - *Headache*
   - *Visual disturbances*
   - *Epigastric pain*
   - *RUQ pain*
   - *Severe nausea and vomiting*
   - *Tremulous or irritable*
   - *Hyperreflexia*
   - *Chest pain*
   - *Dyspnea (check O2 saturation)*
   - *Bleeding*

7. What is the indication for magnesium sulfate? *(1 pt)*
   - *Prevention of eclamptic seizures*

8. What is the antidote for magnesium sulfate? *(1 pt)*
   - *Calcium gluconate*

9. List three signs of magnesium toxicity *(3 pts)*
   - ***Signs and symptoms of magnesium toxicity include:***
     i. *RR of less than 12/minute*
     ii. *Oxygen saturation less than 95%*

iii. *Reflexes are absent*
iv. *Sweating or flushing*
v. *Hypotension*
vi. *Decreased urine output (<30 mL/hr)*
vii. *Somnolent (sleepy/drowsy/confused)*

10. Define eclampsia *(1 pt)*
    - *Onset of seizures in a patient with preeclampsia, where there is no other clinical indication for the onset of seizures*

ANSWERS /20 pts

Post-Module Quiz:
Complications:
Placenta Previa, Vasa Previa, Placenta Accreta, Placental Abruption, Uterine Inversion, Uterine Rupture, and Trauma

1. Define placenta previa *(1 pt)*
   - ***Placenta previa:*** *The placenta touches or covers the internal cervical os near or at term*

2. Define vasa previa *(1 pt)*
   - ***Vasa previa:*** *Occurs when fetal vessels in the membranes, which are not supported by either the umbilical cord or placental tissue, run across the cervical os in front of the presenting part*

3. Define placenta accreta, increta, and percreta *(3 pts)*
   - ***Placenta accreta:*** *Occurs when the placenta adheres to the uterine muscle*
   - ***Placenta increta:*** *Occurs when the placenta invades the uterine muscle*
   - ***Placenta percreta:*** *Occurs when the placenta penetrates through the uterine muscle and can invade surrounding organs*

4. Define placental abruption *(1 pt)*
   - ***Placental abruption:*** *Occurs when the placenta separates from the uterine wall before the fetus is born*

5. List three risk factors for placenta abruption *(3 pts)*
   - *Previous placental abruption*
   - *Inherited thrombophilia*
   - *PPROM*

- *Hypertension*
- *Iron deficiency*
- *Multiple gestation*
- *Hydramios*
- *Maternal age*
- *Multiparity*
- *Smoking*
- *Trauma*
- *Cocaine use*
- *Previous Caesaran birth (risk greater if last C-Birth was within the last 12 months)*

6. Define uterine inversion *(1 pt)*
   - ***Uterine inversion:*** *Occurs when the uterus partially or completely turns inside out*

7. Define uterine rupture *(1 pt)*
   - ***Uterine rupture:*** *Occurs when there is a tear in the uterine wall, often due to a weakened area of the uterus that is unable to withstand the pressure against it*

8. List three risk factors for uterine rupture *(3 pts)*
   - *Previous uterine surgery (Caesarean birth/myomectomy)*
   - *Prior classical incision (vertical)*
   - *Postdate pregnancy*
   - *Obesity*
   - *High parity*
   - *Trauma*
   - *Excessively strong contractions in the presence of fetopelvic disproportion*
   - *Oxytocin use*

9. List the potential causes of trauma in pregnancy *(5 pts)*
   - *Motor vehicle accidents*
   - *Falls*

- *Penetrating trauma (gunshot/stabbing)*
- *Domestic or intimate partner violence*
- *Burns or electrical injuries*

10. True or ***False*** (circle the correct answer) *(1 pt)*

A perimortem Caesarean should be performed within 7 minutes after onset of a cardiac arrest

ANSWER: *A perimortem Caesarean should be performed within 4 minutes after the onset of a cardiac arrest*

ANSWERS /23 pts

Post-Module Quiz:
Umbilical Cord Prolapse and Breech Presentation

1. What is the difference between an occult and an overt cord prolapse? *(2 pts)*
    - *<u>Occult:</u> Essentially hidden; it presents alongside the presenting part and cannot be seen or felt during a vaginal examination*
    - *<u>Overt:</u> Descends past the presenting part; may not be seen but may be able to be palpated during a vaginal examination*

2. Name three risk factors for a cord prolapse *(3 pts)*
    - *Malpresentation*
    - *Unstable lie*
    - *Polyhydramnios*
    - *Preterm*
    - *Preterm rupture of membranes*
    - *Grand multiparity*
    - *Male gender*
    - *Low lying placenta or placenta previa*
    - *Pelvic tumours*
    - *Multiple gestation*
    - *Cephalopelvic disproportion*
    - *Congenital anomalies*
    - *Birth weight <2500 g*

3. How is a cord prolapse diagnosed? *(2 pts)*
    - *The umbilical cord can be seen or felt during a vaginal examination*
    - *Will often see changes in fetal heart rate*
        i. *Decelerations; prolonged bradycardia*
        ii. *May only be present in 41-67% of cases*

- *If the cord cannot be seen or palpated, cord prolapse cannot be definitively diagnosed*

4. If you discover a cord prolapse, which of the following should you **not** do? *(1 pt)*
   a) Keep your hand in place
   b) Try to push the cord back into the vagina as much as possible
   c) Place the woman in knee-chest or Trendelenburg position
   d) Discontinue oxytocin if running

5. True or ***False*** (circle the correct answer) *(1 pt)*

   Approximately 18% of cases of cord prolapse are caused by medical management and interventions
   ANSWER: *Approx. 47% of cases*

6. List the three different types of breech presentation *(3 pts)*
   - *Complete*
   - *Frank*
   - *Footling or incomplete*

7. List three risk factors for breech presentation *(3 pts)*
   - *Prematurity*
   - *Oligohydramnios*
   - *Uterine anomalies or fibroids*
   - *Placenta implanted low in the uterus or placenta previa*
   - *Fetal anomalies*
   - *Previous breech presentation*
   - *If either parent were breech themselves*
   - *Unknown causes*

8. How is a breech presentation diagnosed? *(1 pt)*
   - *Leopold maneuvers*
   - *Vaginal examination*
   - *Ultrasound*

9. What is an external cephalic version and what is the procedure for this? *(5 pts)*
    - *Occurs when an attempt is made to change the fetal position from breech to cephalic while the fetus is in utero, through manipulation of the mother's abdomen*
    - *Usually performed after 37 weeks*
    - *Often two obstetricians will perform the procedure at our facility*
    - *EFM will be employed and a non-stress test will be performed prior to procedure*
    - *OR should be aware of procedure in the event an emergency C-Birth is warranted*
    - *A saline lock may be ordered by physician, as well as CBC and Group and Screen*
    - *Physicians will confirm position using ultrasound and use ultrasound throughout the procedure to monitor progress and FHR*
    - *Abdomen may be lubricated with ultrasound gel*
    - *Physicians will attempt ECV, where they will promote a forward roll of the fetus*
    - *Procedure is halted if it is too uncomfortable or FHR becomes abnormal*
    - *A non-stress test is continued for at least 20 mins (up to 1hr) post procedure*

10. What is the management for women who present with breech presentation at the QEH? *(2 pts)*
    - *At our facility, individuals who present with breech presentation can be offered an ECV if meets criteria and no contraindications*
    - *If contraindications to ECV, or if unsuccessful, or if declined, a C-Birth will be scheduled*
    - *If a woman presents in labour and is breech, she will proceed for a C-Birth*

ANSWERS /25 pts

Post-Module Quiz:
Diabetes in Pregnancy and Shoulder Dystocia

1. List the three types of diabetes a woman may have during pregnancy *(3 pts)*
    - *<u>Type 1:</u> Involves insulin dependence; onset is usually as a child or young adult*
    - *<u>Type 2:</u> Involves insulin resistance; may be diet controlled or insulin dependent*
    - *<u>Gestational (GDM):</u> Involves glucose intolerance; onset of glucose intolerance diagnosed during pregnancy*

2. List three risk factors for developing gestational diabetes *(3 pts)*
    - *Obesity (BMI >30) or morbid obesity (BMI >40 or higher)*
    - *Maternal age greater than 35 years*
    - *Prior birth outcome that could be associated with GDM*
    - *GDM in a prior pregnancy*
    - *History of abnormal glucose tolerance*
    - *History of diabetes in a first-degree relative*
    - *Member of high-risk ethnic group*

3. List three maternal risks for women who have diabetes in pregnancy *(3 pts)*
    - *Hypertension*
    - *Pre-eclampsia*
    - *Urinary tract infections*
    - *Ketoacidosis*
    - *Labour dystocia*
    - *Caeaseran birth*
    - *Postpartum hemorrhage secondary to uterine atony*

- *Injury to maternal tissue at time of birth secondary to fetal macrosomia*

4. List three fetal risks for diabetes in pregnancy *(3 pts)*
    - *Congenital anomalies*
    - *Stillbirth*
    - *Macrosomia >4000 g*
    - *Intrauterine fetal growth restriction*
    - *Premature labour, PPROM, preterm birth*
    - *Birth injury*
    - *Hypoglycemia*
    - *Hyperbilirubinemia*
    - *Hypocalcemia*
    - *Respiratory distress syndrome*

5. What are the treatment options for women with diabetes in pregnancy? *(2 pts)*
    - *Treatment during pregnancy usually involves collaboration between the patient, physician, and diabetes nurse educator*
    - *Women should monitor blood sugar levels*
    - *For those with pre-existing diabetes requiring insulin, insulin needs will vary through the pregnancy*
    - *Those with Type 2 diabetes and GDM may be diet controlled*
        i. *If adequate glycemic control cannot be achieved through diet, an insulin regimen is indicated*

6. How may women with diabetes be managed during labour? *(2 pts)*
    - *Women with Type 1 diabetes may require an insulin drip in labour in order to maintain maternal glucose control*
        i. *Sometimes internal medicine is consulted for this; follow the physician's orders*
    - *Women with Type 2 diabetes and GDM can often maintain normal glucose levels during labour*
        i. *Often blood glucose are checked q2h to monitor; check physician's orders*

7. ***True*** or False (circle the correct answer) *(1 pt)*

   Up to 50% of cases of shoulder dystocia do not have any associated risk factors and cannot be predicted

8. List three risk factors for shoulder dystocia *(3 pts)*
   - *Abnormal pelvic anatomy*
   - *Diabetes in pregnancy*
   - *Post-term pregnancy*
   - *Previous shoulder dystocia*
   - *Previous birth of macrosomic neonate*
   - *Short stature*
   - *Excessive weight gain in pregnancy*
   - *Extreme maternal obesity (BMI >50)*
   - *Suspected macrosomia*
   - *Assisted vaginal birth (vacuum or forceps)*
   - *Prolonged active phase of the first stage of labour*
   - *Prolonged second stage of labour*
   - *Induction of labour*
   - *Epidural anesthesia*

9. How is shoulder dystocia diagnosed? *(1 pt)*
   - *Classic "turtle sign"*
   - *No evidence of spontaneous restitution*
   - *Shoulders do not deliver with maternal pushing efforts and gentle downward traction with the next contraction*

10. How are McRobert's maneuver and suprapubic pressure preformed? *(4 pts)*
    - *McRoberts maneuver*
      i. *Involves lowering the head of the bed while flexing and abducting maternal hips with maternal thighs onto the maternal abdomen*
      ii. *Two nurses should assist with this; one on each side*

- *Suprapubic pressure*
    i. *Involves placing hand over the fetal anterior shoulder suprapubically*
    ii. *Apply steady pressure at first, and if unsuccessful use a CPR style with downward and lateral pressure on the posterior aspect of fetal shoulder*

ANSWERS /25 pts

Post-Module Quiz:
Management of Twins

1. True or ***False*** (circle the correct answer) *(1 pt)*

   Chorionicity is best determined in the second trimester.
   ANSWER: *Best determined in first trimester*

2. List the three types of twins. Describe the chorionicity associated with each type *(6 pts)*
   - *Monochorionic/Monoamniotic*
     i. *Share a placenta and amniotic sac*
   - *Monochorionic/Diamniotic*
     i. *Share a placenta but have individual amniotic sacs*
   - *Dichorionic/Diamniotic*
     i. *Have their own placentas and amniotic sacs*

3. List two risks that are associated with twin pregnancies *(2 pts)*
   - *Preeclampsia*
   - *Prematurity*
   - *Differences in growth and IUGR*
   - *Twin-to-twin transfusion syndrome*
   - *Death of a fetus*
   - *Brain damage in remaining twin after death of a monochorionic/diamniotic twin*
   - *Cerebral palsy risk is increased*
   - *PROM*
   - *Cord accidents*
   - *Malpresentation*
   - *Uterine atony*
   - *Placental abruption (intrapartum)*

- *Decrease in second twin's pH if birth is greater than 30 minutes after the first twin*
- *Vasa previa related to velamentous cord insertion*
- *Postpartum depression*

4. List two reasons why monochorionic-monoamniotic twin pregnancies are most risky *(2 pts)*
    - *Perinatal mortality is about 50-60%*
    - *High risk of cord accidents*
    - *Risk for twin-to-twin transfusion syndrome*

5. At the QEH, in order for twins to be born vaginally, which presentation(s) are required? *(2 pts)*
    - *Twin A is cephalic; Twin B is cephalic*
    - *Twin A is cephalic; Twin B is non-cephalic but estimated fetal weight is 1500g-4000g and physician is comfortable and skilled in breech birth*

6. Where do mothers of twins labour and give birth at the QEH? Who needs to be present at the time of birth? *(4 pts)*
    - *Labour in the birthing room*
    - *Give birth in the OR (swing room)*
    - *OB; L&B RN's; Pediatrician; RT (one for each baby); nursery RN (one for each baby); OR team, anesthesiologist*

7. ***True*** or False (circle the correct answer) *(1 pt)*

    After birth of the first twin, noise in the room should be kept to a minimum, as it is crucial time to assess the fetal-wellbeing of Twin B and decide appropriate mode of birth based of assessment

8. True or ***False*** (circle the correct answer) *(1 pt)*

    Oxytocin 5 IU IV should be administered with the anterior shoulder of Twin A

ANSWER: *Oxytocin should not be administered until birth of the anterior shoulder of Twin B*

9. What considerations and preparations are necessary for a vaginal birth of twins? *(7 pts)*
    - *Prepare woman for the possibility of a Caesarean (considering urgency)*
    - *Continuous EFM (scalp electrode may be applied to Twin A)*
    - *Caesareans usually occur in the "swing room" for twins*
    - *Ensure two warmers are set up in the room*
    - *Ensure you have appropriate personnel (ie: nursery RN and RT for each twin, one pediatrician for the two twins)*
    - *Ensure IV access and CBC and Group and Screen have been collected and sent*
    - *Bring "twin bin" to OR*
    - *Bring emergency delivery cart to the OR*
    - *Bring delivery table to the OR and supply with contents from "twin bin"*
    - *Bring ultrasound to the OR*
    - *Bring EFM monitor to the OR*
    - *Know where PPH bin and medications are in the event PPH occurs*
    - *Notify team when needed for birth (nursery RN and RT for each twin; one pediatrician for both twins)*

10. Name a maternal complication that a mother may be at risk for following the birth of twins *(1 pt)*
    - *Postpartum hemorrhage*

ANSWERS /21 pts

Post-Module Quiz:
Miscarriage and Perinatal Loss

1. Which of the following refers to loss of a pregnancy that is non-induced, where the products of conception are less than 20 weeks gestation and less than 500 grams in weight *(1 pt)*
   a) Therapeutic abortion
   b) Threatened abortion
   c) Spontaneous abortion
   d) Incomplete abortion
   e) None of the above

2. Describe the management options for first trimester losses *(3 pts)*
   - **Expectant:** Allowing time to pass to see if products of conception will pass spontaneously
   - **Misoprostol (Cytotec) administration:** A prostaglandin that is administered orally, sublingually, or vaginally to promote dilation of the cervix and expulsion of products of conception
   - **D&C (Dilation and Curettage):** Surgical intervention where a surgical instrument is used to dilate the cervix and a curette is used to remove products of conception

3. List two risk factors for an ectopic pregnancy *(2 pts)*
   - *Smoking*
   - *PID (pelvic inflammatory disease)*
   - *Endometriosis*
   - *Previous surgery on fallopian tubes*
   - *Fertility treatments (ie: in vitro fertilization)*
   - *Diethylstilbestrol (DES) exposure in utero*
   - *Previous ectopic pregnancy*

4. True or ***False*** (circle the correct answer) *(1 pt)*

   A salpingostomy involves surgical management of an ectopic pregnancy, where the fallopian tube is removed in the case of rupture or threatened rupture

   ANSWER: *A salpingectomy involves surgical management of an ectopic pregnancy, where the fallopian tube is removed in the case of rupture or threatened rupture*

5. List two potential causes of second trimester loss *(2 pts)*
   - *Chromosomal anomalies or congenital anomalies*
   - *Maternal anatomic factors*
   - *Maternal immunologic factors*
   - *Infection*
   - *Problems with the placenta*
   - *Severe acute illness*
   - *Thrombophilia*
   - *Uncontrolled chronic illness*
   - *Drug use, smoking, teratogen exposure*
   - *Premature rupture of membranes*
   - *Trauma*

6. List two potential causes of third trimester loss *(2 pts)*
   - *Chromosomal abnormalities and congenital anomalies*
   - *Immunologic factors*
   - *Infection*
   - *Intrapartum asphyxia*
   - *Placental problems*
   - *Severe acute illness*
   - *Thrombophilia*
   - *Umbilical cord complication*
   - *Uncontrolled chronic illness*
   - *Fetomaternal transfusion*
   - *Alloimmunization*
   - *Fetal growth restriction*

- *Nonimmune hydrops fetalis*
- *Twin-to-twin transfusion syndrome*
- *Drug use, smoking, or teratogen exposure*
- *Trauma*

7. What criteria are used to classify a stillbirth? *(2 pts)*
    - *Greater than 20 weeks gestation or*
    - *Greater than 500 g*

8. Other than prostaglandin gel or oxytocin, what medication can be used to induce labour in the event of a loss and how is it administered? *(1 pt)*
    - *Cytotec (misoprostol)*
        i. *Generally given vaginally; could be given orally or sublingually*

9. List five considerations for following second or third trimester losses *(5 pts)*
    - *Be mindful of EFM that may be used throughout the department*
    - *Encourage family to hold baby*
    - *Take pictures for the family*
    - *Follow any orders related to sending fetus and placenta to pathology/lab*
    - *If parents wish to take the fetus home, have them sign appropriate consents*
    - *Provide emotional support and guidance*
    - *Consider Rh status and need for WinRho*
    - *Hand out resource folder*
    - *Encourage holding and time spent with the baby*
    - *Hand out stillbirth kit*
    - *Offer emotional support and guidance*
        i. Supports may include social work, child life specialist, and pastoral care
    - *Consider cuddle cot if wanted by parents; otherwise transport the morgue*
    - *Lab investigations*

- *Considerations for autopsy*
- *Assist with naming and burial*

10. List two potential causes for neonatal death *(2 pts)*
    - *Prematurity*
    - *Low birth weight*
    - *Birth defects and anomalies*
    - *Birth asphyxia and hypoxia*
    - *Maternal complications of pregnancy*
    - *Neonatal hemorrhage*
    - *Respiratory distress syndrome*
    - *Sepsis*

Appendix E

Final Exam

Name: _____ Date: _____

Labour and Birth Orientation
Final Exam

1. Describe the fourth stage of labour. What nursing interventions are performed at this time? *(5 pts)*

2. Two women present for assessment. The first is a G2P1 40 1/7 weeks gestation with query labour. Your initial assessment reveals a healthy pregnancy with no concerns. The second woman is a G1P0 at 39 3/7 weeks gestation who states at her last visit her blood pressure was in the 90's diastolic and she had 2+ protein in her urine. What would be your choice for fetal health surveillance for these women and why? *(3 pts)*

3. What is the antidote for magnesium sulfate? Why would this be given? *(2 pts)*

4. A woman presents at term who is booked for a Caesarean birth next week. Her membranes are ruptured and she is crampy, so the physician decides to proceed with a Caesarean birth at this time. What do you need to do to prepare the woman and family for the Caesarean? *(6 pts)*

5. Which of the following statements is true? *(1 pt)*

   a) Rolling over onto all fours during a shoulder dystocia can be dangerous to the fetus when managing of shoulder dystocia
   b) An episiotomy will usually resolve a shoulder dystocia

c) The Zavanelli maneuver is often performed in the management of shoulder dystocia
d) Fundal pressure can be applied at the same time the physician is performing anterior shoulder disimpaction in the management of shoulder dystocia
e) None of the above

6. When is a sterile speculum exam indicated for PROM? What is nursing's role with this procedure? *(2 pts)*

7. A G3P2 woman presents at 30 4/7 weeks with complaints of cramping. How would you conduct your assessment? *(5 pts)*

8. A woman calls you for telephone advice. It is her first baby and she states she is due next week. She does not feel like her baby is moving as much. What would you want to ask her and what advice would you give? (2 pts)

9. What do late decelerations indicate? *(1 pt)*

10. A woman presents from the physician's office as her blood pressure was elevated during her visit. What condition are we monitoring her for? What assessments would you perform? *(5 pts)*

11. You are sitting with a woman in labour; she is on EFM as she has gestational diabetes in pregnancy. Her membranes rupture for clear fluid. You subsequently notice a deceleration in the FHR. You perform a vaginal examination and palpate a pulsating cord. What are your actions? *(4 pts)*

12. You are sitting with a twin induction. What additional considerations do you need to be mindful of when anticipating a vaginal birth of twins? *(4 pts)*

13. You are caring for a woman with a loss at 21 2/7 days. She is receiving misoprostol. Once she gives birth, will the fetus be considered a

stillbirth? Why or why not? What initial steps will you take immediately after birth? *(3 pts)*

14. True or False (circle the correct answer) *(1 pt)*

    Oxytocin may be started four afters after Prostin gel has been administered

15. You are sitting with an induction for postdates. Your Oxytocin rate is at 80 mL/hr. You note that the woman is having 7 contractions in 10 minutes. You then notice a prolonged fetal heart rate deceleration. What may be occurring and what are your actions? *(3 pts)*

16. You are going to the OR for a trial of forceps. What do you need to consider when preparing for this mode of birth? *(3 pts)*

17. You are attending a birth as the baby nurse. The baby is term and there have been no complications throughout the labour. However, the baby is born and you note poor tone and no respiratory effort. What actions would you take? *(2 pts)*

18. You are caring for a woman in labour who has had a healthy, uneventful pregnancy. You are assessing FHR through intermittent auscultation. You auscultate the fetal heart rate for 102 bpm after a contraction. What actions do you take? *(2 pts)*

19. You are caring for a woman attempting a TOLAC. What is the number one complication you are monitoring for? What assessments would be concerning when caring for these women? *(3 pts)*

20. A woman presents to the QEH with query labour at term. Once you complete your assessment and perform a vaginal exam, you note that the presenting part is soft and spongy. What would you do? *(2 pts)*

21. What are the contraindications for the use of Entonox? *(3 pts)*

22. You are assessing a woman who presents with vaginal bleeding and has been diagnosed with a placenta previa. She asks you if you think the doctor will allow her to have a vaginal birth. How would you respond? *(2 pts)*

23. A woman is requesting an epidural. How would you arrange this and what is your role when preparing for, and assisting during the procedure? *(5 pts)*

24. You are caring for a woman who is fully dilated. She does not have any urge to push. What would you do? *(2 pts)*

25. You are assessing a woman with who presents with query ruptured membranes. How would you go about your assessment? *(4 pts)*

26. Ruptured membranes have been confirmed in the patient you are caring for. She is to return the following morning for induction of labour. She asks you to check her cervix to see if she is starting to dilate yet. How would you respond? What discharge teaching would you provide her before she leaves? *(3 pts)*

27. What is a missed abortion? What are the management options for a missed abortion? *(2 pts)*

28. You are pushing with a woman with the physician present. The head is delivered and you note a turtle sign and there is no spontaneous restitution noted. With the next contraction, there is no further birth of the body. What would you do? *(4 pts)*

29. What is Celestone (betamethasone) and what are the indicators for its use? What is the typical dosage, route, and frequency of administration? *(2 pts)*

30. A G3P4 woman gives birth precipitously to a 4225 g baby. After the placenta, she begins to have a large amount of bleeding. What complication is she experiencing and what risk factors are present that

are contributing to the complication. How would you manage this situation? Include any medications that may be used, their routes, and any contraindications. *(8 pts)*

Appendix F

Final Exam Answers

Answers /94

Labour and Birth Orientation
Final Exam

1. Describe the fourth stage of labour. What nursing interventions are performed at this time? *(5 pts)*
    - *Birth of the placenta to 1hr postpartum*
    - *Inspect the placenta; ensure it is intact*
    - *Initiate oxytocin 30-40 IU/1 L or RL at 150 mL/hr (as per physician's orders)*
    - *Assist the physician with perineal repair*
    - *Fundal check and PV loss check q15mins*
    - *VS q15 mins*
    - *Assist with breastfeeding*
    - *Provide personal cares (change pads etc.).*
    - *Remove epidural catheter if indicated*
    - *Prepare for transfer to Unit 4*

2. Two women present for assessment. The first is a G2P1 40 1/7 weeks gestation with query labour. Your initial assessment reveals a healthy pregnancy with no concerns. The second woman is a G1P0 at 39 3/7 weeks gestation who states at her last visit her blood pressure was in the 90's diastolic and she had 2+ protein in her urine. What would be your choice for fetal health surveillance for these women and why? *(3 pts)*
    - *1st woman: IA because she is a heathy, term pregnancy with no identifiable risk factors*
    - *2nd woman: EFM because she has potential preeclampsia which is a risk factor of EFM*

3. What is the antidote for magnesium sulfate? Why would this be given? *(2 pts)*
    - *Calcium gluconate- given for magnesium toxicity when treating for preeclampsia or for fetal neuroprotection with premature labour*

4. A woman presents at term who is booked for a Caesarean birth next week. Her membranes are ruptured and she is crampy, so the physician decides to proceed with a Caesarean birth at this time. What do you need to do to prepare the woman and family for the Caesarean? *(6 pts)*
    - *Provide any guidance, education, or emotional support as needed*
    - *Ensure admission is completed; including IV initiation and CBC and Group and Screen; follow orders for IV soultion*
    - *EFM as she has had a previous Caesarean*
    - *Ensure consents are signed*
    - *Complete pre-procedure checklist*
    - *Insert foley catheter if ordered (often inserted in the OR; clarify with physician)*
    - *Administer Kefzol IV on call to the OR as per physician's orders*
    - *Check for orders for Zantac and/or sodium citrate*
    - *Anti-embolic stockings if ordered*
    - *Call nursery and update as they will attend the birth*
    - *Have support person change into OR greens*
    - *Transport to the OR with OR staff*

5. Which of the following statements is true? *(1 pt)*
    a) Rolling over onto all fours during a shoulder dystocia can be dangerous to the fetus when managing of shoulder dystocia
    b) An episiotomy will usually resolve a shoulder dystocia
    c) The Zavanelli maneuver is often performed in the management of shoulder dystocia
    d) Fundal pressure can be applied at the same time the physician is performing anterior shoulder disimpaction in the management of shoulder dystocia
    e) None of the above

6. When is a sterile speculum exam indicated for PROM? What is nursing's role with this procedure? *(2 pts)*
    - *Indicated with query PROM is inconclusive*
    - *Complete assessment; including self-reported time or PROM, colour, amount, odour, of fluid and presence of labour*
    - *Assess FHR depending on risk factors*
    - *Report findings to physician*
    - *Assist with sterile speculum exam by collecting light, vaginal examination tray, cotton swabs, nitrazine swab, microscope slide*
    - *Help position patient before and after procedure; break bed if instructed by physician*

7. A G3P2 woman presents at 30 4/7 weeks with complaints of cramping. How would you conduct your assessment? *(5 pts)*
    - *Have her void; change into gown; dip urine*
    - *Apply EFM as preterm*
    - *Complete Perinatal Triage Assessment Record*
    - *Confirm EDC*
    - *Confirm GTPAL; any history of previous premature labour with other pregnancies?*
    - *Ask when cramping began, length and duration*
    - *Assess for presence of PPROM, PV bleeding, decreased FM*
    - *Palpate abdomen for presence of contractions/tightenings and level of discomfort*
    - *Ask about pregnancy complications, previous medical/surgical history*
    - *Vital signs*
    - *Ask about any bleeding, PPROM, or intercourse in last 24 hours (cannot do fetal fibronectin if any of these factors are present)*
    - *Report findings to physician*

8. A woman calls you for telephone advice. It is her first baby and she states she is due next week. She does not feel like her baby is moving as

much. What would you want to ask her and what advice would you give? *(2 pts)*

- *Her GTPAL*
- *How long as movement been decreased? Is she feeling any movement at all? 6 movements in 2 hours is considered a normal amount of movement*
- *Any pregnancy complications?*
- *Any labour, leakage of fluid or bleeding?*
- *She should come into the department for an assessment and NST*

9. What do late decelerations indicate? (1 pt)
    - *Uteroplacental insufficiency*

10. A woman presents from the physician's office as her blood pressure was elevated during her visit. What condition are we monitoring her for? What assessments would you perform? *(5 pts)*
    - *Pre-eclampsia*
    - *Have her void; dip her urine to check for protein*
    - *EFM due to this risk factor*
    - *Assess serial blood pressures; monitoring for a diastolic greater than 90 mmHg and a systolic greater than 150 mmHg*
    - *Assess for headache, visual disturbances, epigastric pain, nausea/vomiting*
    - *Assess EDC, previous history, GTPAL; any previous history of preeclampsia?*
    - *Assess for labour, PROM, PV bleeding, decreased FM*
    - *Significant medical/surgical history*
    - *Report findings to physician*
    - *CBC, LFTs, coags, renal function tests may be ordered by physician*

11. You are sitting with a woman in labour; she is on EFM as she has gestational diabetes in pregnancy. Her membranes rupture for clear fluid. You subsequently notice a deceleration in the FHR. You perform a vaginal examination and palpate a pulsating cord. What are your actions? *(4 pts)*

- *Cord prolapse*
- *Keep hand in place and call for help; try to keep pressure off the cord*
- *Discontinue any oxytocin that may be running; open main line*
- *Position woman on hands and knees or Trendelenburg position*
- *Assess FHR*
- *Have physician assess*
- *Ensure nursery, RT and peds are aware*
- *Prepare for Caesarean*

12. You are sitting with a twin induction. What additional considerations do you need to be mindful of when anticipating a vaginal birth of twins? *(4 pts)*
    - *Monitoring; physician may place a scalp electrode on Twin A and monitor Twin B abdominally*
    - *Notify nursery, peds, RT*
    - *Notify OR staff of induction*
    - *Prepare patient in the event a C-birth is warranted (check list, foley, etc.)*
    - *Transfer to OR for birth*
    - *Bring monitor, ultrasound, emergency birth kit*
    - *Do not push oxytocin until after Twin B*
    - *Two teams for babies*
    - *Quiet after birth of Twin A as need to focus on fetal wellbeing of Twin B*
    - *Increased risk for PPH*

13. You are caring for a woman with a loss at 21 2/7 days. She is receiving misoprostol. Once she gives birth, will the fetus be considered a stillbirth? Why or why not? What initial steps will you take immediately after birth? *(3 pts)*
    - *Is considered a stillbirth as fetus is over 20 weeks gestation*
    - *Oxytocin administration*
    - *Watch for increased bleeding and/or retained placenta*
    - *Comfort family; offer for them to hold baby*

- *Take pictures*
- *Take measurements; start to put together stillbirth kit*

14. True or ***False*** (circle the correct answer) *(1 pt)*

    Oxytocin may be started four afters after Prostin gel has been administered
    ANSWER*: Oxytocin may be started six hours after Prostin gel has been administered*

15. You are sitting with an induction for postdates. Your Oxytocin rate is at 80 mL/hr. You note that the woman is having 7 contractions in 10 minutes. You then notice a prolonged fetal heart rate deceleration. What may be occurring and what are your actions? *(3 pts)*
    - *Tachysystole with FHR changes*
    - *Call for help*
    - *Turn off oxytocin*
    - *Open mainline*
    - *Reposition woman*
    - *Perform vaginal examination*
    - *Prepare for OR if FHR remains abnormal*

16. You are going to the OR for a trial of forceps. What do you need to consider when preparing for this mode of birth? *(3 pts)*
    - *Notify nursery, RT; physician to notify peds*
    - *Consent*
    - *Prepare patient for possible C-Birth if forceps are unsuccessful*
    - *Ask physician what type of forceps they would like*
    - *Transfer delivery table, monitor, and emergency delivery kit to OR*

17. You are attending a birth as the baby nurse. The baby is term and there have been no complications throughout the labour. However, the baby is born and you note poor tone and no respiratory effort. What actions would you take? *(2 pts)*
    - *Take baby to warmer; call for help (nursery, RT, peds)*

- *Position and dry the baby for 30 seconds*
- *Check for heart rate*
- *Initiate if still no respiratory effort or heart rate is less than 100 bpm PPV*

18. You are caring for a woman in labour who has had a healthy, uneventful pregnancy. You are assessing FHR through intermittent auscultation. You auscultate the fetal heart rate for 102 bpm after a contraction. What actions do you take? *(2 pts)*
    - *Reposition woman*
    - *Check her pulse*
    - *Auscultate after next contraction*
    - *Initiate EFM if FHR still abnormal*

19. You are caring for a woman attempting a TOLAC. What is the number one complication you are monitoring for? What assessments would be concerning when caring for these women? (3 pts)
    - *Uterine rupture*
    - *Increased PV bleeding*
    - *Atypical or abnormal FHR changes*
    - *Constant abdominal pain or pain that is different from pain of contractions*
    - *No presenting part felt during vaginal exam*

