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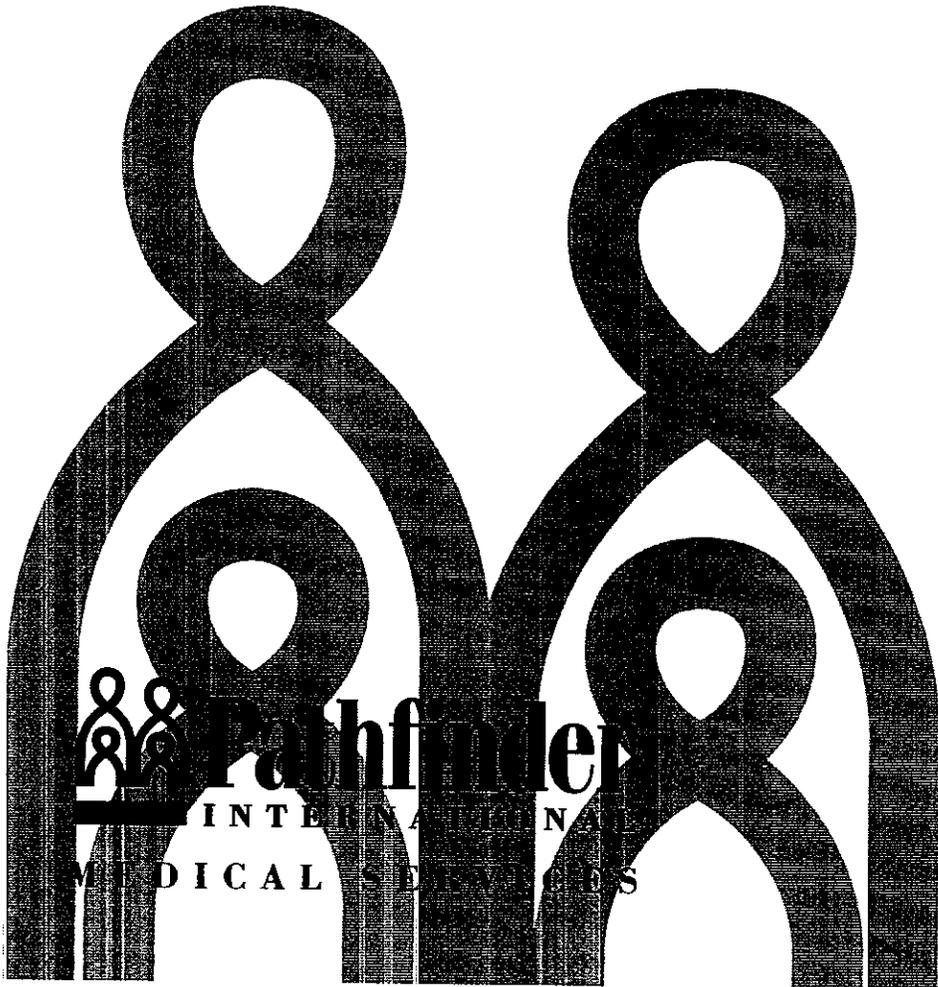
A comprehensive training course

8

Lactational Amenorrhea and Breastfeeding Support



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PN-ACT-649

Comprehensive
Reproductive Health and Family Planning
Training Curriculum

**MODULE 8:
BREASTFEEDING
AND THE
LACTATIONAL
AMENORRHEA
METHOD (LAM)**

Betty Farrell
Medical Services
Pathfinder International
December 1997

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Medical Services Division
Pathfinder International
9 Galen Street, Suite 217
Watertown, MA 02172

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The entire comprehensive training curriculum was used to train service providers in 1995 under this cooperative project which included Pathfinder International, IPAS, AVSC International, and the Vietnamese Ministry of Health. Individual modules were used to train service providers in: Nigeria (DMPA); Azerbaijan, Ethiopia, Kenya, Peru, Tanzania, and Uganda (Infection Prevention); Azerbaijan, Kazakstan, and Peru (Counseling); and Jordan (PoPs & CoCs; IUDs). Feedback from these trainings has been incorporated into the training curriculum to improve its content, training methodologies, and ease of use.

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NOTES TO THE TRAINER

PURPOSE

This training manual is designed for use as part of the comprehensive family planning and reproductive health training of service providers. It is designed to be used to train physicians, nurses, and midwives.

This manual is designed to actively involve the participants in the learning process. Sessions include simulation skills practice, discussions, and clinical practice, using objective knowledge, attitude, and skills checklists.

DESIGN

The training curriculum consists of 15 modules:

1. Introduction/Overview
2. Infection Prevention
3. Counseling
4. Combined Oral Contraceptives and Progestin-only Pills
5. Emergency Contraceptive Pills
6. DMPA Injectable Contraceptives
7. Intrauterine Devices
8. Breastfeeding and the Lactational Amenorrhea Method
9. Condoms and Spermicides
10. Voluntary Surgical Contraception
11. MVA for Treatment of Incomplete Abortion
12. Reproductive Tract Infections
13. Postpartum/Postabortion Contraception
14. Training of Trainers
15. Quality of Care

Included in each module is a set of knowledge assessment questions, skills checklists, trainer resources, participant materials, training evaluation tools, and a bibliography.

SUGGESTIONS FOR USE

- The modules are designed to provide flexibility in planning, conducting, and evaluating the training course.
- The curriculum is designed to allow trainers to formulate their own training schedule, based on results from training needs assessments.
- The modules can be used independently of each other.
- The modules can also be lengthened or shortened depending on the level of training and expertise of the participants.
- In order to foster changes in behavior, learning experiences have to be in the areas of knowledge, attitudes, and skills. In each module, the overall objective,

and general and specific objectives, are presented in terms of achievable changes in these three areas.

- Training references and resource materials for trainers and participants are identified.
- Each module is divided into a *Trainer's Module* and *Appendix* section.
- The *Trainer's Module* presents the information in two columns:
 1. *Content*, which contains the necessary technical information; and
 2. *Training/Learning Methods*, which contains the training methodology (lecture, role play, discussion, etc.) by which the information should be conveyed.
- The training design section includes the content to be covered and the training methodologies.
- The *Appendix* section contains:
 - Participant handouts
 - Transparencies
 - Pre & Post-tests (Participant Copy and Master Copy with Key)
 - Participant Evaluation Form
- The *Participant Handouts* are referred to in the *Training/Learning Methods* sections of the curriculum and include a number of different materials and exercises, ranging from recapitulations of the technical information from the *Content* of the module to role play descriptions, skills checklists, and case studies.
- The *Participant Handouts* should be photocopied for the trainees and distributed to them in a folder or binder to ensure that they are kept together as a technical resource after the training course has ended.
- Transparency masters have been prepared where called for in the text. These should be copied onto clear overhead sheets for display during the training sessions.
- The *Participant Evaluation* form should also be copied to receive the trainees' feedback in order to improve future training courses.

To ensure appropriate application of learning from the classroom setting to clinical practice, Clinical Practicum sessions are an important part of this training. For consistency in the philosophy of client's rights, the following should be shared with participants, in preparation for their clinical practicum experiences:

CLIENT'S RIGHTS DURING CLINICAL TRAINING

The rights of the client to privacy and confidentiality should be considered at all times during a clinical training course. When a client is undergoing a physical examination it should be carried out in an environment in which her/his right to bodily privacy is respected. When receiving counseling, undergoing a physical examination, or receiving surgical contraceptive services, the client should be informed about the role of each individual inside the room (e.g., service provider, individuals undergoing training, supervisors, instructors, researchers, etc.).

The client's permission must be obtained before having a clinician-in-training/ participant observe, assist with or perform any services. The client should understand that s/he has the right to refuse care from a clinician-in-training/ participant. Furthermore, a client's care should not be rescheduled or denied if s/he does not permit a clinician-in-training/participant to be present or provide services. In such cases, the clinical trainer or other staff member should perform the procedure. Finally, the clinical trainer should be present during any client contact in a training situation.

Clinical trainers must be discreet in how coaching and feedback are given during training with clients. Corrective feedback in a client situation should be limited to errors that could harm or cause discomfort to the client. Excessive negative feedback can create anxiety for both the client and clinician-in-training.

It can be difficult to maintain strict client confidentiality in a training situation when specific cases are used in learning exercises such as case studies and clinical conferences. Such discussions always should take place in a private area, out of hearing of other staff and clients, and be conducted without reference to the client by name (AVSC, "Tips for Trainers-8," September 1994; **NSV Trainer's Manual**).

DEMONSTRATION TECHNIQUE

The Five-Step Method of Demonstration and Return Demonstration is a training technique useful in the transfer of skills. The technique is used to make sure that participants become competent in certain skills. It can be used to develop skills in cleaning soiled instruments, high-level disinfection, IUD insertion, pill dispensing, performing a general physical examination, performing a breast or pelvic examination, etc. In short, it can be used for any skill which requires a demonstration. The following are the "five steps:"

1. **Overall Picture:** Provide participants with an overall picture of the skill you are helping them develop and a skills checklist. The overall picture should include why the skill is necessary, who needs to develop the skill, how the skill is to be performed, etc. Explain to the participants that these necessary skills are to be performed according to the steps in the skills checklist, on models in the classroom and practiced until participants become proficient in each skill and before they perform them in a clinical situation.

2. **Trainer Demonstration:** The trainer should demonstrate the skill while giving verbal instructions. If an anatomical model is used, a participant or co-trainer should sit at the head of the model and play the role of the client. The trainer should explain the procedure and talk to the role playing participant as s/he would to a real client.

3. **Trainer/Participant Talk-Through:** The trainer performs the procedure again while the participant verbally repeats the step-by-step procedure.

Note: *The trainer does **not** demonstrate the wrong procedure at any time. The remaining participants observe the learning participant and ask questions.*

4. **Participant Talk-Through:** The participant performs the procedure while verbalizing the step-by-step procedure. The trainer observes and listens, making corrections when necessary. Other participants in the group observe, listen, and ask questions.

5. **Guided Practice:** In this final step, participants are asked to form pairs. Each participant practices the demonstration with her/his partner. One partner performs the demonstration and talks through the procedure while the other partner observes and critiques using the skills checklist. The partners should exchange roles until both feel competent. When both partners feel competent, they should perform the procedure and talk-through for the trainer, who will assess their performance using the skills checklist.

DO'S AND DON'TS OF TRAINING

The following "do's and don'ts" should ALWAYS be kept in mind by the trainer during any learning session.

DO'S

- Do** maintain good eye contact
- Do** prepare in advance
- Do** involve participants
- Do** use visual aids
- Do** speak clearly
- Do** speak loud enough
- Do** encourage questions
- Do** recap at the end of each session
- Do** bridge one topic to the next
- Do** encourage participation
- Do** write clearly and boldly
- Do** summarize
- Do** use logical sequencing of topics
- Do** use good time management
- Do** K.I.S. (Keep It Simple)
- Do** give feedback
- Do** position visuals so everyone can see them
- Do** avoid distracting mannerisms and distractions in the room
- Do** be aware of the participants' body language
- Do** keep the group on focused on the task
- Do** provide clear instructions
- Do** check to see if your instructions are understood
- Do** evaluate as you go
- Do** be patient

DON'TS

- Don't** talk to the flip chart
- Don't** block the visual aids
- Don't** stand in one spot--move around the room
- Don't** ignore the participants' comments and feedback (verbal and non-verbal)
- Don't** read from curriculum
- Don't** shout at participants

TRAINER'S MODULE

UNIT 1: INTRODUCTION TO BREASTFEEDING

INTRODUCTION:

Breastfeeding is a natural resource that can make major contributions to both health and family planning goals. By informing health care workers of key information on breastfeeding and the Lactational Amenorrhea Method (LAM) of family planning, they can contribute positively to the health of mothers and children at their clinic.

UNIT TRAINING OBJECTIVE:

To orient reproductive health care providers to promote successful breastfeeding.

SPECIFIC LEARNING OBJECTIVES:

By the end of this unit, participants will be able to:

1. Explain the benefits of breastfeeding for the mother, the infant, the health care system, and the nation.
2. List the disadvantages of breastfeeding.
3. Share cultural and social practices which affect breastfeeding in their areas.
4. Identify anatomical structures of the breast, including their function.
5. Explain the physiology of lactation.
6. Discuss factors that influence lactation.
7. Discuss the role of health personnel in prenatal, intrapartal, and postpartum support for breastfeeding.
8. State the nutritional needs of lactating women.
9. Discuss the considerations for contraception in breastfeeding women.
10. Describe the management for breastfeeding conditions such as insufficient milk supply, sore or cracked nipples, breast engorgement, and mastitis.
11. Generate strategies for institutionalizing the support of optimal breastfeeding practices.

TRAINING/LEARNING METHODOLOGY:

- Discussion
- Lecturette
- Small group exercises
- Individual exercises
- Brainstorming
- Learning game
- Question and answer
- Case studies

MAJOR REFERENCES AND TRAINING MATERIALS:

- Burus A, Lovich R, Maxwell J, Shapiro K. *Where Women Have No Doctor: A Guide For Women*. Hesperian Foundation, 1997.
- King FS. *Helping Mother to Breast Feed*. African Medical and Research Foundation, 1993.
- Klein S. *A Book for Midwives: A Manual for Traditional Birth Attendants and Communiyt Midwives*. Hesperian Foundation, 1995.
- Labbok M. *Breastfeeding: Protecting a Natural Resource*. Georgetown University: Institute of Reproductive Health, 1990.
- Lawrence RA. *Breastfeeding: A Guide for the Medical Profession*. 4th ed. Mosby, 1994.

