**Pharmacology For Midwives**

National Midwifery Institute, Inc.

Study Group Coursework

*Syllabus*

Description:

This module explore pharmacological agents appropriate to pregnant people and the implications in out of hospital care. It includes recommended reading materials in print and online, and asks students to complete short answer questions for assessment, long answer questions for deeper reflection, and learning activities/projects to deepen your hands-on direct application of key concepts.

Learning Objectives:

* Become familiar with the various reference materials available for consultation regarding pharmacology.
* Understand drug safety and lactation safety categories.
* Identify the distribution and regulation of fluid within the body.
* Identify the basic structure and function of the circulatory system.
* Identify the medications commonly used in obstetric, midwifery, and newborn care, the applications and risks of these medications.
* Identify the mechanism, effects, and metabolic excretion of the medications commonly used in obstetric, midwifery, and newborn care.
* Identify steps for safe handling, identification, and administration of medications appropriate to midwifery.
* Identify the over-the-counter medications your clients will likely encounter.
* Learn how to identify the over-the-counter medications considered appropriate for use in the childbearing cycle.
* Identify the appropriate syringes and needles for practical midwifery application.
* Identify the appropriate equipment and supplies for administering IV fluids in a midwifery home birth setting.
* Identify the appropriate use of IV fluids administration in a midwifery home birth setting.
* Consider the possible adverse effects of administering IV therapy to pregnant or laboring women.
* Identify the recommended immunization schedule for infants.
* Identify the legal requirements and limitations of the midwifery license regarding the use of medications and IV administration in your state. Cross reference this with the national certification, NARM CPM.
* Draft practice guidelines for the use of medications in your own practice.
* Draft practice guidelines for the use of IV fluids in your own practice.
* Demonstrate use of appropriate medications within the context of your preceptor’s practice.

Learning Activities:

* Research and read appropriate study sources, seeking out additional study sources where needed
* Complete short answer questions in attached module document for assessment
* Complete long answer questions for deeper reflection in attached module document for assessment
* Complete learning activities listed in attached module document for assessment
  + Read drug insert information and reflect on information
  + Obtain the IV equipment and practice skill
  + Obtain a copy of the midwifery license law and rules & regs
  + Draft practice guidelines for the use of medications
  + Draft practice guidelines for the use of IV fluids
  + Draft practice guidelines for the screening of ABO and RH factor
  + Create reference card of medications and dosages
* Submit work to Study Group Course Coordinator
* Reflect on feedback from Study Group Course Coordinator and re-submit work as needed

Study Sources (print):

The following texts are recommended for completion of this module. Use them to cross reference and build a more comprehensive understanding.

Using keywords from the Learning Objectives, search the index. Read those pages listed, and read the chapter in which they are found. Establish a context for the information so that you understand how other topics are related. In addition, read the chapter headings in the Table of Contents, and flip through each text to familiarize yourself with the content of chapters. As you work through Study Group modules, you will eventually read each text in its entirety.

* Human Anatomy and Physiology, Marieb
* Varney’s Midwifery
* Myles Textbook for Midwives
* Pharmacology for Women’s Health, Brucker & King

*Optional*

* Anti-D in Midwifery: Pancea or Paradox?, Wickman

Study Sources (online):

See NMI website Pharmacology For Midwives module web resources section for current online study sources for this module.

Related Modules:

* First Stage of Labor
* Second Stage of Labor
* Third Stage of Labor
* Placenta
* Breastfeeding / Chestfeeding
* UTI
* Liver
* Spontaneous Release of Membranes
* Birth Bag and Set Up
* Cesarean and VBAC
* Fertility and Conception
* General Pregnancy and Postpartum Ailments
* Hemorrhage
* Herpes
* Hypertension
* Apnea/Hypoxia/Respiratory Distress
* Perinatal Mental Health
* Postdates Management and Postmaturity
* Pre-eclampsia
* Preterm Labor
* Substance Use and Abuse
* Lifelong Reproductive Healthcare

Submitting Module for Assessment:

Study Group modules are accepted electronically in PDF format *only*. We encourage you to submit modules as you complete them throughout each quarter of enrollment.

Please e-mail your completed Study Group module to:

Study Group Course Work Instructor nmistudygroup@nationalmidwiferyinstitute.com

Once your module has been e-mailed to us, you will receive an e-mail confirmation that we have received it. Study Group modules are reviewed and returned in digital format as PDF documents. Modules can take up to 1 month from submission to be reviewed and returned to you. We will return your module as an e-mail attachment. Each module includes an Evaluation Sheet at the end of the pdf. The module’s page on the student portal also includes a link to a fillable online module evaluation sheet. Please take the time to fill out the module evaluation sheet and return it to us for each module, it helps us to improve our course work.