20. A woman presents to the QEH with query labour at term. Once you complete your assessment and perform a vaginal exam, you note that the presenting part is soft and spongy. What do you suspect? What would you do? *(2 pts)*
    - *Suspect breech presentation*
    - *Notify physician to confirm via ultrasound*
    - *Prepare for OR if confirmed breech presentation*

21. What are the contraindications for the use of Entonox? *(3 pts)*
    - *Chronic lung disease*
    - *Inner ear (stapes surgery)*

- *Previous bowel obstruction*

22. You are assessing a woman who presents with vaginal bleeding and has been diagnosed with a placenta previa. She asks you if you think the doctor will allow her to have a vaginal birth. How would you respond? *(2 pts)*
    - *A Caesarean birth is indicated with placenta previa due to the increased risk of bleeding which can be dangerous and/or potentially fatal to the mother and baby*

23. A woman is requesting an epidural. How would you arrange this and what is your role when preparing for, and assisting during the procedure? *(5 pts)*
    - *Perform vaginal examination and notify physician of patient's request*
    - *Physician to consult anesthesiologist*
    - *Obtain CBC report (platelet count)*
    - *Obtain baselines VS and FHR*
    - *Initiate IV bolus if ordered by anesthesiologist*
    - *Position patient as requested by anesthesiologist*
    - *Help anesthesiologist set up tray if requested*
    - *Support patient*
    - *Apply tegaderm and tape epidural catheter*
    - *Vital signs; BP q5mins x3*
    - *Document procedure*

24. You are caring for a woman who is fully dilated. She does not have any urge to push. What would you do? *(2 pts)*
    - *Await until she has an urge; do not start if she does not as it is wasting her energy and not productive*
    - *May consider initiating oxytocin to increase strength of contractions and encourage passive descent*

25. You are assessing a woman with who presents with query ruptured membranes. How would you go about your assessment? *(4 pts)*

- *Assess GTPAL and EDC*
- *Have her void; change into gown; dip urine*
- *Complete Perinatal Triage Assessment Record*
- *Ask what time membranes ruptured, amount, colour, and odour*
- *Assess for presence of fluid; obtain fluid on a slide if possible*
- *Test fluid on nitrazine if possible*
- *Assess for presence of labour*
- *Assess for previous medical or surgical history*
- *Obtain GBS status*
- *Notify physician of assessment*

26. Ruptured membranes have been confirmed in the patient you are caring for. She is to return the following morning for induction of labour. She asks you to check her cervix to see if she is starting to dilate yet. How would you respond? What discharge teaching would you provide her before she leaves? *(3 pts)*
    - *Would not check cervix, as she is not in labour and a vaginal examination can increase risk of infection*
    - *Discharge teaching: return if labour occurs, change in colour of fluid, PVB, decreased FM, temperature occurs or any other concerns arise*

27. What is a missed abortion? What are the management options for a missed abortion? *(2 pts)*
    - *Occurs when there is a fetal demise (less than 20 weeks) but the products of conception have not passed*
    - *Management includes: expectant (see if products will pass spontaneously); misoprostol administration; or D&C*

28. You are pushing with a woman with the physician present. The head is delivered and you note a turtle sign and there is no spontaneous restitution noted. With the next contraction, there is no further birth of the body. What would you do? *(4 pts)*
    - *Call for help (nsy, RT, peds)*

- *McRobert's maneuver; one nursed on either side pull woman's legs back and lower the bed*
- *Note time of delivery of the head*
- *Ask physician if suprapubic pressure is warranted and perform same if requested*
- *Instruct patient to push appropriately*
- *Position the patient on all fours if indicated by physician*
- *Note time of birth*
- *Prepare for resuscitation of baby*

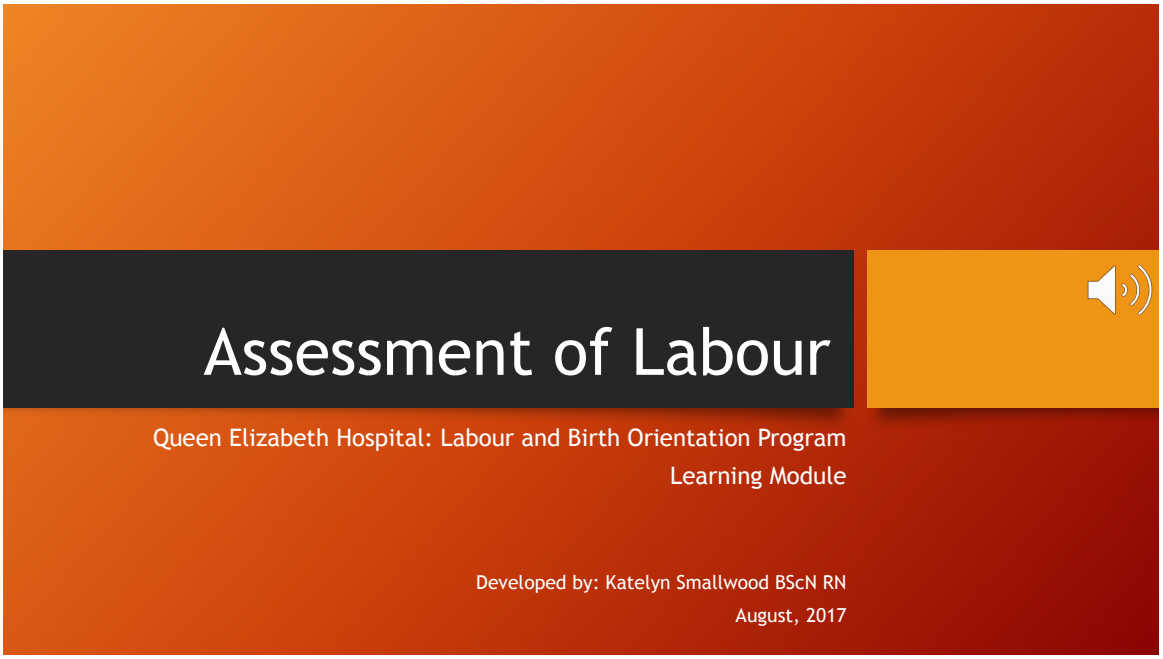
29. What is Celestone (betamethasone) and what are the indicators for its use? What is the typical dosage, route, and frequency of administration? (2 pts)
    - *Steroid used to help mature fetal lungs*
    - *Given typically up until 34 weeks gestation*
    - *Dosage is 12 mg IM q24 hours for two doses*

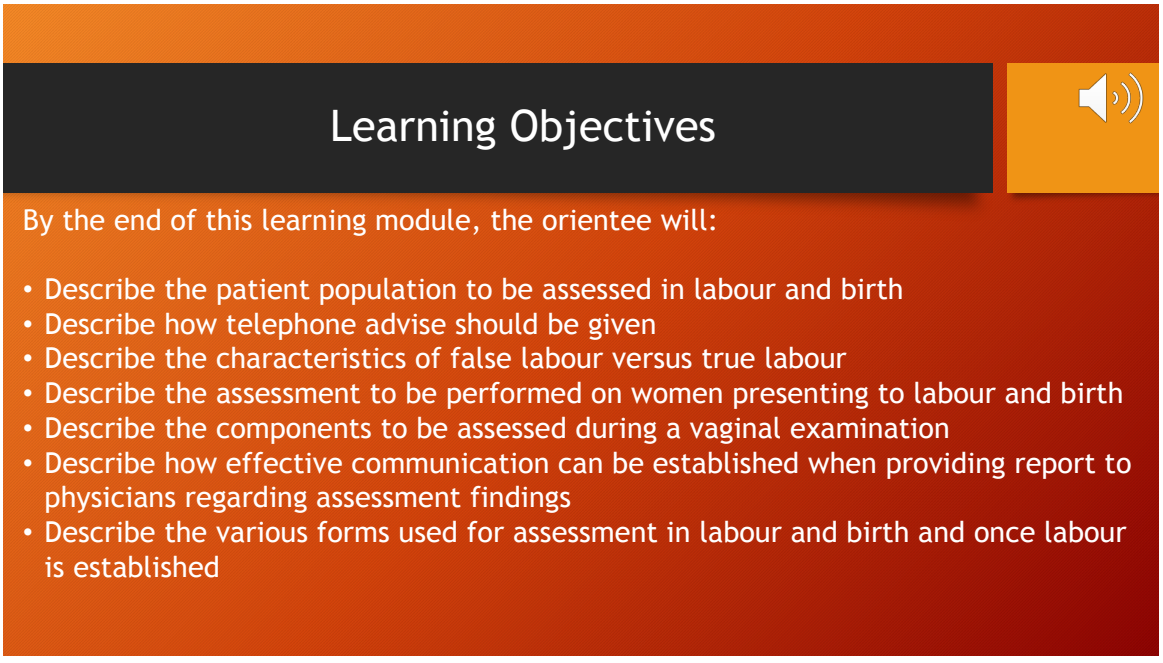
30. A G3P4 woman gives birth precipitously to a 4225 g baby. After the placenta, she begins to have a large amount of bleeding. What complication is she experiencing and what risk factors are present that are contributing to the complication. How would you manage this situation? Include any medications that may be used, their routes, and any contraindications. *(8 pts)*
    - *Postpartum hemorrhage*
    - *Precipitous birth; large baby; multip*
      Call for help
    - *Open oxytocin wide open if she has an existing IV*
    - *Fundal massage*
    - *Vital signs*
    - *Foley catheter*
    - *Ensure CBC and Group and Screen; consider coags*
    - *Initiate second IV line if indicated*
    - *Obtain PPH kit*
    - *Hemabate IM or MM- use in caution with asthma*
    - *Ergot IM- use in caution with increased BP*

- *Misoprostol PO, SL, or rectally*
- *Initiate postpartum hemorrhage record*
- *Cyklocapron IV*
- *Prepare for Bakri balloon*
- *Prepare for OR*
- *Reassure family*

Appendix G

Learning Modules





Who Can be Assessed in Labour and Birth

At the Queen Elizabeth Hospital:

- All women at 20 weeks gestation and over can be assessed in labour and birth
- Any gestation less than 20 weeks should present to the emergency department for assessment

Telephone Advice

- Often times, women will call the department seeking advice as to whether or not they should present for assessment
- Refer to telephone record for recommendations for advice offered, and also to document telephone call
- **In general, information you want to obtain includes:**
  - Name
  - GTPAL
  - EDC
  - Mode of previous births (if applicable)
  - Any pregnancy complications
  - Chief complaint

Telephone Advice

- **Assess for:**
  - Presence of contractions (including frequency, duration, intensity) and ability to cope
  - Ruptured membranes
  - Vaginal bleeding
  - Fetal movement (at least 6 FM in 2 hour period)

- **Should be advised to seek care if:**
  - Contractions <5 minutes apart for more than 2 hours increasing in frequency, intensity, or duration
  - Ruptured membranes occur
  - Bright red vaginal bleeding occurs
  - Fetal movements are less than 6 in 2 hour period
  - Signs and symptoms related to other pregnancy concerns (ie: epigastric pain, visual disturbances)
  - If concerned and would like to present for assessment

False Labour vs. True Labour

False labour

- Also referred to as “prelabour” or ”prodromal” labour
- Term false labour can be discouraging for women
- Women often present in prelabour and teaching required to educate women re: signs of true labour and comfort measures at home to assist with maternal coping

False Labour vs. True Labour

Characteristics of false labour

- **Contractions**
  - Have an inconsistent pattern (frequency, duration, intensity)
  - Intensity may increase or decrease with activity (ie: ambulation)
- **Discomfort**
  - Pain often mostly felt in abdomen and groin
  - May be more irritating than painful
  - Women can often talk through pain or exhibit minimal distress
- **Cervix**
  - No significant changes in dilation and/or effacement

False Labour vs. True Labour

Characteristics of true labour

- **Contractions**
  - Most often have a consistent pattern increasing in frequency, intensity and duration
  - Often increase with activity (ie: ambulation)
- **Discomfort**
  - Can begin in the lower back and sweep around to abdomen
  - Often present as menstrual-like cramping in early labour
  - Some women may experience persistent back pain
- **Cervix**
  - Progressive changes in cervical dilation and effacement
  - Most important factor when assessing true versus false labour

Assessment

When a woman presents for assessment:

- Ensure she has registered at admitting
- Accompany her to one of the three assessment rooms
- Have her change into gown and void in urine hat
- Obtain antenatal record
- Obtain ultrasound report

Assessment

- **Establish GTPAL**
  - Antenatal record
  - Patient history
- **Establish EDC**
  - LMP/Ultrasound dating
  - Antenatal record
  - Patient history
  - Ultrasound reports

Assessment

- **Assess FHR**
  - IA if there are no presence of risk factors
  - EFM if risk factors are present
  - Leopold maneuvers to palpate fetal back (optimal position for ultrasound transducer/doppler)
  - Assess position, lie, presentation
  - Fundal height
- **Assess for presence of contractions**
  - Onset
  - Frequency (regular vs. irregular)
  - Duration
  - Intensity/strength (palpation)

Assessment

- **Assess for presence of ruptured membranes**
  - Intact, ruptured or query
  - If suspected determine date, time, amount, colour
  - Refer to learning module PROM and GBS
- Assess for presence of vaginal bleeding
  - Date
  - Time it began
  - Amount
  - Colour/consistency

Assessment

- **Assess for presence of fetal movement**
  - Normal
  - If increased or decreased note time and date change in movement was noted
  - Employ EFM if movement is decreased (give clicker to indicate FM while on monitor)
- **From antenatal record and patient history, assess for:**
  - Any problems or complications with the pregnancy
  - Any problems or complications with previous pregnancies/births
  - Presence of any medical conditions and surgical history
  - Psychosocial assessment (smoking/alcohol/drug use) and mental health history (anxiety/depression)

Assessment

- **Obtain additional history**
  - Allergies
  - Current medication use
  - Intent to breastfeed
  - Pre-pregnancy weight/BMI, current weight, height, weight gain in pregnancy
- **Lab results**
  - GBS status
  - Blood type
  - Rubella and varicella status
- Vital signs/urine dip
- Last blood sugar if diabetic

Assessment: Vaginal Examination

- Vaginal examination is performed to determine progress of labour

A vaginal examination ***should not*** be performed until physician is consulted for the following situations:

- Ruptured membranes in the absence of active labour
- Query preterm labour (unless birth is imminent)
- Vaginal bleeding

Assessment: Vaginal Examination

Vaginal examination is an acquired skill with various components for assessment

- **Dilation**
  - Ranges from closed to fully (10 cm) dilated
- **Effacement**
  - Often documented as percentage (0—100%)
  - Uneffaced cervix is approximately 2 cm long (0% effaced)
  - A cervix that is approximately 1 cm long is about 50% effaced
  - A cervix that is “paper thin” is fully (100%) effaced

Assessment: Vaginal Examination

- **Station**
  - Refers to measurement of descent of the fetus into the pelvis in relation to maternal ischial spines
  - Level of the spines is referred to as Station 0
  - Station above the spines is referred to as a negative number measured in centimeters (-1; -2; -3)
  - Station below the spines is refereed to as a positive number measured in centimeters (+1; +2; +3)
- **Position of the cervix**
  - Referred to as posterior, mid, or anterior
  - Cervix becomes anterior as labour progresses

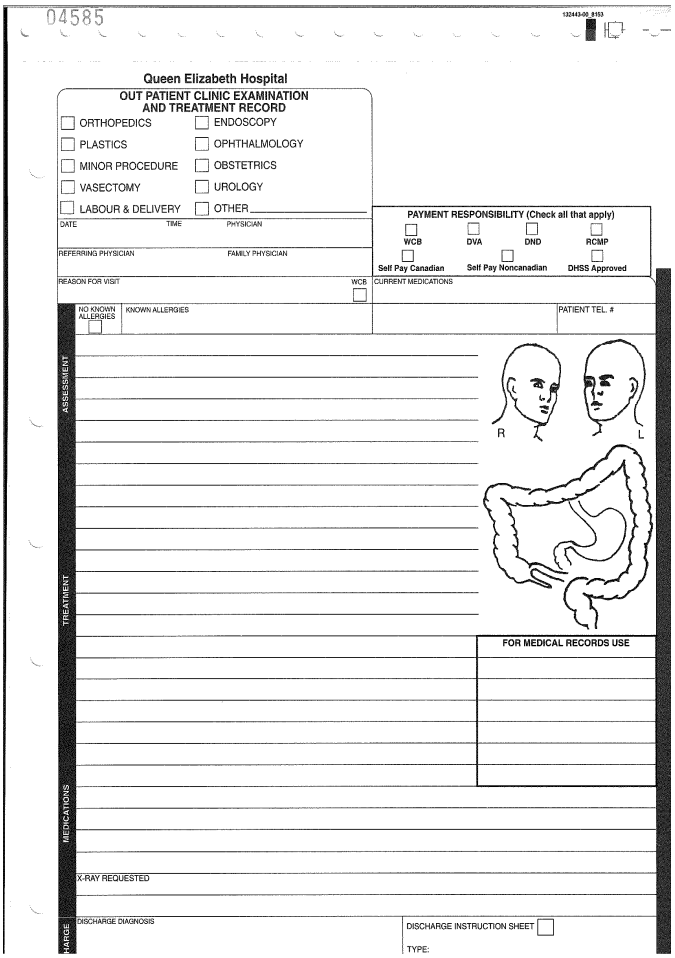
Assessment: Vaginal Examination

- **Consistency of the cervix**
  - Soft, medium, firm
  - Cervix softens in preparation for labour
- **Presenting part**
  - Cephalic (vertex); breech; shoulder
  - Presenting part should feel hard (head) as opposed to spongy (buttocks)
- **Membrane status**
  - Ruptured
  - Intact
  - Bulging

Assessment: Communication

Once assessment is completed, communicate and report findings to physician:

- Ensure assessment is complete and thorough
- Demonstrate professionalism in your communication of assessment findings
- Helpful to use a standardized method of relaying information: ***SBAR***
  - ***S (Situation):*** Refers to a concise statement of the problem
  - **B (Background):** Refers to pertinent and brief information pertaining to the situation
  - ***A (Assessment):*** Refers to your findings and analysis (what you think/found)
  - ***R (Recommendation):*** Refers to action requested/recommended (what you want)



Perinatal Triage and Assessment Record

1

Date	Time
Arrived by ambulance ☐ Yes ☐ No	
Language preferred	

REASON FOR VISIT _____ Accompanied by _____

G ____ T ____ P ____ A ____ L ____ LMP _____ EDD dates _____ US _____ Gestational age ____

2 **INITIAL ASSESSMENT**

Contractions ☐ Yes ☐ No
Date _____ Time started _____
☐ Regular ☐ Irregular q ____ min
Intensity _____
Duration _____

Membranes
☐ Intact ☐ Ruptured ☐ Query
Date _____
Time _____
Colour _____

Bleeding
☐ Yes ☐ No ☐ Show
Date _____ Time started _____
Amount _____
Colour/consistency _____

Fetal movement
☐ Normal
☐ ↑ ☐ ↓ since
Date _____
Time _____

Infectious history Recent infectious disease/contact ☐ No ☐ Yes, specify _____ e.g. MRSA, VRE, chickenpox, Hep B, TB, HSV
Antibiotic Resistant Organism screen completed ☐ Yes ☐ No Initials _____
Triaged as ☐ Emergent ☐ Urgent ☐ Non-urgent **Triaged to** ☐ LDR ☐ Assessment room ☐ Waiting room ☐ _____

STOP

3 **HISTORY/RISK FACTORS** *Antenatal Record* ☐ *Reviewed* ☐ *Not available*

ALLERGIES ☐ NKA ☐ Yes, specify/reactions _____ **ABO group** ____ **Rh** ____
GBS result ☐ Unk ☐ Neg ☐ Pos ☐ Swabs taken Last done _____ Rubella ☐ Immune ☐ Non-immune
Current medications/complementary therapy ☐ Vitamins only ☐ Other meds & last dose _____
☐ See Medication Reconciliation Form Breastfeeding ☐ Yes ☐ No
Height ____ cm/in Pre-pregnant wt. ____ kg/lb Pre-pregnant BMI ____ Current wt. ____ kg/lb Wt. gain ____ kg/lb
Pregnancy concerns ☐ None
Past obstetric concerns ☐ None
Medical/surgical/anesthetic concerns ☐ None
Psychosocial concerns ☐ None ☐ Substance use ☐ Mental health ☐ Current tobacco use #/day ____ If quit, last use _____
Previous admission this pregnancy ☐ None ☐ Yes, reason

4 **ASSESSMENT** Last ate _____ Last drank _____ Symphysis fundal ht. consistent with gestational age ☐ Yes ☐ No ____ cm
Presentation _____ **L**ie _____ **P**osition _____ **E**ngaged ☐ Yes ☐ No
FH assessment mode ☐ AUSC ☐ EFM ☐ NST If EFM/NST, specify reason _____

	Time				
FHR	FHR [bpm]				
	Rhythm/ Variability				
	Accelerations				
	Decelerations				
	Classify as				
MATERNAL	Time				
	Contractions				
	BP				
	Pulse				
	Temp/Resp				
	Urine P/K				
	Blood sugar				
	INITIALS				

	Time		
VAGINAL EXAM	Cx dilatation [cm]		
	Cx length [cm]		
	Station		
	Cx position [Anterior, Mid, Posterior]		
	Cx consistency [Soft, Med, Firm]		
	EXAMINED BY		
TESTS	Bishop score ____ Biophysical Profile Score ____	Urine sent ☐ R&M ☐ C&S	
	Amniotic fluid Nitrazine ☐ Neg ☐ Pos	Blood work:	
	Ferning ☐ Neg ☐ Pos		
	Swabs done ☐ fFN ☐ C&S ☐ Other		

Provider name _____
Notified by _____ at _____ h
Provider arrived at _____ h
Completed by _____ Signature

Labour Partogram

1

Partogram #	Date [d/m/y]	Time	G____ T____ P____ A____ L____
Admission			EDD
Regular contr			Gestation age ____ wks
☐SROM ☐ARM			☐ Membranes intact
Mec noted			Amniotic fluid colour
Last ate			Current weight ____ kg/lb
Last drank			**ABO group** ____ **Rh** ____ **GBS results** ☐ Pos ☐ Neg ☐ Unk
Allergies	☐ NKA ☐ Yes		
Medications	☐ No ☐ Yes		
Risk factors/ concerns	☐ No ☐ Yes		

2

Date / Time — Hour: 1 2 3 4 5 6 7 8 9 10 11 12

CERVICAL DILATATION in cm (●): 10 9 8 7 6 5 4 3 2 1

STATION (X): -3 -2 -1 0 +1 +2 +3

	Hour 1	2	3	4	5	6	7	8	9	10	11	12
Cervical length												
Cx position/ consistency												
Presenting part position												
Moulding/ caput												
Amniotic fluid												
Blood/show												
Examiner												

Birth plan

Support person(s)

BARCODE (IF USED)

Legend (For any variance * = see Variance Record/Progress Notes)

Vaginal examination	Consistency	Presenting part position	Moulding/caput	Amniotic fluid	Blood/show
Cervical Length = in cm **Position of cervix** **A** = Anterior **M** = Mid **P** = Posterior	**S** = Soft **Med** = Medium **F** = Firm	**L** = Left **R** = Right **O** = Occiput **S** = Sacral **A** = Anterior **T** = Tranverse (lateral) **P** = Posterior	**M** = Moulding **C** = Caput	**ø** = Absent **Sc** = Scant **Mod** = Moderate **L** = Large **CL** = Clear **BL** = Bloody **Mec** = Meconium	**Sc** = Scant **Mod** = Moderate **L** = Large

Date	Hour Time	1	2	3	4	5	6
3 FETAL ASSESSMENT	AUSC ● EXT X FECG O (200–50)						
	Rhythm [R, I]/Variability						
	Accelerations						
	Decelerations						
	Classification [N, ATYP, ABN]						
4 CONTRACTIONS	Frequency [in 10 min]/Intensity						
	Duration [in sec]						
	Resting tone [F, S, mmHg]						
	IV Oxytocin: _____ I.U./_____ mL ☐ Augmentation ☐ Induction — Time / Mu/min						
5 MEDS (dose/route/time) PROCEDURES TREATMENTS							
6 MATERNAL ASSESSMENT	Blood pressure Systolic v Diastolic ^ Pulse ● Temp X (190–50; °C 40–35)						
	RR/O_2 Sat						
	Non-pharmacologic						
	Activity/Position						
	Urine/Blood sugar [mmol/L]						
7 REGIONAL ANALG.	☐ Epidural ☐ Spinal ☐ Combined ☐ PCEA 1st Bolus at _____ h Continuous infusion at _____ h Shift/total infused _____ mL						
	Dr. / Called at _____ h / Arrived at _____ h — Bolus/Rate						
	R/L sensory						
	R/L motor						
	Pain/Sedation Scale						
	Initials						

Legend (For any variance * = see Variance Record/Progress Notes)

FETAL ASSESSMENT
Rhythm (for IA)
R = Regular
I = Irregular
Variability (for EFM)
ø = Absent (undetectable)
↓ = Minimal (≤ 5 bpm)
+ = Moderate (6–25 bpm)
↑ = Marked (> 25 bpm)

Accelerations
✓ = Present/Spontaneous
ø = Absent/Not heard
SS = Present/Scalp Stimulation
Decelerations
✓ = Present
ø = Absent/Not heard

Decelerations (cont'd)
E = Early
V = Variable*
L = Late*
P = Prolonged*
* Charting includes:
↓ ____ bpm x ____ sec/min

Classification
N = Normal
ATYP = Atypical
ABN = Abnormal

CONTRACTIONS
Intensity
M = Mild
Mod = Moderate
S = Strong
____ mmHg (IUPC)

Resting Tone
S = Soft
F = Firm
____ mmHg (IUPC)

7	8	9	10	11	12	Hour / Time	Date

FETAL ASSESSMENT

200 190 180 170 160 150 140 130 120 110 100 90 80 70 60 50

AUSC •
EXT X
FECG O

Rhythm [R, I]/Variability
Accelerations
Decelerations
Classification [N, ATYP, ABN]

CONTRACTIONS

Frequency [in 10 min]/Intensity
Duration [in sec]
Resting tone [F, S, mmHg]
Time IV Oxytocin: _____ I.U./_____ mL
Mu/min ☐ Augmentation ☐ Induction

MEDS (dose/route/time) PROCEDURES TREATMENTS

MATERNAL ASSESSMENT

°C 40 39 38 37 36 35

190 180 170 160 150 140 130 120 110 100 90 80 70 60 50

Blood pressure
Systolic v
Diastolic ^
Pulse •
Temp X

RR/O_2 Sat
Non-pharmacologic
Activity/Position
Urine/Blood sugar [mmol/L]

REGIONAL ANALG.

☐ Epidural ☐ Spinal ☐ Combined ☐ PCEA 1st Bolus at _____ h Continuous infusion at _____ h Shift/total infused _____ mL

Bolus/Rate
R/L sensory
R/L motor
Pain/Sedation Scale

Dr.
Called at _____ h
Arrived at _____ h

Initials

Legend (For any variance * = see Variance Record/Progress Notes)

MATERNAL ASSESSMENT

Activity/Position

- **Sit** = Sitting
- **Std** = Standing
- **RL** = Right lateral
- **LL** = Left lateral
- **SU** = Supine
- **LI** = Lithotomy
- **SF** = Semi-Fowler's
- **AMB** = Ambulating
- **BB** = Birthing ball
- **HK** = Hands & knees
- **KC** = Knee-chest
- **Sq** = Squatting
- **TR** = Trendelenberg

Urine

- **P** = Protein
- **K** = Ketones
- **V** = Void
- **I&O** = In and out catheter
- **FC** = Foley catheter inserted

REGIONAL ANALGESIA

- **R/L sensory** = Right/Left sensory level testing
- **R/L motor** = Right/Left motor block
- **0** = None
- **1** = Partial
- **2** = Almost complete
- **3** = Complete

Pain Scale (0–10)

- **0** = No pain
- ↓
- **10** = Worst pain possible

Sedation Scale

- **1** = Fully awake and oriented
- **2** = Drowsy
- **3** = Eyes closed but rousable to command
- **4** = Eyes closed but rousable to mild physical stimulation (earlobe tug)
- **5** = Eyes closed but unrousable to mild physical stimulation

12 Second Stage

	Date	Time
Full dilatation at		
Active pushing started at		

If applicable: ☐ IUPC removed _____ h
☐ Foley removed _____ h

MD/RM notified at _____ h | Arrived at _____ h

FHR mode: ☐ AUSC ☐ EXT EFM ☐ FECG

Time	FHR	Notes	Initials	Time	FHR	Notes	Initials

Date of birth _____ Time of birth _____ h Oxytocin ☐ not given ☐ given at _____ h Dose _____ ☐ IM ☐ IV By _____

13 ☐ Assisted Vaginal Birth Summary Analgesia/anesthesia _____ Bladder emptied _____ mL at _____ h

☐ Forceps, type _____ Forceps on at _____ h Forceps off at _____ h

☐ Vacuum, type _____ Vacuum on at _____ h Vacuum off at _____ h No. of pop-offs (recommended max ≤ 3) _____

Performed by _____ Assisted by _____

☐ Forceps failed ☐ Vacuum failed Comment _____

Completed by _____

14 Third Stage Time of placenta delivery _____ h Cord gases collected ☐ Venous ☐ Arterial ☐ Not collected

Skin-to-skin contact at _____ h To breast ☐ Yes ☐ No, reason _____

If Third Stage prolonged Maternal VS: Time _____ h BP _____ P _____ R _____

Time _____ h BP _____ P _____ R _____ ☐ See progress notes

☐ Manual removal of placenta Location ☐ LDR Analgesia _____ Time to OR _____ h

Completed by _____

healthy mothers, healthy babies

LABOUR-DELIVERY SUMMARY

ADMISSION DATE _____ DIAGNOSIS _____

GRAVIDA ☐ PARA ☐ EDC ☐ GESTATION ☐ WKS (DATES) Rh ☐

COMP. OF THIS PREG. ☐ NONE ☐ YES (IDENTIFY) _____ RESOLVED ☐ YES ☐ NO

FIRST STAGE: Onset Date ☐ Time ☐

- ☐ SPONTANEOUS
- ☐ AUGMENTED Time ☐
- ☐ INDUCED Time ☐
- ☐ AROM
- ☐ OXYTOCIN
- ☐ PROSTAGLANDIN
- ☐ CATHETER

REASON FOR AUGMENTATION / INDUCTION:

MEMBRANE RUPTURE Date ☐

- ☐ Spontaneous
- ☐ Questionable
- ☐ ARM

Time ☐ Duration at Delivery ☐

Meconium ☐ No ☐ Yes

Time meconium first noted ☐ hrs

☐ T ≥ 38 in Labour

SECOND STAGE: Onset Date ☐ Time ☐ Duration ☐

DELIVERY Date ☐ Time ☐

☐ Spontaneous

FORCEPS
- ☐ Outlet
- ☐ Low
- ☐ Mid
- ☐ High
- ☐ Aftercoming Head

VACUUM
- ☐ Outlet
- ☐ Low
- ☐ Mid

ROTATION
- ☐ Spontaneous
- ☐ Manual
- ☐ Forceps
- ☐ Vacuum

POSITION AT DEL ☐

PRESENTATION ☐

REASON:

☐ CAESAREAN - REASON:

FETAL DISTRESS: ☐ Yes ☐ No

Describe

DRUG TIME	DRUGS (WITHIN 24 HOURS) DRUG / DOSE / ROUTE

THIRD STAGE: Date ☐ Time ☐ Duration ☐

PLACENTA DELIVERY
- ☐ Spontaneous
- ☐ Assisted
- ☐ Manual

ABNORMALITIES:

UMBILICAL VESSELS ☐ 3 ☐ 2 ☐ Nuchal Cord

- ☐ Cord blood taken
- ☐ Cord pH done

OXYTOCIC
- ☐ None
- ☐ Before Separation
- ☐ After Separation
- ☐ Oxytocin Drip Postpartum

Type _____ Dose _____ Route _____

ANAESTHESIA
- ☐ None
- ☐ Entonox
- ☐ Local
- ☐ Pudendal
- ☐ Epidural
- ☐ Spinal
- ☐ General
- ☐ Other

EPISIOTOMY
- ☐ None
- ☐ Midline
- ☐ Mediolateral

LACERATIONS
- ☐ None
- ☐ 1st degree (vaginal)
- ☐ 2nd degree (perineal)
- ☐ 3rd degree (anal sphincter)
- ☐ 4th degree (rectal mucosa)
- ☐ Repair

BLOOD LOSS _____ (mls)

PPH ☐ No ☐ Yes

BABY ☐ Girl ☐ Boy WEIGHT ☐ gms

APGAR ☐ 1 min. ☐ 5 min. ☐ 10 min.

