

Heart & Hands Midwifery Intensives
BEGINNING/INTERMEDIATE MODULES

Module Four: Complications of Pregnancy

DESCRIPTION

This module covers physical complications that may occur during pregnancy. Students are introduced to principles of research, evidence-based practice, critical interpretation of professional literature, and the interpretation of vital statistics and research findings. Each student selects a topic from question 1) below, on which to complete a research project.

LEARNING OBJECTIVES

To identify and appropriately respond to complications of pregnancy:

1) Cite the symptomology, methods of diagnosis, significance and treatment of the following complications of pregnancy:

1. Hyperemesis gravidarium
2. Nutritional anemias
3. Miscarriage/abortion: threatened, spontaneous, incomplete, missed and habitual abortion
4. Ectopic pregnancy
5. Hydatidiform mole
6. Placenta previa
7. Placental abruption
8. Gestational diabetes
9. Gestational hypertension
10. Pre-eclampsia and eclampsia
11. Polyhydramnios
12. Oligohydramnios
13. Abnormal fetal presentations
14. Multiple pregnancy
15. Prematurity
16. Postmaturity
17. Intrauterine growth retardation
18. Uterine abnormalities
19. Rh- sensitization
20. Sexually transmitted diseases
21. HIV antibodies/AIDS
22. TORCH infections
23. Pylonephritis (kidney disease)
24. Hepatitis B and C

LEARNING ACTIVITIES

- 1) Read Heart & Hands, Chapter 3
- 2) Read Myles Textbook for Midwives (all topics in learning objectives)
- 3) Create a chart on Physical Complications of Pregnancy (as covered in H&H Chapter 3) with two columns: *How to Recognize* (signs), and *How to Respond* (steps to take) regarding each.
- 4) Read "Using the Medical Literature," found at the end of this module.
 - a) Choose a topic from the learning objectives list and write a 2 to 3 page research paper, utilizing at least four references current within the last five years (in addition to Heart & Hands.) Do not cite articles, but cite the supporting studies, investigating them for legitimacy according to the guidelines presented in "Using the Medical Literature." You may use the list of websites given in the Introduction to the modules, as well as medical journals, medical textbooks, or NMI's online library. Be sure to footnote references.

SUBMIT

1. Research paper on chosen prenatal complication
2. Chart, *Physical Complications of Pregnancy*
3. Completed module post-test
4. Module Evaluation Sheet

COMPLETION REQUIREMENTS

In order to successfully complete this module, you must complete all learning activities and submit all items as listed above. Your work will be reviewed item by item and with the rubric below. A passing score is 7.5/10. You will have two opportunities to correct any errors/omissions in your work, at which point a final score will be assigned.

	Level 1 (0 Points) not adequate	Level 2 (1 Points) developing adequacy	Level 3 (1.5 point) Meets basic expectations	Level 3 (2 points) exceeds expectations	Student Score
Completion of module prompts and elements	-Module not completed	-Major elements of module are missing	All aspects of module present, with some minor questions unanswered or missing	-All aspects of module elements present and answered completely	

Demonstrates Comprehension of module content and concepts	- Lack of comprehension	- Responses are unclear and do not reflect basic comprehension of module concepts	- Responses are clear and reflect basic comprehension of module content and concepts	- Responses are clear, well written, and reflect in-depth comprehension of module content and concepts. Added subpoints and additional reflections demonstrate a deeper knowledge and curiosity.	
Analysis	- Key terms not defined	-Inaccurate definition of key items, -Limited connection made between learning resources and learning activities,	-Accurate definitions of key items -Connections made between evidence, subtopics and clinical experience -Incorporation of original ideas and incorporates some clinical experience in responses where possible	- Accurate definitions of key items -Strong connections made between evidence, subtopics and clinical experience	
Critical Thinking and Integration	-Critical thinking not demonstrated, -Integration of material from previous modules not demonstrated	-Elements of Critical thinking are present, -Some integration of materials from previous modules demonstrated	-Critical thinking demonstrated -Integration of material from previous modules demonstrated	-Outstanding critical thinking demonstrated -Full integration of material from previous modules demonstrated.	