RESOURCE REQUIREMENTS:

- Flipchart or newsprint
- Pens
- Tape
- Slips of paper with individual exercise tasks
- Overhead projector
- Transparencies/pens

EVALUATION METHODS:

- Pre/Post-test
- Question and answer
- Participation in group discussions
- Performance of case studies
- Quality of group work

TIME REQUIRED: 8 1/2 hours

MATERIALS FOR TRAINERS TO PREPARE IN ADVANCE:

1. Transparencies on:
 - Unit Objectives (Transparency 1.1)
 - Anatomy of the Breast (Transparencies 1.2 and 1.3)
2. Participant Handouts
3. Copies of pre- and post-test for each participant

Unit 1: Introduction

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Introduction</p> <p>Breastfeeding is a natural resource that can make a major contribution to health and family planning goals. It is also very common to hear that "breastfeeding is natural," implying there is nothing special that the health care system needs to do. About half of new mothers may have no difficulties, but for the remainder this is usually not the case—especially for very young mothers and first-time mothers.</p> <p>Although breastfeeding has been seen as the safest and the best way to feed infants, health personnel (physicians, nurses, midwives) have demonstrated limited interest in breastfeeding and little experience in helping mothers successfully breastfeed when difficulties arise.</p> <p>Today, there is renewed interest in breastfeeding and promotion efforts have resulted in the inclusion of breastfeeding content into the training curriculum and clinical experiences of health professionals.</p> <p>Research into the multiplicity of benefits of breastfeeding has also resulted in confirming the contraceptive effect of certain patterns of breastfeeding. The Lactational Amenorrhea Method (LAM) covered later in this module is an effective family planning method that relies on breastfeeding. However, for LAM to work, mothers must be counseled on how to successfully breastfeed.</p>	<p>Introduction (30 min.)</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Display <i>Transparency 1.1: Unit Objectives</i>. • Discuss objectives with the participants (Px). • Administer the unit pre-test. • Upon review of responses, note objectives requiring specific attention. <p>(See <i>Px Handout 1.1</i>.)</p>

Specific Objective #1: Explain the benefits of breastfeeding for the mother, the infant, the health care system and the nation.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Benefits of Breastfeeding</p> <p><i>Mother</i></p> <ul style="list-style-type: none"> • Reduces hemorrhage postpartumly • Facilitates involution • Protects against ovarian and breast cancer • Offers contraceptive protection (LAM) • Enhances maternal-infant bonding • Reduces anxiety, stress, depression • Enhances positive self-image • Convenient form of infant nutrition • Economical form of infant nutrition • Hormones (prolactin, oxytocin) induces maternal behavior • Increases relaxation and interaction with infant <p><i>Infant</i></p> <ul style="list-style-type: none"> • Prevents hypothermia (low body temperature) • Supports growth and survival through strengthened maternal-infant bonding • Lower occurrences of infections (gastrointestinal, respiratory, otitis media) • Increases alertness; stronger arousal reactions • Infants tend to walk earlier • Breastmilk is easy to digest • Enhances brain development thus infants tend to be more intelligent • Lower occurrences of allergy • Lower occurrences of infant abandonment • Stimulates infant social interaction • Fosters a sense of security 	<p>Small Group Exercise (15 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Divide Px into four groups to list the benefits of breastfeeding to the mother, infant, health care system, and nation, respectively. • Remind the groups working on the mother and infant lists to consider both physical and psychosocial benefits. <p>Plenary (30 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Invite each group to present their list. • Correct information presented, as appropriate. • Elaborate or clarify information presented as appropriate. • Defer elaboration if content will be covered in subsequent objectives. • Allow for Px questions. • Note the quality of insight, accuracy of the content of each group's listing, and the content of their questions. <p>(See Px Handout 1.2.)</p>

Specific Objective #1: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p><i>Health Care System</i></p> <ul style="list-style-type: none"> • When mothers and infants stay together and breastfeed on demand, there are cost savings because there is no need for separate space, equipment for feeding and warming infants, and separate staff • Reduces cost associated with supplying breastmilk substitutes and drugs to prevent uterine atony • Reduces cost of hospitalization for diarrheal disease and other infections • Reduces costs in family planning programs where LAM is supported for the first six months postpartum <p><i>Nation</i></p> <ul style="list-style-type: none"> • Reduces foreign exchange by lessening demands for breastmilk substitutes, bottles, associated supplies • Reduces cumulative cost from health care sites in providing care for diarrheal disease and infections 	<p>Large Group Discussion (10 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Distribute <i>Px Handout 1.3: Comparison between Breastfeeding and Bottlefeeding</i> to Px and review content allowing for discussion of points on either side of the list. <p>(See <i>Px Handout 1.3.</i>)</p>

Specific Objective #2: List the disadvantages of breastfeeding.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Disadvantages of Breastfeeding</p> <p>Disadvantages to breastfeeding are those factors perceived by the mother as an inconvenience to her, since there are no known disadvantages for the normal infant.</p> <ul style="list-style-type: none"> • Breastfeeding an infant six to twelve times per day for several months may be considered overwhelming, limiting personal freedom and independence. • For some women, depending on the cultural setting, breastfeeding has been associated with feelings of shame, modesty, embarrassment, distaste, anxiety, and guilt. • Spouses may be jealous because they have no similar way to bring food and contentment to their infant. <p><i>When would breastfeeding not be recommended?</i></p> <ul style="list-style-type: none"> • Breast cancer: A mother with new diagnosis of breast cancer should not breastfeed her infant as it is more critical for her to have treatment immediately. • Hepatitis B: Transmission of hepatitis B via breastmilk has not been well documented, although breastmilk transmission is possible, studies have not confirmed transmission via this route. Newborns of hepatitis B-positive mothers who have received hepatitis B immune globulin and vaccine <i>may be breastfed.</i> • Hepatitis C (HVC): Because of hepatitis C's probable transmission into breastmilk, the high risk of chronic liver disease among its victims, and the absence of effective therapy, breastfeeding is not recommended when a mother has HVC. 	<p>Brainstorming (30 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Elicit from Px what they see as disadvantages to breastfeeding. • List on newsprint and elaborate/clarify as necessary. • Present the current information on recommendations for not breastfeeding. • Allow for Px's questions related to the presented situations. <p><i>(See Px Handout 1.4.)</i></p>

Specific Objective #2: Continued

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p><i>When would breastfeeding not be recommended? (cont.)</i></p> <ul style="list-style-type: none"> • HIV: HIV has been isolated from blood, semen, vaginal secretions, saliva, tears, cerebrospinal fluid, amniotic fluid, urine, and breastmilk. Only blood, semen, vaginal secretions, and <i>possibly</i> breastmilk have been implicated in person-to-person transmission. In countries where the risk of death in the first year is 50% from diarrhea and other diseases (not including AIDS), breastfeeding is still the feeding of choice. • Drug Abuse: Breastfeeding is not recommended in women who are intravenous drug abusers (IVDA). IVDA results in the infant receiving substantial amounts of drug through the milk and can cause infant death. Additionally, IVDA have high rates of incidence of hepatitis, HIV, and other infections that may be passed on through breastfeeding. 	

Specific Objective #3: Share cultural and social practices affecting breastfeeding.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Practices Affecting Breastfeeding</p> <ul style="list-style-type: none"> • Discarding colostrum • Prelacteal feeds • Mother-infant separation • Believing that not breastfeeding for 24 hours will make breastmilk unsafe for infant consumption • Supplementing breastfeeds with water, porridge, other foods 	<p>Pair or Individual Exercise (15 min):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Divide large group into pairs coming from the same geographic area or ask each Px to list the cultural and social practices that relate to breastfeeding. • Highlight to Px that practices within the health care system should be included. • Reassemble group and have Px present their listings while you record on newsprint. • Eliminate the repetitious items from the list. • Compile this list and handout as a small group assignment. Ask Px to problem-solve practices various which hinder optimal breastfeeding; practices which promote successful breastfeeding, and identify practices which have no effect on breastfeeding. <p>(See Px Handout 1.5.)</p>

Specific Objective #4: Identify anatomical structures of the breast, including their function.

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Anatomical structures of the breast and their functions are listed below, and displayed on <i>Participant Handouts 1.7, 1.7A, 1.8 and 1.8A.</i></p> <p>Structures/Function</p> <p>The <i>areola</i> is a circular darker colored area surrounding the nipple. Lactiferous sinuses are located under the areola.</p> <p>The <i>nipple</i> is a cone shaped elevation in the center of the areola of the breast. The nipple contains 15-25 milk ducts, smooth muscle fiber, and a rich supply of nerves and nerve endings.</p> <p><i>Montgomery glands</i> are located in the areola. They enlarge during pregnancy and lactation, looking like small pimples. They secrete lubrication that protects the nipple and areola during pregnancy and lactation.</p> <p><i>Lactiferous ducts</i> are located at the end of the alveolar gland, and are the main ducts of the mammary gland. They number 15-30 and open on the nipple. They carry milk to the nipple.</p> <p>The <i>lactiferous sinus</i> is a dilation on the lactiferous duct at the base of the nipple, under the areola. Milk collects here, and is released when the infant suckles.</p> <p>The <i>alveolus</i> is located in the body of the breast. The cells of this structure produce and release milk into the lactiferous sinuses via the lactiferous ducts.</p>	<p>Individual Exercise (30 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Distribute <i>Px Handouts 1.7 and 1.8</i> to Px. • Draw Px attention to the diagram's unlabeled structures. • Ask Px to write (in pencil) the name of the structures and their function in the space provided. • Allow 15 min. for completion. Allow Px to keep their diagrams. • Display <i>Transparencies 1.2 and 1.3.</i> • Review with Px the labeled structures and their functions. • Allow for Px questions. • Remove anatomical chart and distribute <i>Px Handouts 1.7A and 1.8A</i> for Px's reference. <p>Learning Game (15 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Display poster-sized unlabeled image of the breast. (An enlargement of <i>Px Handouts 1.7 and 1.8</i> or <i>Transparencies 1.2 and 1.3</i> can be used.) • Make labels for the parts of the breast and place them face up for Px to select and attach to poster (if available). • Cut questions from <i>Px Handout 1.9</i> into a bag. • Invite volunteer Px, one at a time, to take a piece of paper with a question from the bag. (See <i>Px Handout 1.6.</i>)

Specific Objective #4: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
	<p>Learning Game (cont.):</p> <ul style="list-style-type: none"> • If the Px cannot answer the question, it can be passed on to another Px. • If the question can not be answered on the third pass, provide the answer. • The questions will ask the reader to name the structure and locate it on the chart. Correct responses as required. • Answers to the questions are found in <i>Px Handout 1.9A</i>. • Observe the accuracy of answers and the degree of recall.

Specific Objective #5: Explain the physiology of lactation.

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Physiology of Lactation</p> <p><i>Preparation</i></p> <p>During early pregnancy, hormones (estrogen, progesterone, and prolactin) stimulate the rapid growth and development of structure in the breast in preparation for lactation. Prolactin is responsible for the initiation of milk secretion located on the alveolar cell surfaces. Prolactin is also responsible for the production of colostrum.</p> <p>By the second trimester of pregnancy, placental lactogen begins to stimulate the secretion of colostrum. Following the drop of estrogen and progesterone after childbirth, copious milk secretion begins.</p> <p><i>Milk production: Stage one</i></p> <p>The initiation of milk secretion begins in the postpartum period by a fall in blood levels of progesterone while prolactin levels remain high. This occurs independent of infant suckling until the third or fourth day when secretion will decline if milk is not removed from the breast.</p> <p><i>Milk production: Stage two</i></p> <p>Stage two begins when the secretion of milk is plentiful (two to three days postpartum) and the composition changes over the next 10 days to "mature milk."</p>	<p>Lecturette (30 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Present content and allow for Px questions. • Note the content of Px questions to determine areas of learning difficulty. <p>(See <i>Px Handout 1.10.</i>)</p>

Specific Objective #5: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Establishment/Maintenance of Lactation</p> <p><i>Milk secretion reflex</i></p> <p>When the infant suckles at the breast, it stimulates the nerve endings in the nipple. The nerve carries messages to the anterior pituitary gland that makes prolactin. <i>Prolactin</i> released into the bloodstream makes the breast secrete milk.</p> <p>Thus, if the infant does not suckle often or never starts suckling, the breast will stop producing milk. The more the infant sucks, the more breastmilk will be produced. This relationship is referred to as supply and demand. The breasts will supply as much milk as the infant demands. If a mother wishes to increase her milk supply, she can accomplish this by encouraging the infant to suckle both breasts more often and for longer periods of time. She should not miss breastfeeds in attempts to "save" her milk; that will make her breasts produce less milk.</p> <p><i>Milk ejection or "let down" reflex</i></p> <p>The next hormone that supports lactation is <i>oxytocin</i>, produced in the posterior pituitary. Oxytocin is produced when suckling stimulates nerves in the nipple. Oxytocin makes the small muscle cells around the breast glands contract and squeeze out the milk.</p>	<p>Evaluation (10 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Ask Px the following questions and note the accuracy of their responses: <ol style="list-style-type: none"> (1) Colostrum production is stimulated by prolactin in which trimester of pregnancy? A: First. (2) Milk secretion is initiated by the fall in blood levels of which hormones? A: Estrogen and Progesterone. (3) Suckling stimulates the release of which hormone that causes milk production? A: Prolactin. (4) If a mother wants to increase her milk supply; what should she do? A: Feed more often. (5) For milk to flow from the breasts, what hormone is responsible? A: Oxytocin.

Specific Objective #5: Continued

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p><i>"Let down" reflex (cont.)</i></p> <p>Women can usually feel the squeezing in their breast at the beginning of a feed and this lets them know that their milk is starting to flow.</p> <p>Note: <i>It takes a few minutes for the let-down reflex to release milk in the first few days after childbirth.</i></p>	

Specific Objective #6: Discuss factors that influence lactation.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Factors Influencing Lactation</p> <ul style="list-style-type: none"> • Diminished or inadequate suckling results in diminished milk production. • Stress, fatigue, or emotional disturbances can block the milk ejection reflex. 	<p>Brainstorming (10 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Invite Px to share what they have heard or think influences lactation. • Record on newsprint. <p>(See Px Handout 1.10.)</p>

Specific Objective #7: Discuss the role of the health personnel in prenatal, intrapartal and postpartum support for breastfeeding.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Prenatal Preparation</p> <p>Ideally, women should be prepared for breastfeeding well in advance of delivery, especially first time mothers.</p> <p>Health education messages to mothers during this period should include:</p> <ul style="list-style-type: none"> • Breastmilk is best for infants • There are distinct health advantages for both mother and infant from breastfeeding. • The list of advantages to mother and infant from breastfeeding (see objective #1) • Information on the lactation process • Questions women may have regarding their ability to breastfeed • Explanation of myths regarding breastfeeding • Explanation of rationale for breastfeeding instructions which may be different from cultural practices <p>Additionally, written or graphic materials should be provided to women and linkages to successful breastfeeders in the community can extend the role of the health care provider.</p> <p>Conduct a physical examination that includes careful assessment of the breast. Size is not a factor in the success or failure of breastfeeding.</p>	<p>Small Group Exercise (30 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Divide large group into three smaller groups with the task of generating a list of what the health provider's role is in promoting successful breastfeeding. • Distribute newsprint and pens on which to record the list. • One group should work on each topic: prenatal preparation, intrapartal support, and postpartum support. • Include information that should be given to the woman, as well as what can be done to assist the woman. <p>Discussion (45 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Have each group present their work, allowing five minutes for presentation and ten minutes for discussion, clarification, and/or corrections. • Add points from the content that do not appear in Px presentations. • Note the accuracy of the content generated by groups. <p>(See Px Handout 1.11.)</p>

Specific Objective #7: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<ul style="list-style-type: none"> • Assess areola and nipple; test for freedom of protrusion, determine whether nipples are inverted or flat. <p>No elaborate physical preparation is required.</p> <ul style="list-style-type: none"> • Bathing should be as usual with minimal/no soap directly on nipples, followed by thorough rinsing. • Pat nipples dry with a soft cloth/towel. • Wear brassieres for support and to protect nipples. • Using creams, lanolin, and ointments (vitamin A and D) makes no difference in the prevention of cracks and fissures in the nipples. Soap, alcohol, and tincture of benzoin have been shown to cause damage to tissue of the areola and nipple. • Flat and inverted nipples do not prevent breastfeeding. Women with inverted nipples can wear shells to bring out the nipple during the last trimester of pregnancy, but studies showed no dramatic difference in breastfeeding success between those who use the shells and those who did not. <p>Intrapartal Support</p> <p>Facilitate breastfeeding immediately after birth, as long as the mother is not heavily sedated, the infant's Apgar at five minutes is not under six, or the infant is not under 36 weeks premature.</p> <p>Do not give the newborn anything other than breast milk.</p>	

Specific Objective #7: Continued

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Position the baby beside the mother, assist the mother to turn on her side, help infant to position its mouth on the breast correctly with mother and baby stomach-to-stomach, skin to skin. The mother may also sit if more comfortable.</p> <p><i>Positioning</i></p> <p>When the infant's lower lip is touched by the nipple, the infant's mouth should open widely with the tongue under the nipple, the breast will be drawn into the mouth, the nipple and areola will elongate into a teat, and the suckling reflex is initiated. Lower lip is turned outward, baby's tongue is under the nipple.</p> <p>Note: <i>Chilling an infant can set off a chain of events, from hypothermia to hypoglycemia, to tachypnea and mild acidosis. Prevent hypothermia by providing warmth by putting warm covers and/or radiant heat on the mother and infant.</i></p> <p>Postpartum Support</p> <p>Keys to assisting mother to successfully breastfeed include:</p> <ol style="list-style-type: none"> 1. Help mothers learn a variety of comfortable positions for feeding. 2. Help mothers gain confidence in positioning the infant correctly on the breast. 3. Help mothers to correctly hold the breast for the infant; never push the infant's head toward the breast because the infant will push back and arch away from the breast. 4. Ensure the infant's mouth is open wide and takes in as much of the nipple and areola as possible. 5. Help mothers position the infant on the second breast. 	