☐ **STILL BIRTH**

LAST FETAL MOVEMENT ☐

LAST FHR PRE ☐ POST ☐

COMMENTS:

_____ _____ Sponge count

_____ _____ Sharps count

Signature Physician Attending _____ Signature Nurse Attending _____

POSTPARTUM DISCHARGE CONDITION / DIAGNOSES: ☐ NORMAL ☐ ABNORMAL

Rh Immunization _____

Rubella Immunization _____

COMMENTS:

Discharge Date: _____ Physician Signature: _____

58-05 White - Mother's Chart Pink - Physician's Office Yellow - Baby's Chart

PEI RCP 11-96

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

References

Institute for Health Care Improvement. (2017). SBAR toolkit. Retrieved from http://www.ihi.org/resources/Pages/Tools/sbartoolkit.aspx

Murray, S., & McKinney, E. (2014). *Foundations of maternal-newborn and women's health nursing* (6th ed.). St. Louis, MO: Elsevier Saunders

Process of Birth and Stages of Labour

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
July, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Identify the 4P's associated with the birthing process
- Describe the factors that affect each of the 4P's of the birthing process
- Define the four stages of labour
- Describe the average duration, contraction pattern, discomfort, behaviours, and nursing interventions associated with each stage of labour
- Define labour dystocia and obstructed labour

Process of Birth

The process of birth is influenced by what is often referred to as the *4 p's*:

- **Powers**
  - Uterine contractions
  - Maternal pushing efforts
- **Passage**
  - Maternal pelvis and soft tissue
- **Passenger**
  - Fetus
- **Psyche**
  - Psychological response to labour and birth

Process of Birth: Powers

Factors that affect the *Powers* during the birthing process include:

Uterine contractions
- The primary force that promotes descent of the fetus, from the onset of labour to complete cervical dilation

Maternal pushing efforts
- Uterine contractions continue to promote fetal descent during the pushing stage
- Voluntary pushing efforts of the mother also promotes fetal descent through the pelvis in an effort to achieve a vaginal birth

Process of Birth: Passage

Factors that affect the *Passage* during the birthing process include:

Maternal pelvis and soft tissue

- Maternal pelvis plays a greater role than soft tissue in the progress of labour
- Bony pelvis is divided into the false pelvis (top) and true pelvis (bottom)
- True pelvis is most important in facilitating birth
  - **The inlet** (upper pelvic opening)
  - **Midpelvis** (pelvic cavity)
  - **Outlet** (lower pelvic opening)
- True pelvis has different dimensions at different levels to help facilitate birth

Process of Birth: Passenger

Factors that affect the *Passenger* during the birthing process include:

Fetal head

- Fetus descends into the pelvis in the cephalic presentation 96% of the time
- Fetal head is comprised of:
  - Two frontal bones on the forehead
  - Two parietal bones at the crown of the head
  - One occipital bone at the back of the head
- Bones of the fetal head are not fused, rather are connected by sutures
- The sutures and two fontanels allow the bones to shift slightly to change the shape of the fetal head as needed to promote descent through the pelvis *(molding)*

Process of Birth: Passenger

Fetal lie

- Refers to the long axis of the fetus to the maternal long axis
- Longitudinal lie is the case in 99% of cases
- Transverse lie occurs in 1% of pregnancies
- Oblique lie occurs when the angle is between a longitudinal and transverse lie

Process of Birth: Passenger

Fetal attitude

- Refers to the relation of body parts of the fetus to one another
- Normal attitude involves fetal flexion
  - Head flexed toward the chest
  - Arms and legs are flexed over the thorax
  - Back is curved into a “C” shape
- Extension results in an abnormal fetal attitude
  - Often occurs as extension of the fetal head and can result in a face presentation
  - Fetal limbs could also be extended

Process of Birth: Passenger

Presentation

- Refers to the part of the fetus that enters into the pelvis first
- Most often referred to as the *presenting part*
- The categories include:
  - Cephalic presentation
  - Breech presentation
  - Shoulder presentation

Process of Birth: Passenger

Cephalic Presentation: **Occurs when the fetal head descends into the pelvis first**

- ***Vertex or occiput presentation:*** Fetal head is presenting and is in a flexed positon
- ***Military presentation:*** Fetal head is in a neutral position; neither flexed nor extended
- ***Brow presentation:*** Head is partially extended
- ***Face presentation:*** Head is extended with the fetal occiput near the fetal spine

Process of Birth: Passenger

Breech Presentation: **Occurs when the fetal buttocks descends into the pelvis first**

- ***Frank breech:*** Most common; occurs when the fetal legs extend across the abdomen toward the shoulders (feet are up by face)
- ***Complete breech:*** Occurs when the head, knees, and hips are flexed but the buttocks are presenting
- ***Footling or incomplete breech:*** Occurs when one or both feet or knees are presenting

Process of Birth: Passenger

Shoulder presentation: **Occurs when the fetal shoulder presents, and occurs with a transverse lie**

- Occurs in about 0.3% of births
- Will warrant a Caesarean birth
- Occurs most often with:
  - Preterm
  - High parity
  - Hydramnios
  - Placenta previa

Process of Birth: Passenger

Position

- Refers to a fixed reference point of the presenting part of the fetus to the maternal pelvis
- There are four quadrants of the maternal pelvis
  - Right anterior
  - Left anterior
  - Right posterior
  - Left posterior
- Fetal position changes during labour

Process of Birth: Passenger

First letter

- ***R*** or **L** refers to whether the reference point of the fetus is to the right or left of the maternal pelvis

Second Letter

- The following letters refer to the fixed fetal reference point
  - ***O (occiput):*** Refers to vertex presentation
  - ***M (mentum):*** Or chin, refers to a face presentation
  - ***S (sacrum):*** Refers to breech presentation
  - ***F (fronto):*** Or brow, refers to brow presentation
  - ***Sc (scapula):*** Refers to shoulder presentation

Process of Birth: Passenger

Third letter

- The following letters refer to the fetal reference point as it relates to the quadrant of the maternal pelvis
  - ***A (anterior):*** Reference point is at the anterior quadrant of the maternal pelvis
  - ***P (posterior):*** Reference point is at the posterior quadrant of the maternal pelvis
  - ***T (transverse):*** Reference point is in neither the anterior or posterior quadrant of the maternal pelvis

Example: If the fetal occiput (reference point) is in the left anterior quadrant of the maternal pelvis: ***LOA***

Process of Birth: Psyche

Factors that affect the woman's *psyche* during the birthing process include:

- Any factor that affects the psychological response during childbirth
- Factors may include:
  - Anxiety
  - Culture and expectations
  - Experiences
  - Support
  - Psyche of practitioner

Process of Birth: Psyche

Anxiety

- Increased anxiety can negatively impact a woman's ability to cope with the pain of labour
- Anxiety results in the release of maternal catecholamines which can reduce uterine contractions and placental blood flow
- Relaxation increases the natural process and progress of labour
- Important nursing role to help decrease anxiety and promote relaxation techniques whenever possible

Process of Birth: Psyche

Culture and expectations

- Culture and values can impact the expectations of a woman and family during childbirth
- Important to assess expectations of women from different cultures
- Culture and language binder on Unit 4 can help assist with knowledge on various cultures
- Try to obtain as much information about the woman, family, and cultural practice early on in labour if possible

Process of Birth: Psyche

Experiences

- A physical and emotional experience and woman and her family will always remember
- A woman with a more realistic expectation of childbirth is more likely to have a positive experience
- Nurses can help increase a woman's sense of control and ability to cope and progress through labour
- A woman's past birth experience can impact her experience with subsequent births

Process of Birth: Psyche

Support

- Many benefits to support in labour that affect a woman's ability to cope and progress in labour
- Support may include:
  - Physical comfort measures
  - Provision of information
  - Advocacy
  - Praise
  - Reassurance
  - Presence
  - Ensuring a calm and comfortable environment

Process of Birth: Psyche

Psyche of Practitioner

- Values and beliefs of the practitioners can impact psyche of the woman during labour and birth
- The way in which support is offered in labour can vary from one practitioner to another
- Important to support the wishes of the woman and family, while providing rationale and reasoning for certain interventions
- Ongoing support to help the woman cope throughout labour is an essential role of the nurse

Stages of Labour

Stages of labour are described in four stages:

- ***Stage 1:*** Onset of labour to complete cervical dilation and effacement
  - Latent phase
  - Active phase
  - Transition phase
- ***Stage 2:*** Complete cervical dilation and effacement to birth of the baby
- ***Stage 3:*** Birth of the baby until birth of the placenta
- ***Stage 4:*** Birth of the placenta to 1 hour postpartum

First Stage of Labour: Latent Phase

Latent phase: First phase of the first stage of labour characterized by cervical dilation of 0-4 cm for a primipara; 0-4 to 5 cm in a multipara

Average duration
- *Primipara*: 7.3-8.6 hours
- *Multipara*: 4.1-5.3 hours

Contractions
- Usually mild in strength with an infrequent pattern
- Progresses to moderate in strength with a regular frequency of every five minutes, lasting at least 30-40 seconds

First Stage of Labour: Latent Phase

Discomfort
- Can have a low backache with menstrual-like cramping
- Back discomfort can shift to the lower abdomen
- Intensifies as labour increases

Maternal behaviours
- Sociable, excited
- May be anxious regarding commencement or progression of labour

First Stage of Labour: Latent Phase

Nursing interventions:

- Assess maternal and fetal wellbeing
- Encourage comfort measures at home
  - Walking
  - Rest
  - Tub or shower
  - Tylenol
- Encourage to return if increased labour, decreased FM, vaginal bleeding occurs, rupture of membranes occurs, or concerns arise
- May require narcotic for sedation if unable to cope with pain during latent phase

First Stage of Labour: Active Phase

Active phase: Second phase of the first stage of labour characterized by cervical effacement and dilation of 4-8 cm for a primipara; 4-5 to 8 cm in a multipara

Average duration

- *Primipara:* 8-10 hours (range 6-18 hours); average dilation 1.2 cm/hr
- *Multipara:* 6-7 hours (ranges 2-10 hours); average dilation 1.5 cm/hr

Contractions

- Increase in intensity; moderate to strong
- Frequency 2-3 minutes, lasting 40-60 seconds

First Stage of Labour: Active Phase

Discomfort
- Intensifies as labour increases
- May be predominantly abdominal pain, or back pain depending on fetal position

Maternal behaviours
- Becomes more inwardly focused during contractions
- Breathes and concentrates on contractions
- Unable to talk through contractions
- Touch or talking may be bothersome

First Stage of Labour: Active Phase

Nursing interventions:

- Admission to birth unit
- Establish and monitor maternal and fetal wellbeing
- Follow wishes regarding pain control in labour and implement as necessary
- Provide ongoing support and anticipatory guidance during labour
- Monitor progress of labour; be mindful of emptying bladder

First Stage of Labour: Transition Phase

Transition phase: Third phase of the first stage of labour characterized by cervical effacement and dilation of 8-10 cm

Average duration
- *Primipara*: 3.6 hours
- *Multipara*: 0-30 minutes

Contractions
- Increase in intensity; strong
- Frequency 1 ½-2 minutes, lasting 60-90 seconds

First Stage of Labour: Transition Phase

Discomfort
- Most intense of the three phases

Maternal behaviours
- May experience loss of control during contractions
- Often report rectal pressure when fully dilated or near fully dilated
- May begin pushing uncontrollably
- Often require substantial support during this phase

First Stage of Labour: Transition Phase

Nursing interventions:

- Establish maternal and fetal wellbeing
- Provide pain management options as desired by the woman
- Provide ongoing support
- Assist with breathing techniques through contractions; help maintain control
- Monitor progress of labour; be mindful of emptying bladder

Second Stage of Labour

Second stage: Characterized by complete cervical dilation and effacement to birth of the baby

- **Active second stage:** Full dilation with active pushing
- **Passive second stage:** Full dilation without active pushing

Average duration

- *Primipara:* 50 minutes (average); 30 minutes-3 hours (range)
- *Multipara:* 20 minutes (average); 0-30 minutes (range)

Contractions

- Strong intensity; may be slightly less intense than during transition
- Occur every 2-3 minutes lasting 40-60 seconds
- May be a brief pause in contractions at the beginning of second stage

Second Stage of Labour

Discomfort

- Rectal pressure with urge to push/bear down with contractions
- Pressure becomes stronger with descent of the fetus
- Stretching/splitting sensation from distention of vagina/vulva

Maternal behaviours

- Concentration with pushing; though may be out of control
- May be unware of surroundings
- May appear drowsy between contractions

Second Stage of Labour

Nursing interventions: Passive second stage

- Establish maternal and fetal wellbeing
- Maintain comfort measures
- Pushing should not begin if there is no urge to push; particularly if presenting part is above +2 and/or in a non-occiput position
- Encourage fetal descent through adequate uterine contractions
- Monitor progress; empty bladder

Second Stage of Labour

Nursing interventions: Active second stage

- Establish maternal and fetal wellbeing
- Provide support and coaching during pushing stage
- Monitor FHR and progress with pushing; change maternal position as necessary
- Notify appropriate personnel as needed and in timely manner
- Note time of birth

Second Stage of Labour

Nursing interventions: Active second stage

Valsalva pushing

- Woman is instructed to take a deep breath and push hard throughout the duration of the contraction; usually three breaths per contraction
- The "count to 10" method should be discouraged

Spontaneous pushing

- Pushing is self-directed by the woman
- Woman pushes with an open glottis using an intermittent exhalation and vocalization technique

Labour Dystocia and Obstructed Labour

Labour dystocia: Progress of labour that is delayed or has halted regardless of cause

- ***Active first stage:*** Greater than 4 hours of less than 0.5 cm/hour dilation ***OR*** no dilation in a two hour period
- ***Active second stage:*** Greater than 1 hour of active pushing without fetal descent

- **Interventions for labour dystocia include:**
  - Analgesia
  - Maternal rest
  - Artificial rupture of membranes
  - Augmentation with oxytocin

Obstructed labour: No cervical dilation or fetal descent over two hours in the presence of strong uterine contractions

Third Stage of Labour

Third stage: Birth of the baby until birth of the placenta

Average duration

- 5 to 10 minutes for both primiparas and multiparas
- Up to 30 minutes normal for unassisted placental delivery

Contractions

- Uterus should be firmly contracted

Third Stage of Labour

Discomfort
- Minimal discomfort
- May have slight cramping as the placenta passes

Maternal behaviours
- Excited
- Relieved
- May cry
- Often very tired

Third Stage of Labour

Nursing interventions:
- Oxytocin 5 units IV push given with anterior shoulder of the baby to promote placental separation and birth of the placenta
- Prepare postpartum Oxytocin infusion as per physician's orders
- May assist physician with perineal repair while waiting for birth of the placenta
- Provide ongoing support for patient and family
- Note time of birth of the placenta

Fourth Stage of Labour

Fourth stage: Birth of the placenta to 1 hour postpartum

Average duration
- 1 hour for primaparas and multiparas; up to 4 hours postpartum

Contractions
- Uterus should be firmly contracted

Fourth Stage of Labour

Discomfort
- Varies
- Some women may experience afterpains; worse for multiparas or women who have had large babies
- May have perineal discomfort with perineal repair; may worsen once anesthesia wears off

Maternal behaviours
- Tired but excited
- Eager to bond with baby
- Often excited to introduce family members and/or friends to the baby

Fourth Stage of Labour

Nursing interventions:

- Encourage immediate skin-to-skin with baby
- Hang postpartum Oxytocin as per physician's orders
- Fundal assessments and vital signs every 15 minutes for 1 hour
- Assist physician with perineal repair
- Assist with patient cares; change pads etc.
- Medicate for discomfort as needed

Fourth Stage of Labour

- Gather instruments and send to SPD
- Promote bonding
- Assist with breastfeeding or infant feeding
- Provide cares prior to transfer
- Remove epidural catheter if postpartum condition stable
- Transfer to Unit 4 after one hour if postpartum condition stable

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Induction and Augmentation of Labour

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Describe the difference between induction and augmentation of labour
- Describe cervical ripening
- List the indications and contraindications for induction of labour
- List the potential risks of induction of labour
- List the indications for augmentation of labour
- List the pharmacological methods of cervical ripening
- Describe the different choices available for cervical ripening using PGE1 and PGE2 options
- Describe the procedure for administration, follow up, and possible adverse effects of PGE2 options

Learning Objectives

- Describe the indications and contraindications for mechanical cervical ripening
- Describe the procedure for the insertion of a foley catheter into the cervix
- Describe the indications for a membrane sweep
- Describe amniotomy including indications, contraindications, and procedure
- Describe the indications for oxytocin use
- Describe the strengths and limitations to high and low dose protocols, as well as the protocol used at the QEH
- Describe the oxytocin infusion rate as per the QEH policy
- Describe the procedure for oxytocin induction at the QEH
- Describe interventions taken if tachysystole occurs

Definitions

Induction: Involves the initiation of contractions in pregnant women, who are not in labour, in the effort of achieving a vaginal birth within 24 to 48 hours

Augmentation: Involves the implementation of methods to enhance the strength, frequency, and duration of contractions in pregnant women already in labour

Cervical ripening: Involves the use of pharmacological or mechanical methods to soften, efface, and/or dilate the cervix

- The goal is to adequately ripen the cervix for induction of labour, in an effort to achieve a vaginal birth

Indications for Induction of Labour

Induction of labour (IOL) is indicated when the risk of continuing with the pregnancy is greater than the risk of induction and complications that may arise from this intervention

- ***High priority indications for IOL include:***
  - Preeclampsia ≥ 37 weeks
  - Significant maternal disease that has not responded with treatment
  - An antepartum hemorrhage that is significant but stable
  - Chorioamnionitis
  - Suspected fetal compromise
  - Term PROM with positive GBS colonization

Indications for Induction of Labour

- ***Other indications for IOL include:***
  - Postdates (> 41 + 0 weeks) or post-term (> 42 + 0 weeks) pregnancy
  - Uncomplicated twin pregnancy ≥ 38 weeks
  - Diabetes mellitus (urgency may depend on glycemic control)
  - Alloimmune disease at or near term
  - Intrauterine growth restriction
  - Oligohydramnios
  - Gestational hypertension ≥ 38 weeks
  - Intrauterine fetal death
  - PROM at or near term with a negative GBS status
  - Logistical concerns
  - Intrauterine death in a previous pregnancy

Indications and Risks of Induction of Labour

- ***IOL is not appropriate for the following indications:***
  - Care provider or patient convenience
  - Suspected fetal macrosomia (estimated weight > 4000 g) in non-diabetic woman
- ***Potential risks of IOL:***
  - Failure for induce labour
  - Caesarean birth
  - Operative vaginal birth
  - Tachysystole with or without FHR changes
  - Cord prolapse following ARM
  - Inadvertent birth of a preterm if dates were not accurate
  - Uterine rupture in a scarred or unscarred uterus

Contraindications for Induction of Labour

- ***Potential contraindications for IOL include:***
  - Placenta or vasa previa
  - Cord presentation
  - Abnormal fetal lie
  - Prior classical or inverted T uterine incision
  - Significant prior uterine surgery
  - Active genital herpes
  - Pelvic structure deformities
  - Invasive cervical carcinoma
  - Previous uterine rupture

Indications for Augmentation of Labour

- Can be considered in situations where labour has begun and progressed spontaneously, but progress has slowed or stopped
- Contractions may have spaced out considerably from previous pattern
- Contractions may seem adequate in terms of frequency, but may need to increase in strength and/or duration
- Labour may need to be augmented any time from the active phase of first stage to second stage

Methods of Cervical Ripening: Pharmacological

- ***Prostaglandin E2 (PGE2):***
  - Work by acting on the cervix to dissolve the collagen structural network of the cervix
  - Have a lower operative rate than oxytocin use
  - Less need for oxytocin augmentation when used to ripen an unfavourable cervix
  - Is a bronchodilator; not contraindicated in women with asthma
- ***Precautions of PGE2 use include:***
  - Patients with asthma (consider severity)
  - Patients with glaucoma
  - Patients with increased intraocular pressure

Methods of Cervical Ripening: Pharmacological

- ***General contraindications for PGE2:***
  - Previous history of Caesarean birth or major uterine surgery
  - Patients with major degree of cephalopelvic disproportion (CPD)
  - Six or more previous term pregnancies
  - Suspected or clinical evidence pre-existing distress
  - Over distended uterus, multiple pregnancy, or polyhydramnios
  - Women with unexplained vaginal bleeding during pregnancy
  - Fetal malpresentation
  - Woman with ruptured membranes (may be considered at term; more maternal effects than neonatal)
  - Known hypersensitivity to prostaglandins
  - Women with epilepsy

Methods of Cervical Ripening: Pharmacological

Pharmacological options for PGE2 include:

- ***Prostin gel:*** Gel is inserted into the posterior fornix of the vaginal canal by the physician
  - Can be removed easier if complications occur
  - Available in 1 mg and 2 mg preparations
  - Dosages can be repeated 6 hours apart at the physician's discretion
- ***Prepidil gel:*** Gel is inserted into the inner cervix by the physician
  - Difficult to remove if complications occur
  - Dosage is 0.5 mg

Methods of Cervical Ripening: Pharmacological

- ***Cervidil:*** A controlled release gel; medication resembles a small tampon and is inserted vaginally into the posterior fornix by the physician
  - Allows for easy removal in the event tachysystole with FHR changes occur
  - Remains in situ for 24 hours and a new one is inserted if further cervical ripening is indicated
  - Oxytocin can be started as early as 30 minutes following removal of the Cervidil

The QEH is currently in the process of implementing the use of Cervidil at our facility

Methods of Cervical Ripening: Pharmacological

- ***Prostaglandin E1 (PGE1)***
  - Misoprostol (Cytotec) is a synthetic PGE1
  - Marketed for prevention and treatment of gastric ulcers from NSAID use
  - Has been found to be effective in cervical ripening
  - Can be administered orally, buccally, sublingually, vaginally, or rectally
  - Typically given to induce labour in the event of fetal demise
  - Some facilities are using 50 mcg dosages of misoprostol orally for cervical ripening/IOL typically in the presence of PROM
  - Dosage can be repeated every 4 hours as long as contractions are absent or non-painful
  - Oxytocin can be initiated 4 hours after the last dose
  - Misoprostol (Cytotec) is also be used for the management of PPH

The QEH does not currently administer misoprostol for cervical ripening or IOL for term pregnancies with a live fetus

Methods of Cervical Ripening: Pharmacological

Procedure for PGE2 administration:

- Warm gel to room temperature ideally for 30 minutes
- Provide physician the PGE2 preparation
- Explain procedure to patient and support persons
- Woman should empty her bladder prior to the procedure
- Assessment and documentation should include:
  - Completion of Perinatal Triage and Assessment Record
  - Maternal baseline vital signs and fetal heart rate (NST)
  - Assessment of cervix by the physician

Methods of Cervical Ripening: Pharmacological

- Woman should be positioned for a vaginal exam with a wedge under one hip
- The physician will then assess the cervix and administer the gel (note the time)
- After the gel is placed, the woman should remain in bed for the next 60 minutes
- Patient remains on EFM for 60 minutes following the gel insertion

Methods of Cervical Ripening: Pharmacological

Follow-up for inpatients:

- Encourage the woman to ambulate following the 60 minutes of bed rest (unless contraindicated based on clinical situation)
- Monitor maternal vital signs every 4 hours and FHR and uterine activity every 1 hour until labour ensues or based on physician's orders
- Arrange for follow-up plan of care

Methods of Cervical Ripening: Pharmacological

Follow up for outpatients:

- Inform patient that each visit for PGE2 insertion takes approximately 2 hours
- Patient can be discharged home after PGE2 gel insertion if:
  - EFM tracing is normal after 60 minutes
  - Patient is not in active labour
  - Membranes are intact
  - Maternal vital signs are within normal limits
- Review when woman should return to hospital
- Follow-up appointment to return to hospital based on plan of care

Methods of Cervical Ripening: Pharmacological

Potential adverse effects of PGE2:

- Atypical or abnormal FHR changes
  - Notify physician immediately
  - Physician may attempt to scoop out the gel and/or rupture membranes if able to do so
  - May order an IV and bolus of fluid
  - May order a tocolytic agent (Nitroglycerin sublingual spray) if tachysytole is an issue
  - May need to prepare for the OR if FHR does not recover and a C-Birth is indicated
- Maternal vomiting/diarrhea can be side effects from PGE2

Methods of Cervical Ripening: Mechanical

- ***Insertion of foley catheter into the cervix***
  - Applies pressure to the internal os of the cervix in an effort to stretch the lower uterine segment and promote the release of local prostaglandins
  - Easy to use; inserted by physician
  - Easily reversible
  - Low cost
  - Risk of excessive uterine activity is greatly reduced
  - Associated with less tachysystole with FHR changes when compared to PGE1 and PGE2 but no different in rates of C-Birth
  - Increased need for oxytocin if cervix becomes favorable

Methods of Cervical Ripening: Mechanical

- ***Contraindications for foley catheter insertion include:***
  - Low lying placenta
  - Antepartum hemorrhage
  - Ruptured membranes
  - Lower genital tract infection
  - Fetal malpresentation
  - Any contraindication to labour or vaginal birth
- ***Unlike with PGE2, mechanical methods may be considered with:***
  - Previous Caesarean birth in a woman attempting a TOLAC
  - Multiple (twin) pregnancy

Methods of Cervical Ripening: Mechanical

Procedure:

- Complete Perinatal Triage and Assessment Record
- Obtain baseline maternal vital signs
- Perform a non-stress test
- Instruct the woman to void prior to the procedure
- Ensure equipment is available and place in assessment room
  - Should include: #18 gauge foley catheter, adhesive tape or plug to clamp off end of catheter, 30 mL of sterile water, two ring forceps, 30 mL syringe

Methods of Cervical Ripening: Mechanical

- Assist the patient into the lithotomy position
- Physician will visualize the cervix using a speculum and guide the foley catheter into the internal os using the ring forceps; he/she will then inflate the balloon
- The end of the catheter is then clamped to prevent drainage
- Catheter is secured to the woman's leg
- EFM should be employed for at least 60 minutes

Methods of Cervical Ripening: Mechanical

- For inpatients, review physician's orders
- Outpatients may be discharged after one hour as directed by the physician
- A plan should be made as to when patient should return to hospital for reassessment
- Review when to call or return to hospital
- Complete documentation

Membrane Sweep

- ***Membrane Sweep:*** During a vaginal exam, physician will attempt to separate fetal membranes from the cervix and "sweep" finger(s) 360 degrees
  - May be done in an effort to promote labour
  - Can be quite uncomfortable for the patient
  - Often done in physician's office during routine visits at term

- Membrane sweeping at the time of induction can lead to:
  - A shorter induction to birth time
  - Decreased use of oxytocin
  - Higher rate of spontaneous vaginal birth

Induction of Labour with a Favorable Cervix: Amniotomy

- ***Amniotomy:*** Also referred to as artificial rupture of membranes or ARM; occurs when the physician intentionally ruptures the amniotic sac using an amniohook
  - Can be an effective method of induction with a favourable cervix
  - Once membranes are ruptured birth is indicated; therefore an ARM must be done for compelling reasons
  - Most times, oxytocin is required following amniotomy to establish labour

- ***Contraindications to amniotomy include:***
  - Placenta previa
  - Vasa previa
  - Active genital infection
  - Any contraindication to a vaginal birth
  - Maternal non consent

Induction of Labour with a Favorable Cervix: Amniotomy

Procedure:

- Assess baseline FHR
- Physician will perform vaginal exam and assess cervix as well as station of presenting part
- Physician will use amniohook to rupture membranes
- Assess FHR following membrane rupture
- Document time of ARM, amount, colour, and consistency of fluid (note any odour)

Induction and Augmentation of Labour with a Favorable Cervix: Oxytocin

- ***Oxytocin:*** A peptide naturally found in the hypothalamus that binds to receptors to promote uterine contractions
  - A synthetic form is administered intravenously for induction of labour
  - Has been used since the 1950's
  - Has a half life of 5 to 12 minutes
  - EFM is required for oxytocin inductions due to the risk of tachysystole and FHR changes
  - Should not be initiated until at least six hours after administration of a PGE2
  - Oxytocin is an antidiuretic- intake and output should be monitored due to the risk of water intoxication with high doses

Induction and Augmentation of Labour with a Favorable Cervix: Oxytocin

Both high and low dose protocols may exist for oxytocin administration

- ***High dose protocols:***
  - Can reduce the length of labour with no significant increase in neonatal morbidity
  - Has been associated with an increase in uterine tachysystole with FHR changes
- ***Low dose protocols:***
  - Less risk of tachysystole
  - Higher risk of water intoxication than with high dose protocols
  - Length of labour can be increased when compared to high dose protocols

At the QEH, there is only a low dose protocol used at this time

Induction and Augmentation of Labour with a Favorable Cervix: Oxytocin

Dosage of Oxytocin

- Many facilities and guidelines infuse and chart the dosage of Oxytocin in mU/minute
- At the QEH, dosage of Oxytocin is infused and charted in mL/hour
- The initial dose of the Oxytocin protocol is 10 mL/hour which is equivalent to 1.6 mU/minute
- The maximum dose of the Oxytocin protocol is 120 mL/hour which is equivalent to 19.2 mU/minute
- Dividing the dose in mL/hour by 6.25 will get you the dose in mU/minute

Change your infusion rate on the partogram from mU/minute to mL/hour

Induction an Augmentation of Labour with a Favorable Cervix: Oxytocin

Procedure:

- 1:1 nursing care is indicated; intervals between observations should not be more than five minutes
- Ensure patient is admitted; check physician's orders
- Assess for IV access; initiate #18 gauge or #20 gauge IV saline lock if not already in situ; hang a primary line of 1000 mL Ringer's Lactate
- Explain the procedure to the woman and support person(s)
- Perform maternal vital signs and a 20 minute FHR tracing

Induction and Augmentation of Labour with a Favorable Cervix: Oxytocin

- Perform a vaginal examination prior to initiating oxytocin
- Prepare Oxytocin **10 units in 1000 mL of Ringer's Lactate**
- Have a second RN double check the dose
- Prime tubing with the oxytocin solution and connect to IV pump; piggy back into the lowest port and label your line through the colleague guardian
- Oxytocin is started at 10 mL/hr; to keep the line patent, the primary line should run to keep the vein open (40 mL/hr) until the Oxytocin rate reaches 40 mL/hr

Induction and Augmentation of Labour with a Favorable Cervix: Oxytocin

- Oxytocin rate can be increased by 10 mL/hr every thirty minutes, until a maximum rate of 120 mL/hr
- The minimum dose of oxytocin should be used to achieve labour
- If active labour is achieved, the rate may need to be titrated to simulate normal labour; assess for tachysystole
- Once the maximum dosage (120 mL/hr) is reached, notify physician

Induction and Augmentation of Labour with a Favorable Cervix: Oxytocin

- Assess contractions at least every 30 minutes and/or when Oxytocin rate is increased:
  - Resting tone
  - Frequency
  - Duration and intensity
- Assess level of maternal comfort and coping
  - Implement non-pharmacological comfort measures and pharmacological measures as needed
- Monitor intake and output
- Document on the partogram

Induction and Augmentation of Labour with a Favorable Cervix: Oxytocin

If tachysystole with normal or atypical FHR changes occur:
- Notify physician

If tachysystole with abnormal FHR changes occur:
- Notify physician
- Discontinue oxytocin
- Increase rate of main line if indicated by physician
- Change maternal position
- Perform a vaginal examination
- If abnormal FHR persists, may need to prepare for a C-Birth

If FHR resolves, Oxytocin may be restarted

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Modes of Birth:
Spontaneous Vaginal Birth, Assisted Vaginal Birth, Caesarean Birth

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
July, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Define spontaneous vaginal birth
- List the considerations at the time of a spontaneous vaginal birth
- Describe the steps to be taken if a physician is not present at the time of birth
- Define assisted vaginal birth
- List the indications for assisted vaginal birth
- Describe the incidence of assisted vaginal birth
- List the contraindications and risks associated with assisted vaginal birth
- Describe the procedure for assisted vaginal birth at the QEH
- Describe the considerations for an assisted vacuum birth
- Describe the considerations for an assisted forceps birth

Learning Objectives

- Define Caesarean birth
- List the indications for a Caesarean birth
- Describe the incidence of Caesarean birth
- List the potential risks of Caesarean birth
- Describe the procedure for preparing for a Caesarean birth at the QEH

Spontaneous Vaginal Birth

- Refers to vaginal birth of the baby without operative or assistive interventions
- At the QEH, women are initially assessed in one of three assessment rooms
- Transferred to one of two birthing rooms once in active labour
- Overflow to the vascular room in the OR when department is a capacity
  - Delivery table
  - Emergency delivery cart
  - Monitor if needed
  - Additional staff if needed
  - Woman transferred via bed

Spontaneous Vaginal Birth: Considerations at Time of Birth

- Call the physician for birth
- Prepare delivery table
- Have 5 IU of Oxytocin IV push drawn up and ready to administer
- Ensure a second nurse is present for assessment of the baby
- Position woman, bed, and lighting

Spontaneous Vaginal Birth: Considerations at Time of Birth

- Continue to provide support and monitor baby
- Perineum stretches as head is crowning
- Routine episiotomies are not performed; natural tearing is preferred
- Episiotomy may be considered if FHR is abnormal in an attempt to hasten the birth
- Episiotomy may be performed with assisted vaginal births or in women at increased risk for OASIS (Obstetrical Anal Sphincter Injuries)

Spontaneous Vaginal Birth: Considerations at Time of Birth

- As the head is crowning, the physician will apply gentle pressure to the woman's perineum while applying counterpressure to the baby's head with the other hand
- Woman should be encouraged to breathe during birth of the head to prevent perineal trauma
- Once birth of the head occurs, the physician will feel around the neck to check for presence of a cord (nuchal cord)
- If cord is present, physician reduces it if possible
  - May clamp the cord with two clamps and cut in between if the cord is tight

Spontaneous Vaginal Birth: Considerations at Time of Birth

- Once the head is born, restitution should occur
- External rotation occurs allowing the fetal shoulders to internally rotate
- The physician will then gently push the baby's head toward the woman's perineum to facilitate birth of the anterior shoulder
- The physician will then gently push the fetal head upward toward the woman's symphysis to facilitate birth of the posterior shoulder

Spontaneous Vaginal Birth: Considerations at Time of Birth

- The physician will then support the baby during expulsion and birth of the body
- Oxytocin 5 IU IV given with birth of the anterior shoulder
- If baby is vigorous, delayed cord clamping (60-180 seconds) is warranted for healthy term and preterm infants
- Assessment of the newborn and management of third stage
- Documentation

