Breastfeeding Curriculum For Undergraduate Health Professionals

2009
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May 15th, 2009

Dear Faculty:

The Ontario Public Health Association’s (OPHA) Breastfeeding Promotion Workgroup would like to take this opportunity to request your assistance in its efforts to positively impact the attitudes and improve the lactation competencies of the future health care professionals everywhere. The OPHA is a voluntary provincial organization comprised of public health professionals dedicated to providing leadership on issues affecting public health. As part of this effort, the Breastfeeding Workgroup has a keen interest in improving the health and well-being of women and children in the province of Ontario through the protection, promotion and support of breastfeeding.

Compelling advantages of breastfeeding for infants, mothers, families and society has been extensively researched and documented. Despite the many benefits of breastfeeding—health, nutritional, immunologic, developmental, psychological, social, economic— rates of initiation and duration fall far short of national public health goals. The information received from health care providers is one of the many factors that influence a woman’s decision to breastfeed or continue breastfeeding. Yet, research on the breastfeeding knowledge of health professionals, including nurses, physicians, midwives, dietitians, and pharmacists, demonstrates that many do not have the information they need to effectively support and assist mothers in this important function. “An important reason for this lack of knowledge is that schools of medicine, nursing, and nutrition are not integrating lactation management education into their curricula.” Health professionals are likely to encounter a breastfeeding woman and or her infant regardless of the specialty they ultimately choose. Consequently, in recognition of the importance of your role in setting the curriculum for our society’s future health care professionals, the OPHA Breastfeeding Workgroup would like to encourage and assist you in incorporating breastfeeding education in your programs. As part of this effort, the OPHA has compiled the attached modules.
By incorporating this material you will be facilitating the promotion of breastfeeding, enhancing the education of professionals who are knowledgeable and skilled regarding breastfeeding, and preparing them to give evidence-based, accurate, and consistent information regarding breastfeeding to future childbearing families.

The modules contain suggested information for students in all the health professions. Specific activities can be modified to fit to the cultural context and needs of different communities. Also, some students, e.g. medicine and nursing, will require additional information supplemented by hands on experience with breastfeeding. For these students, the theoretical base should be enhanced by a structured clinical experience such as bedside rounds or placement in a breastfeeding clinic so that students can apply their new knowledge to a realistic setting.

The clinical instructor should be able to assist the student in performing the breastfeeding assessment and problem solving steps. Depending on the time you have allotted for breastfeeding education, you may wish to adapt the document to suit your needs and the needs of your students.

You may choose, for example, to create a self-learning package for your students that incorporates the teaching/learning strategies of your choice from the various modules. To do this electronically, simply cut and paste the parts of the curriculum you would like to incorporate into your own file and have the students use their assigned course text as one of their resources.

The OPHA Breastfeeding Workgroup wishes you success and commends you in your efforts to promote and support breastfeeding. Please feel free to contact us if you find this curriculum useful, if you would like to propose other outlets for the information, or if you have suggestions for improving its usefulness or relevance to your needs or potentially those of your colleagues.

Please contact:
OPHA Breastfeeding Workgroup Chair
Anne Smith, BScN, IBCLC
Public Health Nurse,
North Bay Parry Sound District Health Unit,
(705)-474-1400 ext 2356 email: smithan@nbdhu.on.ca

Sincerely,
Carol Timmings
President
Online Breastfeeding Courses:
In addition to the modules provided, there are a variety of online breastfeeding courses that you may wish your students to access. For schools of nursing, the RNAO has developed a self-learning package titled ‘Breastfeeding: fundamental concepts” based on the RNAO Breastfeeding Best Practice Guideline. This document is available in PDF format from the following web address: http://www.rnao.org/Storage/15/949_Self_Learning_Package_Breastfeeding_.pdf. For those in medicine, The University of British Columbia Department of Family Practice has put together a self-directed course aimed at prevention, early detection and management of common breastfeeding problems, available at: http://www.breastfeedingclinic.com/bfdvd/.