Specific Objective #7: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Postpartum Support (cont.)</p> <ol style="list-style-type: none"> 6. Show mothers how to break the infant's suction, when the infant falls asleep on the breast or the woman needs to take the infant from her breast. Nonnutritive suckling while asleep is especially irritating to the nipple in the first few days. 7. Do not give sweet water, water, or breastmilk substitutes after breastfeeds, or in place of a breastfeed. 8. Show mothers, when waking the infant before positioning on the second breast, to unwrap the blanket and use gentle stimulation. 9. Show mother how to gently burp the infant after feeding to satisfaction on the first breast. Infants usually feed 10-15 minutes per feeding in the first days. 10. Keep mothers and infants together. If there is no "rooming-in," take infants to mothers whenever they are awake, including at night or whenever the mother requests. 11. Encourage mothers to nap frequently; rest is essential for successful lactation. 	

Specific Objective #8: State the nutritional needs of lactating women.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Maternal Nutrition</p> <p>The maternal body prepares itself for lactation during pregnancy by developing the breasts to produce milk and by storing additional nutrients and energy. Mothers worldwide are capable of producing adequate and abundant milk on very inadequate diets without any obvious detriment to themselves.</p> <p>The quantity, protein content, and calcium content of breastmilk are relatively independent of maternal nutritional status and diet.</p> <p>Nourishing mothers is the most effective way of benefiting the infant, rather than providing supplemental feeding to the breastfeeding infant. "Feed the mother, nurse the baby."</p>	<p>Lecturette (10 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Present content and allow for Px questions. • Note the content of Px questions to determine areas of learning difficulty. <p>(See <i>Px Handout 1.12.</i>)</p>

Specific Objective #9: Discuss the considerations for contraception in breastfeeding women.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Contraception for Breastfeeding Women</p> <p><i>Unit 2: The Lactational Amenorrhea Method (LAM) will provide information related to practicing LAM and for complementary contraceptive methods. However, general guidance on this topic is provided in these questions and answers.</i></p> <p><i>What are the criteria for using LAM?</i></p> <ol style="list-style-type: none"> 1. Menses has not returned. 2. The infant is breastfed fully or nearly fully. 3. The infant is less than six months old. <p><i>When a breastfeeding mother can no longer rely on LAM or wishes to use another form of contraception, yet continue to breastfeed, what are her First Choice options? State the rationale.</i></p> <p>Non-hormonal methods (condoms, spermicides, the diaphragm, IUD, tubal ligation, and vasectomy) are preferred. Non-hormonal methods do not interfere with breastmilk production and do not enter the bloodstream.</p> <p><i>What are her Second Choice options? State the rationale.</i></p> <p>Progestin-only methods (DMPA injectable, progestin-only pills, Norplant implants) are the second choice options, because progestins do not interfere with breastmilk production.</p>	<p>Question/Answer (20 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Explain that detailed information on LAM and contraception for breastfeeding women will be provided in <i>Unit 2</i>. • Review the questions and answers in the content column with Px. • Explain the rationale, but make sure the Px understand that they will get more detailed information in the next unit. <p>(See Px Handout 1.13.)</p>

Specific Objective #9: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p><i>What are her Third Choice options? State the rationale.</i></p> <p>Combined oral contraceptive pills and combined injectable hormones are third choice options, and generally not recommended as the estrogen can diminish breastmilk production.</p>	

Specific Objective #10: Describe the management for breastfeeding conditions such as insufficient milk supply, sore or cracked nipples, breast engorgement, and mastitis.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Management of Breastfeeding Conditions</p> <p>To solve the problem of unsuccessful breastfeeding, observe the mother feeding the infant. See <i>Participant Handout 1.14: Managing Breastfeeding Conditions</i> for detailed content on this topic.</p> <p>Some common conditions that affect breastfeeding mothers include the following:</p> <ul style="list-style-type: none"> • Insufficient milk supply • Sore/cracked nipples • Breast engorgement • Mastitis <p>Some common elements that aid proper breastfeeding include the following:</p> <ul style="list-style-type: none"> • Proper positioning on the breast <ul style="list-style-type: none"> - Mother should offer whole breast – not just nipple. - Mother should touch baby’s cheek/upper lip to stimulate rooting reflex. - Wait until baby’s mouth is wide open and quickly move baby well on to the breast. • Good suckling <ul style="list-style-type: none"> - Baby’s lower lip is curled outward. - More areola showing above baby’s upper lip and less areola showing below lower lip. - Mother can see baby is taking slow deep sucks. 	<p>Lecture/Discussion (45 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Distribute <i>Px Handouts 1.14 and 1.14A</i> and review with Px, allowing for questions to clarify content. • Note the content of the Px questions to determine learning difficulties. • Additionally, discuss any practices that apply to treating breastfeeding conditions generated from the <i>Objective #3</i> activity. • Distribute <i>Px Handout 1.15</i> and present the content, encouraging discussion. <p>Case Studies (60 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Divide group into four smaller groups. • Distribute newsprint, pens, and one case to each group, found in <i>Px Handout 1.16</i>, allow allocated time for group to manage and record management on newsprint. • Have each group present their management; encourage feedback from the other groups. • Correct and clarify content as required. • Distribute copies of <i>Px Handout 1.16A: Case Study Answer Key</i> for Px’s reference.

Specific Objective #11: Generate strategies for institutionalizing the support of optimal breastfeeding practices.

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Institutional Support for Breastfeeding</p> <p>Every facility providing maternity services and care for newborn infants should follow the next ten steps:</p> <ul style="list-style-type: none"> • Have a written breastfeeding policy that is routinely communicated to all health care staff. • Train all health care staff in skills necessary to implement this policy. • Inform all pregnant women about the benefits and management of breastfeeding. • Help mothers initiate breastfeeding within a half hour of birth. • Show mothers how to breastfeed and how to maintain lactation even if they should be temporarily separated from their infants. • Give newborn infants no food or drink other than breastmilk unless <i>medically</i> indicated. • Practice rooming-in; allow mothers and infants to remain together 24 hours a day. • Encourage breastfeeding on demand. • Give no artificial nipples or pacifiers (also called dummies and soothers) to breastfeeding infants. • Foster the establishment of breastfeeding support groups and refer mothers to them after discharge from the hospital or clinic. <p>Additional information on activities to promote breastfeeding can be found in <i>Participant Handout 1.18</i>.</p>	<p>Small Group Exercise (45 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Have groups formed with Px from the same institution, to look at their institutional practices and identify what would need to be changed and how the change should be managed to create institutional support for optimal breastfeeding practices. • The end product should be the basis upon which an action plan can be drafted and presented upon return to institutional bodies and refined for implementation. • Have each group present their work; providing additional suggestion for supportive networking, e.g., donors for financial and programmatic assistance such as Baby Friendly Initiatives and WellStart. • Distribute <i>Px Handout 1.18</i> and review with Px. • Allow for questions related to handout. <p>(See <i>Px Handout 1.17</i>.)</p>

Conclusion

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Unit Summary: Breastfeeding</p> <ul style="list-style-type: none"> • Lowers infant mortality and morbidity • Provides excellent nutrition for infants and contributes to their growth and development • Improves women's health • Enhances pregnancy spacing • Provides economic benefits for the family and for the nation • Mothers' ability to successfully breastfeed depends on sound knowledge, skills, and a positive attitude to start correctly and handle problems in a manner that supports continuation 	<p>Plenary (45 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Have Px summarize the content of the Unit and ask any lingering questions. • Present highlights. • Administer post-test. • Determine the degree of learning comparing pre- and post-test scores. • Identify areas of learning difficulties. <p><i>(See Px Handout 1.19.)</i></p>

UNIT 2: THE LACTATIONAL AMENORRHEA METHOD (LAM)

INTRODUCTION:

Under certain conditions, women may gain contraceptive effects from breastfeeding. Service providers trained in the Lactational Amenorrhea Method (LAM) of family planning may counsel their clients on how to gain contraceptive benefits through breastfeeding their infant.

UNIT TRAINING OBJECTIVE:

To prepare service providers to counsel pre- and postpartum women in the use of the Lactational Amenorrhea Method (LAM).

SPECIFIC LEARNING OBJECTIVES:

At the end of this module, participants will be able to:

1. Explain key messages related to LAM.
2. Discuss the importance and need for promoting breastfeeding.
3. Describe the advantages and disadvantages of breastfeeding.
4. Define what is meant by the term Lactational Amenorrhea Method (LAM) and its effectiveness as a contraceptive method.
5. Explain the physiology of breastfeeding as it relates to fertility.
6. Explain the advantages, disadvantages, indications and precautions for use of LAM.
7. Explain the categories of complementary family planning methods for lactating women.
8. Counsel women on the benefits and use of LAM so it can be used effectively.
9. Recognize and manage common breastfeeding problems.

SIMULATED SKILL PRACTICE:

Through role play, practice promoting and explaining both LAM to prenatal/postpartum women and their partners in its correct use and the need for timely introduction of another contraceptive method.

CLINICAL PRACTICUM OBJECTIVES:

Using a checklist, promote and counsel prenatal and postpartum women on the benefits of LAM; how to most effectively use LAM; and when to adopt another form of contraception.

Note: No minimum number of clients is specified. The number will vary and be achieved when Trainer is satisfied participant is proficient in counseling in the use of these methods.

TRAINING/LEARNING METHODOLOGY:

- Required reading (directed study at home)
- Trainer presentation
- Class discussion
- Case studies
- Role plays
- Clinical practicum
- Demonstration and return demonstration

MAJOR REFERENCES AND TRAINING MATERIALS:

- Family Health International, Contraceptive Technology Update Services. *Lactational Amenorrhea Method (LAM) Module*. Nov. 1994.
- Georgetown University. Video: "Breastfeeding: Protecting a Natural Resource".
- Hatcher RA, Trussell J, Stewart F, et al. Postpartum Contraception and Lactation. In: *Contraceptive Technology*. 16th ed. New York: Irvington Publishers Inc, 1994: 433-446.
- IMPACT, Population Reference Bureau. *Breastfeeding*.
- Institute for Reproductive Health. *Guidelines for Breastfeeding in Family Planning Programs and Child Spacing Programs*. Georgetown University, 1992.
- INTRAH. *Guidelines for Clinical Procedures in Family Planning*. Chap. 2, 1992.
- Labbok M, et al. *Guidelines for Breastfeeding, Family Planning and Lactational Amenorrhea Method (LAM)*. Institute for Reproductive Health, 1994.
- Rodriguez-Garcia R, Schaefer LA, Yunes J, eds. *Lactation Education for Health Professionals*. PAHO.
- Perez A, Vela P, Masnick G, Potter R. First Ovulation After Childbirth: The Effect of Breastfeeding. *American Journal Obstetrics and Gynecology* 114: 1041 (1972).
- Technical Guidance/Competence Working Group. *Recommendations for Updating Selected Practices in Contraceptive Use Vol. II*. Draft, 1997.

RESOURCE REQUIREMENTS:

- Flipchart or newsprint
- Pens
- Overhead projector
- Transparencies
- Video player (if available)
- Tape

EVALUATION METHODS:

- Pre-/post-test
- Observation and assessment during role plays (using *LAM Learning Guide*)
- Observation and assessment during clinical practicum

TIME REQUIRED:

- Workshop: 3 hours
- Clinical practicum: Estimated up to 3 hours

MATERIALS FOR TRAINERS TO PREPARE IN ADVANCE:

1. Transparencies on:
 - Unit Objectives (Transparency 2.1)
 - Contraceptive Prevalence Required to Maintain Current Fertility Rates (Transparency 2.2)
 - Comparison of Mortality Rates (Transparency 2.3)
 - Reduction in Infant Mortality if All Babies were Born After Two Year Interval (Transparency 2.4)
 - Physiology of LAM (Transparency 2.5)
 - LAM Criteria Flowchart (Transparency 2.6)
 - Breastfeeding Schema (Transparency 2.7)
 - Breastfeeding Positioning (Transparency 2.8)
2. Participant Handouts
3. Copies of the pre-test and post-test for each participant
4. Video player, if available

Unit 2: Introduction

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Introduction:</p> <p>Under certain conditions women may gain contraceptive effects from breastfeeding. Service providers trained in the lactational amenorrhea method (LAM) of family planning may counsel their clients on how to gain contraceptive benefits through breastfeeding their infant.</p>	<p>Trainer Presentation (5 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Briefly review with participants' (Px) overall and specific learning objectives (<i>Transparency 2.1</i>). • Elicit and respond to questions. • Administer the Unit 2 pre-test. • Note objectives and material requiring specific attention. • Introduce the unit.