Spontaneous Vaginal Birth

In the event a physician is not present for the birth:

- Remain calm
- Call for help
- Follow steps outlined in the previous slides to assist with the birth
- Do not pull on the placenta
- Clamp and cut a segment of the cord for cord gases if able; collect cord blood if able

Assisted Vaginal Birth

- Involves the use **of forceps or a vacuum to assist in achieving a vaginal birth**

Indications for an assisted vaginal birth include:

- Atypical or abnormal fetal heart rate
- Medical indications to avoid the valsalva maneuver when pushing
- Inadequate progress in the presence of adequate contractions
- Inadequate progress without evidence of cephalopelvic disproportion
- Lack of adequate maternal effort
- Sub-optimal attitude or position of fetal head ***(forceps only)***

Assisted Vaginal Birth: Incidence

- Forceps use has declined nationally and internationally over recent years
  - Perception that C-Birth is a safer alternate mode of birth
  - Perception that a vacuum is easier to use
  - Limited opportunities for residents to use forceps when compared to years past
  - Consideration of potential legal and medical implications
- The rate of assisted vaginal births in Canada from 2010-2011 was 13.5%
  - 9.6% vacuum-assisted births
  - 2.3% forceps-assisted births
- The rate of assisted vaginal births on PEI from 2008-2009 was 6.5%
  - 4% vacuum-assisted births
  - 2.5% forceps-assisted births

Assisted Vaginal Birth: Contraindications

Contraindications for an assisted vaginal birth include:

- Non-cephalic, face or brow presentation
- Unsure of fetal position
- Fetal conditions (ie: bleeding disorder)
- Any contraindication to vaginal birth
- Gestation less than 34 weeks ***(vacuum only)***

Assisted Vaginal Birth: Risks

Potential risks of assisted vaginal births include:

- Maternal lacerations or tissue injury
- Facial nerve palsies
- Subgaleal hemorrhage
- Intracranial hemorrhage
- Retinal hemorrhage
- Cephalohematoma
- Skull fractures
- Scalp bruising ***(vacuum)*** and lacerations ***(both)***
- Minor external ocular trauma ***(forceps)***
- Hyperbilirubinemia ***(vacuum)***

Assisted Vaginal Birth: QEH Procedure

At the QEH:

- Vacuum-assisted births are performed in the birthing room
- Forceps are often performed as a ”trial of forceps” and are performed in the OR
- Occasionally, forceps will be used in the birthing room in the case of an abnormal FHR where the OR may not be readily accessible
- Nursery RN, RT, and pediatrician should be present for assisted vaginal births

Assisted Vaginal Birth: Vacuum

- Can be performed in the birthing room
- Have personnel present for newborn
- Informed consent obtained by physician
- Bladder should be emptied and patient comfortable
- Physician to apply vacuum (mid, low, outlet)
- Kiwi vacuum used the majority of the time

Assisted Vaginal Birth: Vacuum

- Physician will assess for need for episiotomy; not required for vacuum assisted birth
- Vacuum use should be discontinued if:
  - No progress in fetal descent after two pulls with adequate traction and cup position
  - Birth is not imminent after four contractions (mode to birth should be evaluated)
  - 20 minutes has passed with no evidence of an imminent birth
  - 3 pop-offs occur
- Proceed with alternate plan if vacuum assisted birth unsuccessful
- Documentation

Assisted Vaginal Birth: Forceps

- Could be performed in birthing room; most often performed in OR
- Prepare patient for OR (ie: checklists, consent)
- Informed consent obtained by physician
- Bring to OR:
  - Delivery table
  - Monitor
  - Emergency delivery cart
  - Forceps as per physician's request

Assisted Vaginal Birth: Forceps

- Have personnel present for newborn
- Bladder should be emptied and patient comfortable
- Physician will assess for need for episiotomy; not required for forceps assisted birth
- Physician to apply forceps (mid, low, outlet)

Assisted Vaginal Birth: Forceps

- Forceps use should be discontinued if:
  - Application of blades is difficult or unsuccessful
  - Rotation is unsuccessful if attempted and necessary
  - Inadequate descent with traction
  - No progress with three traction attempts
- Proceed with alternate plan if forceps assisted birth unsuccessful
- Documentation

Caesarean Birth

- Refers to birth of a baby through a surgical abdominal incision

Indications for a Caesarean birth may include:

- Abnormal FHR
- Obstructed labour
- Breech presentation (at QEH)
- Placenta previa/vasa previa
- Previous Caesarean birth (not eligible or wishing for a TOLAC)
- Previous uterine surgery
- Previous severe shoulder dystocia
- Active herpes outbreak
- Maternal medical condition where a vaginal birth is not indicated

Caesarean Birth: Incidence

- Rates of Caesarean births have been climbing over the last 50 years
- Rate was 5% in the 1940's-1950's
- Rate as 15% in 1970's
- Substantial increase in Caesarean birth rates internationally over last 15 years
- 2009 Canadian C-birth rates were 26.8%; provinces ranged between 20.2% and 31.5%

Caesarean Birth: Risks

Potential risks of Caesarean birth include:

- Increased risk for maternal mortality
- Anesthetic risk (ie: aspiration)
- Infection
- Increased blood loss
- Thromboembolism
- Injury to bowel or bladder
- Increased risk for placenta previa or accreta with subsequent pregnancies
- Increased risk for uterine rupture with subsequent pregnancies
- Respiratory difficulties in neonates and increased need for ventilation at birth

Caesarean Birth: Procedure

- Booked Caesarean births will be prepped through pre-surgery
- Booked Caesarean births may present in department before scheduled date
- Women may proceed for a Caesarean from labour and birth for various reasons
  - Obstructed labour
  - Abnormal FHR
  - Obstetrical emergency (ie: abruption/previa)
  - Breech presentation
- Consider urgency of the situation

Caesarean Birth: Procedure

- Consider availability of resources
  - Middle of the day versus middle of the night
  - ***Day:*** Physician to notify OR of need for Caesarean (consider need to call in second team)
  - ***After hours:*** Physician to notify nursing supervisor who will call in OR team; physician to call OR assist
  - Physician to notify pediatrics of C-birth
  - Nursing to notify nursery of C-birth; nursery will notify RT

Caesarean Birth: Procedure

- Complete OR checklist; consider when patient last had anything to eat or drink
- Administer sodium citrate and/or Zantac if ordered
- Remove jewelry, bra, any metal, nail polish on hands
- Follow orders related to IV fluids
- Follow orders related to prophylactic antibiotics: Kefzol IV (1 or 2 g) given on call to the OR (should be given no more than 60 prior to incision)

Caesarean Birth: Procedure

- Follow orders related to anti-embolic stocking
- Follow orders related to foley catheter
  - If not in situ, often inserted in the OR
- Have the father or support person change into greens, OR hat, mask, shoe covers; mother will wear an OR hat
- OR nurse will check in patient
- Transfer bed to the OR and monitor if needed

Caesarean Birth: Procedure

- If monitoring is required and patient has an epidural, hook up monitor once transferred into room
- If a spinal is required, hook up monitor once spinal is complete
- If monitor is not required, auscultate FHR following spinal or top up of epidural until obstetrician is ready to prep
- Give updated report to NICU team
- If mother and baby are stable, L&B RN proceeds to PACU

TOLAC

TOLAC: Trial of labour after Caesarean
- Goal is to achieve a vaginal birth after a Caesarean
- More commonly referred to at our facility as ***VBAC*** (vaginal birth after Caesarean)

After a woman has had a primary Caesarean birth:
- She may opt for a elective repeat Caesarean birth
- She may opt for a TOLAC

TOLAC: Incidence

- Canadian Caesarean rate in 2011-2012 was 27.2%; increased from 17.6% in 1995-1996
- Repeat Caesarean birth rate in 2004 to 2005 was increased to 80% compared to 64.7% in 1995-1996; TOLAC rate decreased during this time
- BC stats showed that from 2012-2013 82.4% of women with a primary Caesarean were eligible for TOLAC; 32.6% attempted and 71.2% were successful
- Canadian study showed that a TOLAC attempt rate of participants was 50.6%-81.1% with a success rate of 64.3% to 76.1%

TOLAC: Benefits

Benefits of a successful TOLAC include:

- Decreased hospital stay
- Shorter recovery for mothers
- Increased maternal satisfaction
- Health care cost savings

TOLAC: Risks

Risks of TOLAC include:

- Uterine rupture (0.47%)
- Perinatal death (1.3 per 1000)
- Hemorrhage
- Thromboembolism
- Infection

Attempting a TOLAC

For a woman attempting a TOLAC, the following should be established:

- Cephalic presentation
- Information obtained from previous operative report
- Presence of uncomplicated lower segment uterine incision
- No contraindications to vaginal birth

TOLAC: Contraindications

Contraindications to attempting a TOLAC include:

- Any contraindication to labour
- Prior classical or inverted T uterine incision
- Previous uterine rupture
- Previous uterine reconstruction (myomectomy)
- Inadequate facilities to perform an emergency Caesarean
- Woman requests repeat Caesarean rather than a TOLAC

TOLAC: Risks for Rupture

The following factors can increase a woman's risk for uterine rupture:

- Large baby
- A previous Caesarean that was <18 months prior
- More than two previous Caesarean births
- Previous Caesarean for labour dystocia during the second stage
- Locked single-layer closure of previous incision

TOLAC: Considerations

- Physician should have conversation with woman and family regarding eligibility for TOLAC and its benefits and risks
- Decision for whether or not a woman wishes to attempt a TOLAC should be documented on the antenatal record
- EFM is indicated during labour with a TOLAC
- Oxytocin may be used for labour induction/augmentation for TOLAC; be mindful of increased risk for uterine rupture
- Assess for signs of uterine rupture throughout labour

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Supportive Care and Pain Management in Labour

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Describe the role of the nurse and/or support persons in the provision of supportive care in labour
- Describe the various non-pharmacologic pain management options in labour
- Describe the pharmacologic pain management options in labour
- Describe the indications for IM narcotic administration in labour and the procedure for this
- Describe the indications, contraindications, procedure, and monitoring required for the administration of intrapartum IV Fentanyl
- Describe the indications, contraindications, risks, procedure, and monitoring required for an epidural in labour

Learning Objectives

- Describe the procedure for removal of an epidural catheter
- Describe the indications for a pudendal block and how it is performed
- Describe the indications for local infiltration anesthesia and how it is performed
- Describe the indications for nitrous oxide and how it is administered during labour

Overview

- There are various options available to women to help manage the pain of labour
- Supportive care often includes non-pharmacologic methods of pain management
- Various pharmacological methods are available to help manage the pain of labour
- Important to educate women on their options for pain management in labour
- Important to support women in their pain management choices during labour

Supportive Care in Labour

- 1:1 nursing care for women once in active labour
- Support in labour may also include partners, family members or friends
- Some women may have doulas in labour to assist with supportive care
  - Provide physical support in labour (ie: relaxation, massage)
  - Provide emotional support in labour
  - Provide support postpartum
  - Medical decisions are made in collaboration with woman and health care providers

Non-Pharmacologic Pain Management Options: Ambulation

- Ambulation during labour should be encouraged whenever possible
- Decreases risk of venacava depression which can impact fetal oxygenation
- Encourages descent of the fetal head; can help improve strength, regularity, and frequency of uterine contractions
- Can help improve a woman's sense of control, as well as increase a labouring woman's comfort during the first stage

Non-Pharmacologic Pain Management Options: Breathing Techniques

- Breathing techniques can provide a different focus during contractions; hence interfering with pain sensory transmission
- Breathing techniques should be implemented once a woman can no longer walk or talk during contractions
- Should be encouraged to take slow breaths, inhaling through her nose and exhaling through her mouth
- Coaching and support to help a woman breathe through contractions is an important nursing role

Non-Pharmacologic Pain Management Options: Hydrotherapy

- Can be facilitated through shower, tub, or whirlpool bath
- Can be used in combination with relaxation techniques
- Can help equalize the pressure on the body
- Can help with muscle relaxation
- Can be an effective comfort measure in latent labour

Non-Pharmacologic Pain Management Options: Relaxation

- During labour, relaxation can help facilitate:
  - Improved uterine blood flow which has benefits to fetal oxygenation
  - Improved efficacy of uterine contractions
  - Decreased tension that increases pain perception and decreases pain tolerance
  - Reduced tension which can negatively impact fetal descent
- Relaxation can be improved by considering:
  - Environmental comfort
  - General comfort
  - Reducing anxiety and fear
- Progressive relaxation and neuromuscular dissociation techniques may be used

Non-Pharmacologic Pain Management Options: Mental Stimulation

- Can help promote relaxation
- Techniques can help a labouring woman occupy her mind, which can compete with pain stimuli
- Imagery: Can promote dissociation from the pain of labour
- Focal point: Woman focuses on an external focal point; such as a picture, an object, or any point in the room

Non-Pharmacologic Pain Management Options: Cutaneous Stimulation

- Various forms of touch and cutaneous stimulation can help women cope with the pain of labour; a combination of techniques can be used
- Self massage
  - Woman may massage her abdomen, legs, or back to counteract discomfort
  - Massage to the abdomen may be irritating, particularly around the umbilicus
  - Firm stroking may be more helpful than light stroking
  - Firm palm or sole stimulation may be helpful
- Massage by others
  - Can be facilitated by nurse, partner, or other support person
  - Massaging back, shoulders, legs or any other area requested by the woman may be helpful in her ability to cope with the pain of labour

Non-Pharmacologic Pain Management Options: Cutaneous Stimulation

- Counterpressure
  - Can be beneficial with back labour
  - Firm pressure is applied using the hand, fist, or firm object such as tennis balls
  - Variation of sacral pressure involves a double hip squeeze where palms are placed on the woman's hips and pressed down and inwards towards the symphysis
  - An upright position helps facilitate counterpressure; woman should guide support person as to where pressure can be applied
- Touch
  - Holding the woman's hand or stroking her hair can symbolize caring, comfort, affirmation, and reassurance during a vulnerable time for the woman

Non-Pharmacologic Pain Management Options: Cutaneous Stimulation

- Thermal Stimulation
  - Involves the use of heat and warmth in labour
  - Warmth may be applied to the back, abdomen, or perineum which can increase blood flow locally, relax muscles and provide pain relief
  - Massage can be more comfortable for the woman once the area is warmed
  - Cool, damp clothes to the head, neck, throat, abdomen, or any other place a woman wishes can provide comfort
  - Ice chips can help cool the woman's mouth while providing hydration during labour
- Acupressure
  - Pressure is applied to specific pressure points using hands, roller balls, or other equipment

Non-Pharmacologic Pain Management Options: Transcutaneous Electrical Nerve Stimulation

- Transcutaneous electrical nerve stimulation (TENS) involves the application of electrical impulses through electrodes placed on the lower back to promote pain control during labour
- Pregnant women can make an appointment with the physiotherapy department at the QEH approximately one month before due date to obtain instruction on how to use the TENS
- A TENS machine is available in the labour and birth department

Pharmacologic Pain Management Options

- Pharmacologic pain management options are common choices for women to help manage pain in labour
- Can potentially have effects on length and course of labour progression
- Can be used in combination with non-pharmacological options
- Options may include systemic medications (ie: narcotics) or regional pain management (ie: epidural)
- Effect on the fetus may be direct or indirect

Pharmacologic Pain Management Options: Narcotics

Intramuscular Narcotics: hydromorphone (Dilaudid)

- Can lessen the perception of pain in labour without loss of consciousness
- Can help a woman relax in between contractions
- Sometimes given in latent labour for sedation in women who are not able to cope with non-pharmacological methods
- Often given early on once active labour is established in women who are not wishing for an epidural, or who may be awaiting an epidural

Pharmacologic Pain Management Options: Narcotics

- Prior to administering a narcotic, a vaginal exam is performed to assess cervical dilation and effacement
- A physician's order must be obtained before administering narcotic
- Dilaudid is typically administered IM and usually with an antiemetic (Gravol)
- Always consider allergies

Pharmacologic Pain Management Options: Narcotics

- If Dilaudid was given within 4 hours of birth, anticipate the possibility of respiratory depression in the neonate at birth
- Follow NRP; PPV should be initiated in the event respiratory depression occurs at birth
- Infants of mothers receiving long-term narcotics (ie: Methadone) or are suspected of using narcotics during pregnancy should never receive naloxone (Narcan) at birth in an effort to reverse opioid effects
  - Can induce acute withdrawal and neonatal seizures
  - Follow NRP guidelines re: administration of Narcan

Pharmacologic Pain Management Options: Narcotics

Intravenous Narcotics: Fentanyl

- An opioid analgesic that is highly lipid soluble
- Can be given direct IV
- For pain relief in active labour and in early second stage for nulliparous women
- Often effective as an alternate to epidural (active first stage) in multiparous women with rapid, intense labours or while awaiting epidural
- Can be considered when an epidural is contraindicated in labour

Pharmacologic Pain Management Options: Narcotics

Fentanyl is Used in Caution in the Following Situations

- Preterm labour
- Maternal obesity (BMI >35)
- Atypical or abnormal fetal surveillance
- Use of nitrous oxide
- Women with hypertensive disease in pregnancy
- Women who have received more than one dose of a longer acting narcotic

Pharmacologic Pain Management Options: Narcotics

Contraindications for Intrapartum IV Fentanyl Administration

- Within one half hour of anticipated birth
- Respiratory compromise such as severe asthma, COPD, or cystic fibrosis
- Uncorrected hypotension or hypovolemia
- Allergy, hypersensitivity, or prior intolerable side effects to Fentanyl such as hallucinations
- Known sensitivity to related narcotics
- Liver or kidney disease
- Patient who is on high doses of anti-psychotics

Pharmacologic Pain Management Options: Narcotics

Procedure

- A vaginal exam should be preformed to assess dilation and effacement
- An order must be obtained by physician prior to administration
- Usual ordered dosage is 50-100 mcg
- Dosage should be diluated; 100 mcg Fentanyl (2 ml) is diluted with 8 mL normal saline for a total volume of 10 mL
- Final concentration is 1 mL= 10 mcg Fentanyl

Pharmacologic Pain Management Options: Narcotics

- The injection port closest to the IV site is used for administration
- Administration occurs slowly over one to three minutes; should be administered during contractions
- 1:1 nursing care is required from first dose until one hour after the last dose of Fentanyl
- Physician should be contacted for further orders once 300 mcg have been given or patient has been five hours on Fentanyl protocol

Pharmacologic Pain Management Options: Narcotics

Pre-Administration Monitoring

- Vital signs including blood pressure, pulse and respiratory rate should be assessed
- FHR should be assessed
- Sedation scale should be completed

Pharmacologic Pain Management Options: Narcotics

Post-Administration Monitoring

- Vital signs, sedation scale score and FHR should be monitored every five minutes x2 after each dose
- Vital signs, sedation scale score and FHR should be monitored every fifteen minutes until one hour after the last dose of Fentanyl
- Intermittent auscultation can be used in the absence of risk factors
- Assess oxygen saturation if concerns with respiratory depression, sedation, hypotension, atypical or abnormal FHR or other side effects of Fentanyl occur

Pharmacologic Pain Management Options: Narcotics

- Common side effects from Fentanyl include respiratory depression, maternal bradycardia, nausea and vomiting, sedation, hypotension, urinary retention or constipation, decreased variability or decreased fetal movement
- Naloxone (Narcan) should be readily available in the event that maternal respiratory depression does occur

Pharmacologic Pain Management Options: Narcotics

Infant Considerations at Birth Following Fentanyl Administration

- At birth, any caregivers of the infant should be notified that Fentanyl had been administered intrapartum
- Neonatal oxygen saturation should be assessed for two hours in newborns whose mothers received >250 mcg of Fentanyl
- Naloxone (Narcan) may be considered at birth in the event of neonatal respiratory depression at the discretion of a physician

Pharmacologic Pain Management Options: Epidural

- Provides analgesia and anesthesia during labour and birth without sedative effects to mother or fetus
- Ideally performed in active labour
- Procedure is performed by an anesthesiologist
- Epidural space is found outside the dura mater between the dura and spinal cord
- Space is filled loosely with fat, connective tissue, and dural veins that are dilated during pregnancy

Pharmacologic Pain Management Options: Epidural

- An epidural can provide excellent relief from contractions and distention of the birth canal
- Low concentrations of an anesthetic agent and higher doses of an epidural opioid are often used to provide pain relief without substantial motor block
- Level of epidural block can be extended upwards in the event of caesarean birth is warranted; higher concentrations of the anesthetic agent is used leading to increased loss of motor and sensory function

Pharmacologic Pain Management Options: Epidural

Indications for Epidural

- Patient's choice for pain relief in labour
- Analgesia for long labours, distressed/fatigued patients, back labour with occiput-posterior positions
- Multiple pregnancy; prematurity
- Oxytocin augmentation, inductions
- Pre-eclampsia
- Caesarean birth

Pharmacologic Pain Management Options: Epidural

Contraindications

- Coagulopathy or anticoagulant therapy
- Back pain
- Infection (local and systemic)
- Skeletal or spinal abnormalities
- Allergy to local anesthetic
- Hypovolemia
- Fetal compromise requiring emergency intervention
- Fixed cardiac output
- Patient unable to give informed consent
- Elevated intracranial pressure

Pharmacologic Pain Management Options: Epidural

Risks

- Dural puncture and spinal headache
- Catheter migration
- Drug effects including toxicity
- Failed block, unilateral or patchy block
- Urinary retention
- Infection
- Nerve injury is rare

Pharmacologic Pain Management Options: Epidural

Procedure

- Ensure vaginal exam has been completed to determine progress of labour and report same to physician
- Physician will consult anesthesiologist to arrange for epidural
- Obtain baseline vital signs and fetal heart rate
- Obtain CBC results with platelet count
- Anesthesiologist will obtain consent from patient and may have them sign the *Consent of Invasive Procedures*

Pharmacologic Pain Management Options: Epidural

- If possible, have the patient void prior to the procedure
- Check IV patency; check physician's order for IV bolus
- Position patient as directed by the anesthesiologist
- Assist anesthesiologist with preparation of the epidural tray
- Assist anesthesiologist with preparation of medications

Pharmacologic Pain Management Options: Epidural

- Anesthesiologist will administer local anesthetic; Xylocaine prior to inserting the epidural
- Anesthesiologist will then obtain lumbar access into the epidural space using a 16 to 18 gauge needle
- Once in the space, the physician will insert an 18 to 20 gauge flexible catheter into the space that will be used for a continuous infusion via a PCEA pump
- Remind the patient to verbalize when she is having a contraction and help her breathe through them; reinforce the importance of remaining still

Pharmacologic Pain Management Options: Epidural

- Once catheter is inserted, a transparent dressing will be applied over the site and tape will be used to secure it
- Anesthesiologist will often give a bolus of the medication before starting the infusion via epidural pump
- Support the patient; help to position her for nursing care post-administration of epidural anesthesia and boluses

Pharmacologic Pain Management Options: Epidural

Maternal Assessment Post-Epidural

- Check and record blood pressure every 5 minutes x3; every 15 minutes x1 and then every 30 minutes thereafter if stable
- This sequence is repeated after each bolus
- Perform sensory blockade assessments and modified bromage score as per orders
- Assist the patient with repositioning as needed; a lateral tilt should be maintained at all times

Pharmacologic Pain Management Options: Epidural

- Assess for bladder distention every two hours; notify physician if patient unable to void
- Monitor and record intake and output
- Provide one-to-one labour support
- Refer to Fetal Health Surveillance Guidelines for fetal heart monitoring
- Document how patient tolerated procedure

Pharmacologic Pain Management Options: Epidural

Notify Anesthesiologist if…

- Analgesic effect diminishes
- Systolic BP falls below 90 mmHg
- Any signs of respiratory distress
- Seizure activity
- Unexpected motor block (ie: leg paralysis)
- Complaints or ringing in ears, metallic taste in mouth, feeling restless or jittery
- Any other indications ordered by physician

Pharmacologic Pain Management Options: Epidural

- Most common side effect is hypotension
- Ephedrine IV is used to treat hypotension related to epidurals
- Must be ordered by the anesthesiologist
  - Dose is usually 5-10 mg IV push; 10 mg should be administered over at least one minute
  - Caution in women with hypertension in pregnancy especially if on Magnesium Sulfate; half the dose may be ordered 2.5 mg to 5 mg
  - Side effects include hypertension, tachycardia, arrhythmia

Pharmacologic Pain Management Options: Epidural

Removal of Epidural Catheter

- Identify patient and explain procedure
- Preform hand hygiene
- Gather supplies for a small dressing
- Position the patient in sitting position with shoulders dropped and rounded back or lateral position with the back arched
- Observe condition of insertion site; if bleeding from site, notify physician prior to removal

Pharmacologic Pain Management Options: Epidural

- Pull firmly on the catheter and withdraw slowly
- If resistance is felt, have the patient arch back more and try to withdraw catheter again
- Never force the catheter; if resistance is felt, stop and notify anesthetist
- When catheter is removed, observe for presence of the black dot at the end of the catheter

Pharmacologic Pain Management Options: Epidural

- Note any drainage from the catheter site
- Cover with dressing
- Notify anesthetist of any redness at the site or if any purulent drainage is present
- Documentation should include time of removal, site condition, if catheter was intact, and if anesthetist was contacted and why

Pharmacologic Pain Management Options: Pudendal Block

- Provides anesthesia to the lower vagina and part of the perineum
- Highly localized type of regional block
- May be used for an episiotomy and low forceps if indicated
- Physician will inject pudendal nerves near each ischial spine with a local anesthetic
- Potential complications include toxic reaction to anesthetic, rectal pressure, hematoma, or sciatic nerve block

Pharmacologic Pain Management Options: Local Infiltration Anesthesia

- Infiltration of the perineum can be performed by a physician at the time of a vaginal birth
- Xylocaine 1% or 2% is the local anesthesia usually used
- Used at the time of an episiotomy, or for perineal repair after birth
- Often burns before anesthetic action takes effect; short delay between injection and numbness that is felt from the drug effects
- Any adverse effects to mother or fetus would be very rare

Pharmacologic Pain Management Options: Nitrous Oxide

Nitrous Oxide (Nitronox/Entonox)

- Is a pre-mixed gas consisting of 50% nitrous oxide and 50% oxygen
- Most often used during transition
- Is self-administered with supervision by the RN via mouth piece, and is connected to a breathing circuit with a demand valve
- Demand valve opens and administers the gas only when inspiration causes negative pressure

Pharmacologic Pain Management Options: Nitrous Oxide

- Nitrous oxide has a rapid onset and termination
- Little to no effect on fetus
- Vaginal exam should be performed to determine progress
- To be administered as per physician's orders
- Following equipment is required: nitrous oxide administration unit, nitrous oxide tank, scavenger system, mouthpiece

Pharmacologic Pain Management Options: Nitrous Oxide

- To be self-administered; therefore only the patient should hold the mouthpiece in place
- Contraindications to use include inner ear (stapes) surgery, chronic lung disease, or previous bowel obstruction
- Patient should be instructed to take slow, deep breaths
- Inhalation should begin 50 seconds before the peak of the contraction or moment the contraction is felt
- Analgesia effect begins about 20 seconds after inhalation begins

Pharmacologic Pain Management Options: Nitrous Oxide

- Side effects may include:
  - Drowsiness
  - Dizziness
  - Nausea and vomiting
- Some women do not tolerate the side effects; this is the benefit of the rapid termination of the gas from the mother's system
- Patient should remove the mouthpiece between contractions and breathe in room air normally

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Immediate Care of the Newborn

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this module, the orientee will:

- Describe the incidence of need for resuscitation at birth
- Describe fetal oxygenation in utero
- Describe signs of a compromised baby at birth and potential causes
- Describe the difference between primary and secondary apnea
- List the equipment that is required to prepare for birth
- List the initial three questions used to guide assessment and potential need for resuscitation at birth
- Describe how to perform an initial assessment of the newborn at birth including APGAR score

Learning Objectives

- Describe the initial steps to take if a baby is not vigorous at birth
- List team members who may be present at birth and indications for attendance by neonatal team members
- Describe current recommendations related to Narcan (naloxone)

Overview

- Birth asphyxia is responsible for approximately 23% of about 4 million neonatal deaths around the world
- Approximately 10% of newborns will require some assistance with breathing at birth
  - Therefore, approximately 90% of babies will transition to extrauterine life without complications
- Approximately 1% of newborns will require extensive resuscitation at birth

Oxygenation in Utero

- All oxygen used by a fetus before birth is diffused across the placental membrane from the mother's blood to the baby's blood
- Only a small portion of fetal blood passes through fetal lungs
- Fetal lungs are expanded in utero
  - Alveoli are filled with fluid as opposed to air
- The arterioles that perfuse the fetal lungs are constricted
- At birth, fluid in the alveoli must be absorbed and replaced by air containing oxygen

At Birth a Compromised Baby May Exhibit…

- **Depression of respiratory drive**
  - Caused by insufficient oxygen delivery to the brain
- **Poor muscle tone**
  - Caused by insufficient oxygen delivery to the brain, muscles, and other organs
- **Bradycardia**
  - Caused by insufficient delivery of oxygen to the heart muscle and brain stem

At Birth a Compromised Baby May Exhibit…

- **Tachypnea**
  - Caused by failure to absorb fetal lung fluid
- **Persistent cyanosis**
  - Caused by insufficient oxygen to the blood
- **Low blood pressure**
  - Caused by insufficient oxygen to the heart, blood loss, or inadequate blood return from the placenta before or during birth

Primary and Secondary Apnea

Absence of respiratory effort is often the first sign that a newborn has experienced some degree of perinatal compromise resulting in either:

- ***Primary Apnea:*** Characterized by the absence of breathing or gasping where stimulation will resume breathing
- ***Secondary Apnea:*** Caused by further cardiorespiratory compromise where the resumption of breathing will not begin with stimulation and positive-pressure ventilation is required

Equipment Required to Prepare for Birth

- Turn on warmer
- Check Neopuff (PIP set at 18-20 cmH20; PEEP set at 4 cmH20)
- Masks for Neopuff size 1 and 01 (medium and large)
- Check ambu bag (including pop-off valve) connected to oxygen
- Check suction (80-100 mmHg); 12F suction catheter
- Check medical air tank (at least 500 in the tank)
- Size 3.5 precut ET tubes with stylets
- Pulse oximeter and probe is present
- Meconium aspirator available

Equipment Required to Prepare for Birth

- Ensure stethoscope is present
- Newborn resuscitation cart is locked (indicates ready for use)
- Warm blankets
- Ice in specimen bag for cord gases

Special Considerations for Preterm

- Plastic bag available (for preterm <29 weeks gestation)
- Mask size 00 or 1 (small or medium)
- ET tubes size 2.5 or 3
- Suction catheter size 6-8F

Initial Assessment of Newborn at Birth

Three components of your initial assessment you want to establish at the time of birth:

- Is the baby term?
- Is the baby breathing or crying?
- Does the baby have good tone?

Initial Assessment of Newborn at Birth

- Baby can be placed skin-to-skin
- Provide warmth, dry the baby well
- Position the head to open the airway and suction any secretions as necessary
- Further assessments can be performed while skin-to-skin
  - Assess respirations
  - Assess heart rate
  - Assess tone
  - Assess colour
  - Assess reflex irritability

APGAR Score

	0	1	2
Heart rate	Absent	Less than 100 bpm	100 bpm or greater
Respiratory effort	No spontaneous respirations	Slow respirations or weak cry	Spontaneous respirations; strong lusty cry
Muscle tone	Limp	Minimal flexion of extremities; sluggish movement	Flexed position; spontaneous and vigorous movement
Reflex response	No grimace	Minimal grimace	Cry or active movement
Colour	Pale or cyanotic	Bluish hands and feet; body pink	Pink; absence of cyanosis

Murray & McKinney, 2014, p. 249

Initial Assessment of the Newborn at Birth

- Maintain skin-to-skin contact
- Label and send cord gases to the lab with appropriate requisition
- Label cord bloods
- Place matching arm bands on mom and baby
- Assist with breastfeeding or other infant feeding if indicated
- Continue to monitor baby

If Newborn is Not Vigorous at Birth

FOLLOW NRP GUIDELINES

Initial Steps:

- Note time of birth; call for help
- Take baby to the warmer; provide warmth and stimulation for 30 seconds
- If no spontaneous respirations, neonate is gasping, HR is less than 100 bpm or persistent central cyanosis is present begin PPV (as per NRP guidelines)
  - Neopuff is preferred but can be delivered through ambu bags as well
  - Perform at a rate of 40-60 breaths per minute (BREATHE, two, three…)

If Newborn is Not Vigorous at Birth

- Update team when they arrive
- Chest compressions are initiated when HR is below 60 bpm following 30 seconds of effective PPV (as per NRP guidelines)
  - Thumb technique at a rate of 3:1
- Medications may be indicated as per NRP guidelines depending on need for resuscitative efforts
- Record resuscitative efforts on Resuscitation Record

Team Members

Team members who may attend a birth include:

- Obstetrician
- Labour and Birth RNs
- Pediatrician
- Neonatal Nursery RNs
- Respiratory Therapists

Team Members

Pediatrician, neonatal nursery RN, and RT may attend births in the following situations:

- Meconium fluid
- Preterm births
- Emergency Caeserean
- Assisted vaginal birth
- Known anomalies in the newborn that may indicate need for resuscitation
- Shoulder dystocia
- Atypical or abnormal fetal heart rate tracings
- Other indications where there is a potential for neonatal resuscitation

Narcan (naloxone)

- Narcotics and other medications given to mothers in labour can depress newborn respirations at birth
- Narcan (naloxone) traditionally given in this setting when the neonate did not respond to effective PPV
- New NRP guidelines suggest that there is insufficient evidence to support the use of Narcan (naloxone)
- Focus is on effective PPV to establish respiratory effort
- If Narcan (naloxone) is given under the discretion of a physician….
  - It should never be given to a baby of a mother with a history of drug use in pregnancy as it can induce seizures in the newborn

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

References

American Academy of Pediatrics & American Heart Association. (2016). *Textbook of neonatal resuscitation* (7th ed.). Gary Weiner & Jeanette Zaichkin (Ed.). Elk Grove Village, IL: American Academy of Pediatrics

Murray, S., & McKinney, E. (2014). *Foundations of maternal-newborn and women's health nursing* (6th ed.). St. Louis, MO: Elsevier Saunders

Prelabour Rupture of Membranes (PROM) and GBS

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
May, 2017

Learning Objectives:

By the end of this learning module, the orientee will:

- Describe PROM and how it occurs
- Explain how PROM is diagnosed
- Explain how a woman is assessed with query PROM
- Describe the management of PROM
- Describe GBS and its significance
- Explain the screening involved with GBS
- Indicate who requires treatment for GBS prophylaxis
- Describe the choices for GBS prophylaxis
- List additional considerations for GBS prophylaxis

What is Prelabour Rupture of Membranes (PROM)

- Also referred to in the setting as spontaneous rupture of membranes (SROM)
- Defined as the rupturing of membranes where the onset of contractions do not begin for at least an hour post rupture
- Term PROM occurs at ≥37 weeks gestation
- Incidence is about 8% of all pregnancies and about 90% of women will go into spontaneous labour within 24 hours of the onset of PROM

How does PROM Occur?