Additional Curriculum Development Resources:
Also, to assist you in lesson planning, we have included a link to Wellstart International’s list of Curriculum Development Resources for Health Care Provider Educators© (http://www.wellstart.org/resources.html), as well as, a link to breastfeeding expert, Dr. Jack Newman’s website which contains a lot of useful information for the health professional (www.drjacknewman.com).

Module 1: Anatomy and Physiology of Lactation

1. Lesson Plan Information

   Topic: Anatomy and Physiology of Lactation

2. Expectation(s)

   Following completion of this lesson, the learner will understand the process of lactation.

3. Objective(s):

   Students should be able to:
   1. Identify the parts of the breast involved in lactation.
   2. Describe the neurophysiologic and hormonal influences involved in milk production and milk ejection.

4. Resources

   - lecture outline
   - photocopied worksheet for labeling the anatomy of the breast
   - a balloon or condom filled with air

5. Content/Topics

   Infant Oral Anatomy and Development
   Breast Anatomy
   Breast Changes in Pregnancy
   Hormonal Influences
   Milk Production
   Biochemistry of Human Milk

6. Teaching/Learning Strategies

   1. Lecture students on the anatomy and physiology of the breast.

   2. Have students complete a worksheet labeling the anatomy of the breast.

   3. Fill a balloon with air and draw the following on its surface: alveoli, ducts, a nipple and areola. Use this balloon as a demonstration model of the breast to explain the pathways of the milk through the anatomical structures. If you would rather not use a balloon, but would prefer a cloth breast model, these can be purchased through Cascade Healthcare Products at the following address: [http://www.1cascade.com/ProductInfo.aspx?productid=3062](http://www.1cascade.com/ProductInfo.aspx?productid=3062).

   4. a) Have students identify factors, from an anatomical perspective, which could interfere with
lactation.

b) Have students identify associated interventions to promote successful lactation. To assist with this activity, a collection of breast slides that show many sizes, different areolas and nipples are available from Geddes Productions at the following address: [http://www.geddesproduction.com/breast-feeding-slides.php](http://www.geddesproduction.com/breast-feeding-slides.php). Have students refer to Donna T. Geddes’ article titled “Inside the lactating breast: The latest anatomy and research” which appeared in the Journal of Midwifery & Women’s Health and is accessible on the following website: [www.breastbabyproducts.com/pdf/11_inside_lactating_breast.pdf](http://www.breastbabyproducts.com/pdf/11_inside_lactating_breast.pdf).

5. Discuss with students, from a physiological perspective, how milk production increases in response to frequent suckling.

6. Have students complete a project on the composition of breastmilk and the function of each component.
### Module 2: The Mother-Infant Breastfeeding Dyad

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<thead>
<tr>
<th>1. Lesson Plan Information</th>
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<tbody>
<tr>
<td><strong>Topic:</strong> Breastfeeding Assessment and Counselling</td>
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<tr>
<th>2. Expectation(s)</th>
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<tbody>
<tr>
<td>Following completion of this lesson, the learner will be able to assess infant feeding at the breast and provide effective and supportive counselling regarding breastfeeding.</td>
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<tr>
<th>3. Objective(s):</th>
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<tr>
<td>Students should be able to:</td>
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<tr>
<td>1. Assess the baby’s positioning, latch and suck.</td>
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<td>2. Provide supportive counselling regarding positioning and latching as well as hand expression.</td>
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<th>4. Resources</th>
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<tr>
<td>-access to the internet to view videos</td>
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<td>-projector</td>
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<th>5. Content/Topics</th>
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<tbody>
<tr>
<td>The Prenatal Period – include informed decision making</td>
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<tr>
<td>The Postpartum Period – include positioning, latching and hand expression of breastmilk; breastfeeding the first week and beyond</td>
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<tr>
<td>Psychologic Impact of Breastfeeding</td>
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<tr>
<td>Management of the Mother-Infant Dyad</td>
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<tr>
<td>Assessment and Counselling Skills</td>
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<tr>
<th>6. Teaching/Learning Strategies</th>
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<tr>
<td>1. Ask students to discuss how they would react if they were a mother hearing these statements:</td>
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<td>“You need your rest. I'll take your baby to the nursery for you.”</td>
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<tr>
<td>“Are you going to try to breastfeed?”</td>
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<tr>
<td>“Do you have any milk yet?”</td>
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2. Have students role-play a situation in which they are the health professional entering a room to find a mother crying because her baby is not feeding at the breast. What should you do? Highlight how important positive words and gestures can be to a fledgling breastfeeding dyad.