Engagement with learning resources	-Evident study sources were not utilized	-Evident study sources were partially utilized	-Evident that study sources were fully utilized	-Evident that study sources were fully utilized and independent research was undertaken -Full incorporation of original ideas, personal analysis and incorporates relevant clinical experience in all areas possible	
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Post-Test

Please answer the following questions:

1. If a mother/gestational parent has iron deficiency anemia, their lab slip would probably show the M ____ to be normal, but M ____ values will be low.

2. If they have B-12 anemia, the M ____ will be high. This type of anemia is also known as _____.

3. Your client calls at 19 weeks to report episodes of light brown bleeding over the last few days. What do you suspect, and how will you reach a diagnosis? (5 key points)

4. What is the most noteworthy symptom of ectopic pregnancy *threatening* rupture? _____.

5. True or False: trichomonias infection can be harbored in the male prostate _____.

6. True or False: herpes virus can be cured using natural remedies _____.

7. Toxoplasmosis exposure is most dangerous to the fetus _____.

8. Define cytomegalovirus, and risks to the fetus if exposed

9. What are common consequences to the fetus of rubella exposure in the first trimester?

10. Any mother/gestational parent presenting symptoms of a UTI should be screened for _____ by checking for _____.

11. Cite pregnancy-related risks for *mother/gestational parent and/or baby* of each of the following sexually transmitted infections

A. Herpes

B. Chlamydia

C. Strep-B (GBS)

D. HIV/AIDS

E. Hepatitis B

F. Hepatitis C

11. What does IUGR stand for? _____.

12. List three causes of IUGR _____, _____, _____

13. What are the clinical signs of IUGR during pregnancy?

14. You discover that your client has low-grade polyhydramnios. What steps will you take upon making this diagnosis, and what possible risks might there be if your client gives birth at home? (6 key points)

15. Your client, now at 28 weeks, has shown a steady rise in blood pressure over the last month (no previous history of hypertension). Describe, in detail, your care plan at this point. (6 key points)

16. List the two *earliest* signs of pre-eclampsia, and how you would respond if your client manifested them. (5 key points)

17. If a mother/gestational parent is LGA, what might be five possible explanations?

18. What is the standard treatment for low-grade gestational diabetes? (4 key points)

19. Your client arrives for a prenatal visit at 32 weeks, complaining of painless vaginal bleeding in the AM. What would you suspect, and what would be your response? (4 key points)

20. What is a concealed abruption? What are classic signals? What are the dangers to mother/gestational parent and baby? (5 points)

21. Give three risks associated with twin deliveries _____ ,
_____ , _____.

22. List three critical needs of the mother/gestational parent pregnant with twins _____ ,
_____ , _____.

23. What is the greatest immediate danger for the baby born prematurely?

What signals of this danger/problem would the baby show at delivery? (4 points)

24. List the five post-dates evaluations for fetal dysmaturity and how the midwife can monitor EACH without utilizing ultrasound. (10 points)

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Module Evaluation Sheet

1. What did you like about this module?
2. Were there any surprises for you in this module?
3. Was there anything in his module that was particularly challenging for you?
4. Do you feel you met this module's stated learning objectives?
5. Did the leaning activities enable you to meet the learning objectives?
6. Were the suggested learning resources (books and materials) adequate to meet the learning objectives? Did you utilize additional resources?
7. Any comments/suggestions for improving the module?