Specific Objective #1: Explain key messages related to breastfeeding and LAM.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Key Messages</p> <ol style="list-style-type: none"> 1. "Breast is Best" 2. Breastfeeding in the developing world is responsible for the spacing of more children than all other FP methods combined. 3. LAM is an important and effective family planning method for many women during the first six months postpartum. It is an equally vital element for child survival. 4. Contraceptive counseling should begin in the prenatal period and be reinforced at every prenatal encounter and immediate postpartum period. 	<p>Trainer Presentation (5 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Introduce and use key messages to warm-up and initiate discussion. • Has any Px or family member used breastfeeding as a sole child spacing (CS) method? • What was their experience? • Do Px see women in own practice who seek advice about using breastfeeding as a CS method? • What advice is given? <p>(See <i>Px Handout 2.1.</i>)</p>

Specific Objective #2: Discuss the importance and need for promoting breastfeeding.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Importance of Breastfeeding</p> <ul style="list-style-type: none"> • Breastfeeding is not a new technology. It is, however, an effective method of child spacing of limited duration, provided that certain conditions are met, and it can significantly reduce infant mortality and morbidity. • Globally, breastfeeding practices have declined in the move to modernization and urbanization. Urban women, working women, women living away from extended family support systems, are all less likely to breastfeed than rural women. Not all hospitals, community programs or health professionals actively promote breastfeeding. Many are not convinced of its contraceptive effectiveness. Some do not understand how it works. Few employers encourage or make it possible for women to breastfeed (through day-care or time off). In many cultures, breastfeeding declined when commercial baby formula products became widely available and were promoted to be as good as breast milk, more modern, and a sign of being better educated or well-off. Young, impressionable women (and their families) are still targeted by advertising media with this message, though promotion of breastmilk substitutes has declined. • It was and is commonly believed that a woman naturally knows how to breastfeed, that she doesn't need to be prepared psychologically, physically or taught the benefits and skills of breastfeeding—"she just knows." Not so, especially among women who are away from family and lack other support systems. 	<p>Group Discussion/Trainer Presentation (20 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Review the information on breastfeeding in the content column; briefly discuss reasons in content column with Px. • Ask Px to identify some myths about the impact of breastfeeding on fertility that are common in their area. • During the lecture, show and discuss the following transparencies as appropriate: <ul style="list-style-type: none"> • 2.2: <i>Contraceptive Prevalence Required to Maintain Current Fertility Rates</i> • 2.3: <i>Infant Mortality Rates for Short and Long Intervals</i> • 2.4: <i>Percentage Reduction if all Births were Spaced by Two Years</i>

Specific Objective #2: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<ul style="list-style-type: none"> • Many women depend on breastfeeding to protect them from pregnancy. But few women know what to do to gain contraceptive effects from lactation. Myths or a lack of information about breastfeeding and its effect on fertility prevents LAM's full use. <p>Breastfeeding should be promoted as birth spacing method only if the conditions for LAM as an effective method are fully discussed and fully understood by the mother. Otherwise, this method will be ineffective.</p> <p>Breastfeeding and Fertility</p> <ul style="list-style-type: none"> • In countries where breastfeeding is widely and optimally practiced, it is reported to contribute to an average birth spacing of two or more years. In many countries, breastfeeding is an important element in reducing fertility, particularly in rural areas of the country where access to other child spacing methods are not readily and/or easily available. • If breastfeeding practice should significantly decline, contraceptive prevalence rates for other methods would have to significantly increase to keep in check the current population growth rate of 2.2%. Additionally, one may also see an increase in the Infant Mortality Rate, and possibly an increase in the Maternal Mortality Rate. 	

Specific Objective #2: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Breastfeeding and Fertility (cont.)</p> <p>Note: <i>The increase in infant mortality results from a cycle of early weaning, diarrhea, acute respiratory infection, and malnutrition. Maternal mortality increases result from the high risk associated with frequent/closely spaced pregnancies and maternal depletion syndrome.</i></p> <ul style="list-style-type: none"> • While most women in developing countries breastfeed their infants, relatively few women breastfeed exclusively, fully or nearly fully for the first six months, and many do not continue to breastfeed throughout the first year of life. <p>Breastfeeding and Child Survival</p> <p>We are all aware of the relationship that exists between child survival and birth interval. As shown in the transparencies, the shorter the interval between births, the higher the mortality risk for the infant. The reduction in infant mortality we could expect if all births were spaced by at least two years is significant. There is clear scientific evidence that confirms the benefits to mother and baby of breastfeeding, the unique properties of breastmilk, and the strong link between breastfeeding and infant survival. A study in Brazil in 1989 showed that an exclusively breastfed infant is:</p> <ul style="list-style-type: none"> • 14.2 times less likely to die from diarrhea • 3.6 times less likely to die from respiratory infection • 2.5 times less likely to die from other infections. 	

Specific Objective #2: Continued

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Breastfeeding and Child Survival (cont.)</p> <p>Other studies conducted in the Philippines, India, Malaysia, Egypt, and Chile show that the risk of death from all diseases for non-breastfed infants is nearly twice that of breastfed infants.</p>	

Specific Objective #3: Recall the advantages and disadvantages of breastfeeding.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
	<p>Review (10 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Ask Px to recall advantages of breastfeeding for the mother and infant from Unit 1 and list on flipboard. • Briefly explain each effect and add to list as necessary. • Ask Px to recall advantages for the health care system and nation. • Ask Px to identify disadvantages and lists on flipchart. <p><i>(See Px Handouts 1.2 and 1.4.)</i></p>

Specific Objective #4: Define what is meant by the term Lactational Amenorrhea Method.

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>The Lactational Amenorrhea Method (LAM) is a contraceptive method that relies on the condition of infertility that results from specific breastfeeding patterns. There are three criteria and a fourth parameter that must be met to use LAM:</p> <p>Criteria</p> <ol style="list-style-type: none"> 1. Woman's menses has not returned, 2. Woman fully or nearly fully breastfeeds infant, 3. Infant is less than six months old. <p>Parameter</p> <ol style="list-style-type: none"> 4. If any one of the three criteria changes, another contraceptive must be started immediately. <p>Effectiveness</p> <p>LAM effectiveness has been shown in clinical trials and programmatic use. Assured that all three criteria are met, the method is 98%-99% effective. If any one of the criteria is not met, then another contraceptive method, which is appropriate while breastfeeding, should be recommended to continue high pregnancy protection.</p> <p>Source: Technical Guidance/Competence Working Group, <i>Recommendations for Updating Selected Practices in Contraceptive Use Vol. II, Draft, TG/CWG(1997).</i></p>	<p>Trainer Presentation followed by Discussion (5 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Briefly discuss definitions and write three questions on flipboard. <ol style="list-style-type: none"> 1. Have your menses returned? 2. Are you supplementing regular or allowing long periods without breastfeeding, either day or night? 3. Is your baby more than six months old? • Ask Px what they think the effectiveness of LAM could be if these three questions are answered "yes" by a mother. • Explain the effectiveness of LAM as a contraceptive method. <p>(See Px Handout 2.3.)</p>

Specific Objective #5: Explain the physiology of breastfeeding as it relates to fertility.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Physiology/Mechanism of Action</p> <ul style="list-style-type: none"> • The physiology of LAM is based on the hypothalamic-pituitary-ovarian feedback system. Stimulation of the mother's nipple by the infant's suckling sends neural signals to the hypothalamus. This changes the level and rhythm of gonadotropin releasing hormone (GnRH) secretion. GnRH influences pituitary release of follicle stimulating hormone (FSH) and luteinizing hormone (LH), the hormones responsible for follicle development and ovulation. Hence, breastfeeding results in decreased and disorganized follicular development. • The return of menses is associated with the return of fertility (ovulation), and thus, is a good indicator of ovulation in the early postpartum months among fully lactating women. <p>During the first three to six months postpartum,^o for a fully lactating woman who has her first menstrual period, it is unlikely (but not certain) that the first period will be preceded by ovulation. Why? Even if follicular development had occurred, the risk of pregnancy is small because the occurrence of both a mature ovum and follicle with adequate luteal activity is rare.</p> <p>Once the first menses has resumed, however, there is a high probability that the next menstrual cycle will be ovulatory, and lactation will no longer protect a woman from pregnancy.</p> <ul style="list-style-type: none"> • A study by Perez et al. (1972) indicates that ovulation tends to precede the first menses in the later months of lactation rather than in the early months. 	<p>Trainer Presentation (15 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Display <i>Transparency 2.5: the Physiology of LAM.</i> • Use slide to briefly and simply explain the mechanism pathway. <p>(See <i>Px Handout 2.4.</i>)</p>

Specific Objective #5: Continued

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Mechanism of Action (cont.)</p> <p>The breastfeeding status of the mother is the important influencing factor. In other words, the longer the postpartum interval, the greater the chance that ovulation will precede menses.</p> <p>After six months postpartum, the chance that ovulation will occur before the first menstruation significantly increases, even in a fully lactating amenorrheic woman.</p> <ul style="list-style-type: none"> • Any factor that causes a decrease in suckling can result in the return of ovulation and decreased milk production. <p>These factors include:</p> <ul style="list-style-type: none"> • use of pacifiers/supplemental feedings • reduction in number of breastfeeds or long intervals between breastfeeds • maternal stress, maternal/child illness <ul style="list-style-type: none"> • The longer the time into the postpartum period, and as supplemental feedings are introduced and suckling decreases, or the feeding pattern is changed, prolactin levels will diminish, leading to ovarian follicle development, ovulation, and menses. 	<p>Discussion (15 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Ask Px to identify some of the factors that can cause a decrease in suckling before describing them. • Ask Px what the implications are for a mother at this stage of postpartum? • What concerns should a doctor have for his client at this time? • Is this an area that should be discussed early in the prenatal period? Why?

Specific Objective #6: Explain the advantages, disadvantages, indications, and precautions for use of LAM.

<p style="text-align: center;">CONTENT Knowledge/Attitude/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Advantages of LAM</p> <ul style="list-style-type: none"> • It can be started immediately after delivery • It is economical and easily available • It does not require a prescription • No action is required at the time of intercourse • There are no side effects or precautions to its use • No commodities or supplies are required for clients or for the family planning program • It is used for a limited time and serves as a bridge to using other methods • It is consistent with religious and cultural practices • It is effective <p>Disadvantages of LAM</p> <ul style="list-style-type: none"> • Fully or nearly fully breastfeeding pattern may be difficult for some women to maintain • The duration of the method's effectiveness is limited to a brief six-month postpartum period • It can only be used by breastfeeding women • There is no protection against sexually transmitted infections, including HIV <p>In addition, it may be difficult to convince some providers who are unfamiliar with the method that LAM is a reliable contraceptive.</p> <p>Indications for LAM</p> <p>There are three conditions that must be met if a woman wishes to use LAM as a sole method of contraception. <i>When any one of these conditions is no longer met, her chances of getting pregnant are increased and she must start a complementary family planning method to prevent an unwanted pregnancy.</i></p>	<p>Brainstorming (20 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Introduce this section by stating that for all methods there are advantages and disadvantages, and clients must consider these so that they may make informed choices. • Ask Px to list the advantages of LAM and record them on flipchart. • Lead discussion of listing and make additions as required. • Ask Px to list the disadvantages of LAM, and record on flipchart. • Lead discussion of listing and make additions as required. <p>(See Px Handout 2.5.)</p>

Specific Objective #6: Continued

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Indications/Criteria</p> <p>1. She must be less than six months postpartum: If she is fully breastfeeding and her menses have not returned, the effectiveness of LAM diminishes over time. Ovulation resumes in 20 - 50% of women near the end of the six month postpartum period.</p> <p>2. Her menses must not have returned: While the chance of ovulation preceding the first menses in fully breastfeeding women is small, ovulation preceding the second and subsequent cycles is more common, even when fully breastfeeding. An alternative and appropriate contraceptive method compatible with breastfeeding must be discussed with a woman well in advance of this time frame.</p> <p>Note: <i>In the first six to eight weeks postpartum (i.e., in the first 56 days postpartum), there is often continued spotting. This is not considered to be a menstrual period if the woman is fully lactating.</i></p> <p>3. She must be fully or almost fully breastfeeding:</p> <p><i>"Fully/Nearly Fully" breastfeeding may be divided into two definitions:</i></p> <ul style="list-style-type: none"> • "Fully" means no supplements of any sort are given. • "Nearly fully" means very small amounts (one or two swallows) of water, juice, or ritual foods are not given more than once per day. 	<p>Trainer Presentation followed by Discussion (15 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Present the content. (INTRAH's <u>Guidelines</u>, chapter 2 is a good reference on this point.) • Display <i>Transparency 2.6: Use of LAM for Child Spacing during First Six Months Postpartum</i> to reinforce understanding of the content. • Leave transparency on so Px can link your comments to the three criteria. • Show <i>Transparency 2.7: Schema for Describing Breastfeeding</i> to clarify and reinforce understanding of differences in definition of "full" and "partial" breastfeeding. • Px need to have good understanding of this concept to be able to explain it clearly to breastfeeding mothers.

Specific Objective #6: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Indications/Criteria (cont.)</p> <ul style="list-style-type: none"> • <i>"Partial"</i> breastfeeding means occasional feeding of liquids and solids in addition to breastfeeds. For LAM to remain effective, 85% or more of feedings must be breastfeeds. <p>Furthermore, a positive correlation between the intensity and frequency of suckling and the duration of contraceptive effect offered by breastfeeding has been shown.</p> <p>Simply put, the woman should use both breasts to breastfeed her baby on demand with no more than a four hour interval between any two daytime feeds and no more than a six hour interval between any two nighttime feeds. If returning to a clinic will be difficult for the client, there is no reason not to provide a complementary family planning method for use, when needed. Use condoms simultaneously if there is a risk of STD/HIV infection.</p> <p>Precautions</p> <p>As soon as any one of the following conditions are met, your client is at risk for pregnancy and will need another contraceptive method (compatible with breastfeeding):</p> <ul style="list-style-type: none"> • the baby reaches six months • the woman has menstrual bleeding • the baby is receiving regular supplemental feedings (more than 20% of the time) <p>You may consider offering your client a complementary contraceptive method before she no longer meets the LAM criteria so that she is fully protected before she is at risk for pregnancy.</p>	

Specific Objective #7: Discuss and identify complementary FP methods for the lactating woman.