Please follow these formatting guidelines when submitting modules:

* Your first initial and last name in title of PDF, along with name of module. Example: “ERyanFirstStage.pdf”
* Title of module on the document’s front page
* Your name on the document’s front page
* Provide the text of each question, followed by a blank line and then your thoughtful answer (without the question, you have commentary without context)
* Blank line between the answer for a question and the next question: question, blank line, answer, blank line, question, blank line, answer…
* Please leave margin space for our comments!
* Don’t use script or cursive writing style text
* Font size not smaller than 12
* Credit sources of direct quotes

Completion Requirements and Feedback:

In order to complete this module for graduation purposes from National Midwifery Institute you must review all resources, complete the attached short answer questions for assessment, long answer questions for deeper reflection, and learning activities/projects, and submit them as detailed above. Upon return to you, your coursework may have feedback or ask for additional information or exploration on certain topics. Your work will be evaluated n the following Rubric (pasted below). You must achieve a minimum score of **7.5** in order to move on to your next module, though we encourage all students to strive for a **10.**

|  | **Level 1**  **(0 Points)**  **Not Adequate** | **Level 2**  **(1 Point) Developing Adequacy** | **Level 3**  **(1.5 points)**  **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 elements 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 definitions of key items  -Limited connections made between evidence, subtopics and clinical experience | -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 |  |
| **Evidence** | - No research evidence used | -Research not used  -Research not clearly connected to questions asked in module | -Research is present but limited -Research presented is weak or not relevant to communities served by midwives | -Research is abundant -Research is compelling and relevant to communities served by midwives |  |
| **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 |  |

Skills

Following are excerpts from the NMI forms for assessment of midwifery skills, which include all skills identified and required by NARM. Review the following skills and consider how they each relate to the content of this module. If you are currently working with a preceptor, take this opportunity to focus on these areas. During Supervised Primary Care you will formally evaluate these skills together using the NMI forms *Form 52 - Assessment of Student’s Midwifery Skills* and *Form 53 - Student Self-Assessment of Midwifery Skills.*

1. Midwifery Counseling, Education and Communication:

J. Provides education, counseling and/or referral, where appropriate for:

8. Complications

2. General Health care Skills:

D. Demonstrates the use of instruments and equipment including:

16. Needle and syringe

18. Single dose ampule

K. Administers the following pharmacologic (prescriptive) agents:

1. Lidocaine

2. Medical oxygen

3. Methergine

5. Pitocin ®

6. RhoGam

3. Maternal Health Assessment:

L. Establishes and follows emergency contingency plans for mother and/or newborn

4. Labor, Birth and Immediate Postpartum

D. Assesses the condition of, and provides care for the newborn by:

13. Administering eye prophylaxis

E. Assists in placental delivery and responds to blood loss by:

6. Responding to a trickle bleed by:

a) Assessing the origin of the blood,

b) responding to uterine bleeding with:

1) nipple stimulation/breastfeeding,

2) fundal massage,

3) assessment of fundal height and uterine size,

4) non-allopathic treatments,

5) administration of medication,

6) expression of clots,

7) emptying the bladder,

8) assessment of vital signs,

7. Responding to postpartum hemorrhage with:

a) fundal massage,

b) external bimanual compression,

c) internal bimanual compression,

d) manual removal of clots,

e) administration of medication,

f) non-allopathic treatments,

g) maternal focus on stopping the bleeding:tightening the uterus, h) administration of oxygen,

i) administration of IV fluids or appropriate referral for IV fluids,

j) treatment for shock,

k) consulting and/or transferring,

l) activating emergency backup plan.

5. Postpartum

C. Provides contraceptive education and counseling

6. Well-Women Care

F. Assesses client's family planning history and needs: counsels/prescribes

Introductory and Further Thoughts:

*Scope of practice for midwives in a variety of states/provinces/areas/jurisdictions may or may not provide for midwives to carry, administer, or prescribe medications. They also may or may not make allowances for midwives to administer medications orally, sublingually, by injection, or by IV. While these may not be in scope in your area, we know many midwives may not exclusively work in one area their entire career and we expect all students to demonstrate basic pharmacological knowledge*

**Pharmacology For Midwives**

National Midwifery Institute, Inc.

Study Group Coursework

*Short Answer Questions*

Short Answer Questions:

**Overall Questions about Medications**

1. List the medications appropriate to out-of-hospital midwifery care, indicate the application for each, and how each are administered.