- Occurs as a result of membrane weakening along with the shearing forces caused by uterine activity
- Risks are associated with PROM
  - Risk of infection increased for both mother and baby
  - Risk for cord compression or prolapse

Diagnosis of PROM

- Diagnosis of PROM can be multifaceted and may include:
  - Patient history
  - Clinical judgement
  - Physical examination
  - Testing (ie: ferning or pH testing using nitrazine)
  - Ultrasound (not diagnostic)
  - ***DO NOT PERFROM A VAGINAL EXAMINATION WHEN PROM IS SUSPECTED OR CONFIRMED IN THE ABSENCE OF LABOUR***
- Self-reported PROM is accurate in approximately 90% of cases

Diagnosis of PROM: History

- Review prenatal record and obtain self-report
- Establish term gestation
- Vital signs and urine dip
- Assess for presence of labour
- Establish fetal wellbeing
  - IA is appropriate in the absence of risk factors
- Note self-reported time of suspected membrane rupture
- Note amount and colour of fluid
- Note any odour to the fluid

Diagnosis of PROM: Physical Examination

- Sometimes PROM is quite evident as patient may be passing copious amounts of amniotic fluid

Not always so conclusive….

- Can you obtain any fluid on a slide to test for ferning?
  - Is the patient wearing a pad?
  - Try getting the patient to cough
  - Try getting the patient to stand at the side of the bed
- If PROM is inconclusive with these attempts a sterile speculum exam may be warranted

Diagnosis of PROM: Physical Examination

- Sterile speculum exam: Speculum is placed inside the vagina by the physician
  - Physician examines for pooling of fluid in the posterior fornix
  - Trickling or flowing of fluid from the cervix
  - Fluid may be obtained on a slide by the physician to assess for ferning
- ***Ferning:*** Is caused by crystallization of sodium chloride which is indicative of the presence of amniotic fluid
- Nitrazine stick may also be used (non-specific)- changes from yellow to dark blue when positive

Management of PROM

- Current recommendations suggest that IOL should be initiated within 24 hours from when PROM occurs
- If GBS postive
  - Antibiotics should be initiated
  - IOL should be considered
- No vaginal examinations until active labour occurs (or IOL is initiated)
- Assess for signs of infection
- IOL and administration of antibiotics should be initiated if chorioamnionitis is suspected

What is GBS?

- Group B streptococci are gram-positive aerobic diplocci found in the lower urogenital tract
- Part of the normal vaginal microbiome
- Approximately 10% to 30% of women in North America are colonized
- Colonization may be chronic, transient, or intermittent

What is the Significance of GBS?

- Can lead to morbidity or mortality in neonates born to mothers colonized with GBS
- An estimated 1%-2% of babies born to mothers colonized with GBS will develop early-onset GBS disease
- Late-onset occurs from 8 to 90 days post birth in healthy term newborns
- GBS infections have also been associated with stillbirths
- Can cause postpartum endometritis and wound infections.

Screening for GBS

- Screening involves collecting a vaginal-rectal swab (one swab first to the vagina and then through the anal sphincter)
  - Collected between 35 and 37 weeks gestation
- Screening should also be completed on women who are planning to have a Caesarean birth

Treatment for GBS Prophylaxis

- IV antibiotic prophylaxis for GBS should be initiated at the onset of labour or ruptured membranes for women:
  - Who are positive for GBS by vaginal/rectal swab culture screening completed between 35 and 37 weeks gestation
  - With an infant previously infected with GBS
  - Women with a documented GBS bacteriuria in the current pregnancy
- When a women presents in labour or with ruptured membranes, always look up their GBS status to determine whether or not prophylaxis needs to be initiated

Choice of Antibiotics for GBS Prophylaxis

- IV Penicillin G is recommended over ampicillin due to its narrow spectrum of action, which leads to decreased risk of ampicillin resistance
- IV cefazolin (a cephalosporin) is recommended in cases where women are penicillin-allergic, but are low risk for anaphylaxis

Recommended Antibiotic Regimen for Intrapartum GBS Prophylaxis

1. ***Penicillin G 5 million units IV***, then ***2.5 to 3 million every 4 hours*** until birth

OR

2. If the woman is allergic to penicillin but has a low risk for anaphylaxis: ***Cefazolin 2 g IV*** then ***1 g every 8 hours*** until birth

OR

3. If the woman is allegric to penicillin and at risk for anaphylaxis: ***Clindamycin 900 mg IV*** every *8 hours* until birth OR ***Erythromycin 500 mg IV every 6 hours*** until birth (** Be sure to check susceptibility **)

OR

4. If above antibiotics are resistent to GBS: ***Vancomycin 1 g IV every 12 hours*** until birth

Other Considerations for GBS Prophylaxis

- For women with an intrapartum fever and signs of chorioamnionitis, treatment may be considered with a broad spectrum antibiotic to target chorioamnionitis and include coverage for GBS, regardless of GBS status and gestational age
- At ≥37 weeks gestation, if GBS colonization status is unknown, and membranes have been ruptured for greater than 18 hours, IV GBS prophylaxis may be considered
- If PROM occurs at ≥37 weeks and the woman is known to be GBS positive (or meets other criteria listed on slide 13) IV GBS antibiotic prophylaxis should be administered and a plan made for immediate obstetrical birth (ie: IOL) is indicated

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

References

Murray, S., & McKinney, E. (2014). *Foundations of maternal-newborn and women's health nursing* (6th ed.). St. Louis, MO: Elsevier Saunders

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Society of Obstetricians and Gynaecologists of Canada. (2016). Prelabour rupture of membranes (PROM) and Prevention of early-onset neonatal Group B Streptococcal Disease. *Advances in labour and risk management (ALARM).* (23rd ed).

PPROM and Preterm Labour and Birth

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Define premature prelabour rupture of membranes (PPROM)
- Describe the incidence of PPROM
- Describe the risks and potential outcomes associated with PPROM
- Describe the assessment and management of PPROM
- Define preterm labour and preterm birth
- Describe the incidence of preterm labour and birth
- Describe the fetal morbidity and mortality associated with preterm labour and birth
- Describe the potential causes of preterm labour and birth
- Describe the assessment required for preterm labour

Learning Objectives

- Describe the indication and relevance of the fetal fibronectin test
- Describe the management of preterm labour
- List the options available for tocolysis for preterm labour
- Describe the Nifedipine (Adalat) protocol
- Describe the purpose and indication for glucocorticoid administration
- Describe the additional considerations associated with imminent preterm birth
- Describe the indications for and process of out-of-province transfers
- Identify forms to be completed during out-of-province transfers

PPROM: Definitions

Preterm prelabour rupture of membranes (PPROM): Refers to the rupture of membranes before the onset of labour that occurs before 37 weeks gestation

May be classified as:

- ***Mid-trimester PPROM:*** before 24 weeks gestation
- ***Early PPROM:*** between 24 and 34 weeks gestation
- ***Near-term PPROM:*** between 34 and 37 weeks gestation

PPROM: Incidence

- Occurs in 2%-3.5% of pregnancies
- Accounts for one-third of cases of preterm birth
- Approximately 50% of women with PPROM will go into labour within 24 hours; 70-80% will go into labour within one week following the onset of PPROM
- Intra-amniotic infection occurs in about 15%-25% of women with PPROM, with chorioamnionitis occurring in 51% of cases

PPROM: Risks and Potential Outcomes

Risks and potential outcomes of PPROM include:

- Preterm labour and birth
- Fetal/neonatal infection
- Maternal infection
- Umbilical cord compression or prolapse
- Increased rate of Caesarean birth
- Placental abruption
- Pulmonary hypoplasia
- Fetal deformity

PPROM: Assessment and Management

- **Assessment:** Follow the same process as described in learning module *"Prelabour rupture of membranes (PROM) and GBS"*
- Do not perform a vaginal examination in a case of suspected or confirmed PPROM in the absence of labour
- **Depending on gestation, management may include:**
  - Expectant versus IOL
  - Admission to Unit 4 with antibiotic administration and monitoring
  - Transfer out-of-province (gestation <32 weeks)

PPROM: Management

Management 34-36+6 weeks gestation:

- Differing opinions in the literature weighing expectant management versus IOL
- IOL may be considered to prevent the risk of chorioamnioitis
  - This risk should be balanced against the risk of preterm birth
- GBS swab should be collected if not previously
- Treatment with antibiotics for GBS prophylaxis if indicated
- Ultrasound for fetal position
- Patient often admitted to Unit 4 for observation; Pediatric consult

PPROM: Management

- Increased surveillance
  - NST
  - BPP
- Assessment for infection should be performed with expectant management
  - Vital signs
  - FHR
  - Uterine tenderness or irritability
  - Increased WBC count
- IOL and administration of antibiotics should be considered if chorioamnionitis is suspected

PPROM: Management

Management 32-34 weeks gestation:

- Expectant management is indicated whenever possible
  - Attempts should be made to prolong gestation
- Admission to Unit 4; pediatric consult
- Obtain GBS swab
- Ultrasound for position
- Fetal surveillance
  - NST
  - BPP

PPROM: Management

- Choices for antibiotic prophylaxis
  - IV Ampicillin 2 g q6hrs x 48 hours
  - IV Erythromycin 250 mg q6hrs x48 hours
  - PO Amoxicillin 250 mg q8hrs x5 days
  - PO Erythromycin enteric-coated 333 mg q8hrs x 5 days
- Administration of betamethasone/Celestone 32-34 weeks
  - 12 mg IM q24hrs x2 doses
- Assessment for chorioamnionitis and IOL is suspected
  - Vital signs (pulse, temperature)
  - FHR
  - Uterine tenderness or irritability
  - Increased WBC count

PPROM: Management

Management <32 weeks gestation:

- Transfer out of province to tertiary care centre (IWK Health Centre)
- Will divert to Moncton if IWK at capacity
- Considerations may be made to admit to Unit 4 if gestation is approaching 32 weeks and expectant management is indicated
- Process for transfer to be discussed in upcoming slides

Preterm Labour and Birth: Definitions

Preterm labour: Refers to presence of regular uterine contractions with cervical dilation and/or effacement occurring between 20 and 36+6 weeks gestation

Preterm birth: Refers to the birth of a fetus before 37 weeks gestation

Preterm Labour and Birth: Incidence

- Rates of preterm birth have increased from 6.3% in the 1980's to 7.7% in 2009
- 1%-2% of preterm births will occur before 34 weeks gestation
- Newborns born at greater than 34 weeks gestation have a 99%-100% survival rate
- Survival rates can vary drastically in early preterms
  - 10% survival rate at 22+ weeks gestation
  - 40% survival rate at 24 weeks gestation
- 60%-80% of neonatal deaths are associated with preterm birth

Preterm Labour and Birth: Fetal Morbidity and Mortality

The risks of fetal morbidity and mortality associated with preterm birth include:

- Respiratory distress syndrome (RDS)
- Intraventricular hemorrhage (IVH)
- Necrotizing enterocolitis (NEC)
- Long term CNS effects (ie: cerebral palsy)
- Neurodevelopmental delays
- Respiratory effects (ie: bronchopulmonary dysplasia)
- Blindness
- Deafness

Preterm Labour and Birth: Causes

- **Preterm prelabour rupture of membranes (PPROM)**

- **Indicated preterm births**
  - Preeclampsia
  - Complicated insulin-dependent diabetes
  - Abnormal fetal surveillance
  - IUGR
  - Intrauterine fetal death
  - Chorioamnionitis
  - Monochorionic-monoamniotic twins

Preterm Labour and Birth: Causes and Associations

- **Spontaneous preterm labour without ruptured membranes**
  - Previous spontaneous preterm birth
  - Reproductive technologies
  - Antepartum bleeding
  - PPROM
  - Cervical insufficiency
  - Uterine malformation
  - Fibroids
  - Multiple gestation
  - Fetal anomaly
  - Polyhydramnios
  - Chorioamnionitis
  - Periodontal disease
- Bacterial vaginosis with current pregnancy with a history of preterm birth
- Bacteriuria
- Low SES
- Single women
- Low level of education
- Maternal age <18 years and >35 years
- Illicit drugs
- Smoking >10 cigarettes/day
- Physical abuse
- Poor prenatal care
- Low pre-pregnancy weight and poor weight gain
- Stress
- Obesity

Preterm Labour: Assessment

- Physical assessment is indicated
- Have woman change into gown, dip urine
- Obtain antenatal record and history
  - Accurate dating is essential
  - Early 1st trimester ultrasound is the most accurate
  - Accurate period dates versus 2nd trimester ultrasound
  - Location of placenta
- Complete Perinatal Triage and Assessment Record

Perinatal Triage and Assessment Record

1

Date	Time
Arrived by ambulance ☐ Yes ☐ No	
Language preferred	

REASON FOR VISIT _____ Accompanied by _____

G _____ T _____ P _____ A _____ L _____ LMP _____ EDD dates _____ US _____ Gestational age _____

2 **INITIAL ASSESSMENT**

Contractions ☐ Yes ☐ No	**Membranes**	**Bleeding**	**Fetal movement**
Date _____ Time started _____	☐ Intact ☐ Ruptured ☐ Query	☐ Yes ☐ No ☐ Show	☐ Normal
☐ Regular ☐ Irregular q ____ min	Date _____	Date _____ Time started _____	☐ ↑ since Date _____
Intensity _____	Time _____	Amount _____	☐ ↓ Time _____
Duration _____	Colour _____	Colour/consistency _____	

Infectious history Recent infectious disease/contact ☐ No ☐ Yes, specify _____ e.g. MRSA, VRE, chickenpox, Hep B, TB, HSV

Antibiotic Resistant Organism screen completed ☐ Yes ☐ No Initials _____

Triaged as ☐ Emergent ☐ Urgent ☐ Non-urgent **Triaged to** ☐ LDR ☐ Assessment room ☐ Waiting room ☐ _____

STOP

3 **HISTORY/RISK FACTORS** *Antenatal Record* ☐ *Reviewed* ☐ *Not available*

ALLERGIES ☐ NKA ☐ Yes, specify/reactions _____ **ABO group** _____ **Rh** _____

GBS result ☐ Unk ☐ Neg ☐ Pos ☐ Swabs taken Last done _____ Rubella ☐ Immune ☐ Non-immune

Current medications/complementary therapy ☐ Vitamins only ☐ Other meds & last dose _____

☐ See Medication Reconciliation Form Breastfeeding ☐ Yes ☐ No

Height _____ cm/in Pre-pregnant wt. _____ kg/lb Pre-pregnant BMI _____ Current wt. _____ kg/lb Wt. gain _____ kg/lb

Pregnancy concerns ☐ None

Past obstetric concerns ☐ None

Medical/surgical/anesthetic concerns ☐ None

Psychosocial concerns ☐ None ☐ Substance use ☐ Mental health ☐ Current tobacco use #/day _____ If quit, last use _____

Previous admission this pregnancy ☐ None ☐ Yes, reason

4 **ASSESSMENT** Last ate _____ Last drank _____ Symphysis fundal ht. consistent with gestational age ☐ Yes ☐ No _____ cm

Presentation _____ **Lie** _____ **Position** _____ **Engaged** ☐ Yes ☐ No

FH assessment mode ☐ AUSC ☐ EFM ☐ NST If EFM/NST, specify reason _____

	Time				
FHR	FHR [bpm]				
	Rhythm/ Variability				
	Accelerations				
	Decelerations				
	Classify as				
MATERNAL	Time				
	Contractions				
	BP				
	Pulse				
	Temp/Resp				
	Urine P/K				
	Blood sugar				
	INITIALS				

VAGINAL EXAM	Time		
	Cx dilatation [cm]		
	Cx length [cm]		
	Station		
	Cx position [Anterior, Mid, Posterior]		
	Cx consistency [Soft, Med, Firm]		
	EXAMINED BY		

TESTS		
	Bishop score _____ Biophysical Profile Score _____	Urine sent ☐ R&M ☐ C&S
	Amniotic fluid Nitrazine ☐ Neg ☐ Pos	Blood work:
	Ferning ☐ Neg ☐ Pos	
	Swabs done ☐ fFN ☐ C&S ☐ Other	

Provider name _____

Notified by _____ at _____ h

Provider arrived at _____ h

Completed by _____ Signature

Preterm Labour: Assessment

- Assess for presence of:
  - Regular contractions
  - Leakage of fluid from vagina
  - Vaginal bleeding
  - Pelvic pressure
  - Low dull backache
  - Vaginal discharge
- Vital signs
- EFM indicated with preterm labour
  - Assess fetal movement

Preterm Labour: Assessment

- Assess contractions:
  - What time did they start?
  - Are they more regular?
  - Are they increasing in intensity?
  - How often are they occurring and how long are they lasting?
- Palpate abdomen to assess frequency and strength of contractions
- Report findings to the physician

Preterm Labour: Assessment

- Physician may preform sterile speculum examination
  - Rule out PPROM
  - Visualize the cervix
  - Obtain swab for fetal fibronectin
  - Obtain cultures if indicated (STI screening, GBS)

- Fetal fibronectin
  - Glycoprotein
  - Presence in cervicovaginal secretions before 34 weeks gestation associated with preterm labour and birth
  - ***Negative result:*** 1%-5% chance of preterm birth within 7 to 14 days
  - ***Positive result:*** 17%-41% of preterm birth within 14 days
  - ***Contraindications:*** PPROM, vaginal bleeding, vaginal exam, intercourse within last 24 hours

Preterm Labour: Assessment

- Physician may perform vaginal examination to assess for dilation and effacement of cervix

- Management may include:
  - Expectant
  - Tocolysis/administration of glucocorticoids
  - Administration of magnesium sulfate for neuroprotection
  - Transfer

Preterm Labour: Management

Tocolysis:

- Administration of tocolytics may prolong pregnancy for up to 48 hours when administered before 34 weeks gestation
- May impede progress of labour to allow for the administration of glucocorticoids
- May impede progress of labour to allow for transfer of patients who are <32 weeks gestation

Preterm Labour: Management

Contraindications for tocolysis include:

- Preeclampsia or another medical condition where birth is warranted
- Chorioamnionitis
- Mature fetus
- Advanced labour, cervical dilation, or imminent birth
- Intrauterine fetal death
- Lethal fetal abnormality
- Abnormal fetal surveillance
- Significant antepartum hemorrhage
- Maternal hemodynamic instability
- Contraindications to tocolytic medications
- Any contraindication to prolonging the pregnancy

Preterm Labour: Management

Tocolysis- Nifedipine (Adalat)

- Calcium channel blocker that inhibits preterm labour by blocking the influx of calcium into the uterine smooth muscle which decreases contractility of the uterus
- Not specific to uterine muscle, can affect cardiac, vascular, and non-vascular smooth muscle
- Patient to be assessed by physician prior to administration
- Ordered by physician
- Loading dose to be administered in L&B

Preterm Labour: Management

Contraindications to Nifedipine include:

- Hypersensitivity to any component of the medication
- Acute myocardial infarction
- Severe hypotension
- Any contraindication to tocolytics

Preterm Labour: Management

Nifedipine should be used with caution in patients with:

- Congestive heart failure
- Left ventricular dysfunction
- Aortic stenosis
- Previous myocardial infarction
- Angina
- Coronary artery disease
- Hepatic impairment (may use low dose)
- Diabetes (may produce hyperglycemia)
- Administration of magnesium sulfate

Preterm Labour: Management

Prior to administration of Nifedipine:

- Plan of care, administration of the medication, and its benefits and effects should be discussed with patient and support person
- Obtain baseline vital signs before each loading dose and every 15 minutes x2 hours following the last loading dose
- EFM should be employed
- Assessment of contractions should be performed
  - Frequency, duration, and intensity

Preterm Labour: Management

Nifedipine- Loading dose:

- Vital signs (Temperature, RR, pulse, and BP) to be taken before each loading dose
- Nifedipine regular capsules to be administered
  - 10 mg PO
  - Repeat dose every 15-20 minutes until contractions stop
  - Max dose is 40 mg in the first hour
- Continuous EFM should be employed during the loading dose and should continue until 2 hours following the last loading dose

Preterm Labour: Management

Nifedipine- Maintenance dose:

- Nifedipine regular capsules should be administered
  - 10 mg PO every 4-6 hours
  - To be started 6 hours after the last loading dose
  - Maintenance dose may be increased up to 20 mg PO every 4-6 hours at the discretion of the physician
  - Maximum daily dose is 120 mg

Discontinuation of Nifedipine:

- 48 hours after administration of glucocorticoids
  - Do not need to taper the dose

Preterm Labour: Management

Side-effects of Nifedipine include:

- Dizziness
- Flushing
- Nausea
- Headaches
- Peripheral edema

Preterm Labour: Management

Physician should be notified if the following occurs with Nifedipine administration:

- Maternal heart rate > 120 bpm
- Maternal systolic BP < 90 mmHg
- Maternal diastolic BP < 60 mmHg
- Atypical or abnormal FHR

Preterm Labour: Management

In the event significant hypotension occurs with the administration of Nifedipine during the loading or maintenance dose:

- Position the patient in the left lateral recumbent position
- Start an IV line if not already in place
- Notify the physician
- Ensure continuous EFM is in place
- Monitor vital signs and oxygen saturation
- Assess for the need for catheterization to monitor urinary output

Preterm Labour: Management

Tocolysis- Indomethacin

- A PG synthetase inhibitor
- Often give prior to transport to tertiary centre
- Dose is 100 mg suppository for transport
  - May repeat 25 mg to 50 mg every 6 hours for maximum of 48 hours
- Should not be given after 32 weeks gestation
  - Due to increased sensitivity to closure of the ductus arteriosus

Preterm Labour: Management

Glucocorticoid administration:

- Administration of glucocorticoids promotes fetal lung maturity
- Full benefit from administration is seen at 48 hours after the initial dose
- Administration is associated with:
  - Reduction in neonatal death
  - Reduction in RDS
  - Reduction in intraventricular hemorrhage
  - Reduction in necrotizing enterocolitis
  - Reduced need for respiratory support
  - Reduced number of admissions to the NICU
  - Reduction in systemic infections during the first 48 hours of the neonates life

Preterm Labour: Management

- Glucocorticoids may be considered between 24 and 34 weeks gestation
- **Options include:**
  - Betamethasone (Celestone) 12 mg IM every 24 hours x 2 doses
  - Dexamethasone 6 mg IM every 12 hours x4 doses
- **Precautions include:**
  - Contraindication with active TB, gastric ulcers, or chorioamnionitis
  - Administration will transiently increase maternal blood sugar
  - Administration can transiently increase WBC count

Preterm Labour: Management

If birth is imminent:

- Notify pediatrics, neonatal nursery, RT
- Treatment with antibiotics for GBS prophylaxis
- Administration of magnesium sulfate for neuroprotection for gestation <31+6 weeks
  - See learning module on hypertensive disorders of pregnancy for administration of $MgSO_4$
- Continuous EFM
- Consider transfer if <32 weeks

Preterm Labour and Birth: Out-of-Province Transfer

- Out-of-province transfer is indicated when birth may be expected prior to 32 weeks gestation
  - Most often IWK Health Centre
  - Sometimes Moncton if IWK unable to accept patient

Circumstances warranting transfer may include:

- PPROM <32 weeks gestation
- Threatened premature labour <32 weeks gestation
- Certain fetal anomalies
- Complications requiring birth at tertiary care centre
  - Placenta previa <32 weeks gestation with bleeding but stable for transfer
  - Known placenta accreta
  - Monochorionic-monoamniotic twins
- Maternal condition where birth at a tertiary care centre is warranted

Preterm Labour and Birth: Out-of-Province Transfer

Process for out-of-province transfers:

- Physician to decide whether patient is to be transferred via EMS ambulance, or air (either EHS NS Life Flight or NB Air Care)
- If transfer by air, physician to notify EHS Life Flight who will call IWK fetal maternal medicine doctor and have a 3-way conversation
- Nurse manager or nursing supervisor should be notified
- Patient and next of kin should be aware of plan and transferring facility

Preterm Labour and Birth: Out-of-Province Transfer

- EMS ambulance to be notified
- Admitting department to be notified of transfer
- Necessary information should be photocopied and sent with the patient
  - Information should be placed in a large brown envelope unsealed
  - List any medications given in last 3 hours on front of the envelope in red ink
- Security should be notified (for air transfers)
- Necessary personal belongings to be packed

Preterm Labour and Birth: Out-of-Province Transfer

- Follow physician's orders re: preparing for transfer
  - Tocolytics
  - $MgSO_4$
  - Antibiotics
  - Medication for sedation/prevent air sickness
- Complete *Patient Transfer Record* (air) or *Ambulance Transport Record for Critically Ill Patients* (ambulance)
- Attach a fresh bag of IV solution and check IV site
- Empty all drainage bags prior to transport (ie: foley catheter)

Preterm Labour and Birth: Out-of-Province Transfer

- Fax chart to the IWK if patient being transported by EHS Life Flight
- Give report to the team on arrival
- Complete the QEH Ambulance Transfer/Air Evacuation form
- Give family information package re: transferring hospital

Air Transfer Checklist

1.	Physician decides of the our - of - province transfer & notifies EHS NS or NB Air Care	
2.	Notify the Nurse Manager/Designate/supervisor	
3.	Inform patient, next of a kin.	
4.	Notify EMS ambulance 1 877 660 6644	
5.	Notify admitting (2238) of the transfer	
6.	Photocopy necessary information to be sent with the patient	
7.	Notify security (2001)	
8.	Pack necessary personal belongings for the patient.	
9.	Check with the physician for medication for prevention of air sickness and sedation.	
10.	Complete Ambulance Transport Record	
11.	Attach a fresh bag of IV solution, check the IV site.	
12.	Empty all drainage bags prior to transport.	
13.	**If the patient is going by EHS - NS**, fax the IWK	
14.	Complete either the Patient Transfer Record or the Ambulance Transport Record	
15.	Give report to the team on arrival	
16.	Complete the QEH Ambulance Transfer/Air Evacation form (for our records).	
17.	Give family info package	

INSTRUCTIONS - COMPLETE THIS SIDE, REMOVE & DISCARD CARBON, TURN OVER & COMPLETE REVERSE, THEN SNAP APART & DISTRIBUTE THE TWO COPIES.

AMBULANCE TRANSPORT RECORD FOR CRITICALLY ILL PATIENTS

PRE-TRANSFER ASSESSMENT

QUEEN ELIZABETH HOSPITAL
CHARLOTTETOWN, P.E.I.

COMPLETE APPROPRIATE DATA

DATE & TIME ADMITTED	REFERRING DOCTOR	FAMILY DOCTOR	RECEIVING HOSPITAL

RECEIVING UNIT	RECEIVING DOCTOR	PHONE CALL REPORT BY:	T.B.A. YES ☐ NO ☐

BRIEF HISTORY OF ILLNESS - MEDICAL HISTORY ATTACHED YES ☐ NO ☐

ALLERGIES:

	YES	NO
FAMILY NOTIFIED	☐	☐
FAMILY ACCOMPANYING	☐	☐
FAMILY ENROUTE	☐	☐
CLERGY/ SAC OF SICK	☐	☐

RELIGION

CONTACT PERSON

PHONE NO.

CURRENT MEDICATIONS

MEDICATION	DOSAGE	ROUTE	FREQUENCY	TIME OF LAST DOSE

INTAKE

I.V. THERAPY INCLUDING MEDICATION INFUSIONS, BLOOD/BLOOD PRODUCTS PREVIOUS (12) HOURS (INDICATE IF LESS)
ART LINE

SOLUTION	SITE	CENTRAL	PERIPHERAL	INSERTION DATE	CXR CONF.	ABSORBED
					TOTAL INTAKE	

OUTPUT PREVIOUS (12) HOURS (INDICATE IF LESS)

URINE	N / G	EMSIS	STOOL	CHEST TUBE	EST. BLOOD LOSS	OTHER	TOTAL OUTPUT

ASSESSMENT PRIOR TO TRANSFER

NEURO
PUPILS — LEFT: SIZE, REACTION — RIGHT: SIZE, REACTION — G.C.S. SCORE — CHEMICALLY PARALYSED YES ☐ NO ☐

RESPIRATORY
SPONTANEOUS ☐ ASSISTED ☐ — RATE — EFFORT: NORMAL - N, SHALLOW - S, RETRACTIVE - R, LABOURED - L — SPO_2 % — O_2 THERAPY %
E T / TRACH TUBE YES ☐ NO ☐ — TUBE SIZE — POSITION — PLACEMENT — CHECKED BY WHOM
VENTILATOR PARAMETERS — $ETCO_2$ — CHEST TUBE - SIZE

CARDIO-VASCULAR
PULSE — B/P (MOST RECENT) AUS ☐ PALPATE ☐ DOPPLER ☐ — CAP REFILL — BODY TEMP. — CARDIAC RHYTHM

MUSCULO SKELETAL
SWELLING ☐ PAIN ☐ DEFORMITY ☐ DESCRIBE

G.I. / G.U.
TIME LAST MEAL — NPO ☐ — BOWL SOUNDS (4) QUADRANTS YES ☐ NO ☐ — ABDOMEN: SOFT ☐ HARD ☐ DISTENDED ☐ — PAIN YES ☐ NO ☐ — INDWELLING: FOLEY ☐ NG ☐ — OTHER ☐
NORMAL — FLUSHED — PALE — OTHER (SPECIFY)

CHECKLIST:	YES ✓	NO
PHYSICIAN TRANSPORT ORDERS (IF APPLICABLE)		
INFUSION PUMPS # _____		
X-RAYS INCL. CAT SCAN		
LAB REPORTS		
E.C.G.		
CHART COPIED		
TRAVEL BOX (MEDS / I.V.s)		
MONITOR / DEFIBRILATOR		
EXTRA BATTERIES # _____		
MULTI FUNCTION PADS		
MONITOR POWER CHARGER		
DOPPLER		
PULSE OXIMETER		
NIBP		
GLUCOMETER		

VALUABLES

UPPER LOWER
DENTURE(S) ☐ ☐

HEARING AID ☐ GLASSES ☐

CLOTHING ☐

OTHER:

2997

124460-00_8263

INSTRUCTIONS - COMPLETE THIS SIDE, REMOVE & DISCARD CARBON, TURN OVER & COMPLETE REVERSE, THEN SNAP APART & DISTRIBUTE THE TWO COPIES.

Health PEI

PATIENT TRANSFER RECORD

SITE

- ☐ QUEEN ELIZABETH HOSPITAL
- ☐ PRINCE EDWARD HOME
- ☐ HILLSBOROUGH
- ☐ PROVINCIAL ADDICTIONS FACILITY
- ☐ BEACH GROVE HOME
- ☐ KINGS COUNTY MEMORIAL HOSPITAL

DATE OF BIRTH D. M. YR.	MRN	ORIGINATING UNIT	PHONE NO.