3. Have students view Christina Smillie’s “Baby-led breastfeeding: The mother-baby dance” video. Following viewing, have students discuss how they felt about the video. The video is available from Geddes Productions and the following address: http://www.geddesproduction.com/breast-feeding-baby-led.php.

4. Have students view the following video on the hand expression of breastmilk http://newborns.stanford.edu/Breastfeeding/HandExpression.html so that they may be able to show mothers how to breastfeed and maintain lactation, even if they should be separated from their infants. All breastfeeding mothers should be offered the opportunity to learn how to hand express their breastmilk and given information about its potential importance in the prevention and management of breastfeeding challenges such as engorgement and mastitis.

5. Show students video clips available from Dr. Jack Newman’s website depicting good latch and positioning (http://www.drjacknewman.com/video-clips.asp). Also, a variety of teaching aids related to positioning and latch are available through Geddes Productions at the following address: http://www.geddesproduction.com/teaching-breast-feeding.php.

6. Have students identify and describe the supports and services available locally, provincially and nationally for breastfeeding.

7. Provide students with a clinical observation opportunity with a mother-infant breastfeeding dyad in the early-postpartum period.
# Module 3: Engorgement

## 1. Lesson Plan Information

**Topic:** Engorgement

## 2. Expectation(s)

Following completion of this lesson, the learner will be able to understand the processes that may lead to breast fullness and/or engorgement and how to prevent or treat engorgement.

## 3. Objective(s):

Students should be able to:
1. Describe the symptoms of engorgement and differentiate between engorgement and breast fullness.
2. Develop an awareness of preventive strategies and treatment measures for engorgement.

## 4. Resources

- a condom filled with air
- case studies

## 5. Content/Topics

Fullness versus Engorgement  
Prevention and Treatment Strategies

## 6. Teaching/Learning Strategies

1. Use a condom filled with air to simulate a full breast. Squeeze the tied end of the condom to simulate an engorged breast (the nipple should nearly disappear). Point out the distinguishing features of both the full and the engorged breast. Discuss the application of heat vs. cold, hand expression, reverse pressure softening and the use of cabbage leaves.

2. Discuss the importance of prevention in managing engorgement, including early initiation of breastfeeding, frequent and unrestricted breastfeeding, effective removal of milk from the breast, correct latching and positioning practices, and not supplementing unless medically indicated.

3. Provide students with the following case studies and have them problem-solve the situations and provide the new mothers with empathetic and professional support and accurate information.

   A mother calls for advice about her 3 day old baby. He had latched on well during feedings in the hospital and his first day at home; however, he is now refusing to latch. She can feel that her milk has come in, and her breasts are swollen and tender. She is quite uncomfortable.
A mother calls for advice about her 2 month old baby who you can hear screaming in the background. She has left the baby for the first time with a sitter, who gave the baby 3 ounces of formula. The mother has not nursed in six hours. Her breasts are hard and very painful but the baby will not nurse. The mother sounds very upset and tearful.

4. A clinical experience would be an ideal way to facilitate an understanding of fullness versus engorgement, and various prevention and treatment strategies.
Module 4: Sore Nipples

1. Lesson Plan Information

**Topic:** Sore Nipples

2. Expectation(s)

Following completion of this lesson, the learner should be able to identify the causes of sore nipples, which may develop during the course of breastfeeding, and to discuss the various treatments for sore nipples.