2. Describe the following classifications of FDA drug warning labels:

1. Class A
2. Class B
3. Class C
4. Class D
5. Class X
6. How do you determine if a drug is Class A, B, C, or D?

3. In determining the need for any particular intervention in birth, including medication administration, what does the acronym B.R.A.I.N. stand for and how can it be used with clients?

5. Describe how to administer medications by the following routes:

1. intravenous (IV)
2. intramuscular (IM)
3. subcutaneous
4. oral (PO)
5. sublingual (SL)
6. buccal
7. vaginal (PV)
8. rectal

6. Translate the following short-hand terminology:

1. bid
2. tid
3. qid
4. q2h

7. When/Why is it critical to check the name and date of a medication?

8. What size needle is used for the following applications:

1. maternal IM injection
2. newborn IM injection

9. Why is it critical that you pull back on the syringe plunger prior to injecting a medication IM?

10. Define the parenteral route of medication administration.

11. What are systemic medications?

12. Describe the cardiopulmonary circulatory pattern.

13. Give instructions for opening a glass ampule (vial).

14. When administering medications, how do you chart your administration? Do you record administration site, route, medication lot #, expiration?

15. What resource(s)/reference(s) do you personally utilize when discussing or recommending over-the-counter medications with clients?

16. How is a C/S (culture/sensitivity study) used to prescribe medication?

17. Describe the administration of an epi-pen (epinephrine). Why is it important to always carry an epi-pen?

18. Describe common symptoms of an allergic reaction, and when diphenhydramine or epinephrine would be indicated.

19. How quickly does an allergic reaction usually manifest? How long does it take diphenhydramine or epinephrine to be effective?

20. Which drugs may a client be allergic to?

**Medications used in Pregnancy**

21. How do you know if a drug is safe for use in pregnancy?

22. For each of the following conditions (numbered below), answer the following:

1. what common *medications* can be used to treat this?
2. are these common medications safe in pregnancy?
3. what is the classification of these drugs in pregnancy?
4. how is this drug absorbed in the body? does it cross the placental barrier?
5. what common side effects may you see during its use?
6. what reactions might you see that tell you to discontinue its use?

you may also reflect on any personal or professional experience working with these medications.

1. Vaginal yeast infections
2. Headaches
3. Cold and Flu
4. Cough
5. Diarrhea

23. What is the medical/pharmacological treatment for herpes? When does this start in pregnancy?

24. How is magnesium sulfate used in pregnancy? Under what circumstances? How is it administered?

25. Why would antibiotics be prescribed in pregnancy? How do you know if an antibiotic is safe in pregnancy?

26. Discuss antiretroviral (ARV) therapy in pregnancy.

1. what are safe ARV drug regimens for pregnant HIV-infected individuals?
2. how does ARV therapy reduce mother(parent)-to-child transmission?
3. what are the risks of ARV to baby?

27. In some cases, even though a drug may be known to pass through the placenta, and this exposure may be less than optimal for babies, the benefits to your client outweigh the risks to baby. How do you counsel clients in these circumstances?

28. Discuss SSRI use in pregnancy. What common SSRIs are used in pregnancy? What is their safety during pregnancy? Are there any risk to the newborn at birth?

**Medications used in Labor**

29. Which pharmacological options do we have for halting labor? Why would we want to halt labor?

30. Why might antibiotics be administered during labor? Which antibiotics? How would you administer? On what schedule?

31. Describe the administration of nitrous oxide in labor. What is it used for?

32. Is nitrous oxide in labor an option for out-of-hospital midwives in your area? What are your reflections on it? How are you counseling clients on its administration?

33. Describe the administration of sterile water papules for pain relief in labor.

**Medications used in labor in the hospital**

34. The following medications (numbered below) are typically used for induction of labor in the hospital. For each medication, describe:

1. how it is administered
2. how it works in the body on a cellular level
3. what doses are commonly used
4. common side effects or risks with taking the medication
5. how it can be stopped/removed if experiencing poor side effects

also reflect on any personal or professional experience with these medications.

1. cervidil or other cervical ripening agents
2. Pitocin
3. Misoprostol

35. Describe how Pitocin is used to augment labour contractions.

36. The following medications (or medication types) (numbered below) may be used for pain relief in labour in a hospital. For each medication, describe:

1. how it is administered
2. how it works in the body on a cellular level
3. how effective of pain relief does it typically provide?
4. is there a common dilation window at which it can/cannot be administered?
5. common side effects or risks with taking the medication
6. how it can be stopped/removed if experiencing poor side effects

also reflect on any personal or professional experience with these medications.