UNIT RESIDENT TRANSFERRED TO	RELIGION	DATE OF SACRAMENT OF SICK

NEXT OF KIN	RELATIONSHIP	RESIDENCE PHONE	WORK PHONE

ADDRESS

FAMILY NOTIFIED	YES ☐	NO ☐	ATTENDING PHYSICIAN	PHYSICIAN TO BE SEEN

ASSESSMENT

DIAGNOSIS ON ADMISSION TO EXTENDED CARE FACILITY	GLUCOMETER / CHEMSTRIPS

ALLERGIES

DAY	MO	YEAR	TIME	TEMP.	PULSE	RESP.	BP	WEIGHT (Kg)	DATE

CARRIER: M.R.S.A. YES ☐ NO ☐	V.R.E. YES ☐ NO ☐	INFECTION CONTROL PRECAUTIONS (TYPE)	CURRENT RESUSCITATION STATUS	HEALTH CARE DIRECTIVE YES ☐ NO ☐	ATTACHED YES ☐ NO ☐

OXYGEN THERAPY / NURSING TREATMENTS

MEDICATIONS (DOSAGE / FREQUENCY). INCLUDE DATE OF LAST MONTHLY INJECTIONS.	TIME LAST GIVEN

RECENT IMMUNIZATION: PNEUMOCOCCAL YES ☐ NO ☐ INFLUENZA YES ☐ NO ☐ DATE _____ OTHER _____

REASON FOR TRANSFER / SUMMARY OF ILLNESS / FOLLOW-UP

QUEEN ELIZABETH HOSPITAL

AMBULANCE TRANSFER/AIR EVACUATION

FORM

TRANSFER FROM Q.E.H ☐ TRANSFER TO Q.E.H. ☐ AIR EVACUATION ☐

(CHECK APPLICABLE BOX AND COMPLETE ACCORDINGLY)

PATIENT NAME: _____ D.O.B. ____/____/____
DAY MONTH YEAR

ADDRESS: _____

_____

SIN: _____ PHN#: _____ Q#: _____

DESTINATION OF TRANSFER/EVACUATION: _____ DATE: ____/____/____
DAY MONTH YEAR

ACCOMPANIED BY Q.E.H. STAFF: _____
(NAME)

HOURS WORKED: _____ SALARY: _____

SENDING HOSPITAL: _____ RETURNED TO UNIT: _____

MEDICAL DIAGNOSIS: _____

REASON FOR TRANSFER/EVACUATION: _____

_____

REFERRING DOCTOR: _____

PHYSICIAN APPROVING EVACUATION: _____

COMMENTS: _____

_____

_____

COMPLETED BY: _____ DATE: ____/____/____
DAY MONTH YEAR

RETURN COMPLETED FORM TO ADMINISTRATION

Q26-05 (10/01)

Preterm Labour and Birth: Out-of-Province Transfer

Contraindications to transfers include:

- Unstable mother
- Abnormal fetal surveillance
- Imminent birth
- Unavailability of experienced attendants to accompany mother on transfer
- Hazardous weather or travel conditions

Preterm Labour and Birth: Out-of-Province Transfer

Other considerations:

- If transporting for threatened preterm labour
  - Re-assessment of woman's cervix will most likely be performed
  - Considerations will be made regarding parity and length of previous labours
  - Considerations regarding fetal presentation
- If birth is imminent, birth will be facilitated at the QEH where the neonate will be stabilized before transport
- Transport will then involve a NICU team (arranged by neonatal nursery)

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

References

Catt., E., & Palmquist, E. (2016). Management of preterm premature rupture of membranes: A comparison of inpatient and outpatient care. *Journal of Obstetrics and Gynaecology Canada, 38*(5), 433-440. Retrieved from http://www.jogc.com/article/S1701-2163(16)00099-2/pdf

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Postpartum Hemorrhage

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Define postpartum hemorrhage (PPH), including primary and secondary PPH
- Describe the incidence of PPH
- Describe the causes of PPH
- Describe the risk factors associated with PPH
- Describe the signs and nursing assessments required to identify PPH
- Describe the varying degrees of shock associated with hypovolemia
- Describe the management of PPH
- List blood products that may be considered during PPH
- Describe how tamponade is performed
- List the surgical management options that may be considered to resolve PPH

Definitions

- **Postpartum hemorrhage (PPH):** Blood loss following a vaginal birth of greater then 500 mL and greater than 1000 mL for a Caesarean birth
- **Primary PPH:** Occurs within 24 hours following birth
- **Secondary PPH:** Occurs between 24 hours after birth and six weeks postpartum

Incidence

- PPH occurs in 5% of all births
- Number one cause of maternal mortality worldwide
- Highest rate in Africa (25.7%) lowest rate in Oceania (7.2%)
- North American rate 13.1%
- Resulted in 39 maternal deaths in Canada between 2006-2011

(SOGC, 2016)

Causes of PPH

- **Tone:** Lack of uterine muscle tone is caused by atony
  - Uterine atony occurs when the uterus is unable to adequately contract following birth
  - Results in the inability of the uterus to firmly contract around blood vessels following separation of the placenta
  - Leads to substantial blood loss from the endometrial arteries into the uterus
  - Most common cause of PPH (70% of immediate PPH cases)
- **Trauma:** Involves trauma to the birth canal
  - May include lacerations to the vagina, cervix, or perineum
  - May include formation of hematomas

Causes of PPH

- **Tissue:** Retained products of conception or formation of blood clots inside the uterus can result in PPH
- **Thrombin:** Refers to coagulation abnormalities that can result in PPH

PPH may result from one of these causes, may be a result of multiple causes

Risk Factors Associated with PPH

Tone

- Over-distended uterus
  - Multiple pregnancy
  - Macrosomia
  - Polyhydramnios
  - Fetal abnormalities (ie: severe hydrocephalus)
- Uterine muscle fatigue
  - Precipitous labour or prolonged labour
  - Multiparity
  - Oxytocin use
- Bladder distention
  - Halogenated anesthetic or tocolytics such as nitroglycerin

Risk Factors Associated with PPH

- Uterine infection/chorioamnionitis
  - Prolonged ROM
  - Fever
- Uterine distortion/abnormality
  - Presence of fibroids
  - Placenta previa
- Uterine relaxing medications
  - Anesthetic drugs
  - Adalat or NSAIDS
  - Beta-mimetics
  - Magnesium sulfate

Risk Factors Associated with PPH

Tissue

- Retained placenta or membranes
  - Incomplete birth of placenta
  - Previous uterine surgery
  - High parity
  - Abnormal placenta on ultrasound
- Retained blood clots
  - Caused by uterine atony

Risk Factors Associated with PPH

Trauma

- Cervical/vaginal/perineal tears
  - Precipitous birth; manipulation at birth
  - Operative birth
  - Episiotomy (particularly mediolateral)
- Extended tear at time of Caesarean birth
  - Malposition
  - Fetal manipulation (ie: extraction of Twin B)
  - Deep engagement of fetus

Risk Factors Associated with PPH

- Uterine rupture
  - Previous uterine surgery (ie: C-birth; myomectomy)
- Uterine inversion
  - High parity
  - Fundal placenta
  - Excessive cord traction

Risk Factors Associated with PPH

Thrombin

- Pre-existing states
  - Hemophilia A
  - Von Willebrand's Disease
  - History of previous PPH
  - History of hereditary coagulopathies
  - History of liver disease
- Therapeutic anti-coagulation
  - Treatment as a result of previous thrombotic disease (DVT/PE)
  - Asprin or heparin use

Risk Factors Associated with PPH

- Causes acquired during pregnancy
  - Idiopathic thrombocytopenia purpura (ITP)
  - Thrombocytopenia with preeclampsia
  - Disseminated intravascular coagulation (DIC)
  - Gestational hypertension with adverse conditions
  - Intrauterine fetal death
  - Severe infection
  - Abruption
  - Amniotic fluid embolus

Other causes of PPH

- BMI >30 and SSRI use

Signs of PPH: Nursing Assessments

- ***Fundal assessment***
  - A soft, boggy, or displaced fundus could indicate a PPH

- ***Vaginal Bleeding***
  - Increased bleeding indicates a PPH
  - Bleeding is usually bright and may present as a steady trickle, dribble, oozing, seeping, or profuse flow
  - Heavy bleeding- saturation of a pad in an hour
  - Excessive bleeding- saturation of a pad in 15 minutes

Signs of PPH: Nursing Assessments

- ***Vital signs***
  - Tachycardia, decreased pulse pressure, and decreased blood pressure and oxygen saturation levels can indicate hypovolemia secondary to PPH
- ***Comfort level***
  - Severe pelvic or rectal pain can be indicative of a hematoma
- ***Skin***
  - May be cool, damp, pale in the presence of hypovolemia
- ***History***
  - Consider risk factors for PPH

Hypovolemia: Varying Degrees of Shock

Blood loss volume of 500-1000 mL (10-15%)
- BP: Normal
- S&S: Palpitation, tachycardia, dizziness
- Degree of shock: **Compensated**

Blood loss volume 1000-1500 mL (15-25%)
- BP: Slight decrease (80-100 mmHg)
- S&S: Weakness, tachycardia, sweating
- Degree of shock: **Mild**

Hypovolemia: Varying Degrees of Shock

Blood volume loss 1500-2000 mL (25-30%)

- BP: Moderate decrease (70-80 mmHg)
- S&S: Restlessness, pallor, oliguria
- Degree of shock: **Moderate**

Blood volume loss 2000-3000 mL (35-45%)

- BP: Marked decrease (50-70 mmHg)
- S&S: Collapse, air hunger, anuria
- Degree of shock: **Severe**

Management of PPH

- Call for help
- Fundal massage
- Obtain vital signs and O2 saturation q5mins
- Assess LOC and CAB's
- Administer oxygen via rebreather 5-10 L/min

Management of PPH

- Empty bladder
- Ensure IV access; may consider starting second line
- Run oxytocin (30-40 IU in 1L or RL) wide open
- May run RL bolus if ordered by physician
- Ensure CBC, Group & Screen, X-match have been drawn; may consider coags

Management of PPH

- Obtain PPH bin
- Pharmacological management as ordered by physician
- Prepare for the OR if PPH is not resolving

Pharmacological Management

- ***Oxytocin***
  - Uterotonic agent
  - 5 IU IV push ***or*** 10 IU IM given with birth of the anterior shoulder
  - 30-40 IU per 1 L of RL at 150 mL/hr given during active management of third stage
  - May bolus this dose during PPH
  - Additional boluses may be ordered

- ***Hemabate/Carboprost***
  - Uterotonic agent
  - Use in caution with asthmatic patients
  - Dose is 250 ug IM or IMM
  - May be repeated every 15 minutes to a maximum of eight doses

Pharmacological Management

- ***Ergonovine maleate/Ergot***
  - Uterotonic agent
  - Contraindicated with hypertensive disorders of pregnancy
  - Usual dose is 0.2-0.25 mg IM ***or*** 0.2-0.25 mg IV (dilute in 5 mL of NS and give over 1 minute)
  - Recommended dosage frequency is every 2-4 hours

- ***Misoprostol/Cytotec***
  - Prostaglandin; can be used as a uterotonic agent
  - Can be administered rectally 800-1000 ug or SL or PO 400-800 ug
  - SL or oral dosages act faster; rectal dosages last longer
  - Fever can be common in doses greater than 600 ug

Pharmacological Management

- ***Transexamic acid/Cyklokapron***
  - Fibrinolysis inhibitor used to treat fibrinolytic bleeding
  - Stabilizes clot formation in bleeding patients
  - Dosage is 10 mg/kg IV 2-3 times daily
  - Usual dose 500-1000 mg given over 20-30 mins ***or*** IV bolus over 5-10 mins (100mg/min)

- ***Vasopressin***
  - Causes acute vasospasm, which decreases blood flow to the injection site and promotes coagulation
  - Dosage is 20 IU diluted in 100 ml of NS
  - Physician injects 1 mL at bleeding site avoid intravascular injection

Blood Products

Blood products may be indicated following substantial blood loss due to PPH

- RBCs
- Plasma
- FFP
- Albumin
- Platelets
- Recombinant Activated Factor VII

QUEEN ELIZABETH HOSPITAL
CHARLOTTETOWN, PRINCE EDWARD ISLAND

Revised April 20, 2017

Postpartum Hemorrhage Form

Obstetrician: _____ **Anesthetist:** _____
L&D Nurse(s): _____ **Recorder**: _____
OR Nurse(s): _____
Others & Time of Arrival: (RT, 2nd obstetrician, etc): _____
_____

Medications

Med	Usual Dosage	Dose, Route & Time	Dose, Route & Time	Dose, Route & Time	Dose, Route & Time	Dose, Route & Time
Oxytocin	10 units IM/IMM 5 units IV bolus 10 - 40 units/liter					
Ergonovine Use with caution with ↑ BP	0.25 mg IM or IV IV push, dilute in 5 mL NS, over 1 min.	Dose #1	Dose #2	Dose #3	Dose #4	Dose #5
Carboprost Hemabate® Use with caution in asthmatic pts	250 mcg IM/IMM Repeat q 15 mins as needed **Max 8 doses**	Dose #1	Dose #2	Dose #3	Dose #4	Dose #5
		Dose #6	Dose #7	Dose #8		
Misoprostol	1000 mcg **PR** **Single dose**					
Vasopressin	20 uts diluted in 100 ml of N/S inject 1 ml at bleeding site avoid intravascular injection					
Tranexamic Acid (Cyklokapron)	10 mg/kg IV 2-3 X daily Usual dose 500 -1000 mg Over 20 -30 mins or IV bolus over 5 – 10 mins (100mg/min)					

Blood/Blood Products Colloid Solutions

	Time	Time	Time	Time	Time
RBC's					
Plasma					
Platelets					
FFP					
Albumin					
Factor VII					
Other:					

IV THERAPY
Solution & Rate _____
2nd IV _____

Oxygen _____ O2 sat _____

Comments:

Lab Tests:	Time	Lab Tests:	Time
☐ CBC			
☐ INR			
☐ PTT			
☐ Other			
☐ Other Coag			

Q 58-04 (04-17)

Tamponade

If atony and PPH persists, tamponade by Bakri balloon may be indicated

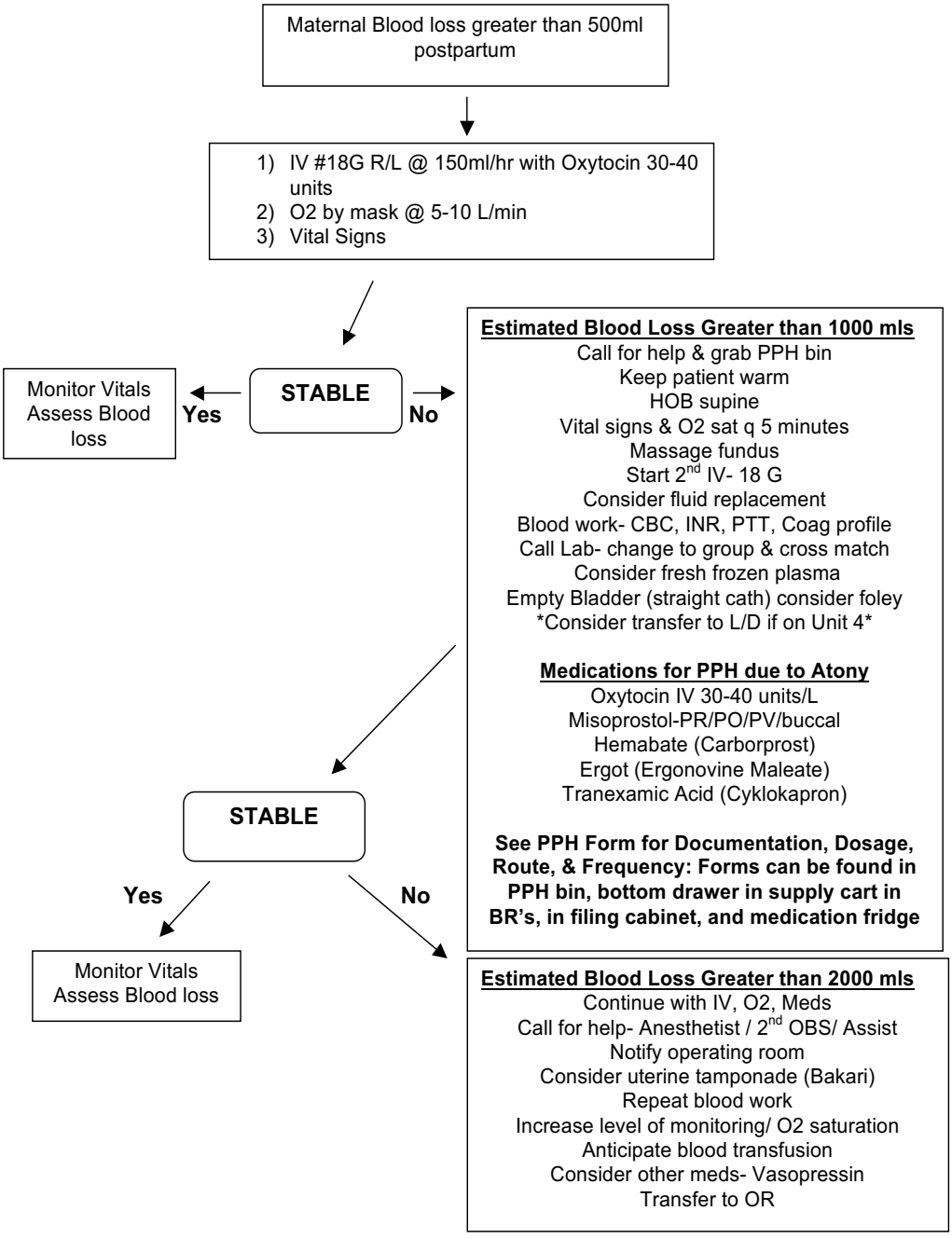
- Physician inserts catheter-like device into the cervical canal
- Balloon is filled with 250-500 mL of normal saline until bleeding stops and it stays in place
- End of the catheter is connected to a foley catheter bag
- Generally left in place for 24 hours (can be left in 8-48 hours)
- Removed slowly by physician

Surgical Management

If all other efforts have failed to manage PPH, surgical intervention is indicated

- Emergency embolization (requires vascular surgeon to perform)
- Emergency laparotomy with internal iliac or uterine artery ligation (requires intervention radiologists to perform)
- Emergency laparotomy with B-lynch or Cho sutures
- Emergency hysterectomy as a last resort

GUIDELINES FOR MANAGEMENT OF POSTPARTUM HEMORRHAGE



Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

References

Murray, S., & McKinney, E. (2014). *Foundations of maternal-newborn and women's health nursing* (6th ed.). St. Louis, MO: Elsevier Saunders

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Hypertensive Disorders of Pregnancy

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
July, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Define hypertension and severe hypertension
- Define each classification of hypertensive disorders of pregnancy
- Describe the incidence of hypertensive disorders of pregnancy
- List the risks associated with chronic hypertension
- List the maternal and fetal risk factors associated with preeclampsia
- List the risk factors for developing preeclampsia
- Describe HELLP syndrome
- Describe the assessments to be performed on women presenting with possible hypertensive disorders of pregnancy
- Describe the management of hypertensive disorders of pregnancy

Learning Objectives

- Describe the indication for, administration of, and monitoring required with magnesium sulfate
- Describe the use and indications for administration of calcium gluconate
- Describe the management of eclampsia

Hypertension in Pregnancy

- **Hypertension in pregnancy is defined as:**
  - Systolic BP ≥ 140 mmHg ***and/or***
  - Diastolic BP ≥ 90 mmHg
  - Classification is based on at least 2 measurements taken at least 15 mins apart in the same arm
- **Severe hypertension in pregnancy is defined as:**
  - Systolic BP ≥ 160 mmHg ***or***
  - Diastolic BP ≥ 110 mmHg
  - Classification is based on at least 2 measurements taken at least 15 mins apart in the same arm

Hypertensive Disorders of Pregnancy: Classification

- **Chronic (pre-existing) hypertension:** Hypertension that develops before pregnancy or before 20 weeks gestation
- **Gestational hypertension:** Hypertension that develops after 20 weeks gestation with no other maternal organ dysfunction
- **White coat hypertension:** Occurs when systolic BP is ≥ 140 mmHg or diastolic BP is ≥ 90 mmHg in the office, but lower in ambulatory settings or home monitoring

Hypertensive Disorders of Pregnancy: Classification

- **Preeclampsia:** Chronic or gestational hypertension with new onset of one or more the the following:
  - Proteinuria
  - Other maternal organ dysfunction (ie: renal, hepatic, neurologic or hematologic)
  - Uteroplacental dysfunction (ie: IUGR)
- **Eclampsia:** Onset of seizures in a patient with preeclampsia, where there is no other clinical indication for the onset of seizures

Hypertensive Disorders of Pregnancy: Incidence

- Is a leading cause of maternal morbidity and mortality
- Worldwide incidence of preeclampsia ranges between 1% to 5.6%
- Worldwide incidence of eclampsia ranges between 0.1% and 2.9% (highest in Africa)
- Canadian rates (2010-2011)
  - **Preeclampsia:** 1% of pregnancies
  - **Chronic hypertension:** 0.5% of pregnancies
  - **Gestational hypertension:** 5% of pregnancies
  - **Eclampsia:** 0.08% of pregnancies

Chronic Hypertension: Risks

- Women with chronic hypertension will develop preeclampsia in 26% of cases

Women with chronic hypertension *(with or without preeclampsia)* at increased risk for:

- Caesarean birth (41%)
- Perinatal mortality (40 per 1000 births)
- SGA neonate <2500 g
- NICU admission (20% of newborns)
- Congenital anomalies

Preeclampsia: Maternal Risks

Maternal Risks:

- Stroke (systolic BP >160 mmHg)
- Pulmonary edema
- Liver failure
- Jaundice
- Eclampsia
- Placental abruption
- Acute renal failure
- Death

Preeclampsia: Fetal Risks

Fetal Risks:

- Oligohydramnios
- IUGR
- Admission to NICU
- Prematurity due to maternal indication for birth
- Fetal death

Risk Factors for Developing Preeclampsia

Risk factors for the development of preeclampsia include:

- Previous preeclampsia
- Preexisting medical diseases (ie: diabetes)
- Multiple pregnancy
- Maternal age >40 or <18
- Ethnicity (Black, South Asian)
- Lower socioeconomic status
- Obesity (BMI >35)
- Family history of preeclampsia
- Non-smoking
- Heritable thrombophilias (ie: Factor V Leiden)
- Pregnancies < 2 years apart
- IVF
- New partner
- Infection during pregnancy (ie: UTI or periodontal disease)

Preeclampsia: Cause

- Exact cause unknown, many theories
- Theories currently being examined suggest it is not just one disease, but multiple that exist together
- Most popular (current) theory highlights a two stage process where stage 1 involves inadequate placental perfusion and stage 2 are maternal effects caused by the inadequate perfusion

Abnormal placentation or excessive fetal demands → Mismatch between uteroplacental supply and fetal demands → Maternal endothelial cell dysfunction and fetal demands → Maternal and fetal manifestations of preeclampsia

(SOGC, 2016, p. 7)

HELLP Syndrome

HELLP is a variant of preeclampsia characterized by:

- Hemolysis
- Elevated liver enzymes
- Low platelets

- Birth should be facilitated within 48 hours from diagnosis
- Women should be treated with magnesium sulfate due to their risk of developing eclampsia

Hypertensive Disorders of Pregnancy: Assessment

- Women may present from the office with increased BP, or present due to signs and symptoms of elevated BP

- Obtain prenatal record and history
  - Complete Perinatal Assessment Triage Record

- Have woman void and dip her urine for protein

- Employ monitor for NST

Hypertensive Disorders of Pregnancy: Assessment

- Obtain blood pressure
  - Allow woman to settle for at least 10 minutes
  - Should be in a sitting position with arm at heart level
  - Ensure you use appropriate size cuff
  - Manual BP is most accurate; automatic machine should be calibrated to manual sphygmomanometer
  - If BP is higher in one arm than the other, the arm with the highest BP should be used
  - Never obtain a blood pressure over clothing
- Assess remainder of vital signs

Hypertensive Disorders of Pregnancy: Assessment

- Assess for symptoms of maternal organ dysfunction
  - Headache
  - Visual disturbances
  - Epigastric pain
  - RUQ pain
  - Severe nausea and vomiting
  - Tremulous or irritable
  - Hyperreflexia
  - Chest pain
  - Dyspnea (check O2 saturation)
  - Bleeding
- Report findings to physician

Hypertensive Disorders of Pregnancy: Assessment

- Blood work may be ordered by the physician
  - CBC
  - LFT's (AST/ALT)
  - BUN/Creatinine
  - Other as ordered by physician
- 24 hour urine may be ordered by physician
- Ultrasound for growth may be ordered
- BPP may be ordered
- Dopplers studies may be ordered

Hypertensive Disorders of Pregnancy: Management

- Increased surveillance
  - Blood pressure monitoring (ambulatory/at home)
  - NST
  - BPP
  - Growth ultrasounds
- May be admitted to Unit 4 for observation
- Pharmacological management (maintenance therapy)
  - Labetalol 100 mg BID (initial dose); max dose 400 mg TID
  - Nifedipine XL 20 mg OD (initial dose); max dose 60 mg OD
  - Methyldopa 250 mg BID (initial dose); max dose 500 mg QID

Hypertensive Disorders of Pregnancy: Management

- Pharmacological management (severe hypertension)
  - Labetalol initial dose 20 mg IV; may repeat 20-80 mg q30mins to max of 300 mg (administered by physician)
  - Nifedipine initial dose 10 mg PO; may repeat 10-20 mg q45mins to max of 50 mg
  - Hydralazine initial dose 5mg IV; may repeat 5-10 mg q30mins to max of 20 mg (administered by physician)
- Be cognizant of intake and output to avoid fluid overload and prevent pulmonary edema
- Considerations for birth; will depend on:
  - Classification of hypertensive disorder
  - Gestational age
  - Stability of mother and baby

Hypertensive Disorders of Pregnancy: Management

When to consider birth:

- **Chronic hypertension:** ≥ 38 weeks
- **Gestational hypertension:** ≥ 37 weeks
- **Preeclampsia without severe indicators:** 37 weeks
- **Preeclampsia with severe indicators:** Birth is indicated regardless of gestational age
  - Unable to control BP
  - Increasing maternal organ dysfunction (ie: hepatic, renal, neurological symptoms or presence of HELLP)
  - Fetal indication for birth (ie: severe IUGR, abnormal Dopplers etc.)

Hypertensive Disorders of Pregnancy: Management

Magnesium Sulfate ($MgSO_4$):

- A CNS depressant that is administered to prevent seizures (eclampsia) in women with hypertensive disorders of pregnancy
- Is the first-line treatment recommended for eclampsia
- Recommended as prophylaxis against eclampsia in women with preeclampsia with severe indicators
- May also be considered for women with non-severe preeclampsia

Hypertensive Disorders of Pregnancy: Management

Initiation of Magnesium Sulfate ($MgSO_4$):

- Ordered by physician
- Requires 1:1 nursing
- Routine admission should be completed with at least one (often two) #18 or #20 gauge IVs initiated
- Baseline bloodwork should be drawn if ordered by physician

Hypertensive Disorders of Pregnancy: Management

- The following assessments should be conducted prior to initiation of $MgSO_4$:
  - Maternal vital signs
  - Patella tendon reflexes
  - Assessment for edema
  - FHR- electronic fetal monitoring is indicated
- Woman should be positioned in left lateral recumbent position
- Magnesium can be found in premixed bags
  - 20 grams of magnesium sulfate in 500 mL of normal saline

Hypertensive Disorders of Pregnancy: Management

Loading dose of $MgSO_4$:

- Bolus dose is 4 g infused at 200 mL/hr over 30 minutes ***OR*** 300 mL/hr over 20 minutes
- Physician can administer the loading dose IV push
- RN may bolus the dose through large volume infusion
- Magnesium sulfate is a secondary line and is piggybacked into the lowest part of the primary line containing the same IV solution
- IV rate of the primary infusion should be regulated as per physician's orders

Hypertensive Disorders of Pregnancy: Management

Infusion of $MgSO_4$:

- 1 g per hour should be administered following the loading dose at a rate of 25 mL/hr
- If a seizure occurs, 2 g of the IV solution can be administered
- Infusion rate should be regulated on an IV pump as ordered by the physician
- Primary line should be turned off to prevent fluid overload
- Always refer to physician's orders
- Is maintained until 24 hours postpartum or otherwise ordered

Hypertensive Disorders of Pregnancy: Management

Other considerations:

- A foley catheter is inserted attached to a urometer bag to assess hourly output
- Oxygen and suction should be set up and readily accessible; crash cart should be readily accessible
- Magnesium sulfate kit should be readily accessible
- Follow physician's orders regarding diet
- Maintain a quiet environment with lights dimmed to prevent increased stimulation

Hypertensive Disorders of Pregnancy: Management

Patient monitoring with $MgSO_4$:

- **Vial signs**
  - BP, pulse and respirations should be checked q5min during the loading dose
  - BP, pulse, respirations should be assessed q15min following the loading dose
  - Temperature is assessed q4hrs if membranes are not ruptured, q2hrs if membranes are ruptured, and q1hr is temp is above 37.5
- **FHR**
  - Continuous EFM is indicated during antepartum and intrapartum $MgSO_4$ use
- **Contractions**
  - Frequency, strength, duration, and resting tone are assessed q15mins

Hypertensive Disorders of Pregnancy: Management

- IV infusion rate
  - Should be recorded hourly
- Urinary output
  - Record hourly
  - Dip urine for protein hourly and record
- Intake
  - Record hourly; include both IV and PO intake
- Reflexes
  - Assess patellar tendon reflex bilaterally q1hr and chart as 0 (absent) to 4+ (clonus)

Hypertensive Disorders of Pregnancy: Management

Notify physician if any of the following occur:

- Increase in BP despite treatment
- Abnormalities in FHR
- Hypotension
- Respiratory rate less than 12/minute
- Absence of knee jerk
- Urinary output less than 30 mL/hr
- Proteinuria greater than 2+
- Placental separation (assess PV bleeding and uterine rigidity q1hr)
- Headache
- Visual disturbances
- Increased edema
- Epigastric pain
- Eclampsia occurs
- Patient becomes somnolent

Hypertensive Disorders of Pregnancy: Management

Administration of Calcium Gluconate:

- Antidote for magnesium; should be readily available
- Administered in the event magnesium toxicity occurs
- **Signs and symptoms of magnesium toxicity include:**
  - RR of less than 12/minute
  - Oxygen saturation less than 95%
  - Reflexes are absent
  - Sweating or flushing
  - Hypotension
  - Decreased urine output (<30 mL/hr)
  - Somnolent (sleepy/drowsy/confused)

Hypertensive Disorders of Pregnancy: Management

- Dose to be administered is **Calcium gluconate 10% 10-20 mL IV (100 mg/mL)**
- Physician may administer 10 mL over 3 minutes of the 10% solution
- RN may dilute 10 mL of calcium gluconate in 50 mL of IV solution at a rate of no more than 100 mg/min or 6 mL/min= ***360 mL/hr*** maximum

Management of Eclampsia

In the event a seizure (eclampsia) occurs:

- Call for help
- Position woman on her left side
- Initiate $MgSO_4$ bolus and infusion if not already infusing
- If $MgSO_4$ is already infusing, re-bolus 2 g IV over 20-30 minutes

Management of Eclampsia

- **Upon cessation of the seizure:**
  - Clear airway
  - Administer oxygen via rebreather mask
  - Assess vital signs
  - Assess FHR
- Assess for indications of placental abruption
- **Women with eclampsia are at increased risk for:**
  - DVT
  - CVA
  - Cardiomyopathy

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Complications:

Placenta Previa, Vasa Previa, Placenta Accreta, Placental Abruption, Uterine Inversion, Uterine Rupture, and Trauma

Queen Elizabeth Hospital: Labour and Birth Orientation Program

Learning Module

Developed by: Katelyn Smallwood BScN RN

August, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Define placenta previa; along with the the incidence, risk factors, diagnosis, and management associated with this complication
- Define vasa previa; along with the the incidence, risk factors, diagnosis, and management associated with this complication
- Define placenta accreta; along with the the incidence, risk factors, diagnosis, and management associated with this complication
- Define placental abruption; along with the the incidence, risk factors, diagnosis, and management associated with this complication
- Define uterine inversion; along with the the incidence, risk factors, diagnosis, and management associated with this complication

Learning Objectives

- Define uterine rupture; along with the the incidence, risk factors, diagnosis, and management associated with this complication
- Define trauma; along with the the incidence, obstetrical complications, diagnosis, and management associated with this complication
- List the general considerations that are applicable to the complications discussed throughout this learning module
- Describe the considerations that apply to instances of maternal instability
- Describe the considerations that apply to instances where maternal stability has been established

Placenta Previa: Definitions

- **Placenta previa:** The placenta touches or covers the internal cervical os near or at term
- **Low-lying placenta:** The leading edge of the placenta is within 2 cm from the internal os

Placenta Previa: Incidence

- Occurs in approximately 1 in 200 term pregnancies
- Along with placental abruption, accounts for more than 50% of maternal deaths related to hemorrhage
- IUGR occurs in approximately 16% of pregnancies complicated by placenta previa
- Perinatal mortality rates are 3-4 times higher than with normal pregnancies
- Rate of hysterectomy after a Caesarean birth for placenta previa is approximately 5.3%

Placenta Previa: Risk Factors

Risk factors for placenta previa include:

- Previous placenta previa
- Previous Caesarean birth (especially within last 12 months)
- Previous uterine surgery
- Multiparity (especially >3)
- Smoking in pregnancy
- Cocaine use in pregnancy
- Multiple gestation
- In vitro fertilization

Placenta Previa: Diagnosis

- Women may present with painless bleeding during the second or third trimester
  - A vaginal examination **should not** be performed until location of placenta has been determined
- **Transabdominal ultrasound**
  - Routine second trimester ultrasounds at 18-20 weeks at the QEH visualize placenta
  - Will detect 85% of cases
  - Visualization may be difficult
  - False positive rate as high as 25%; false negative rate as high as 7%
- **Transvaginal ultrasound**
  - Safe and most accurate method of diagnosing placenta previa; accuracy up to 99%

Placenta Previa: Management

- Caesarean birth is indicated in cases of placenta previa
- C-birth scheduled around 37 weeks if stable
- Approximately 75% of women with placenta previa will experience at least one incidence of bleeding
- Approximately 46% of women with placenta previa will give birth via C-Birth at less than 37 weeks gestation
- Emergency Caesaren may be indicated if bleeding significant with potential maternal and/or fetal compromise

Placenta Previa: Management

- May be admitted to unit 4 for observation
  - Ensure current Group and Screen is available (every 3 days)
  - Ensure saline lock is in-situ if ordered
  - Monitor for any cramping/uterine activity
  - Monitor for any amount of vaginal bleeding
- Considerations if preterm
  - Pediatrics consult
  - Administration of corticosteroids
- Transfer may be indicated depending on gestation and maternal/fetal stability

Vasa Previa: Definition

Vasa previa: Occurs when fetal vessels in the membranes, which are not supported by either the umbilical cord or placental tissue, run across the cervical os in front of the presenting part

- Fetal vessels can tear at the onset of labour or with rupture of membranes
- Fetal vessels could potentially rupture spontaneously during pregnancy