CONTENT Knowledge/Attitudes/Skills	Training/Learning Methods (Time Required)
<p>Complementary FP Methods for the Lactating Woman</p> <p>As soon as a woman relying on LAM for contraception no longer meets all three criteria for LAM, she should start a complementary contraceptive method. If the woman wishes to continue breastfeeding, the contraceptive methods available can be ranked according to the effect they have on her ability to breastfeed.</p> <p>Non-hormonal methods of contraception are First Choice methods in this case, as they do not interfere with breastmilk and do not enter the bloodstream. These methods include:</p> <ul style="list-style-type: none"> • Condoms • Spermicides • Diaphragms • IUDs • Tubal ligation • Vasectomy <p>Progestin-only methods are Second Choice methods in this case, as they do not interfere with breastfeeding. Progestin-only methods include:</p> <ul style="list-style-type: none"> • DMPA (injectable) • Progestin-only pills (POPs) • Norplant implants <p>Third choice options include both estrogens and progestins. The estrogen in these methods can reduce the production of breastmilk, and thus are not generally recommended. These methods include:</p> <ul style="list-style-type: none"> • Combined oral contraceptives (COCs) • Combined injectable hormones 	<p>Trainer Presentation and Group Discussion (15 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Lead Px in discussion regarding specific contraceptive methods most appropriate for the breastfeeding women, and reasons why some methods are more appropriate than others (i.e., is COC appropriate? How about DMPA? Can a couple rely on condoms?) • Using flipchart, list complimentary/ non-complimentary methods for breastfeeding women. • Discuss ways to introduce a complementary contraceptive method before a woman no longer meets the LAM criteria. • Discuss the following question, "Is there any advantage in waiting to introduce a complementary contraceptive method if a woman still meets the criteria for LAM?" <p>(See Px Handout 2.6.)</p>

Specific Objective #8: Counsel women on the benefits and use of LAM so it may be used effectively.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Key Essentials of LAM Counseling</p> <p>The LAM method is simple, has many advantages, and can be easily understood by the mother if time is taken to explain it in language she understands, and her concerns and questions are addressed. The desired outcome of LAM counseling is a woman who:</p> <ul style="list-style-type: none"> • clearly understands (and can repeat back to you) the three major conditions under which LAM is effective • knows what optimal breastfeeding practices are and how to carry them out • knows the conditions that indicate when to stop using LAM and to adopt another contraceptive method if she is to avoid an unwanted pregnancy • knows what kind of method she wants to use that is most compatible with continued breastfeeding • knows that condoms should be used while practicing LAM if there is risk of STD/HIV infection <p>When counseling mothers about LAM, the most important messages to convey include:</p> <p><i>How to practice optimal breastfeeding:</i></p> <ul style="list-style-type: none"> • Begin immediately after delivery, the colostrum is especially good for the infant. • Feed on demand, day and night. • Feed from both breasts. • Avoid intervals of more than four hours between any two daytime feeds and more than six hours between any two nighttime feeds. 	<p>Trainer Presentation (15 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Present the content to Px. • Encourage Px to identify what they consider to be optimal breastfeeding practices. • List on flipchart. • Tell Px you expect them to use this information in their counseling role plays and they should review this content thoroughly. • Review <i>Px Handout 2.9: Case History Checklist</i>. • Be sure to discuss rationale for questions, so Px can make notes on the handout. <p>Role Play Exercise (30 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Divide the Px into pairs, asking each pair to role play either Role Play #1 or #2 from <i>Px Handout 2.8</i>. • The Px role playing the provider should use <i>Px Handout 2.9</i> for assistance in assessing if LAM is appropriate for the client. • <i>Px Handout 2.10: Learning Guide for LAM Counseling</i> guides the Px through the steps in counseling for LAM. • Use <i>Px Handout 2.8A: Answer Key</i> to supplement the role plays. (See <i>Px Handout 2.7</i>.)

Specific Objective #8: Continued

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p><i>Optimal Breastfeeding (cont.)</i></p> <ul style="list-style-type: none"> • Breastfeed fully or nearly fully for about six months. • When supplemental feeds are introduced, breastfeed first and then give supplemental feed. • Avoid use of pacifiers, nipples, or bottles. • Express breastmilk if separated from baby. • Breastfeed even when mother or baby is sick. • Encourage mother to maintain a nutritionally sound diet and to satisfy her own hunger/thirst (and identify what local foods constitute a sound diet). • It is not necessary to give baby water/teas. If baby appears thirsty, it is best for mother to drink more water and breastfeed more frequently; that way she will produce more milk. • Continue to breastfeed for as long as possible (two years or beyond). <p><i>When to stop using LAM as the sole contraceptive method:</i></p> <ul style="list-style-type: none"> • The baby reaches six months. • The woman has menstrual bleeding. • The baby is receiving regular supplemental feedings (more than 20% of the time). <p><i>Discuss complementary FP methods for the breastfeeding mother in both pre- and postpartum period, so that she may make an informed choice about her options, and plan for a definite appointment well before the client needs to use a birth spacing method.</i></p>	

Specific Objective #9: Manage common breastfeeding problems.

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Common Breastfeeding Problems</p> <p>Please note that detailed information on the treatment of the following breastfeeding conditions can be found in <i>Unit 1</i>.</p> <ol style="list-style-type: none"> 1. Inadequate milk supply 2. Sore nipples 3. Sore breasts <ul style="list-style-type: none"> • mastitis • engorged • obstructed duct <p>It is important for clinicians to be available to assist a woman in solving breastfeeding problems; otherwise, she may abandon breastfeeding prematurely with negative consequences for her own and baby's health.</p>	<p>Trainer Presentation (5 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Using <i>Px Handout 2.11: Proper Positioning of Baby at Breast</i> and <i>2.12: Indicators of Insufficient Milk</i>, briefly review sore nipples and proper positioning of nipple in baby's mouth and insufficient milk as examples of common breastfeeding problems which can be solved with good counseling and education of breastfeeding women. • Review the content. <p>(See also <i>Px Handout 1.14</i>.)</p> <p>Case Study Exercise (25 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Hand out case studies from <i>Px Handout 2.13</i> and provide the following instructions to Px: <ul style="list-style-type: none"> • Drawing on own knowledge and <i>Px Handout 1.14</i>, discuss and propose management plan for common breastfeeding problems. • Divide into small groups of three per group and set time limits. • Each trainer should facilitate discussion among Px but encourage group to come up with own management plan. • Upon completion, each group to present plan in plenary. • Discuss management plan and correct as needed, using <i>Px Handout 2.13A</i>.

Summary

<p style="text-align: center;">CONTENT Knowledge/Attitudes/Skills</p>	<p style="text-align: center;">Training/Learning Methods (Time Required)</p>
<p>Summary</p> <p>Health professionals play a vital role in encouraging and counseling women to breastfeed. Counseling must begin in the prenatal period, when women have time to prepare mentally and physically, and when the benefits and reduction in health risks for mother and baby can be stressed and absorbed. These messages need to be transmitted to women at every prenatal encounter, and reinforced and supported in the immediate postpartum period.</p>	<p>Trainer Summary (10 min.):</p> <p>The trainer should:</p> <ul style="list-style-type: none"> • Summarize major points covered in this module. • Present highlights. • Administer Post test. • Determine the degree of learning comparing Pre- and Post-test scores. • Identify areas of learning difficulty. <p><i>(See Px Handout 2.14.)</i></p>

APPENDIX

Participant Handout 1.1: Introduction to Breastfeeding

Breastfeeding is a natural resource that can make a major contribution to health and family planning goals. It is also very common to hear that "breastfeeding is natural," implying there is nothing special that the health care system needs to do. About half of new mothers may have no difficulties, but for the remainder this is usually not the case—especially for very young mothers and first-time mothers.

Although breastfeeding has been seen as the safest and the best way to feed infants, health personnel (physicians, nurses, midwives) have demonstrated limited interest in breastfeeding and little experience in helping mothers successfully breastfeed when difficulties arise.

Today, there is renewed interest in breastfeeding and promotion efforts have resulted in the inclusion of breastfeeding content into the training curriculum and clinical experiences of health professionals.

Research into the multiplicity of benefits of breastfeeding has also resulted in confirming the contraceptive effect of certain patterns of breastfeeding. The Lactational Amenorrhea Method (LAM) covered later in this module is an effective family planning method that relies on breastfeeding. However, for LAM to work, mothers must be counseled how to successfully breastfeed.

Participant Handout 1.2: Benefits of Breastfeeding

Mother

- Reduces hemorrhage postpartumly
- Facilitates involution
- Protects against ovarian and breast cancer
- Offers contraceptive protection (LAM)
- Enhances maternal-infant bonding
- Reduces anxiety, stress, depression
- Enhances positive self-image
- Convenient form of infant nutrition
- Economical form of infant nutrition
- Hormones (prolactin, oxytocin) induce maternal behavior
- Increases relaxation and interaction with infant

Infant

- Prevents hypothermia (low body temperature)
- Supports growth and survival through strengthened maternal-infant bonding
- Lower occurrences of infections (gastrointestinal, respiratory, otitis media)
- Increases alertness; stronger arousal reactions
- Infants tend to walk earlier
- Breastmilk is easy to digest
- Enhances brain development thus infants tend to be more intelligent
- Lower occurrences of allergy
- Lower occurrences of infant abandonment
- Stimulates infant social interaction
- Fosters a sense of security

Health Care System

- When mothers and infants stay together and breastfeed on demand, there are cost savings because there is no need for separate space, equipment for feeding and warming infants, and separate staff
- Reduces cost associated with supplying breastmilk substitutes and drugs to prevent uterine atony
- Reduces cost of hospitalization for diarrheal disease and other infections
- Reduces costs in family planning programs where LAM is supported for the first six months postpartum

Nation

- Reduces foreign exchange by lessening demands for breastmilk substitutes, bottles, associated supplies
- Reduces cumulative cost from health care sites in providing care for diarrheal disease and infections

Participant Handout 1.3: Comparison between Breastfeeding and BottleFeeding

BREASTFEEDING	BOTTLEFEEDING
<ul style="list-style-type: none"> • Offers the best balance of proteins, growth stimulants, and nutrients for physical and mental development. • Always the correct temperature. • Not contaminated with bacteria/viruses that cause diarrhea and respiratory infections. • Contains elements that directly fight infection (e.g., immunologic and other components that coat the lining of the stomach, intestines, lungs, and attacks bacteria and viruses). • Contains substances which fight infection (particularly important as the infant's immune system is not fully developed in the early months). • Breastmilk cannot be diluted or spoil. • Low cost; costs 4-5 times less to breastfeed an infant. • Biologically compatible with human infant needs. • Easy to digest. 	<ul style="list-style-type: none"> • Requires a clean water source. • Requires a fuel source. • Requires refrigeration. • Requires hygienic conditions in the home. • Requires a level of literacy to follow directions for preparation. • Poor circumstances lead to a vicious cycle of malnutrition and disease due to over-dilution and contamination. • Can be allergenic.

Source: Lawrence R, MD. *Breastfeeding: A Guide for the Medical Profession*. Mosby, 1994.

Participant Handout 1.4: Disadvantages of Breastfeeding

Disadvantages to breastfeeding are those factors perceived by the mother as an inconvenience to her, since there are no known disadvantages for the normal infant.

- Breastfeeding an infant six to twelve times per day for several months may be considered overwhelming, limiting personal freedom and independence.
- For some women, depending on the cultural setting, breastfeeding has been associated with feelings of shame, modesty, embarrassment, distaste, anxiety, and guilt.
- Spouses may be jealous because they have no similar way to bring food and contentment to their infant.

When would breastfeeding not be recommended?

- **Breast cancer:** A mother with new diagnosis of breast cancer should not breastfeed her infant as it is more critical for her to have treatment immediately.
- **Hepatitis B:** Transmission of hepatitis B via breastmilk has not been well documented, although breastmilk transmission is possible, studies have not confirmed transmission via this route. Newborns of hepatitis B-positive mothers who have received hepatitis B immune globulin and vaccine *may be breastfed*.
- **Hepatitis C (HVC):** Because of hepatitis C's probable transmission into breastmilk, the high risk of chronic liver disease among its victims, and the absence of effective therapy, breastfeeding is not recommended when a mother has HVC.
- **HIV:** HIV has been isolated from blood, semen, vaginal secretions, saliva, tears, cerebrospinal fluid, amniotic fluid, urine, and breastmilk. Only blood, semen, vaginal secretions, and *possibly* breastmilk have been implicated in person-to-person transmission. In countries where the risk of death in the first year is 50% from diarrhea and other diseases (not including AIDS), breastfeeding is still the feeding of choice.
- **Drug Abuse:** Breastfeeding is not recommended in women who are intravenous drug abusers (IVDA). IVDA results in the infant receiving substantial amounts of drug through the milk and can cause infant death. Additionally, IVDA have high rate of incidence of hepatitis, HIV, and other infections that may be passed on through breastfeeding.

Participant Handout 1.5: Practices Affecting Breastfeeding

- Discarding colostrum
- Prelacteal feeds
- Mother-infant separation
- Believing that not breastfeeding for 24 hours will make breastmilk unsafe for infant consumption
- Supplementing breastfeeds with water, porridge, other foods

Participant Handout 1.6: Anatomical Structure of the Breast

Anatomical structures of the breast and their functions are listed below, and displayed on *Participant Handout 1.7*.

Structures/Function

The *areola* is a circular darker colored area surrounding the nipple. Lactiferous sinuses are located under the areola.

The *nipple* is a cone shaped elevation in the center of the areola of the breast. The nipple contains 15-25 milk ducts, smooth muscle fiber, and a rich supply of nerves and nerve endings.

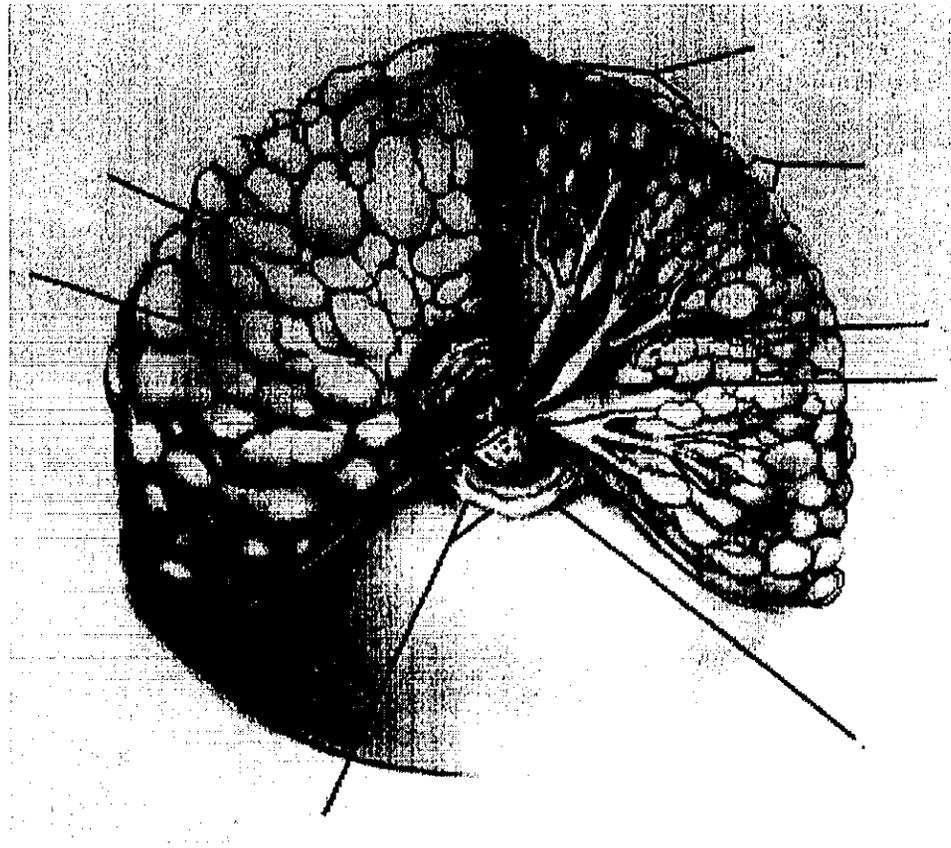
Montgomery glands are located in the areola. They enlarge during pregnancy and lactation, looking like small pimples. They secrete lubrication, which protects the nipple and areola during pregnancy and lactation.