1. morphine
2. narcotic analgesics
3. epidural analgesia
4. spinal analgesia

37. Under what circumstances might steroids be given in pregnancy or in labour?

**IV Administration**

38. Under what circumstances in pregnancy, labor, and postpartum would you administer an IV?

39. List the supplies needed for IV administration.

40. List step-by-step how you start an IV.

41. Describe the process of osmosis.

42. Describe the solute level of an isotonic IV solution.

43. What IV solution is appropriate for out-of-hospital use in midwifery care?

44. Describe what happens with the erroneous application of a hypotonic IV solution. Describe what happens with the erroneous application of a hypertonic IV solution.

45. What is an air embolism? What are the symptoms of an air embolism? How do you respond to symptoms of an air embolism?

46. In the context of a hospital birth, what reasons are given to justify routine IV administration?

47. In the context of a hospital birth, what circumstances necessitate an IV?

**Medications used Postpartum for your Client**

48. When managing a postpartum hemorrhage, what are your pharmacological options or tools for treatment? Which do you go to first? Which second? Third? Which can be used to help expel the placenta and which must be used once the placenta is out?

49.When would we administer Lidocaine? In what percentage?

50. What may a newly postpartum client take to help ease after pains?

51. What pharmacological recommendations do you have for infection postpartum? How does your client access these? Which are safe for breastfeeding/chestfeeding?

52. Discuss Rhogam and Rhogam administration.

1. why is Rhogam administered?
2. how is Rhogam stored?
3. how is Rhogam packaged?
4. how is it administered, and when?
5. Why might a client decline Rhogam? How do you counsel clients about declining Rhogam?

53. What must you consider when informing a breastfeeding/chestfeeding client of their medication options?

54. What are the Lactation Drug Risk Categories?

**Medications used Postpartum for a baby**

55. Discuss Vitamin K and Vitamin K administration.

1. why do we administer Vitamin K?
2. what are the routes of administration for Vitamin K?
3. what is the proper dosage for the different routes of Vitamin K administration?
4. why do some clients decline Vitamin K administration?

56. Discuss newborn ophthalmic ointment.

1. what is the application of newborn ophthalmic medication intended to prevent?
2. how effective is it at preventing what it’s intended to prevent?
3. how is it administered? in what dosage?
4. why do some clients decline newborn ophthalmic ointment?

57. Discuss the microbiome and how it relates to newborn gut health.

1. describe the microbiome as you understand it.
2. what may your client’s newborn develop if your client is taking antibiotics?
3. what effect do antibiotics and other medications in labor and postpartum have on newborn gut health?

58. What is the recommended immunization schedule for infants in your country?

59. What is the medical rationale for childhood immunizations?

60. What are the current arguments for alternatives to the medically recommended immunization schedule for infants?

Continued…..

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Study Group Coursework

*Projects/Learning Activities*

Projects(send completed projects with the rest of your course work for this module)

(number continued from previous section).

61. Read and consider the entries in a drug guide for all the medications that you listed in above questions. What information did you find surprising?

62. Obtain the IV equipment/supplies necessary for IV administration. Practice the set-up procedure, aseptic technique and “venipuncture” on a banana or stuffed glove. Time drip rates commonly used in pregnancy and labor.

63. Obtain a copy of the midwifery license law and rules & regs for midwifery practice in your state. What are the legal requirements and limitations of the midwifery license regarding the use of medications and IV administration in your state?

How does this compare with the national certification, NARM CPM?

64. Draft practice guidelines for the use of medications in your own practice. Refer to the medications listed above. Submit this draft and include it later in your Practice Guidelines projects (in the Charting and Practice Guidelines Module.)

65. Draft practice guidelines for the use of IV fluids in your own practice. If you do not administer IV fluids, make reference to informed consent, indications for the need for IV, charting and your transport plan. Submit this draft and include it later in your Practice Guidelines projects (in the Charting and Practice Guidelines Module.)

66. Draft practice guidelines for the screening of ABO and RH factor in your practice, and your administration of Rhogam. Include information on your informed choice conversations, screening of partners where applicable, and rescreening in pregnancy and postpartum. Submit this draft and include it later in your Practice Guidelines projects (in the Charting and Practice Guidelines Module.)

67. Make yourself a chart, cheat sheet, index cards, or some other quick reference for all the drugs you may carry with you in your jurisdiction. Include drug and brand name, dosage, administration, common side effects, any particular considerations, and any other simultaneous needed actions. Consider carrying this with you and your medications always. Consider how you will regularly review and update this information, and how you will review it with any assistants, etc.