Vasa Previa: Incidence

- Risk varies between 1 in 2000 to 1 in 5000 pregnancies
- Often occurs in the presence of a velamentous cord insertion or a succenturiate lobe of the placenta
- Risk of vasa previa increases to 1 in 50 in the presence of a velamentous cord insertion with the placenta in the lower segment of the uterus
- Fetal mortality can be as high as 60% if condition is undiagnosed
- Up to 97% perinatal survival rate with diagnosis of vasa previa

Vasa Previa: Risk Factors

Risk factors for vasa previa include:

- Velamentous cord insertion
- Succenturiate lobe
- In vitro fertilization
- Placenta previa
- Twin pregnancy

Vasa Previa: Diagnosis

- Routine prenatal ultrasound
  - Special consideration and assessment for women with risk factors
- Repeat ultrasound around 28 weeks if vasa previa was previously detected; as it can resolve
- Transvaginal ultrasound may be considered to measure proximity of the fetal vessels to the internal os
- Diagnosis should be considered with:
  - Acute painless bleeding following rupture of membranes with sudden changes in fetal heart rate
  - Palpation of fetal vessels during a vaginal exam prior to ARM

Vasa Previa: Management

- Caesarean birth between 35-36 weeks gestation is indicated
- Administration of glucocorticoids between 28 and 30 weeks gestation
- Admission to hospital between 30 and 32 weeks gestation
- Pediatric consult
- Clear communication with team members regarding urgency of situation should vaginal bleeding occur (mobilize and organize an emergent Caesarean birth)

Placenta Accreta: Definitions

Placenta accreta: Occurs when the placenta adheres to the uterine muscle

Placenta increta: Occurs when the placenta invades the uterine muscle

Placenta percreta: Occurs when the placenta penetrates through the uterine muscle and can invade surrounding organs

Placenta Accreta: Incidence

- A 10-fold increase in incidence in the last 50 years, which has been associated with the increased incidence of Caesarean births
- Occurs in approximately 1 in 2500 births
- Incidence of placenta accreta in combination with placenta previa in an unscarred uterus is approximately 3%
- High risk for Caesarean hysterectomy (72%)

Placenta Accreta: Risk Factors

Risk factors for placenta accreta include:

- Placenta previa in the presence or absence of previous uterine surgery
- Prior Caesarean birth
- Prior myomectomy
- Asherman's syndrome
- Presence of fibroids
- Maternal age greater than 35 years

Placenta Accreta: Diagnosis

- Can be detected in up to 85% of cases with transabdominal ultrasound
- Special consideration and assessment for women with placenta previa
- Additional diagnostic tests may be considered in women with risk factors
  - Transvaginal ultrasound
  - Ultrasound Doppler
  - MRI
- If a woman gives birth vaginally with an undiagnosed accreta, may present as a retained placenta
  - Attempts to remove the placenta may result in severe hemorrhage

Placenta Accreta: Management

- Every effort should be sought to obtain an antenatal diagnosis
- Transfer to IWK where the following resources can be mobilized:
  - Anesthesiologist
  - Blood bank
  - Interventional radiologist
  - Vascular surgeon
  - Urologist
- If diagnosed intrapartum will require urgent transfer to the OR
- Caesarean hysterectomy may be required to prevent hemodynamic collapse

Placental Abruption: Definition

Placental abruption: Occurs when the placenta separates from the uterine wall before the fetus is born

- Results in bleeding and hematoma formation on the maternal side of the placenta
- As the hematoma forms and expand, the degree of separation can worsen which impacts fetal blood gas and metabolic exchange
- Bleeding may be apparent (from the vagina) or concealed
- Amount of vaginal bleeding does not correspond with severity of abruption

Placental Abruption: Incidence

- Occurs in approximately 0.5% to 1% of pregnancies
- Accounts for 10%-15% of perinatal deaths
- Along with placenta previa, accounts for approximately 50% of hemorrhage-related deaths

Placental Abruption: Risk Factors

Risk factors for placental abruption include:

- Previous placental abruption
- Inherited thrombophilia
- PPROM
- Hypertension
- Iron deficiency
- Multiple gestation
- Hydramios
- Maternal age
- Multiparity
- Smoking
- Trauma
- Cocaine use
- Previous Caesaran birth (risk greater if last C-Birth was within the last 12 months)

Placental Abruption: Diagnosis

- Women usually present with:
  - Abdominal pain (often constant and worse at the site of placental attachment)
  - Often present with uterine contraction, hypertonus, or uterine irritability
  - Often (but do not always) present with vaginal bleeding
- Placenta previa should be ruled out
- Ultrasound is not reliable in diagnosing an abruption
- Fetal wellbeing should be assessed through ultrasound/BPP and/or EFM

Placental Abruption: Management

Management will depend on severity of abruption based on classification and degree of fetal compromise

- If ***mild*** with ***no fetal compromise:*** May monitor if preterm; initiate birth if fetus is mature
- If ***moderate*** with ***fetal compromise:*** May initiate C-Birth if EFM is abnormal and/or cervix is unfavorable; may proceed with IOL if cervix is favorable and EFM is atypical
- If ***severe*** with ***presence of fetal death***: Birth is indicated (non-urgent); be mindful of DIC

Placental Abruption: Management

If fetal compromise is present:

- An emergent Caeseran birth may be indicated
- Call for help
- Monitor maternal and fetal status
- Mobilize OR (day versus night)
- Prepare for OR

Uterine Inversion: Definition

Uterine inversion: Occurs when the uterus partially or completely turns inside out

- Most likely to occur during the third stage of labour
- Very rare
- Has the potential to result in maternal death

Uterine Inversion: Incidence

- Uterine inversion occurs in approximately 1 in 25,000 births
- More common in multiparous women (parity >5)

Uterine Inversion: Risk Factors

Risk factors for uterine inversion include:

- Pulling on cord before the placenta is ready to spontaneously detatch
- Fundal pressure during birth
- Fundal pressure on a uterus that is not completely contracted after birth
- Increased intra-abdominal pressure
- A placenta that is a abnormally adhered to the uterine wall
- Congenital weakness of the uterine wall
- Placenta with a fundal implantation

Uterine Inversion: Diagnosis

- Uterus is absent from the abdomen
- A depression from the fundal area may be noted
- Inferior aspect of the uterus may be visualized through the cervix or protruding through the vagina with a mass attached
- Massive hemorrhage, bradycardia, and shock may ensue
- Severe pelvic pain may be present

Uterine Inversion: Management

- Quick action is required
- Physician will attempt to replace the uterus without removing the placenta
  - Uterine relaxation may assist with this (ie: tocolytics)
- Replacement of the uterus occurs by placing the last part of the uterus back inside first
  - Distal part of the uterus is replaced, followed by the proximal wall, and finally fundus
- Exploratory laparotomy may be indicated if replacement unsuccessful
- Hysterectomy may be indicated

Uterine Rupture: Definition

Uterine rupture: Occurs when there is a tear in the uterine wall, often due to a weakened area of the uterus that is unable to withstand the pressure against it

Complete rupture: Rupture of the uterus to the peritoneal cavities

Incomplete rupture: Rupture into the peritoneum covering the uterus or the broad ligament, but not to the peritoneal cavity

Dehiscence: Partial separation of an old uterine scar

- There may be no signs or symptoms present
- May be an incidental finding during a repeat Caesarean birth

Uterine Rupture: Incidence

- Incidence of uterine rupture in women who have had a previous Caesarean birth is 0.3%
- Incidence of uterine rupture in women who have had a previous Caesarean birth and are attempting a TOLAC is 0.47%
- Risk for hysterectomy secondary to uterine rupture ranges between 14% and 33%

Uterine Rupture: Risk Factors

Risk factors for uterine rupture include:

- Previous uterine surgery (Caesarean birth/myomectomy)
- Prior classical incision (vertical)
- Postdate pregnancy
- Obesity
- High parity
- Trauma
- Excessively strong contractions in the presence of fetopelvic disproportion
- Oxytocin use

Uterine Rupture: Diagnosis

- Abdominal pain and tenderness
- Chest pain, pain between the scapula, or pain with inspiration
- Hypovolemic shock
- Atypical or abnormal FHR changes
- Absent FHR

Uterine Rupture: Diagnosis

- Uterine contractions that are decreased or suddenly absent
- Palpation of the fetus on the outside of the uterus
- Unable to palpate presenting part of the fetus during a vaginal examination
- Vaginal bleeding
- Defect may be palpated during manual exploration after a vaginal birth

Uterine Rupture: Management

- Emergent transfer to the OR
- Emergency laparotomy is indicated
- Extensive resuscitation measures may be required for both mother and baby
- Hysterectomy may be indicated if a large rupture is present

Trauma: Definition

Trauma: Trauma in pregnancy; which may be blunt, penetrating, or electrical, and has the potential to result in maternal and/or fetal morbidity and mortality

Examples of trauma may include:

- Motor vehicle accidents
- Falls
- Penetrating trauma (gunshot/stabbing)
- Domestic or intimate partner violence
- Burns or electrical injuries

Trauma: Incidence

- Physical trauma affects 1 in 12 women in pregnancy
- Leading cause of non-obstetric maternal mortality
- Between 1997 and 2000, incidence of maternal mortality was 6.1 per 100 000 live births
- Between 1997 and 2000, 1.5 per 100 000 maternal deaths were associated with motor vehicle accidents

Trauma: Obstetrical Complications

Obstetrical complications that can result from trauma include:

- Placental abruption (occurs in 5%-50% of cases)
  - Most common cause of fetal death resulting from blunt trauma
- Uterine rupture (occurs in 0.6% of cases)
- Preterm labour (risk of preterm birth is increased two-fold in presence of trauma)
- Direct fetal injury (occurs less than 1% of blunt maternal trauma cases)

Trauma: Diagnosis

- Diagnosis involves identification of maternal injury from blunt, penetrating, or electrical causes that has the potential to cause maternal and/or fetal compromise
- Patient history, physical assessments, laboratory investigations, and diagnostic imaging can help determine extent of injury
- Electronic fetal monitoring and ultrasound findings can be used to assess fetal wellbeing

Trauma: Management

- Achieving maternal stability is the utmost priority in trauma cases in pregnancy
- Management should take place in ER setting where obstetrical staff may be consulted until mother is stable
- Management should involve securing the maternal airway, ensure breathing, and maintaining circulation
- Once mother is stabilized, fetal assessment can be performed through EFM and/or ultrasound
  - Uterine activity through palpation should also be assessed

Trauma: Management

- Fetal assessment should be performed with a viable fetus (>23 weeks gestation) and would involve:
  - Identification of potential fetal hypoxemia, injury, or death
  - Identification of evidence of uteroplacental compromise, placental abruption, preterm labour, or spontaneous rupture of membranes
  - Assessment for presence of maternal-fetal hemorrhage and potential fetal anemia
  - Assessment for evidence of fetal injuries
- If maternal stability has been established, fetal monitoring of a viable pregnancy (>23 weeks gestation) via electronic fetal monitoring should be performed for at least 4 hours

Trauma: Management

- Hospital admission for 24 hours with intermittent assessment of FHR and uterine activity should be considered for the following situations:
  - Uterine tenderness
  - Significant abdominal pain
  - Vaginal bleeding
  - Contraction frequency of more than one in a ten minute period over a four hour monitoring period
  - Ruptured membranes
  - Atypical or abnormal fetal heart rate patterns
  - Instances of high impact injury (motorcycle, pedestrian, high speed crash)
  - Maternal serum fibrinogen of <200 mg/dL

Trauma: Management

In the event of a cardiac arrest in a pregnant trauma patient:

- Refer to the ***Code Blue Obstetrics*** policy at the QEH
- The code team runs the maternal resuscitation, whereas the obstetrical and neonatal teams will attend to the fetus
- The uterus places pressure on the inferior vena cave which can reduce cardiac output by 30% if patient is supine
- Care should be taken to displace the uterus off the inferior vena cava to improve cardiac output and uterine perfusion

Trauma: Management

- Uterine displacement can be performed by:
  - Placing the woman in the left lateral position
  - Performing manual displacement of the uterus by manually moving the uterus to the left side while the patient is supine
  - Manual displacement can allow for greater efficacy in chest compressions during a resuscitation
  - If spinal cord injuries are suspected, ensure spinal cord is stabilized through use of a backboard if left lateral tilt is performed
- A perimorteum caesarean birth may be considered to:
  - Aid with maternal resuscitative efforts
  - Attempt to save the baby
  - Should be considered with a viable pregnancy >23 weeks
  - Should be performed no longer than 4 minutes (whenever possible) after onset of cardiac arrest

Complications: General Considerations

- Review patient history and identify risk factors
- Assess maternal hemodynamic stability
  - Review degrees of hypovolemic shock outlined in Postpartum Hemorrhage learning module
  - Assess for tachycardia, tachypnea, dropping BP, pallor, cool and clammy skin, and anxiety
- Avoid vaginal examination when vaginal bleeding is present until placenta previa has been ruled out
- Assessment of blood loss can often be inaccurate; most important to monitor maternal hemodynamic status and fetal wellbeing

Complications: General Considerations

- Lab tests to be considered:
  - Group and Screen and cross-match
  - CBC
  - Other tests pertinent to known existing conditions (ie: hypertension)
- WinRho should be given to Rh negative women presenting with bleeding
- Important to support and provide information to woman and support person in emergency situations

Considerations: Maternal Instability

Fluid replacement and ***expediting birth*** (if antepartum or intrapartum) are of high priority when bleeding is present and maternal hemodynamic instability is evident

- Many times management in the OR is indicated (either to expedite birth or perform laparotomy if complications occur postpartum)
- Ongoing assessment of maternal vital signs, output, and fetal well-being (if antepartum or intrapartum)
- Two large gauge IVs should be initiated

Considerations: Maternal Instability

- Fluid resuscitation should be initiated
- Blood products may be considered
- Oxygen saturation monitoring
- Administration of oxygen via rebreather in hypotensive women
- Consider risk for DIC

Considerations: Maternal Stability

- Ongoing maternal and fetal surveillance may be considerer for 24 to 48 hours
- Expectant management may be indicated in preterm cases providing maternal and fetal stability are established
- Transfer to the IWK depending on clinical situation and maternal and fetal stability
- Consider the risk of recurrent bleeding

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Umbilical Cord Prolapse and Breech Presentation

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Describe what is umbilical cord prolapse
- Describe how umbilical cord prolapse may present
- Describe how umbilical cord prolapse is diagnosed
- Describe the incidence and risk factors of umbilical cord prolapse
- Describe the management of umbilical cord prolapse
- Describe the outcomes following umbilical cord prolapse
- Describe breech presentation and list the three types
- Describe the risk factors for breech presentation
- Describe the incidence of breech presentation
- Describe the diagnosis of breech presentation

Learning Objectives

- Describe the options to be considered with breech presentation
- Describe external cephalic version (ECV)
- Describe the circumstances in which ECV can be preformed
- Describe the contraindications for ECV
- Describe the risks of ECV
- Describe circumstances in which ECV is most successful
- Describe the procedure for ECV
- Describe the management and risks for planned Caesarean birth versus planned vaginal breech birth for breech presentation
- Describe the management of breech presentation at our facility (QEH)

Learning Objectives

- Describe the criteria that must exist in order to offer a planned trail of breech vaginal birth in facilities that do offer this mode of birth
- Describe the management of a precipitous vaginal breech birth
- Describe considerations following a precipitous vaginal breech birth

What is an Umbilical Cord Prolapse?

- Occurs when the umbilical cord descends from the cervix following ruptured membranes
- Often leads to compression of the cord between the fetus and pelvis
- May descend with the initial gush of fluid at time of rupture, or may occur long after the time of rupture
- Can cause impaired blood flow through umbilical cord impacting fetal oxygenation
- Obstetrical emergency; can lead to fetal death

What is an Umbilical Cord Prolapse?

A cord prolapse may be:

- *Occult:* Essentially hidden; it presents alongside the presenting part and can not be seen or felt during a vaginal examination
- *Overt:* Descends past the presenting part; may not be seen but may be able to be palpated during a vaginal examination
- *Complete:* The cord can be seen protruding from the vagina

Cord Presentation: Occurs when the umbilical cord is palpated between the cervix and the presenting part with or without the presence of ruptured membranes

Diagnosis of Umbilical Cord Prolapse

The diagnosis of a cord prolapse is made when:

- The umbilical cord can be seen or felt during a vaginal examination
- Will often see changes in fetal heart rate
  - Decelerations; prolonged bradycardia
  - May only be present in 41-67% of cases
- If the cord can not be seen or palpated, cord prolapse can not be definitively diagnosed

Incidence and Risk Factors

- Incidence of cord prolapse is between 0.1-0.6%
- ***Risk factors include:***
  - Malpresentation
  - Unstable lie
  - Polyhydramnios
  - Preterm
  - Preterm rupture of membranes
  - Grand multiparity
  - Male gender
  - Low lying placenta or placenta previa
  - Pelvic tumours
  - Multiple gestation
  - Cephalopelvic disproportion

Risk Factors

- Congenital anomalies
- Birth weight <2500 g

Approximately 47% of cases of cord prolapse are associated with medical management:

- Artificial rupture of membranes
- Application of scalp electrode
- Insertion of intrauterine pressure catheter
- Attempted external cephalic version
- Expectant management of PPROM
- Manual rotation of fetal head
- Amnioreduction

Management of Umbilical Cord Prolapse

- An overt cord prolapse is a significant obstetrical emergency
- Will require measures to promote oxygenation to the fetus, while mobilizing resources to facilitate immediate birth and save the fetus
- Will need OR staff and anesthesia to facilitate a Caesarean
- Will need to notify neonatal nursery and RT; physician to notify pediatrician as there will most likely be a need for neonatal resuscitation

Management of Umbilical Cord Prolapse

- If you discover a cord prolapse, keep you hand in place and call for help
  - Need to apply pressure to try elevate the presenting part and decrease compression of the cord from the presenting part
  - May need to insert entire hand into the vagina
  - Do not attempt to replace the cord
  - Do not manipulate the cord; may need to keep warm with saline compress
  - Keep your hand in place until time of birth
- Place the woman in either knee-chest or Trendelenburg (head down) position
  - **Knee chest:** Gravity can shift the fetus out of the pelvis; woman's thighs should be at right angles to the bed and chest flat on the bed (buttocks higher than chest)
  - **Trendelenburg:** Elevating the woman's hips with pillows instead of, or in combination with the Trendelenburg position can optimize fetal positioning and oxygenation

Management of Umbilical Cord Prolapse

- Discontinue any Oxytocin that may be running and consider running plain IV fluids
- Monitor FHR
- Explain situation and actions taken to the woman and her parter
- Prepare for OR immediately
- If vaginal birth is imminent it may be reasonable to proceed with this while awaiting transfer to the OR

Management of Umbilical Cord Prolapse

- If there is going to be a significant wait for the OR, it may be feasible to (under the discretion of the physician) insert a foley catheter into the bladder and fill with 500-700 mL of normal saline; clamp the foley
  - Will have to be removed prior to Caesarean
  - Works to suppress the strength of uterine contractions and to alleviate the pressure of the presenting part
- At the time of birth, anticipate the need for neonatal resuscitation
- Documentation
- Debrief

Outcomes

- Prognosis for the woman is similar to any other birth; whether vaginal or Caesarean depending on outcome
- Prognosis for the newborn depends on length of time until birth and degree of impaired blood flow
- Prompt recognition and management usually lead to optimal outcomes
- It is suggested that neonates born within 30 minutes do well
- It is suggested there is an up to 18 fold increase in perinatal mortality in instances of cord prolapse occurring outside the hospital

Breech Presentation

Breech presentation: Occurs when the fetal buttocks descend into the maternal pelvis first

- ***Frank breech:*** Most common; occurs when the fetal legs extend across the abdomen toward the shoulders (feet are up by face)
  - Occurs in 50-70% of breech presentations
- ***Complete breech:*** Occurs when the head, knees, and hips are flexed but the buttocks are presenting
  - Occurs in 5-10% of breech presentations
- ***Footling or incomplete breech:*** Occurs when one or both feet or knees are presenting
  - Occurs in 10-30% of breech presentations

Risk Factors for Breech Presentation

Risk factors for breech presentation include:

- Prematurity
- Oligohydramnios
- Uterine anomalies or fibroids
- Placenta implanted low in the uterus or placenta previa
- Fetal anomalies
- Previous breech presentation
- If either parent were breech themselves
- Unknown causes

Incidence

- Breech presentation occurs in 3-4% of term or near term pregnancies
- There are approximately between 10 500 and 14 000 breech births a year in Canada
- The earlier the gestation, the higher the likelihood of a breech presentation
- At 28 weeks gestation, about 24% of fetuses are breech

Diagnosis of Breech Presentation

- Leopold maneuvers
- Vaginal examination
- Ultrasound

Options with Breech Presentation

- External Cephalic Version (ECV)
- Elective Caesarean Birth
- Assisted Vaginal Breech Birth

** Currently at our facility, women with a breech presentation will undergo a Caesarean birth

** Our facility does not routinely offer assisted vaginal breech births

External Cephalic Version (ECV)

External Cephalic Version (ECV): Occurs when an attempt is made to change the fetal position from breech to cephalic while the fetus is in utero, through manipulation of the mother's abdomen

- Usually performed after 37 weeks gestation
  - Evidence says it can be completed between 34-36 weeks
  - Should not be performed before 34 weeks gestation
- Success rate decreases as gestational age increases

External Cephalic Version (ECV)

An external cephalic version may be attempted if:

- There is a singleton fetus
- Gestational age is >34 weeks
- There are no contraindications to labour
- Fetal well-being has been assessed
- Amniotic fluid volume is adequate
- Ultrasound is available
- Position of the fetus is known
- Ability to perform an emergency Caesarean if needed

External Cephalic Version (ECV)

Contraindications to an external cephalic version include:

- Contraindications to labour
- Antepartum hemorrhage
- Certain major fetal anomalies
- Multiple gestation
- Ruptured membranes

Relative contraindications include:

- Oligohydramnios
- Extension of fetal head
- Two or more previous C-Births
- Morbid obesity
- Active labour
- Uterine malformation
- Fetal anomalies

External Cephalic Version (ECV)

Risks of an external cephalic version (ECV) include:

- Abruption
- Ruptured membranes
- Cord prolapse if membrane rupture occurs
- FHR abnormalities- transient bradycardia
- Alloimmunization of fetomaternal hemorrhage

An EVC is most successful when:

- Woman is multiparous
- Presenting part is not engaged
- The uterus is relaxed
- The fetal head can be palpated abdominally
- Maternal weight is low

External Cephalic Version (ECV): Procedure

Procedure:

- Often two obstetricians will perform the procedure at our facility
- EFM will be employed and a non-stress test will be preformed prior to procedure
- OR should be aware of procedure in the event an emergency C-Birth is warranted
- A saline lock may be ordered by physician, as well as CBC and Group and Screen

External Cephalic Version (ECV): Procedure

- Physicians will confirm position using ultrasound and use ultrasound throughout the procedure to monitor progress and FHR
- Abdomen may be lubricated with ultrasound gel
- Physicians will attempt ECV, where they will promote a forward roll of the fetus
- Procedure is halted if it is too uncomfortable or FHR becomes abnormal
- A non-stress test is continued for at least 20 mins (up to 1hr) post procedure

External Cephalic Version (ECV): Procedure

- If the ECV was successful, plan for ongoing care and/or birth is made
- If the ECV was unsuccessful, plan to either repeat the ECV at a later time or schedule a C-Birth
- Consider WinRho in Rh negative mothers
- Woman should return to the department in the event she experiences abdominal pain, labour, bleeding, fever, leakage of fluid, or decreased fetal movement

Management: C-Birth vs. Vaginal Breech Birth

- In 2000 there was a large, multi-centre RCT where women with breech presentation at term were randomized to either a planned C-Birth or a planned vaginal breech birth
- Trial was stopped after it was discovered that planned C-Births led to decreased risk of perinatal or neonatal mortality and serious neonatal morbidity
- There were limitations to the study that lead practitioners to questions the true risk to a breech fetus born vaginally
- Management of breech presentation at term is controversial

Risks: C-Birth vs. Vaginal Breech Birth

According a Cochrane Review:

Risk of perinatal or neonatal death for a breech fetus born by:

- Planned C-Birth: 0/641 (0%)
- Planned vaginal birth: 4/694 (0.6%)

Risk of serious or short term neonatal mortality for a breech fetus born by:

- Planned C-Birth: 2/514 (0.4%)
- Planned vaginal birth: 29/511 (5.7%)

Disadvantages to Breech Presentation and Vaginal Birth

- Breech presentation is less effective at dilating the cervix, as the buttocks are not smooth and firm when compared to a fetal head
- Head is the last part to be born; at this point the umbilical cord is usually outside of the mother's the body and there is increased risk of cord compression between the head and maternal pelvis
- Head must be delivered quickly as the umbilical cord can be compressed following birth of the fetal chest; does not allow for gradual molding of the fetal head

Management: Planned Caesarean Birth

- At our facility, individuals who present with breech presentation can be offered an EVC if meets criteria and no contraindications
- If contraindications to ECV, or if unsuccessful, or if declined, a C-Birth will be scheduled
- If a woman presents in labour and is breech, she will proceed for a C-Birth

Management: Planned Vaginal Birth

- Other facilities may offer a planned trail of vaginal breech birth in certain circumstances

- ***The following criteria must be met in order for a planned trial of vaginal breech birth to take place:***
  - Pre- or early labour ultrasound assessment for type of breech presentation, fetal growth and estimated weight, and attitude of fetal head
  - Estimated fetal weight between 2500 g and 4000 g
  - Frank or complete breech position with a flexed or neutral head
  - No evidence of IUGR or macrosomia
  - No evidence of cord presentation
  - No evidence of a clinically inadequate maternal pelvis
  - No evidence of fetal anomaly incompatible with vaginal birth

Management: Precipitous Vaginal Breech Birth

- In the event a woman presents who is breech, and precipitously gives birth vaginally before a Caesarean birth can be facilitated, it is important to know the management required

Management includes:

- Call for help
  - Additional nurses
  - Neonatal nursery, RT, Pediatrician who can facilitate neonatal resuscitation
  - OR should continue to proceed with set-up until the birth actually occurs

Management: Precipitous Vaginal Breech Birth

- Hands off approach
  - Important not to pull on the breech fetus
  - Maternal pushing efforts are essential and should be encouraged
  - Allow for SPONTANEOUS descent and expulsion of the fetus to the umbilicus (hands off!)
- Sacrum should rotate to anterior position spontaneously (desired)
  - If sacrum rotates posteriorly, can grasp the fetal pelvis and gently rotate to sacrum anterior
- After-coming head
  - Assistant can apply suprapubic pressure to promote flexion and engagement of maternal head
- Ideally birth will occur spontaneously; however maneuvers are implemented if birth does not occur spontaneously

Management: Precipitous Vaginal Breech Birth

Assisted maneuvers:

- **Pinard maneuver**
  - Can assist with the birth of fetal legs once the popliteal fossae are visible
  - Two fingers are inserted along one leg to the knee, which is pushed away from the midline (abducted)
  - Flex the fetal hip at the same time
  - Spontaneous flexion of the knee will occur resulting in expulsion of the fetal food
- **Lovset maneuver**
  - Can assist with the birth of nuchal arms
  - Rotate the fetal body to allow you to sweep the anterior humerus across the fetal chest
  - Rotate the fetal body to the opposite side and repeat maneuver to expel the second arm

Management: Precipitous Vaginal Breech Birth

- Once birth has occurred up to the umbilicus, baby should be in a horizontal position and supported to ensure head remains in a flexed position
- **Mauriceau-Smellie-Veit maneuver:**
  - Can assist with the birth of the after-coming head
  - While the assistant provides suprapubic pressure, the individual attending the birth applies pressure to the fetal maxilla and traction is applied
- **Piper forceps**
  - Can assist with birth of the after-coming head
  - Fetal body can be elevated using a warm towel while the left blade is applied
  - Right blade is applied while the body is elevated and birth is facilitated through this method
  - It is ***ONLY*** in the physician's scope to apply forceps

Considerations Following a Precipitous Vaginal Breech Birth

- Assess newborn; initiation of neonatal resuscitation as needed
- Send cord gases
- Label and send cord bloods
- Active management of the third stage
- Address any needs or concerns of the mother and family
- Assist the physician with any perineal repairs
- Assessments during fourth stage
- Documentation
- Debrief

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Diabetes in Pregnancy and Shoulder Dystocia

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Describe the three types of diabetes in pregnancy
- Describe the risk factors associated with the development of gestational diabetes mellitus (GDM)
- Describe the maternal and fetal risk factors associated with diabetes in pregnancy
- List ways in which adverse outcomes can be prevented in women with diabetes in pregnancy
- Describe the screening and diagnosis for GDM
- Describe the therapeutic management of diabetes in pregnancy, labour, and postpartum
- Describe how women with diabetes in pregnancy may be monitored during pregnancy

Learning Objectives

- Describe what constitutes a shoulder dystocia
- Describe the incidence of shoulder dystocia
- Describe the maternal, fetal, and intrapartum risk factors for shoulder dystocia
- Describe the potential maternal and fetal complications related to shoulder dystocia
- List the signs of a shoulder dystocia
- Describe the management of a shoulder dystocia
- Describe the considerations to be taken following a shoulder dystocia

Diabetes in Pregnancy: Three Types

- ***Type 1: Involves insulin dependence***
  - Onset is usually as a child or young adult
  - Involves autoimmune destruction of pancreatic beta cells
  - Risk of ketosis
- ***Type 2: Involves insulin resistance***
  - May be diet controlled or insulin dependent
  - Usual onset is after age 40, however it is associated with obesity that can occur as a child or young adult
  - Ketosis less likely to occur than with Type 1 diabetes

Diabetes in Pregnancy: Three Types

- ***Gestational (GDM): Involves glucose intolerance***
  - Onset of glucose intolerance diagnosed during pregnancy
  - Can include treatment by diet or a combination of diet and insulin control
  - Up to 10% of pregnancies can be affected by GDM
  - Women who develop GDM during pregnancy have a 35-60% chance of developing diabetes in the subsequent 10-20 years to follow

Risk Factors for Gestational Diabetes

Risk factors for gestational diabetes include:

- Obesity (BMI >30) or morbid obesity (BMI >40 or higher)
- Maternal age greater than 35 years
- Prior birth outcome that could be associated with GDM
- GDM in a prior pregnancy
- History of abnormal glucose tolerance
- History of diabetes in a first-degree relative
- Member of high-risk ethnic group

Potential Risks of Diabetes in Pregnancy

Maternal risks

- Hypertension
- Pre-eclampsia
- Urinary tract infections
- Ketoacidosis
- Labour dystocia
- Caesarean birth
- Postpartum hemorrhage secondary to uterine atony
- Injury to maternal tissue at time of birth secondary to fetal macrosomia

Potential Risks of Diabetes in Pregnancy

Fetal risks

- Congenital anomalies
- Stillbirth
- Macrosomia >4000 g
- Intrauterine fetal growth restriction
- Premature labour, PPROM, preterm birth
- Birth injury
- Hypoglycemia
- Hyperbilirubinemia
- Hypocalcemia
- Respiratory distress syndrome

Preventing Adverse Outcomes

- Because many of the adverse outcomes related to diabetes in pregnancy are associated with hyperglycemia and co-existing metabolic environment much effort is sought to achieve glycemic control
- Preconception care is important in women with pre-existing diabetes to reinforce importance of glycemic control and control of any co-morbidities
- Women will be screened for GDM in pregnancy between 24 and 28 weeks gestation
- Follow-up with diabetes nurse educator is important for women with diabetes in pregnancy to monitor and implement treatment as needed

Screening for GDM

- ***Glucose Challenge Screening:***
  - Involves intake of a 50-g oral glucose where plasma glucose is measured 1 hour following
  - If value is < 7.8 mmol/L no further testing is required
  - If value is between 7.8 to 11 mmol/L, a glucose tolerance test is indicated
- ***Glucose Tolerance Test (GTT):***
  - Involves intake of a 75-g oral glucose where fasting plasma glucose, 1-hour plasma glucose, and 2-hour plasma glucose are measured

Screening for GDM

Gestational Diabetes is diagnosed if the below values are met or exceeded:

- Fasting plasma glucose: ≥ 5.3 mmol/L
- 1-hour plasma glucose: ≥ 10.6 mmol/L
- 2-hour plasma glucose: ≥ 9.0 mmol/L
- If the value of the glucose challenge screening test is ≥ 11.1 mmol/L this is indicative of gestational diabetes

Therapeutic Management of Diabetes in Pregnancy

- Treatment during pregnancy usually involves collaboration between the patient, physician, and diabetes nurse educator
- Women should monitor blood sugar levels
- For those with pre-existing diabetes requiring insulin, insulin needs will vary through the pregnancy
- Those with Type 2 diabetes and GDM may be diet controlled
  - If adequate glycemic control can not be achieved through diet, an insulin regimen is indicated

Therapeutic Management of Diabetes in Labour

- Women with Type 1 diabetes may require an insulin drip in labour in order to maintain maternal glucose control
  - Sometimes internal medicine is consulted for this; follow the physician's orders
- Women with Type 2 diabetes and GDM can often maintain normal glucose levels during labour
  - Often blood glucose are checked q2h to monitor; check physician's orders

Therapeutic Management of Diabetes Postpartum

- Insulin needs diminish quickly post birth of the placenta often due to the cessation of placental hormones
- Women with GDM on insulin should no longer require insulin (check physician's orders re: blood glucose monitoring)
- Women with Type 1 diabetes generally return to their pre-pregnancy dosages
- Women with Type 2 diabetes will require glucose monitoring and insulin would be ordered if needed

Monitoring Women with Diabetes in Pregnancy

- Women and fetus are at increased risk for adverse outcomes
- Biophysical profiles are often initiated at 36 weeks gestation
- Non-stress tests can be preformed when indicated
- Fetal kick counts

- IOL should be offered to women with diabetes in pregnancy between 38 and 40 weeks gestation, taking into consideration their glycemic control and other co-morbidity factors

What is Shoulder Dystocia?