Using the Medical Literature

By Dr. Jessica Lang Kosa

Postdoctoral Fellow, Harvard-MIT Division of Health Sciences and Technology, MIT

Types of Articles

- 1) **Primary research article** An account of research, written by the researchers. Includes a discussion of the reasons for doing the study, the specific methods used, the results, and the conclusions reached. Hopefully, it is published in a peer-reviewed journal. Peer review is the process journals use to evaluate an article before accepting it for publication. The submitted manuscript is given to other scientists (typically three of them) who do research in the same area and are not associated with the study or the journal. The reviewers write critical comments and recommend that the journal to reject, accept, or accept with revisions. The reviewers' comments are given (anonymously) to the authors so that they can revise the paper to address any concerns (such as clarifying study design, or acknowledging an alternative hypothesis). Authors are required to declare any potential conflict of interest or financial interest.
- 2) **Review article** A discussion of the recent findings in a given area, written by a researcher who is an expert in that subject. They are expected to be comprehensive, discuss the work of multiple researchers, and give a balanced description of any controversies. Also peer-reviewed.
- 3) **Journalistic or opinion article** Articles in general-audience publications or websites (like Mothering or WebMD) or professional-interest magazines (like Midwifery Today or Leaven). These are not peer-reviewed. The author may be a general science writer, or practitioner, who may or may not have expertise in the subject.

Cite any article by giving Author(s) names, article title, journal title, year, volume, page.

Finding studies

What's in Medline/PubMed

Medline/PubMed is a database created by the National Library of Medicine that includes information about every primary article and review in nearly every English-language biomedical publication (and many non-English). For most journals, the abstract (brief summary) of each article is included. For some, including several midwifery journals, only the citation is given. Increasingly, the full text of the article and/or PDF file is available. Some journals make their full content available free (normally about 6 months after publication), and others offer articles for a fee.

How to search

Go to <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>

At the top, it says "Search PubMed for" and a blank box for your search terms. You can enter a subject, using "AND" to connect more than one. Your search results will be listed by date, with most recent first. You can click on the title to see the abstract. There is a very useful "related articles" link that will show you more papers on related subjects.

If you enter a keyword, it will search for any articles with that word anywhere in the title, abstract, or keyword list. This is often very broad – a search for "epidural AND infection" produced over 2000 results. So it's often necessary to pare down. Using [ti] after a word tells it to look only in the title, so it's less likely to return articles that are only slightly related to your topic.

A really good way to pare down or to start out is to search for review articles only. You do this by clicking the "Limits" tab under the search box. Scroll down to "Type of article" and check Reviews, then do your search on subject words. Using this limit and searching on "epidural AND infection AND obstetric" produces 10 reviews, almost all relevant. Another good source of reviews is the Cochrane Library at <http://www3.interscience.wiley.com/cgi-bin/mrwhome/106568753/HOME>

You can search on the author's name, using [au] after it. A search for "Gaskin[au] AND shoulder[ti]" finds all articles with an author named Gaskin and the word "shoulder" in the title. This

produces two articles. Clicking on “related links” next to the first one produces a list of 219 articles on shoulder dystocia.

Once you find one relevant article, you can also click on the author’s name to see other articles by the same person, often a useful way to find more on similar subjects. Usually there are multiple authors – the first person listed is the one whose primary project this was, and the last name is the senior person who got the grant that funded it.

If you need a full article and it isn’t available online, bring the citation to your friendly neighborhood public library – they can get most things (for CA residents) through an arrangement with the UC library system.

Evaluating a study

When you want to understand the significance or relevance of a study, these are some considerations, organized by the type of study.

1) **Case study or survey** A case study describes a single case, usually an unusual medical occurrence, or a novel therapy that was used. A survey describes a number of related cases.

Example: Successful Zavanelli manoeuvre for shoulder dystocia with an occipitoposterior position. Aust N Z J Obstet Gynaecol. 1999 Aug;39(3):310-1.

These reports are very useful for bringing rare complications to light, and spreading the word about new procedures. The key is to keep them in perspective, since they are not controlled studies.

2) **Epidemiological Study** These are studies of groups of people, looking for a correlation between an outcome (positive or negative) and some factor thought to be related to it. The critical caveat: correlation is not the same as causation!

A **prospective study** enrolls subjects, then follows them for some period of time and collects data.