Lactiferous ducts are located at the end of the alveolar gland, and are the main ducts of the mammary gland. They number 15-30 and open on the nipple. They carry milk to the nipple.

The *lactiferous sinus* is a dilation on the lactiferous duct at the base of the nipple, under the areola. Milk collects here, and is released when the infant suckles.

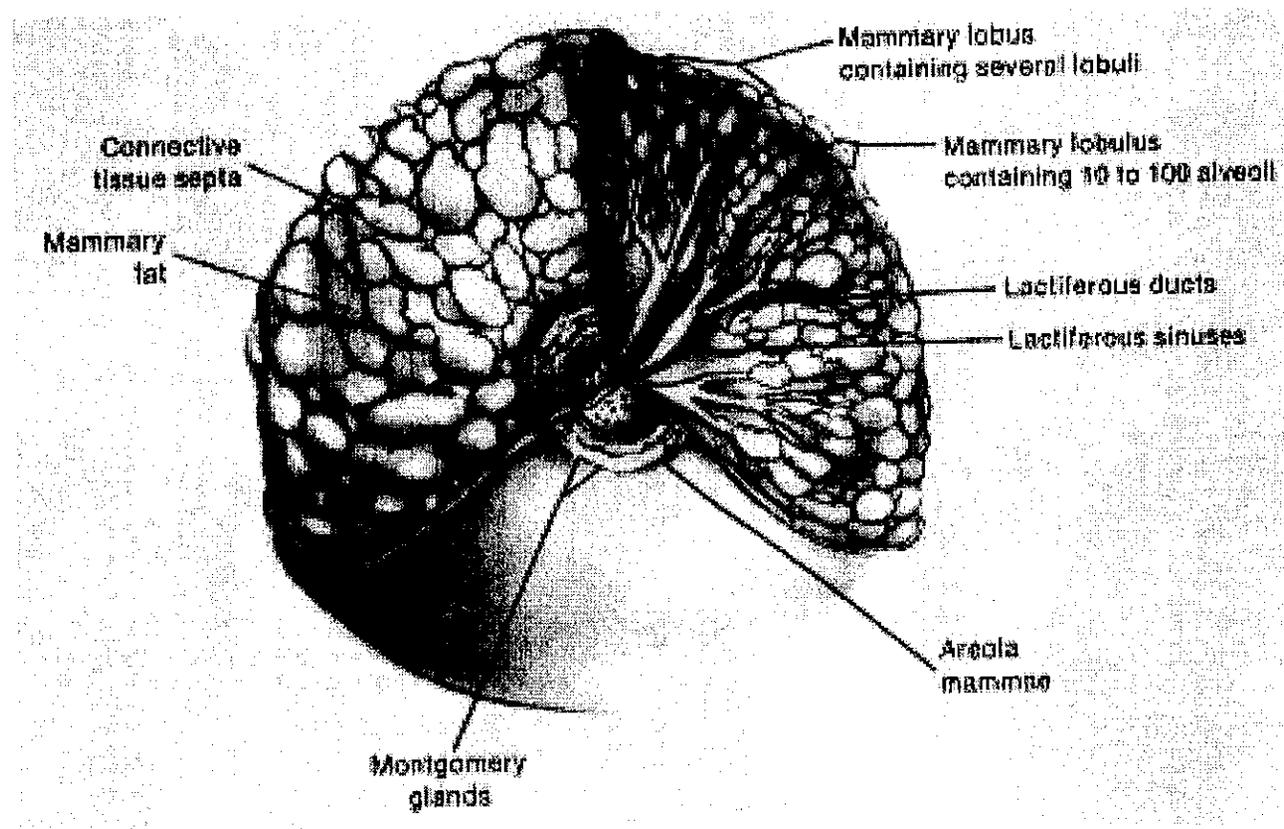
The *alveolus* is located in the body of the breast. The cells of this structure produce and release milk into the lactiferous sinuses via the lactiferous ducts.

Participant Handout 1.7: Anatomical Structures of the Breast (Front View, Unlabeled)



Source: Lawrence R. *Breastfeeding: A Guide for the Medical Profession*. 4th Edition. 1994.

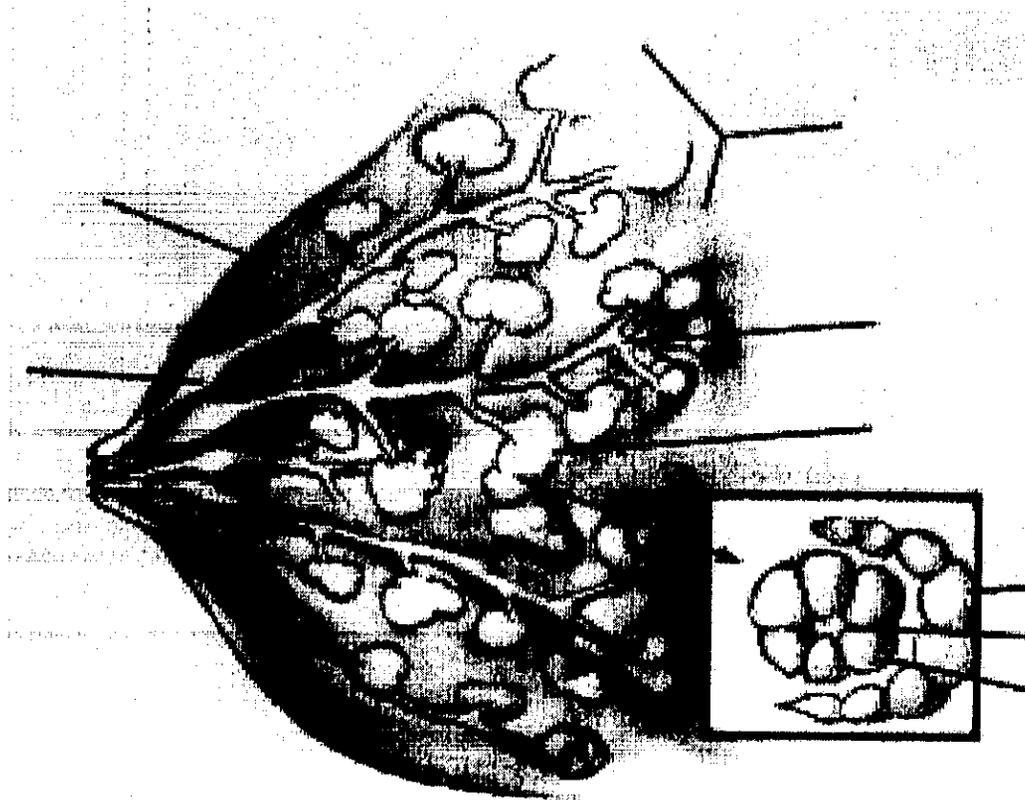
Participant Handout 1.7A: Anatomical Structures of the Breast (Front View, Labeled)



Source:

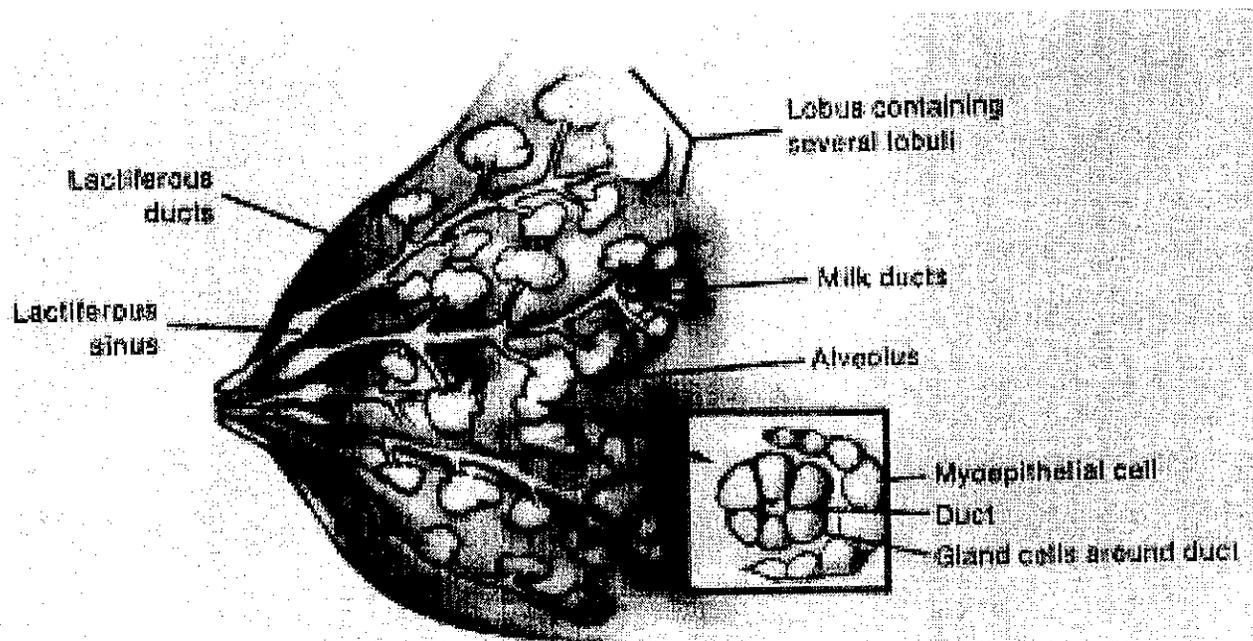
Lawrence R. *Breastfeeding: A Guide for the Medical Profession*. 4th Edition. 1994.

Participant Handout 1.8: Anatomical Structures of the Breast (Side View, Unlabeled)



Source: Lawrence, Ruth, Breastfeeding: A Guide for the Medical Profession, 4th Edition, 1994.

Participant Handout 1.8A: Anatomical Structures of the Breast (Side View, Labeled)



Source:

Lawrence R. *Breastfeeding: A Guide for the Medical Profession*. 4th Edition. 1994.

Participant Handout 1.9: Review Questions

1. I am a structure whose cells produce and release milk.
What am I?
Where am I located?

2. I am a dark circular area, which covers milk sinuses.
What am I?
Where am I located?

3. I am the dilation on ducts, milk collects inside and is released from me?
What am I?
Where am I located?

4. I am a cone-shaped structure with erectile tissue and containing 15-25 milk ducts.
What am I?
Where am I located?

5. I am the main duct of the mammary gland, numbering 15-30, which carries milk to the end of the breast.
What am I?
Where am I located?

6. We look like pimples during pregnancy and lactation; we secrete lubrication.
What are we?
Where are we located?

Participant Handout 1.9A: Review Questions (Answer Key)

1. I am a structure whose cells produce and release milk.
What am I?
Where am I located?

A:Alveolus; located in the body of the breast.

2. I am a dark circular area, which covers milk sinuses.
What am I?
Where am I located?

A:Areola; located around the nipple.

3. I am the dilation on ducts, milk collects inside and is released from me?
What am I?
Where am I located?

A:Lactiferous sinus; located at the base of the nipple, under the areola.

4. I am a cone-shaped structure with erectile tissue and containing 15-25 milk ducts.
What am I?
Where am I located?

A:Nipple; located at the end of the breast.

5. I am the main duct of the mammary gland, numbering 15-30, which carries milk to the end of the breast.
What am I?
Where am I located?

A:Lactiferous duct; located at the end of the alveolus.

6. We look like pimples during pregnancy and lactation; we secrete lubrication.
What are we?
Where are we located?

A:Montgomery glands; located in the areola.

Participant Handout 1.10: The Physiology of Lactation

Preparation

During early pregnancy, hormones (estrogen, progesterone, and prolactin) stimulate the rapid growth and development of structure in the breast in preparation for lactation. Prolactin is responsible for the initiation of milk secretion located on the alveolar cell surfaces. Prolactin is also responsible for the production of colostrum.

By the second trimester of pregnancy, placental lactogen begins to stimulate the secretion of colostrum. Following the drop of estrogen and progesterone after childbirth, copious milk secretion begins.

Milk production: Stage one

The initiation of milk secretion begins in the postpartum period by a fall in blood levels of progesterone while prolactin levels remain high. This occurs independent of infant suckling until the third or fourth day when secretion will decline if milk is not removed from the breast.

Milk production: Stage two

Stage two begins when the secretion of milk is plentiful (two to three days postpartum) and the composition changes over the next 10 days to "mature milk."

Establishment/Maintenance of Lactation

Milk secretion reflex

When the infant suckles at the breast, it stimulates the nerve endings in the nipple. The nerve carries messages to the anterior pituitary gland, which makes prolactin. *Prolactin* released into the bloodstream makes the breast secrete milk.

Thus, if the infant does not suckle often or never starts suckling, the breast will stop producing milk. **The more the infant sucks, the more breastmilk will be produced.** This relationship is referred to as **supply and demand**. The breasts will supply as much milk as the infant demands. If a mother wishes to increase her milk supply, she can accomplish this by encouraging the infant to suckle both breasts more often and for longer periods of time. She should **not** miss breastfeeds in attempts to "save" her milk; that will make her breasts produce **less** milk.

Participant Handout 1.10: The Physiology of Lactation (cont.)

Milk ejection or "let down" reflex

The next hormone that supports lactation is *oxytocin*, produced in the posterior pituitary. Oxytocin is produced when nerves in the nipple are stimulated by suckling. Oxytocin makes the small muscle cells around the breast glands contract and squeeze out the milk.

Women can usually feel the squeezing in their breast at the beginning of a feed and this lets them know that their milk is starting to flow.

Note: *It takes a few minutes for the let-down reflex to release milk in the first few days after childbirth.*

Factors Influencing Lactation

- Diminished or inadequate suckling results in diminished milk production.
- Stress, fatigue, or emotional disturbances can block the milk ejection reflex.

Participant Handout 1.11: Service Provider Support for Breastfeeding

Prenatal Preparation

Ideally, women should be prepared for breastfeeding well in advance of delivery, especially first time mothers.