3. Objective(s):

Students should be able to:
1. Describe the common causes of sore nipples.
2. Promote the prevention of sore nipples by providing correct information, assistance and anticipatory guidance to new mothers who are breastfeeding.
3. Describe the signs/symptoms of sore nipples.
4. Discuss the treatment options for sore nipples.

4. Resources

- case study
- Academy of Breastfeeding Medicine Protocol #11 - Neonatal Ankyloglossia

5. Content/Topics

- Signs and Symptoms
- Assessment of the Mother and Baby
- Prevention and Treatment Strategies

6. Teaching/Learning Strategies

1. Have students describe the most common causes of sore or cracked nipples and how one can work with the mother-infant dyad to treat this condition.

2. Have students describe ankyloglossia and how this condition in the infant can cause sore, cracked nipples for the mother. How is the condition treated? (Have students refer to the Academy of Breastfeeding Medicine’s Protocol #11 related to evaluation and treatment of the infant with ankyloglossia available at: [http://www.bfmed.org/Resources/Protocols.aspx](http://www.bfmed.org/Resources/Protocols.aspx))

3. Have students describe when treatment with an antibiotic may be necessary.
4. Have students develop educational materials regarding prevention of sore nipples that can be provided to expectant mothers.

5. Have students describe when treatment with an antifungal may be necessary.

6. Provide students with the following case study and have them work through it individually or in small groups:

   Tracey presents to the clinic with her 3 week old baby boy, Marco. She states that her nipples are itchy and painful and she has severe pain that last throughout feedings and afterwards as well. Breastfeeding had been going well previously. What is the problem and what should be the treatment plan?

7. Have students create a handout for mothers with suggestions for breastfeeding with sore nipples.
Module 5: Blocked Milk Ducts and Mastitis

1. **Lesson Plan Information**

   **Topics:** Blocked Milk Ducts and Mastitis

2. **Expectation(s)**

   Following completion of this lesson, the learner should be able to describe the signs and symptoms of blocked milk ducts and mastitis as well as how to treat blocked milk ducts and mastitis.

3. **Objective(s):**

   Students should be able to:
   1. Describe the signs and symptoms of blocked milk ducts and mastitis.
   2. Differentiate between the two conditions.
   3. Identify the possible causes of blocked milk ducts and mastitis.
   4. Describe the treatment of each of the above.

4. **Resources**

   - cloth breast model
   - doll
   - case studies

5. **Content/Topics**

   - Signs and Symptoms
   - Observation and Assessment of the Mother and Baby
   - Possible Contributing Factors or Causes
   - Treatment Strategies

6. **Teaching/Learning Strategies**

   1. Use a cloth breast model to initiate discussion of the signs and symptoms and possible contributing factors of blocked milk ducts and mastitis. A cloth breast model is available through Cascade Healthcare Products at: [http://www.1cascade.com/ProductInfo.aspx?productid=3062](http://www.1cascade.com/ProductInfo.aspx?productid=3062). If the cloth breast model is used the breast lump can be palpated.

   2. Have students develop a handout for mothers about plugged or blocked ducts and mastitis, including definitions of both conditions as well as treatment. Be sure students include tips for mothers to do prior to, during and between feedings when dealing with a blocked duct.
3. Model the variations in nursing positions using a doll to illustrate the way that positioning can affect duct drainage.

4. Initiate a class discussion to review the signs and symptoms of each condition and a treatment plan for each.

5. Provide students with the following case study and have them work through a plan of care individually or in small groups. Encourage students to refer to the Academy of Breastfeeding Medicine’s mastitis protocol available at: http://www.bfmed.org/Resources/Protocols.aspx.