A **retrospective study** looks backward in time, getting data that has already been recorded.

Retrospective studies are considered weaker, because the data was not collected with the study in mind, and there can be errors or incompleteness that isn’t apparent. When people are asked about events in the past, there can also be recall bias. One example is that several things were mistakenly identified as risk factors for breast cancer in retrospective studies before prospective studies found no association. Then, it was realized that women with breast cancer, probably because they have wondered what might have caused it, remember and report various exposures more thoroughly than healthy women.

An example of a well-done retrospective study is: Kieler H, Cnattingius S, Haglund B, Palmgren J, Axelsson O. Sinistrality—a side-effect of prenatal sonography: a comparative study of young men. Epidemiology. 2001 Nov;12(6):618-23. This study obtained data from hospital records and military enrollment records.

Questions for epidemiological studies:

- 1) What is the population being studied? Enrollment criteria make a huge difference. Was the study limited to healthy women? Vaginal Births? Women of a certain age range? Is the group racially and economically diverse?
Is the group the most relevant one for the question being asked? For example, is a study of homebirths limited to planned homebirth, or are all out-of-hospital deliveries included?
- 2) What is the control group? Ideally, the study is pair-matched – for each person in the group being studied, there is a person in the control group chosen for being identical in as many characteristics as possible. It’s also important to note how the control group is defined. For example, Newnham et al (1993) conducted a large prospective study of ultrasound exposure, designed to test whether multiple routine ultrasound scans improve

ultrasound. The study was later expanded to investigate safety of ultrasound, but because there was no completely unexposed group, their conclusions only apply to the relative safety of different levels of exposure.

- 3) How big is the study? The more people being studied, the more reliable the results are likely to be.
- 4) Is the result consistent with other studies? The discussion section of the paper normally cites other studies on the same subject. If other studies have had different results, the authors should discuss possible reasons. Usually there are differences in the population being studied, or the method being used (such as hospital records vs. patient report). If the same result is reproduced by multiple groups, it is considered more reliable.

3) **Experimental study** These include clinical trials (tests of a new drug, therapy, or protocol), animal studies, and *in vitro* experiments. A clinical trial is much like a prospective epidemiological study, and can be evaluated the same way. Other experimental studies are very hard to evaluate if you aren't knowledgeable about the specific subject, so the best strategy is to find a review that evaluates it for you.

When to Call Bullshit

Sometimes, a badly flawed study gets published, often because it reaches a conclusion that the reviewers liked or found especially interesting. But the most extreme BS happens when a perfectly study is used out of context to support someone's agenda.

For example, in 1999, a survey was published in the Archives of Pediatric and Adolescent Medicine (Nakamura et al, 1999) that found that 515 children under two had died in adult beds in 1990-97. The authors concluded that children sleeping in adult beds were exposed to hazards of suffocation, both from a parent rollover and from bedding. The Juvenile Products Manufacturers Association issued a press release citing the study as evidence that the only safe place for babies to sleep is in a crib. Which they sell. Several common forms of bullshit are in evidence here:

- 1) **An uncontrolled survey or case study is used as if it were a controlled study that determined relative risk.**
The authors stated that, "Because it is not possible to determine how many children are actually put to sleep on adult beds, the data cannot be used to calculate relative risk." Meaning that there was no basis for suggesting that children who co-sleep are at higher risk for dying, or even at higher risk for bed-related deaths (which occur in cribs as well). To know which is safer, one would need to know the total number of children sleeping in each place, and the number of deaths in each group.
- 2) **Important co-factors are not considered.**
The study had no information on parental use of alcohol or drugs, known to be risk factors for overlying.
- 3) **Risks are not balanced against benefits, or against the risks of the alternatives**
This particular study did not discuss any potential benefits of co-sleeping, or potential risks of not doing so.
- 4) **Alternative ways of minimizing risk are ignored.**
In this case, the authors could have issued some specific warnings about how suffocation occurs, allowing co-sleeping parents to reduce the risk.