Health education messages to mothers during this period should include:

- Breastmilk is best for infants
- There are distinct health advantages for both mother and infant from breastfeeding
- The list of advantages to mother and infant from breastfeeding
- Information on the lactation process
- Questions women may have regarding their ability to breastfeed
- Explanation of myths regarding breastfeeding
- Explanation of rationale for breastfeeding instructions which may be different from cultural practices

Additionally, written or graphic materials should be provided to women and linkages to successful breastfeeders in the community can extend the role of the health care provider.

Conduct a physical examination which includes careful assessment of the breast. Size is not a factor in the success of or failure to breastfeeding.

- Assess areola and nipple; test for freedom of protrusion, determine whether nipples are inverted or flat.

No elaborate physical preparation is required.

- Bathing should be as usual with minimal/no soap directly on nipples, followed by thorough rinsing.
- Pat nipples dry with a soft cloth/towel.
- Wear brassieres for support and to protect nipples.
- Using creams, lanolin, and ointments (vitamin A and D) makes no difference in the prevention of cracks and fissures in the nipples. Soap, alcohol, and tincture of benzoin have been shown to cause damage to tissue of the areola and nipple.
- Flat and inverted nipples do not prevent breastfeeding. Women with inverted nipples can wear shells to bring out the nipple during the last trimester of pregnancy, but studies showed no dramatic difference in breastfeeding success between those who use the shells and those who did not.

Participant Handout 1.11: Service Provider Support for Breastfeeding (cont.)

Intrapartal Support

Facilitate breastfeeding immediately after birth, as long as the mother is not heavily sedated, the infant's Apgar at five minutes is not under six, or the infant is not under 36 weeks premature.

Do not give newborn anything other than breastmilk.

Position the baby beside the mother, assist the mother to turn on her side, help infant to position its mouth on the breast correctly with mother and baby stomach-to-stomach, skin to skin.

Positioning (See Px Handout 2.11)

When the infant's lower lip is touched by the nipple, the infant's mouth should open widely with the tongue under the nipple, the breast will be drawn into the mouth, the nipple and areola will elongate into a teat, and the suckling reflex is initiated.

Note: *Chilling an infant can set off a chain of events, from hypothermia to hypoglycemia, to tachypnea and mild acidosis. Prevent hypothermia by providing warmth by putting warm covers and/or radiant heat on the mother and infant.*

Postpartum Support

Keys to assisting mother to successfully breastfeed include:

1. Help mothers learn a variety of comfortable positions for feeding.
2. Help mothers gain confidence in positioning the infant correctly on the breast.
3. Help mothers to correctly hold the breast for the infant; **never** push the infant's head toward the breast because the infant will push back and arch away from the breast.
4. Ensure the infant's mouth is open wide and takes in as much of the nipple and areola as possible.
5. Help mothers position the infant on the second breast.
6. Show mothers how to break the infant's suction, when the infant falls asleep on the breast or when the woman needs to take the infant from her breast. Nonnutritive suckling while asleep is especially irritating to the nipple in the first few days.
7. Do not give sweet water, water, or breastmilk substitutes after breastfeeds, or in place of a breastfeed.

Participant Handout 1.11: Service Provider Support for Breastfeeding (cont.)

7. Show mothers, when waking the infant before positioning on the second breast, to unwrap the blanket and use gentle stimulation.
8. Show mother how to gently burp the infant after feeding to satisfaction on the first breast. Infants usually feed 10-15 minutes per feeding in the first days.
9. Keep mothers and infants together. If there is no "rooming-in," take infants to mothers whenever they are awake, including at night or whenever the mother requests.
10. Encourage mothers to nap frequently; rest is essential for successful lactation.

Participant Handout 1.12: Maternal Nutrition

The maternal body prepares itself for lactation during pregnancy by developing the breasts to produce milk and by storing additional nutrients and energy. Mothers worldwide are capable of producing adequate and abundant milk on very inadequate diets without any obvious detriment to themselves.

The quantity, protein content, and calcium content of breastmilk are relatively independent of maternal nutritional status and diet.

Nourishing mothers is the most effective way of benefiting the infant, rather than providing supplemental feeding to the breastfed infant. "Feed the mother, nurse the infant."

Participant Handout 1.13: Contraception for Breastfeeding Women

Unit 2: The Lactational Amenorrhea Method (LAM) will provide information related to practicing LAM and for complementary contraceptive methods. However, general guidance on this topic is provided in these questions and answers.

What are the criteria for using LAM?

1. Menses has not returned.
2. The infant is breastfed fully or nearly fully.
3. The infant is less than six months old.

When a breastfeeding can no longer rely on LAM or wishes to use another form of contraception, yet continue to breastfeed, what are her First Choice options? State the rationale.

Non-hormonal methods (condoms, spermicides, the diaphragm, IUD, tubal ligation, and vasectomy) are preferred. Non-hormonal methods do not interfere with breastmilk production and do not enter the bloodstream.

What are her Second Choice options? State the rationale.

Progestin-only methods (DMPA (injectable), progestin-only pills, Norplant implants) are the second choice options, because progestins do not interfere with breastmilk production.

What are her Third Choice options? State the rationale.

Combined oral contraceptive pills, combined injectable hormones are third choice options, and generally not recommended as the estrogen can **diminish breastmilk production**.

Participant Handout 1.14: Management of Breastfeeding Conditions

Condition/Cause	Assessment	Management
<p>Insufficient milk supply</p> <ul style="list-style-type: none"> • infrequent feeding • not feeding for long enough periods • early introduction of supplemental foods 	<p>Ask the mother:</p> <ul style="list-style-type: none"> • What makes her feel that she does not have enough milk. (She may complain that her breasts feel empty, infant cries too much, infant suckle a lot.) • How often the infant urinates; wetness test. (Infant should urinate 6+ times, pale yellow or colorless urine.) • Has she started giving other fluids or foods (wetness test will not help). • Check infant's weight. 	<ul style="list-style-type: none"> • Determine if there are other problems. • If infant is wetting normally, reassure mother that her milk is adequate. • If wetting is less, encourage mother to feed infant more often to build up her supply. Assess infant for other conditions. • If the mother is giving other fluids/foods, encourage her to give breastmilk only (unless the infant is more than six months old) and to feed more frequently to increase her supply. • If infant's weight is appropriate, reassure mother that her milk supply is adequate. She should continue breastfeeding. If weight is low, review with mother her feeding pattern, frequency, and duration. If infrequent and/or of short duration, encourage six to twelve feeds per day, for at least five to ten minutes per breast; wake infant if he falls asleep during feeding, and keep unwrapped while feeding. Make sure the infant is positioned correctly.
<p>Breast engorgement</p> <ul style="list-style-type: none"> • congestion and increased vascularity • accumulation of milk 	<p>Ask the mother:</p> <ul style="list-style-type: none"> • if infant is having difficulty attaching to the breast • if feeding is painful • how her breasts feel <p>Observe the mother breastfeeding the infant; often during engorgement, infant suckles only the nipple.</p> <p>Examine the breasts. A finding of engorgement includes:</p> <ul style="list-style-type: none"> • no differentiation between nipple and areola • breasts are firm, skin shiny, lumpy-feeling • slight temperature elevation 	<ul style="list-style-type: none"> • The aim is to soften the areola area so that the infant can attach to the breast correctly and empty the breast. • Apply warm moist towels/cloths to the breast, massage breast; manually express milk from the breast until the areola can be flattened between finger and infant can take it into his mouth. • Wear a supportive bra (not tight); relieve discomfort with warm showers, massage of the breast/axilla, use of acetaminophen; express milk to relieve pressure or breastfeed more frequently. • Cabbage leaves applied to the breast have been associated with relief of engorgement within two to 24 hours of application.

Participant Handout 1.14: Management of Breastfeeding Conditions (cont.)

Condition/Cause	Assessment	Management
<p>Sore nipples</p> <ul style="list-style-type: none"> • infant positioned on the breast and suckling incorrectly 	<p>Ask the mother:</p> <ul style="list-style-type: none"> • if feedings are painful and she is consequently feeding less often/shorter periods of time? • does infant suck only the tip of the nipple? • are breasts still feeling full after feeding? <p>Observe infant suckling.</p> <p>Examine breasts. Findings may include:</p> <ul style="list-style-type: none"> • normal skin or may be bruised, scabbed, or blistered depending on the duration of the situation. 	<ul style="list-style-type: none"> • Assist mother to correctly position infant on the breast and review correct positioning, including infant's mouth position. • Brief periods of dry heat after feedings will help; expose breasts to air. Allow breastmilk to dry on nipple/areola as it promotes healing. • Avoid creams and ointments.
<p>Cracked nipples</p> <ul style="list-style-type: none"> • prolonged suckling from incorrect positioning 	<p>Observe infant suckling.</p> <p>Examine breasts.</p> <p>Findings may include:</p> <ul style="list-style-type: none"> • damaged nipple skin, fissures, or cracks 	<ul style="list-style-type: none"> • Assist mother to correctly position infant on the breast and review correct positioning, including infant's mouth position. • Applying warm towels/cloths to the breasts before feeding may be helpful. • Encourage the mother to continue breastfeeding on both breasts, but start the infant on the unaffected breast first, giving the affected breast a chance to "let-down." • Brief periods of dry heat after feedings will help; expose breasts to air. Allow breastmilk to dry on nipple/areola-it promotes healing. • Avoid use of ointments which must be removed from the breasts before feeding and can add trauma to the area. Vitamin A & D ointment, which does not need to be removed, is occasionally effective. • Do not stop breastfeeding. • Mild analgesia can be used.

Participant Handout 1.14: Management of Breastfeeding Conditions (cont.)

Condition/Cause	Assessment	Management
<p>Mastitis: an infectious process in the breast producing localized tenderness, redness, and heat, together with systemic reactions of fever, malaise, and sometimes nausea and vomiting.</p> <ul style="list-style-type: none"> • <i>Staphylococcus aureus</i> and <i>E. coli</i> are the most common offending organisms 	<p>Characterized by sudden onset after 10 days postpartum; usually affecting one breast; breasts are red, hot, and swollen. Pain is intense but localized; temperature is greater than 38.4°C; flu-like symptoms.</p> <p>Obtain history of symptoms and perform a physical.</p>	<ul style="list-style-type: none"> • Encourage the mother to continue breastfeeding on both breasts, but start the infant on the unaffected breast first, giving the affected breast a chance to "let-down." • Advise mothers to empty the affected breast by breastfeeding, or by pumping if the infant does not empty the breast during feeding. • Insist on bed rest; it is important that the mother get help with other home responsibilities during this time. • Provide an antibiotic, which can be tolerated by the infant and mother. Give the mother amoxicillin for staphylococcus, if infant is less than one month old; penicillin, ampicillin, or erythromycin, after one month postpartum. Give antibiotics for ten to 14 days. • Apply heat or cold to the breast, whichever offers the most comfort. Heat is preferable. • Advise mothers to take plenty of fluid. • Mild analgesia can be used. • Encourage mothers to wear a supportive bra, not tight.

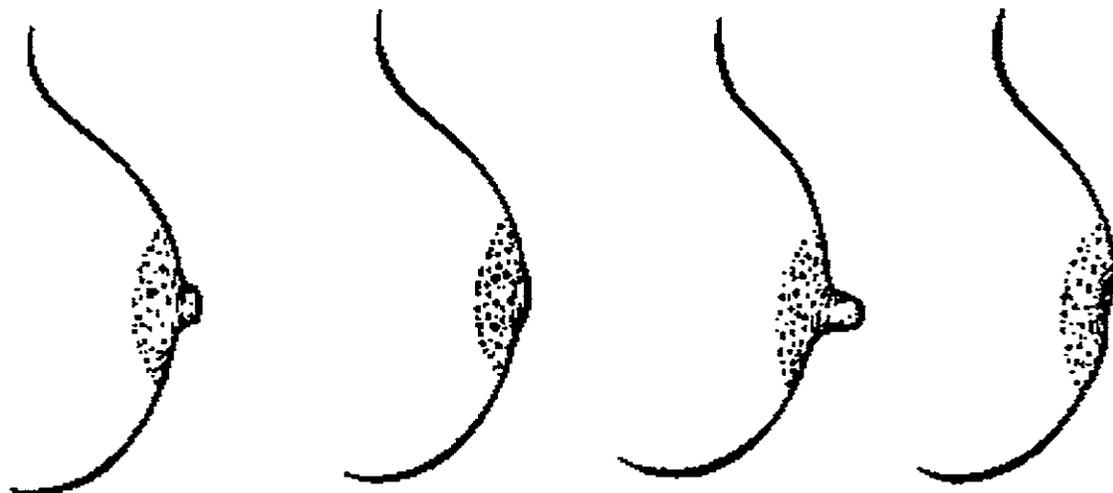
Participant Handout 1.14A: Visual Aids for Management of Breastfeeding Conditions

Flat and Inverted Nipples

Most women have normal nipples (i.e., they are protruding from the surrounding areola) which makes sucking easy for the infant. However, some women have short, flat nipples, and a few women have inverted nipples.

If the nipples are flat, or inverted squeeze the nipples and pull them gently. This should be repeated for several minutes every day, before childbirth and before each feed.

Position the baby so that most of the areola is well inside its mouth. The suction created by the sucking of the infant will elongate the nipple.



Average nipple

Short or flat nipple

Long nipple

Inverted nipple

Source: Savage King F. *Helping Mothers to Breastfeed*. Rev. Ed. 1992.

Participant Handout 1.14A: Visual Aids for Management of Breastfeeding Conditions (cont.)

Engorgement

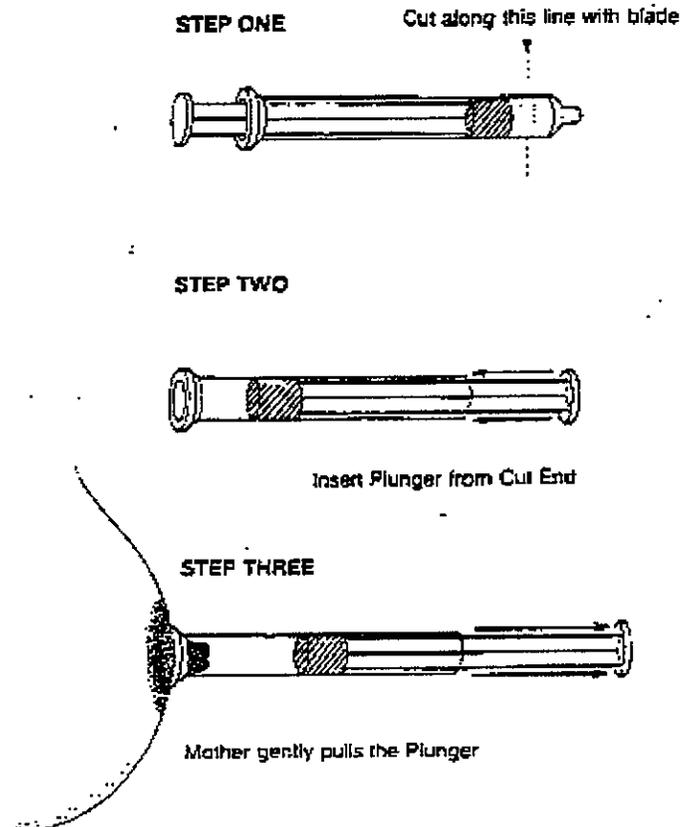
If a breast is not emptied regularly, it can become painful, hard and swollen with milk (engorged). Prevent and treat engorged breasts by frequent suckling. Encourage regular feeding from both breasts. Make sure that one breast is emptied before putting baby to the other breast.