A breastfed baby comes in for his 2 month check-up and has gained four pounds since birth. He began to sleep for a 5 hour stretch during the night a few days ago and mom has been very engorged when he awakens in the morning. One breast does not get well emptied, and she noted a tender lump yesterday. The mother also reports she feels like she has the "flu" today and has a fever. Describe the course of action you should take?
## Module 6: Benefits of Breastfeeding/Risks of Artificial Feeding

### 1. Lesson Plan Information

**Topics:** Benefits of Breastfeeding and Risks of Artificial Feeding

### 2. Expectation(s)

Following completion of this lesson, the learner should have a good understanding of the differences between breastfeeding and artificial feeding of the infant and the possible short- and long-term health consequences of these differences.

### 3. Objective(s):

Students should be able to:
1. Describe the differences in the biochemical makeup of breast milk and artificial milks.
2. Describe the specific host resistance factors present in breast milk and absent from artificial milks.
3. Describe the health risks of artificial feeding for the child, the mother and society.
4. Identify the physical and psychological implications of counselling a mother to stop breastfeeding or not start breastfeeding.
5. Describe the medical reasons for utilizing breastmilk substitutes.

### 4. Resources

- Risks of Formula Feeding: A Brief Annotated Bibliography  
  (http://www.infactcanada.ca/mall/risks-formula-feeding.asp)
- Global Strategy for Infant and Young Child Feeding  
  (http://www.paho.org/english/ad/fch/ca/GSIYCF_infantfeeding_eng.pdf)
- The International Code of Marketing of Breastmilk Substitutes  
  (http://www.who.int/nutrition/publications/code_english.pdf)
- Breastfeeding and Maternal and Infant Health Outcomes in Developed Countries  

### 5. Content/Topics

- Health Risks of Formula Feeding
- Breastfeeding and Food Security
- The International Code of Marketing of Breastmilk Substitutes and Relevant WHA Resolutions

### 6. Teaching/Learning Strategies

2. Have students identify and critically analyze the strength of evidence for one of the risks of artificial feeding for the infant or mother.

3. Have students research a project with a “breastfeeding-friendly” approach - e.g. calculate the decrease in hospital bed utilization and cancer treatment if breast cancer rates dropped by one percent as the result of an increase in the number of mothers breastfeeding exclusively for 6 months. (This would be a large project requiring considerable time and research.)

4. Have students research the existence of human milk banks. Have students find out under what conditions, and for what population of infants the use of banked human milk would be crucial to infant morbidity/mortality.

5. Have the students write a research paper on how and why the Global Strategy for Infant and Young Child Feeding was developed. Have them include key recommendations, implementation strategies, as well as the obligations and responsibilities of governments, health professional bodies, non-governmental organizations, community groups and infant food industries (this should include a section related to the International Code of Marketing of Breastmilk Substitutes). Also, have students comment on Canada’s compliance and progress with the Global Strategy.
## Module 7: Breastfeeding and Drugs

### 1. Lesson Plan Information

**Topic:** Medications and Breastfeeding

### 2. Expectation(s)

Following completion of this lesson, the learner should be aware of the pieces of information that are necessary to determine the safety of a drug taken by a woman who is breastfeeding.

### 3. Objective(s):

Students should know:
1. Where to find accurate information on the use of medications by breastfeeding women.
2. The recommendations regarding the use of illicit drugs (including alcohol and smoking) while breastfeeding and should be able to apply this knowledge in their counselling of pregnant women.

### 4. Resources

- case studies

### 5. Content/Topics

Prescription and Over-the-Counter Medications
Contraceptives
Herbs
Caffeine
Illicit Drugs
Smoking
Alcohol
Medication Transference and the Effect on Infant
Motherisk Program at the Hospital for Sick Children ([http://www.motherisk.org/women/index.jsp](http://www.motherisk.org/women/index.jsp))

### 6. Teaching/Learning Strategies

1. Direct students to research and write a report on five commonly used drugs for their effects if any on breastfeeding/breastmilk.