- Occurs when the head is delivered but the shoulders fail to deliver following normal gentle downward pressure

- Can occur when the anterior shoulder of the fetus impacts against the maternal symphysis

- Can occur from impaction of the posterior shoulder of the fetus on the maternal sacral promontory

- Obstetrical emergency

- Additional maneuvers are required to facilitate the birth

Incidence of Shoulder Dystocia

- Frequency is similar for both primiparas and multiparas
- Occurs in 0.6 to 1.4 percent of neonates born between 2500 g and 4000 g
- Occurs at a rate of 5 to 9 percent of neonates born between 4000 g and 4500 g
- Occurs at a rate of of 14.3% of neonates born between 4500 g and 4750 g
- Occurs at a rate of 21.1% of neonates born between 4750 g and 5000 g
- Women with diabetes in pregnancy are generally at higher risk for shoulder dystocia

Risk Factors for Shoulder Dystocia

Up to 50% of cases of shoulder dystocia do not have any associated risk factors and can not be predicted

Maternal risk factors

- Abnormal pelvic anatomy
- Diabetes in pregnancy
- Post-term pregnancy
- Previous shoulder dystocia
- Previous birth of macrosomic neonate
- Short stature
- Excessive weight gain in pregnancy
- Extreme maternal obesity (BMI >50)

Risk Factors for Shoulder Dystocia

Fetal risk factors
- Suspected macrosomia

Intrapartum risk factors
- Assisted vaginal birth (vacuum or forceps)
- Prolonged active phase of the first stage of labour
- Prolonged second stage of labour
- Induction of labour
- Epidural anesthesia

Potential Complications Related to Shoulder Dystocia

Maternal complications

- Postpartum hemorrhage
- Rectovaginal fistula
- Symphyseal separation
- Third of fourth degree tear or episiotomy
- Uterine rupture

Potential Complications Related to Shoulder Dystocia

Fetal complications

- Brachial plexus injury
- Fracture of clavicle
- Fracture of the humerus
- Fetal death
- Fetal hypoxia with or without neurological damage

Signs of Shoulder Dystocia

- Classic ”turtle sign”
- No evidence of spontaneous restitution
- Shoulders do not deliver with maternal pushing efforts and gentle downward traction with the next contraction

*** Literature suggests that after delivery of the head, shoulder dystocia should not be diagnosed until shoulders do not deliver with maternal effort and gentle traction with the **NEXT** contraction* *(Kotaska & Campbell, 2014)*

Management of Shoulder Dystocia

- Call for help
- McRoberts maneuver
  - Involves lowering the head of the bed while flexing and abducting maternal hips with maternal thighs onto the maternal abdomen
  - Two nurses should assist with this; one on each side
- Suprapubic pressure
  - Involves placing hand over the fetal anterior shoulder suprapubically
  - Apply steady pressure at first, and if unsuccessful use a CPR style with downward and lateral pressure on the posterior aspect of fetal shoulder
  - Ensure there is a stool accessible in the room to help you facilitate this
  - Downward traction by the physician may be applied at the same time

Management of Shoulder Dystocia

- Anterior shoulder disimpaction (Rubin maneuver)
  - Involves abduction of the anterior shoulder by applying pressure to the posterior aspect of the shoulder
  - Physician may perform this maneuver at the same time you are applying suprapubic pressure
- Rotation of the posterior shoulder (Wood's maneuver)
  - Involves a screw-like maneuver where pressure is placed on the anterior aspect of the posterior shoulder to try to rotate the posterior shoulder into an anterior position
  - May be performed at the same time as the Rubin maneuver to try to disimpact the anterior shoulder

Management of Shoulder Dystocia

- Manual removal of the posterior arm
  - If the hand is not already flexed at the elbow, pressure can be applied to the antecubital fossa by the physician to promote flexion of the extremity
  - Hand can then be grasped and swept across the chest to achieve disimpaction and facilitate the birth
  - Axillary traction may be considered if the hand can not be reached
  - Higher risk for fractured humerus and brachial plexus palsy
- Roll the patient onto all fours
  - Maneuvers can be repeated
  - This can be considered at any point in management
- Episiotomy
  - Can be considered at any point to help facilitate maneuvers

Management of Shoulder Dystocia

If maneuvers have been attempted several times with no success, the following may be considered as a last resort:

- Intentional fracture of the fetal clavicle
- **Symphysiotomy**
  - Involves deliberate division of the fibrous cartilage of the symphysis pubis using local anesthesia
- **Zavanelli maneuver**
  - Head is attempted to be replaced by reversing cardinal movements of labour
  - An emergent Caesarean would then be performed

Following Shoulder Dystocia

- Prepare for the need for neonatal resuscitation
- Assess newborn for trauma (ie: possible fractures)
- Send cord gases (cord pH important)
- Label cord bloods
- Active management of the third stage (increased risk for PPH)
- Assist physician with perineal repair
- Address needs or concerns of the woman and her family
- Ensure documentation is completed accurately and precisely
- Debrief with team members

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Management of Twins

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
May, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Describe the differences between monozygotic and dizygotic twins
- Describe how chorionicity and amnionicity are determined and its significance
- Describe the types of chorionicity
- List the risks and/or complications associated with twins, as well as the timing in which birth is usually planned
- Describe the surveillance associated with twin pregnancies
- Discuss the circumstances in which Caesarean births are indicated and key points to remember when helping to facilitate these births
- Discuss the circumstances in which vaginal births are indicated and key points to remember when helping to facilitate these births

Monozygotic vs. Dizygotic Twinning

- ***Monozygotic Twinning***
  - Twins are conceived by the union of a single ovum and sperm that later divide into two
  - Occurs at random of a rate approximately 1 in 250 naturally (non-assisted) pregnancies
  - A hereditary or racial component is not well described in the literature
  - Late separation of the inner cell mass may lead to twins with a single amnion (inner membrane) and single chorion (outer membrane)
- ***Dizygotic Twinning***
  - Twins are conceived from two ova and two different sperm
  - May be the same or opposite sex
  - May not have similar physical traits
  - May be hereditary in some families
  - Infertility increases the rate of dizygotic twinning
  - Have separate membranes and placentas (though can fuse if implanted closely)

Determination of Chorionicity and Amnionicity

- Ultrasound is the only safe and reliable means by which diagnosis and assessment of twins can be conducted
- Determining the amnionicity and chorionicity early on in the pregnancy is crucial in order to faciliate prenatal management of twin pregnancies
- Chorionicity should be determined in the first trimester

Possibilities for Chorionicity

- ***Monochorionic/Monoamniotic***
  - Share a placenta and amniotic sac
  - Most risky of the twin pregnancies; high mortality and morbidity
- ***Monochorionic/Diamniotic***
  - Share a placenta but have individual amniotic sacs
  - Still at risk for twin-to-twin transfusion syndrome
- ***Dichorionic/Diamniotic***
  - Have their own placentas and amniotic sacs
  - Can have dichorionic/diamniotic twins with fused placentas

Twins: Risky Business

- ***Monochorionic/Monoamniotic Twins***
  - Occur in approximately 1% of monozygotic twin pregnancies
  - Perinatal mortality is about 50-60%
  - High risk of cord accidents
  - Caesarean birth is scheduled for these twins at 32-33 weeks gestation (at IWK)
- ***Monochorionic/Diamniotic Twins***
  - Perinatal mortality is about 4.4%
  - Birth is usually offered at 36 to 37 weeks gestation
- ***Dichorionic/Diamniotic Twins***
  - Perinatal mortality is about 1.2%
  - Birth is usually offered at 37 to 38 weeks

Twins: Risky Business

Twin pregnancies are associated with higher risks of:

- Preeclampsia (10-20%)
- Prematurity (50-60%)
- Differences in growth and IUGR (15-25%)
- Twin-to-twin transfusion syndrome (5-10%)
- Death of a fetus (2-5%)
- Brain damage in remaining twin after death of a monochorionic/diamniotic twin (25%)
- Cerebral palsy risk is increased
- PROM

Twins: Risky Business

During labour and birth, twin pregnancies are at higher risk for:

- Cord accidents
- Malpresentation
- Uterine atony
- Placental abruption (intrapartum)
- Decrease in second twin's pH if birth is greater than 30 minutes after the first twin
- Vasa previa related to velamentous cord insertion

Twins: Risky Business

In the postpartum period, mothers of twins are at higher risk for:

- Postpartum hemorrhage
- Postpartum depression

Surveillance During Pregnancy

Increased surveillance is required for twin pregnancies

- Recommendations indicate that serial ultrasounds every 2 to 3 weeks beginning at 16 weeks is suggested for monochorionic twins
- Recommendations indicate that serial ultrasounds every 3 to 4 weeks following anatomy (18-22 week) ultrasound is suggested for dichorionic twins
- Growth and amniotic fluid volume are monitored
- Umbilical artery Dopplers may be offered in twin pregnancies where there may be complications related to placental circulation or fetal hemodynamic physiology; it is not routinely offered in uncomplicated twin pregnancies

Twin-to-Twin Transfusion Syndrome

- Risk for monochorionic twins
- Can lead to perinatal death
- ***Prenatal diagnosis is made based on ultrasound findings which may include:***
  - Twins where one will have polyhydramnios and the other oligohydramnios
  - Enlarged bladder in the polyhydramnios twin; small or absent bladder in the oligohydramnios twin
  - May see a discordance in fetal size; larger twin may have polyhydramnios
  - Oligohydramnios twin may be contained within the collapsed inter-twin membrane
  - Abnormal Doppler studies
  - Fetal hydrops
  - Death of a fetus

Modes of Birth

Vaginal birth of twins can be considered if:

- Twin A is cephalic; Twin B is cephalic
- Twin A is cephalic; Twin B is non-cephalic but estimated fetal weight is 1500g-4000g and physician is comfortable and skilled in breech birth

Caeserean birth of twins is indicated if:

- Twin A is non-cephalic or transverse (at our facility)
- Monochorionic-monoamniotic twins
- Any other contraindication to a vaginal birth

Considerations at Time of Birth

Caesarean birth of twins

- May be planned or may scheduled upon presentation (ie: breech in labour)
- May occur after a woman has laboured
- May occur after vaginal birth of Twin A if indicated

Key points:

- Prepare woman as you would for any other caesarean (considering urgency)
- Continuous EFM
- Caesareans usually occur in the "swing room" for twins
- Ensure two warmers are set up in the room
- Ensure you have appropriate personnel (ie: nursery RN and RT for each twin, one pediatrician for the two twins)

Considerations at Time of Birth

Vaginal birth of twins

- Can be trialed as long as Twin A is cephalic
- Ensure there are no other contraindications to a vaginal birth

Key Points:

- Communicate well with team members (ie: nursery, RT, peds, anesthesia, OR RNs)
- Notify OR of plan for vaginal birth of twins
- Continuous EFM
- Women labour in birthing rooms and transfer to the OR "swing room" for birth (consider timing of transfer ie: primip versus multip)
- Ensure swing room is set up with two warmers; one for each twin
- Prepare the woman for the possibility of a caesarean

Considerations at Time of Birth

- Ensure IV access and CBC and Group and Screen have been collected and sent
- Bring “twin bin” to OR
- Bring emergency delivery cart to the OR
- Bring delivery table to the OR and supply with contents from “twin bin”
- Bring ultrasound to the OR
- Bring EFM monitor to the OR
- Know where PPH bin and medications are in the event PPH occurs
- Notify team when needed for birth (nursery RN and RT for each twin; one pediatrician for both twins)

Considerations at Time of Birth

After birth of Twin A:

- Do not administer the 5 units of Oxytocin IV push
- Cord bloods should not be obtained until after Twin B is born
- Cord gases may be obtained from Twin A at this time
- There should be no additional noise or distractions in the room
- Continue with EFM to help establish fetal well-being of Twin B
- Physician may use ultrasound to determine position of Twin B
- ARM may be considered by the physician with Twin B is at station 0 or -1
- Oxytocin augmentation may be considered if indicated and ordered by physician
- Time difference between birth of twins should be noted

Considerations at Time of Birth

After birth of Twin B:

- May administer Oxytocin 5 units IV push with anterior shoulder
- Stop any Oxytocin that was infusing for augmentation
- Cord bloods can be obtained by physician at this time for Twin A and Twin B
- Cord gases can be obtained for Twin B
- Note time of placentas (should be sent to the lab for pathological examination)
- Active management of the third stage
- Assist physician if perineal repair is indicated
- Establish well-being of newborns as reported by neonatal team
- Transfer mother back to birthing room to facilitate fourth stage

Lots of teaching in the postpartum period and involvement of supports is indicated due to the increased risk of postpartum depression

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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Miscarriage and Perinatal Loss

Queen Elizabeth Hospital: Labour and Birth Orientation Program
Learning Module

Developed by: Katelyn Smallwood BScN RN
June, 2017

Learning Objectives

By the end of this learning module, the orientee will:

- Define the various terms used to describe loss of a pregnancy in obstetrics
- Describe potential causes for first trimester losses
- Describe the management of first trimester losses
- Identify and describe two unique conditions that may present in first trimester loss
- Describe the indications for Methotrexate administration with ectopic pregnancies
- Describe considerations to be taken with all first trimester losses

Learning Objectives

- Differentiate between second trimester abortion versus stillbirth with second trimester losses
- Describe potential causes of second trimester loss
- Describe the gestational period that would constitute a third trimester loss and stillbirth
- Describe how a woman with a second or third trimester loss may present
- Describe the management of second and third trimester losses
- Describe the considerations to be taken for second and third trimester loss
- Describe the process for transporting a stillbirth to and from the morgue

Learning Objectives

- Identify lab investigations that may be ordered in the event of a stillbirth
- Describe the processes for autopsy, naming the baby, and burial and where to find appropriate forms to facilitate theses processes
- Describe what constitutes a neonatal death
- Describe the considerations to be taken following a neonatal death
- Describe how you may support women and families who have experienced loss

Definitions

Live Birth: "The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached" (Government of Canada, 2012)

Stillbirth: "Death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Only stillbirths where the product of conception has a birth weight of 500 grams or more or the duration of pregnancy is 20 weeks or longer are registered in Canada" (Government of Canada, 2012)

Definitions

Neonatal Death: "Death of a child under four weeks of age (0 to 27 days)" (Government of Canada, 2012)

Early Neonatal Death: "Death of a child under one week of age (0 to 6 days)" (Government of Canada, 2012)

Perinatal Death: "Death of a child under one week of age (0 to 6 days) or a stillbirth of 28 or more weeks of gestation" (Government of Canada, 2012)

Definitions

Spontaneous abortion: Loss of a pregnancy that is non-induced where the products of conception are less than 20 weeks gestation and less than 500 grams in weight

Threatened abortion: Vaginal bleeding, with or without cramping, where the cervix is closed but there is a risk of spontaneous abortion

Inevitable abortion: Vaginal bleeding, with or without cramping, that is accompanied by cervical dilation leading to spontaneous abortion

Definitions

Missed abortion: Embryonic/fetal demise without the expulsion of products of conception

Incomplete abortion: Embryonic/fetal demise where some products of conception have passed but where products are retained

Complete abortion: Embryonic/fetal demise where products of conception have passed

Therapeutic abortion: Intentional termination of a pregnancy

1st Trimester Losses: Some Facts

- Embryonic period lats for 8 weeks post conception or 10 weeks after the last menstrual cycle
- The yolk sac is the first structure seen with the gestational sac
- A blighted ovum occurs when the gestational sac does not develop into a yolk sac or embryo
- At 5-7 weeks gestation, the embryo and gestational sac should grow 1 mm per day
- Cardiac activity that can be seen adjacent to the yolk sac is indicative of a live embryo
- From 5.5-6.5 weeks, embryonic heart rate can be less than 100 bpm; in three weeks following heart rate increases to 180 bpm

Potential Causes of 1st Trimester Loss

- Spontaneous abortion occurs in approximately 20% of all pregnancies
- Up to 70% of spontaneous abortions can be attributed to abnormal karyotype
- Subchorionic hematoma accounts for about 9% of the spontaneous loss rate
- Other contributions to early pregnancy loss include:
  - Luteal phase defect
  - Immunological factors
  - Infection
  - Alcohol or smoking
  - Lethal genetic anomalies

Management of 1st Trimester Loss

- Women may present as a missed abortion, threatened abortion, inevitable abortion, incomplete, or complete abortion
- First trimester losses may present with symptoms or may be asymptomatic
- Some may present in situations where a fetal heart rate was inaudible at an office appointment
- Ultrasounds through Diagnostic Imaging confirm a demise

Management of 1st Trimester Loss

Management may include:

- ***Expectant:*** Allowing time to pass to see if products of conception will pass spontaneously
- ***Misoprostol (Cytotec) administration:*** A prostaglandin that is administered orally, sublingually, or vaginally to promote dilation of the cervix and expulsion of products of conception
- ***D&C (Dilation and Curettage):*** Surgical intervention where a surgical instrument is used to dilate the cervix and a curette is used to remove products of conception

Unique Conditions Resulting in 1st Trimester Loss: GTD

Gestational Trophoblastic Disease (GTD): Causes rare human tumours (can be benign or malignant) that originate from placental tissue

The main types of GTD include:
- Hydatidiform mole
- Invasive mole
- Choriocarcinoma
- Placental site trophoblastic tumour

Unique Conditions Resulting in 1st Trimester Loss: GTD

Hydatidiform Moles
- Most common GTD
- More commonly known as a molar pregnancy
- Can be complete or partial

Complete hydatidform mole (CHM): Most often occurs when an abnormal ovum that does not contain any genetic material is fertilized by a sperm (sometimes two)

Partial hydatidform mole (PHM): Most often occurs when an egg is fertilized by two sperm resulting in a triploid karyotype (69XXY)

Unique Conditions Resulting in 1st Trimester Loss: GTD

Treatment of hydatidifom moles:

- Diagnosis is made based on signs and symptoms as well as ultrasound findings
- Additional tests may include a CBC, beta hCG and chest x-ray
- A D&C is most often performed to evacuate the uterus
- Follow up is critical in order to identify those at risk for developing malignancies
- Pelvic examinations
- Chest x-ray if beta hCG rises
- Contraceptive should be advised
- There is a 1-2% risk of a molar pregnancy in the pregnancies to follow

Unique Conditions Resulting in 1st Trimester Loss: Ectopic Pregnancy

Ectopic pregnancy: Occurs when a fertilized egg implants someplace other than the uterus

- The most common place for an ectopic pregnancy to occur is the fallopian tube
- Occasionally, ectopic pregnancies can occur in the ovary, cervix, or abdomen
- Risk of ectopic pregnancy is about 1-2%

Unique Conditions Resulting in 1st Trimester Loss: Ectopic Pregnancy

Risk factors associated with an ectopic pregnancy include:

- Smoking
- PID (pelvic inflammatory disease)
- Endometriosis
- Previous surgery on fallopian tubes
- Fertility treatments (ie: in vitro fertilization)
- Diethylstilbestrol (DES) exposure in utero
- Previous ectopic pregnancy

Unique Conditions Resulting in 1st Trimester Loss: Ectopic Pregnancy

Women with an ectopic pregnancy may present with:

- Vaginal bleeding
- Abdominal or pelvic pain that may be sharp on one side but spreads through the abdomen

Can be an emergent situation if the fallopian tube ruptures causing excessive bleeding

Diagnosis is usually made based on beta hCG levels and ultrasound findings

Unique Conditions Resulting in 1st Trimester Loss: Ectopic Pregnancy

Management for ectopic pregnancy may be carried out under the following treatments:

Expectant management: May be considered in some cases depending on:
- Beta hCG levels
- Size of the ectopic mass
- Absence of fetal heartbeat
- Willingness to comply with the close monitoring and follow-up

Unique Conditions Resulting in 1st Trimester Loss: Ectopic Pregnancy

Surgical treatment: May be considered as the best option in certain clinical situations and will be performed in emergent situations

Ectopic pregnancy can be treated surgically through either:
- ***Salpingectomy:*** Removal of the fallopian tube
- ***Salpingostomy:*** An unruptured fallopian is opened surgically to removed products from the ectopic pregnancy

Decision as to how surgical treatment is conducted is a the physician's discretion and can vary depending on the clinical situation

Unique Conditions Resulting in 1st Trimester Loss: Ectopic Pregnancy

Medical treatment: Is most often carried out through the use of Methotrexate

- Offers a safe, effective alternative to and/or works in conjunction with surgery to help preserve tubal patency
- It is folic acid antagonist which inhibits the production of new cells and stops further growth of trophoblastic tissue
- It is more likely to be considered during the first few weeks of gestation where ectopic size is small and before damage to the fallopian tube has occurred

Unique Conditions Resulting in 1st Trimester Loss: Ectopic Pregnancy

Administration of Methotrexate:

- Draw any blood work that may be ordered
- Obtain vital signs and height and weight
- Medication dose is 50mg/m2
- Two RNs should verify Methotrexate dose supplied by pharmacy
- RN administering Methotrexate should gown and double glove
- Medication is administered IM in the ventrogluteal site
- Suggested that the patient should be monitored for 30 mins post administration
- Patient will require serial blood work to monitor beta hCG levels

Considerations for all 1st Trimester Losses

- Acknowledge the loss and provide support
- Provide any necessary teaching and arrange any follow up appointments
- Consider Rh status and need for WinRho
- Offer the information found in the “resources for Prince Edward Island families who have experienced loss through miscarriage”

2nd Trimester Loss

- Second trimester losses would included losses between 13 and 27 weeks gestation
- May be referred to as a fetal demise or intrauterine death
- Losses from 13-19 weeks (and less than 500 g) are considered a miscarriage or abortion
- Losses from 20-27 weeks are considered second trimester stillbirths
- Second trimester losses from 13-19 weeks occur at a rate of about 1-5%
- Often a loss that occurs at 13 or 14 weeks actually occurred 1-2 weeks earlier
- Stillbirth occurs in about 0.3% of pregnancies 20-27 weeks gestation

Potential Causes of 2nd Trimester Losses

- Generally, the cause of pregnancy loss can be unexplained in up to 50% of cases
- There are some factors associated with second trimester losses which include:
  - Chromosomal anomalies or congenital anomalies
  - Maternal anatomic factors
  - Maternal immunologic factors
  - Infection
  - Problems with the placenta
  - Severe acute illness
  - Thrombophilia
  - Uncontrolled chronic illness
  - Drug use, smoking, teratogen exposure
  - Premature rupture of membranes
  - Trauma

Potential Causes of 2nd Trimester Loss

- Termination for various congenital anomalies or clinical findings confirmed by second trimester screening, testing, and diagnoses are also circumstances in which second trimester losses may occur; diagnoses and procedures are performed at the IWK in Halifax

- Age of viability, where resuscitation of an extreme preterm (born alive) may be considered is generally 23-24 weeks gestation
  - Earlier gestations would receive comfort care
  - Discussions and plan of care would take place among patient, obstetrician, and pediatrician

3rd Trimester Losses

- Third trimester losses include those that occur anytime after 28 weeks gestation
- All third trimester losses are considered stillbirth (if fetal death occurs before birth)
- Stillbirth rate is approximately 1% of all pregnancies

Potential Causes of 3rd Trimester Loss

Potential causes of third trimester losses include:

- Chromosomal abnormalities and congenital anomalies
- Immunologic factors
- Infection
- Intrapartum asphyxia
- Placental problems
- Severe acute illness
- Thrombophilia
- Umbilical cord complication
- Uncontrolled chronic illness
- Fetomaternal transfusion
- Alloimmunization
- Fetal growth restriction
- Nonimmune hydrops fetalis
- Twin-to-twin transfusion syndrome
- Drug use, smoking, or teratogen exposure
- Trauma

Presentation of 2nd and 3rd Trimester Losses

- Presentation with second and third trimester losses can vary
- ***Women may present to labour and birth in the following situations***
  - From an office appointment where no fetal heart rate was heard
  - With a history of decreased fetal movement
  - With query labour, ruptured membranes, or another obstetrical complaint where a fetal demise has occurred and is diagnosed at that time
- Fetal demise is confirmed by diagnostic ultrasound
- Differentiation between second trimester abortion and stillbirth

Management of 2nd and 3rd Trimester Losses

- Once fetal demise has been confirmed, allow the woman and partner time alone
- Patient may want you to call family members
- When appropriate, obstetrician will discuss plan of care
- Patient may choose immediate management or choose to go home and return at a later time to proceed with a plan of care
- Patient may be admitted to Unit 4
- Patient may be administered misoprosol (Cytotec) on Unit 4
- If able, patient should be transferred to labour and birth once in active labour

Management of 2nd and 3rd Trimester Losses

- With second trimester losses, labour and cervical dilation may happen quickly before having a chance to transfer to labour and birth; in these cases women may give birth in their room
- These women are at higher risk of retained placenta and hemorrhage
- Special considerations for women who have had a previous caesareans where it is decided they are unable to have misoprostol (may proceed with repeat caesarean)
- Term stillbirth may proceed with prostoglandin gel or induction (unless otherwise indicated)

Considerations for 2nd and 3rd Trimester Losses

- Be mindful of EFM that may be used throughout the department

For Losses <20 Weeks Gestation and <500 g:

- Encourage family to hold baby
- Take pictures for the family
- Follow any orders related to sending fetus and placenta to pathology/lab
- If parents wish to take the fetus home, have them sign appropriate consents
- Provide emotional support and guidance
- Consider Rh status and need for WinRho
- Hand out resource folder

Considerations for 2nd and 3rd Trimester Losses

For Stillbirths:

- Encourage holding and time spent with the baby
- There is a stillbirth kit that will be given to each family of a stillbirth, includes:
  - Memory card
  - Memory book
  - Ink pad
  - Molly charm
  - Teddy bear and blankets
  - Sibling books
  - Pamphlet
- Offer emotional support and guidance
  - Supports may include social work, child life specialist, and pastoral care

Additional Considerations for Stillbirths

Upon birth of the baby:

- Complete *Notification of Birth* form: mark ”stillborn” and send to admitting
- Call SPD to get a bin container for the baby
- Label container

Transport of Stillbirth to the Morgue:

- Call SPD
- Call/Page security (Ask them to meet the SPD porter at Morgue)

Additional Considerations for Stillbirths

Transport of Stillbirth from Morgue back from to Unit:

- The RN must go to the Morgue to identify the stillbirth to bring him/her to the unit (may need mothers label)
- Take wheelchair with you
- Call security to meet you at the morgue
- Place bin on the wheelchair and transport baby back to the unit
- Leave bin and wheel chair in nurse educators office and carry baby back to mothers room

Additional Considerations for Stillbirths

- Although the baby will be sent to the morgue, parents can and are encourage to see the baby whenever they want and as much or as little as they wish

Cuddle cot: is used to keep the baby cool when parents wish to keep baby in their room for extended periods of time

- The cuddle cot instructions are found in the "Stillbirth binder" available in L&B and Unit 4

Additional Considerations for Stillbirths: Lab Investigations

- A multitude of lab investigations may be ordered by the physician
- An order set will be completed by physician

Possible lab investigations may include:

- **Cord Blood**
  - Collect as per usual process
- **Maternal testing**- All labels should print when the Stillbirth Care Set is ordered, however if that does not happen the tests listed below indicate how you would enter the order in CERNER
  - CBC
    - In CIS search "CBC" and select
  - Group & Screen
    - In CIS search "Group and Screen order Info" and select

Additional Considerations for Stillbirths: Lab Investigations

- Toxoplasma IgG Antibody
- Toxoplasma IgM Anitbody
  - In CIS search "Toxo" and choose both IgG & IgM
- CMV IgM Antibody
- CMV IgG Antibody
  - In CIS search "CMV" and choose both IgG & IgM
- Herpes PCR Typing
  - In CIS search "Herpes" select vaginal
- Syphilis Antibody Screen
  - In CIS search "Syphilis antibody"
- PT Panel
  - In CIS search "PTT" choose this then select INR, then choose "PT/INR"

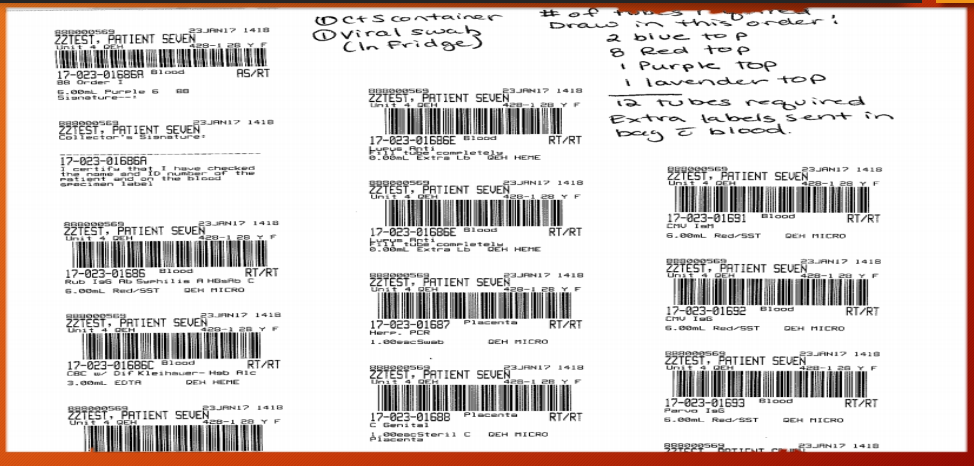
Additional Considerations for Stillbirths: Lab Investigations

- Kleihauer-Betke
  - In CIS search “Kleihauer-Betke”
- Hemoglobin A1C
  - In CIS search “Hemoglobin A1C”
- Lupus Anticoagulant
  - In CIS search “Lupus Anticoagulant”
- Parvovirus B19 IgG Antibody
- Parvovirus B19 IgM antibody
  - In CIS search “Parvovirus”
- Anti Cardiolipin
  - In CIS search “Anti Cardiolipin”

Additional Considerations for Stillbirths: Lab Investigations

- Hepatitis B Surface Antibody
- Hepatitis B Surface Antigen
  - In CIS search “Hepatitis” & choose both Hepatitis B Surface Antibody & Hepatitis B Surface Antigen
- C Genital
  - In CIS search “Genital” choose culture genital, a new drop down box will open and choose placenta
  - Please send pea sized sample of placenta to the lab with saline added to the container.

Additional Considerations for Stillbirths: Lab Investigations



Additional Considerations for Stillbirths: Lab Investigations

Chromosomal Analysis Testing

- For the following tests:
  - General Cytogenetics Requisition (IWK form): Green top tube
  - In CERNER search "Chromosomal Analysis" and select
  - This does not fire automatically; will need to be entered separately from care set.

Note: Can only be processed in the lab Mon-Thurs before 1200hrs. If discharge will occur before these times, then send requisition with patient. Patient to return to special services during the recommended processing times

Additional Considerations for Stillbirths: Autopsy

- Parents may wish an autopsy be performed; others may not
  - Autopsies can be performed in an effort to determine cause of death
  - Cause of death remains undetermined in up to 25% of losses
- Physician to arrange & notify Pathologist
- Forms to be completed
  - Request for Autopsy
  - Consents for Autopsy

Additional Considerations for Stillbirths: Naming

- Parents name they baby and complete the **"Statement of Stillbirth"** form
- The ward clerk partially fills this out before taking to the parents to complete; you can also assist with completing the form if ward clerk unavailable to do so (1-28)
- The medical certificate section (29-43) is completed by the physician after the parents have completed their section
- This form is then sent to vital statistics by the ward clerk

Additional Considerations for Stillbirths: Burial

- Parents can decide which funeral home they would prefer
- **"Release of Deceased Patient" form:**
  - Only give/send this to the morgue with the baby when you are sure the parents will not want to see/hold their baby anymore
  - The commissionaire will know to release the baby to the funeral home
- "
- **Burial Permit" form**
  - When the mother is discharge copy 1 (white) and 2 (yellow) of this form are put in an envelope with the funeral home's name on the outside and taken to the information desk out in the lobby
  - The funeral home will pick it up there

Neonatal Death

- Occurs when there is a death of a live born baby up to and including 28 days after birth
- Canadian rate of neonatal deaths obtained from Statistics Canada (2009) is 3.7 per 1000 live births
- An autopsy will be performed following a neonatal death

Neonatal Death

Potential causes of neonatal death include:

- Prematurity
- Low birth weight
- Birth defects and anomalies
- Birth asphyxia and hypoxia
- Maternal complications of pregnancy
- Neonatal hemorrhage
- Respiratory distress syndrome
- Sepsis

Considerations Following a Neonatal Death

- Assure parents what they are feeling is normal
- Allow parents to spend as much time as they need with their baby
- Allow every opportunity to hold the baby
- Parents will name the baby; call the baby by name
- Provide privacy but do not abandon needs of the parents and family
- Encourage other family members to see the baby
- Reassure parents that baby was not alone at the time of death
- Reassure parents that nothing more could have been done
- Provide memory keepsakes

Considerations Following a Neonatal Death

- Take pictures for the family
- Ensure that other supports are available
- Explain the need and procedure for autopsy
- Explain and help arrange funeral services

Supporting Women and Families Who Have Experienced Loss

- Offer ongoing support and guidance
- Consultations with social work can help facilitate ongoing support after discharge
- Consultations with child life specialist can help facilitate support when siblings are involved
- Consider involving pastoral care if families are open to this
- Offer networking and resources through support groups
  - Island support groups: contact information found in white resource folders

Completion of Learning Module

Thank you for your participation

Please be sure to complete your post-module quiz and submit to your clinical nurse educator

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