2. Instruct students to describe two circumstances where temporary use of breastmilk from a human milk bank or if unavailable, artificial baby milk would be indicated. Direct students to write a plan of care for the mother to maintain her milk supply.
3. Have students develop a handout for breastfeeding mothers with information on the affects of nicotine, caffeine and alcohol on breastmilk.

4. Have students write a report about galactogogues and the indications for their use. Refer students to the Academy of Breastfeeding Medicine’s protocol on this topic available at the following website: http://www.bfmed.org/Resources/Protocols.aspx.

5. Provide students with the following case studies and have them work through them individually or in small groups.

   The mother of a 10-day-old infant presents at the ‘well-baby clinic.’ When asked about feeding, she states she had been breastfeeding until two days ago when the physician in the urgent care center told her to stop. She had a bad sore throat, fever and swollen glands, is allergic to penicillin, and erythromycin makes her vomit. The doctor gave her a "green pill" to take 4 times a day. The doctor told her the medicine wasn't "good for the baby". What concerns do you have with this situation?

   A mother is in for her 6 week post-partum check-up. She is doing well and breastfeeding her baby. She plans to breast feed for at least six months. She was using condoms and foam when she got pregnant with this baby and does not want another pregnancy now. Name at least three forms of contraception that she can use and explain why these choices are preferred for the breastfeeding mother.
OPHA Breastfeeding Curriculum
Module 8: Breastfeeding as a Community Issue

1. **Lesson Plan Information**

   **Topic:** Breastfeeding Promotion and Advocacy

2. **Expectation(s)**

   Following completion of this lesson, the learner should have a good understanding of activities to promote, support, and protect breastfeeding.

3. **Objective(s):**

   Students should be able to:
   1. Apply the population health promotion framework to the promotion of breastfeeding at the community level.
   2. Identify specific strategies to promote, support, and protect breastfeeding at the community level.
   3. Describe current issues/challenges in promoting breastfeeding at the community level.

4. **Resources**


5. **Content/Topics**

   Breastfeeding Promotion
   The Baby-Friendly™ Initiative
   The OPHA Breastfeeding Promotion Workgroup
   The Breastfeeding Committee for Canada

6. **Teaching/Learning Strategies**

   1. Lecture students on the Baby Friendly™ Initiative (BFI) as a population health approach. Be sure to incorporate a discussion BFI’s relationship to the determinants of health.

   2. Have students describe actions they could take in assisting a mother to deal with the following issue: A new mother calls and is very upset because she had been breastfeeding her baby in a local restaurant when the waitress asked that she not breastfeed her baby at the table and perhaps use the bathroom as other patrons had apparently voiced their discomfort with her breastfeeding.

   3. Have students write a letter to the editor of the local newspaper advocating for the need for increased community support and initiatives that promote breastfeeding.
4. Have students discuss the following: One of the criticisms voiced against the International Code of Marketing of Breastmilk Substitutes is that the legislation it contains may interfere with women's freedom to choose an infant feeding method.

5. Have students develop a policy toolkit that can be used by workplaces to support breastfeeding mothers and ultimately increase breastfeeding duration rates. Be sure they include the following topic areas: corporate policies, educating employees, designated private spaces, flexible scheduling and various job options for mothers returning to work.

6. Have students develop a social marketing campaign for breastfeeding, following the major principles of commercial advertising aimed at normalizing breastfeeding and therefore increasing both initiation and duration rates.

7. Have students investigate strategies, approaches, initiatives and resources at the national, provincial and community level to protect, promote, and support breastfeeding (e.g. breastfeeding coalitions, workplace policies, breastfeeding protocols, breastfeeding support groups). For background information on effective breastfeeding promotion strategies, refer to What works in breastfeeding promotion? by Jane A. Scott, published in The Journal of the Royal Society for the Promotion of Health, September 2005, volume 125, issue number 5, pages 203-204.