Removing Milk by Hand

If the baby cannot suckle well because of engorgement, milk can be removed by hand so that the breast becomes softer and then the baby can suckle again. To remove the milk by hand, the mother should place her fingers and thumb at the edge of the areola away from the nipple and squeeze gently toward the chest then she should relax her fingers. She should continue to press and relax her fingers until milk flows.

Using a Syringe to Make an Inverted Nipple Protrude

To make an inverted nipple protrude a mother can pull out the plunger from a syringe and then cut off the end of the syringe and then cut off the end of the syringe where the needle attaches. Put the plunger back into the syringe through the cut end. Place the smooth end of the barrel (the part that was not cut) over the nipple.



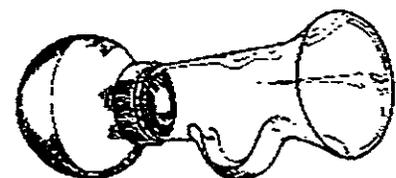
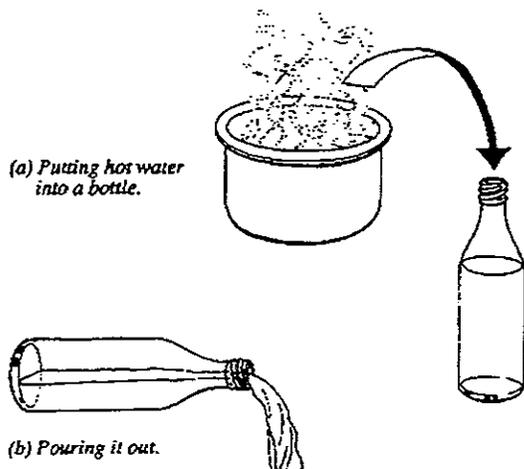
Source: The Manoff Group. *A Counseling Tool for Improving Breastfeeding Practices*. July 1996.

Participant Handout 1.14A: Visual Aids for Management of Breastfeeding Conditions (cont.)

Cupping Method to Express Milk

Heat a tumbler with a mouth that is at least 3-4 cm wide. Fit it onto the breast and milk will be sucked out of the breast due to the vacuum in the vessel. Alternatively use a locally-available breast pump.

THE "WARM BOTTLE" METHOD



Sources: Burns A, Lovich R, Maxwell J, Shapiro K. *Where Women Have No Doctor: A Health Guide For Women*. The Hesperian Foundation, 1997.
Savage King F *Helping Mothers to Breastfeed*. Rev. Ed. 1992.

Participant Handout 1.14A: Visual Aids for Management of Breastfeeding Conditions

Sore Nipples

The most common cause of sore nipples is wrong positioning of the infant with only the nipple in its mouth, so that it has to suck harder for a longer time in order to get the milk. Sometimes soreness develops into a bleeding crack, which is very painful.

To prevent and treat sore nipples:

- Correct the position of the infant, so that the baby open its mouth very wide and the nipple and areola both go into the baby's mouth.
- Start feeding on the nipple that is not sore, as the initial sucking is the strongest and most painful.
- Frequent short feedings promote healing, as this prevents the nipples from drying and cracking.
- Leave a drop of breast milk on the nipple after feeding; it helps the skin to heal.



Source: Savage King F. *Helping Mothers to Breastfeed*. Rev. Ed. 1992.

Participant Handout 1.15: Breastfeeding Support for Working Women

Studies have shown that women can live in an urban environment, maintain paid employment, and breastfeed their infant, even for extended periods. To do this, women need:

- Support and encouragement
- To suckle their infants frequently or "express" milk frequently, to maintain their supply.

Women who work in agricultural or in other non-formal situations carry their infants with them. Women whose duties or employment require separation from their children clearly face greater obstacles. These barriers have been overcome by:

- Working flexible hours
- Working part-time or shorter shifts
- Practicing "reverse rhythm" breastfeeding (breastfeeding during the night, expressing milk during the day)

The International Labour Organization (ILO) has endorsed the following policies for nations to consider:

- Provide paid maternity leave (with government support so that there will not be a financial incentive to discriminate against women in hiring)
- Ensure job security after delivery with no loss of seniority
- Establish facilities for child care and breastfeeding at the work place or in the community
- Provide breastfeeding breaks without loss of pay
- Provide flexible employment arrangements for breastfeeding women
- Provide breastfeeding information to women in all work settings: home, agriculture, industry, non-formal sector

Adapted from: *Breastfeeding: Protecting a Natural Resource*. Georgetown University/Institute for Reproductive Health, 1990.

Participant Handout 1.16: Breastfeeding Case Studies

1. Mrs. _____ is a 20 year old who delivered her baby earlier this morning. As you are making your rounds, you find her grimacing as the baby is suckling. Upon questioning Mrs. _____, you find out that her nipples feel sore and the baby has been fussy.

As you watch her breastfeeding, you see only the nipple in the baby's mouth and the baby frequently loses her grip on the breast.

On examination of Mrs. _____'s breasts, you find that they are soft; no areas of tenderness or lumps are found; and the skin of the nipples is intact, but slightly reddened. Breastmilk can be seen at the nipple.

(a) What is the problem with Mrs. _____?

(b) What will you do for her?

Participant Handout 1.16: Breastfeeding Case Studies (cont.)

2. You are visiting Mrs. _____ on postpartum day three. This is her first baby. Upon arrival, you find Mrs. _____ near tears complaining of painful breasts. Upon further questioning, you find that Mrs. _____ has had difficulty feeding the baby; milk is flowing, but the baby seems to slip off the breasts.

On examination, you find both breasts with the skin tight, nipple and areola undifferentiated, and tender to touch.

(a) What is Mrs. _____'s problem?

(b) How will you manage her condition?

Participant Handout 1.16: Breastfeeding Case Studies (cont.)

3. On day three postpartum, Mrs. _____ complains to you of a painful left nipple. Mrs. _____ states that the baby prefers the right breast, so when she offers him the left breast last, he feeds off and on, and drops off to sleep, suckling while he sleeps.

On examination of Mrs. _____, you find that the left nipple has two small cracks.

How will you manage Mrs. _____'s cracked nipple?

Participant Handout 1.16: Breastfeeding Case Studies (cont.)

4. Mrs. _____ is seen 15 days postpartum in your clinic with a complaint of pain in her right breast. She says it feels painful and hot. Mrs. _____ looks very tired and states that she feels awful.

Upon examination, her temperature is 39° C, and her right breast is swollen and red on the lateral aspect.

(a) What is Mrs. _____'s condition?

(b) How will you manage her condition?

Participant Handout 1.16: Breastfeeding Case Studies (cont.)

5. Mrs. _____ is a 24 year old primagravida who is visiting you for her 36 week prenatal visit. When you question her about her plans for feeding the baby, she says that although she would like to breastfeed her baby, she cannot because her breasts are too small and she will never be able to produce enough milk for the baby.

(a) What does she need to know in order to produce adequate milk for her infant?

(b) How will you counsel her?

Participant Handout 1.16A: Breastfeeding Case Studies Answer Key

1. Mrs. _____ is a 20 year old who delivered her baby earlier this morning. As you are making your rounds, you find her grimacing as the baby is suckling. Upon questioning Mrs. _____, you find out that her nipples feel sore and the baby has been fussy.

As you watch her breastfeeding, you see that the infant doesn't open its mouth very wide, only the nipple is in the baby's mouth, and the baby frequently loses her grip on the breast.

On examination of Mrs. _____'s breasts, you find that they are soft; no areas of tenderness or lumps are found; and the skin of the nipples is intact, but slightly reddened. Breastmilk can be seen at the nipple.

- (a) What is the problem with Mrs. _____?

Sore nipples due to poor positioning of the infant on the breast.

- (b) What will you do for her?

Assist mother to correctly position the infant on the breast, making sure the infant's mouth is wide open taking the areola into the mouth; advise mother to expose breasts to air, allow expressed breastmilk to dry on nipples; advise mother to avoid using ointment or cream on breasts.

Participant Handout 1.16A: Breastfeeding Case Studies Answer Key (cont.)

2. You are visiting Mrs. _____ on postpartum day three. This is her first baby. Upon arrival, you find Mrs. _____ near tears complaining of painful breasts. Upon further questioning, you find that Mrs. _____ has had difficulty feeding the baby; milk is flowing, but the baby seems to slip off the breasts.

On examination, you find both breasts with the skin tight, nipple and areola undifferentiated, and tender to touch.

- (a) What is Mrs. _____'s problem?

Engorged breasts.

- (b) How will you manage her condition?

Apply warm damp cloths on the breasts for a few minutes before breastfeeding. Manually express enough milk to soften the areola. Assist mother to position baby with the areola in the baby's mouth. Feed from both breasts; manually express milk if the baby does not empty the second breast. Advise mother to use mild pain relievers, if needed, to wear a supportive but non-binding bra, and to apply a cool wet cloth to both breasts after feeding. Inform the mother that engorgement will end in approximately 24 hours. The breasts will be soft, but milk will continue to be produced as long as she continues to breastfeed.

Participant Handout 1.16A: Breastfeeding Case Studies Answer Key (cont.)

3. On day three postpartum, Mrs. _____ complains to you of a painful left nipple. Mrs. _____ states that the baby prefers the right breast, so when she offers him the left breast last, he feeds off and on, and drops off to sleep, suckling while he sleeps.

On examination of Mrs. _____, you find that the left nipple has two small cracks.

How will you manage Mrs. _____'s cracked nipple?

Observe Mrs. _____ breastfeeding position of the baby on her breast. Assist Mrs. _____ to achieve the correct position with the areola (not nipple only) in the baby's mouth. Advise her to feed on the unaffected breast first to start let-down in the affected breast. After feeding, she should soothe the sore nipples with breast milk. She can squeeze out a few drops of milk and rub the milk on the sore places. Instruct her not to use soap or cream on the nipples. Mild pain relievers can be used. Encourage use of supportive, non-binding cotton bra.

Participant Handout 1.16A: Breastfeeding Case Studies Answer Key (cont.)

4. Mrs. _____ is seen 15 days postpartum in your clinic with a complaint of pain in her right breast. She says it feels painful and hot. Mrs. _____ looks very tired and states that she feels awful.

Upon examination, her temperature is 39° C, and her right breast is swollen and red on the lateral aspect.

- (a) What is Mrs. _____'s condition?

Mastitis

- (b) How will you manage her condition?

Encourage continued breastfeeding, even on the affected breast, but start on the unaffected breast first. Advise the mother to empty breasts, manually expressing milk if the infant does not complete the feeding. Insist on bed rest; talk with the family or make a written prescription if necessary. Give antibiotics, which can be tolerated by both mother and infant for 10 to 14 days. Advise the mother to apply heat for comfort (cold if she finds that more comfortable); encourage the mother to take in plenty of fluids. Mild pain relievers can be used. She should also wear a supportive, non-binding cotton bra. Advise the mother to return to the clinic if her condition has not improved after rest and antibiotic therapy.

Participant Handout 1.16A: Breastfeeding Case Studies Answer Key (cont.)

5. Mrs. _____ is a 24 year old primagravida who is visiting you for her 36 weeks prenatal visit. When you question her about her plans for feeding the baby, she says that although she would like to breastfeed her baby, she cannot because her breasts are too small and she will never be able to produce enough milk for the baby.

(a) What does she need to know in order to produce adequate milk for her infant?

The more frequently she feeds her baby, the more her breasts will be stimulated to make milk. The less often she feeds, or the shorter the period of feeding, the less milk her breasts will make.

(b) How will you counsel her?

Reassure her that the size of her breasts will not prevent her from making milk. Draw her attention to how her breasts have changed since she has been pregnant. Explain how the hormones in her body have been preparing her breasts to produce milk. Show her pictures of women with varying sizes of breasts successfully breastfeeding. Assure her that she will be assisted to position the baby correctly on her breasts after delivery, and that she will be given simple instructions for successful breastfeeding.

Participant Handout 1.17: Institutional Support for Breastfeeding

Every facility providing maternity services and care for newborn infants should follow the next ten steps:

- Have a written breastfeeding policy that is routinely communicated to all health care staff.
- Train all health care staff in skills necessary to implement this policy.
- Inform all pregnant women about the benefits and management of breastfeeding.
- Help mothers initiate breastfeeding within a halfhour of birth.
- Show mothers how to breastfeed and how to maintain lactation even if they should be temporarily separated from their infants.
- Give newborn infants no food or drink other than breastmilk unless *medically* indicated.
- Practice rooming-in; allow mothers and infants to remain together 24 hours a day.
- Encourage breastfeeding on demand.
- Give no artificial nipples or pacifiers (also called dummies and soothers) to breastfeeding infants.
- Foster the establishment of breastfeeding support groups and refer mothers to them after discharge from the hospital or clinic.

Source: WHO/UNICEF Joint Statement, Protecting, Promoting, and Supporting Breastfeeding: The Special Role of Maternity Services, 1989.

Participant Handout 1.18: Activities to Promote Successful Breastfeeding

1. Develop IEC campaign, which updates the knowledge of members of the community, school programs, and media.
2. Foster the development of Women-to-Women programs which offer counseling to support breastfeeding. They can be community, hospital, or clinic based.
3. Network with international breastfeeding support organizations, which can provide technical assistance in service delivery and training of health personnel to support breastfeeding. The list could include:
 - WellStart (U.S.)
 - International Breastfeeding Association (Australian)
 - La Leche League International
 - Georgetown University/Institute for Reproductive Health.
4. Develop mechanisms to enhance women's nutrition from birth through childhood, pregnancy and lactation.
5. Facilitate social and political change by educating political leaders to support breastfeeding. For example, Ghana and Jamaica have restricted the import of infant formula, Algeria has eliminated advertising and promotion of breastmilk substitutes. Policymakers and planners at the national, community, and health care levels; leaders in education, industry, social support organizations, and media should be educated to support and promote breastfeeding.
6. Develop work-lace policies that support breastfeeding.

Adapted from: *Breastfeeding: Protecting a Natural Resource*. Georgetown University/Institute for Reproductive Health, 1990.

Participant Handout 1.19: Breastfeeding Summary

- Lowers infant mortality and morbidity
- Provides excellent nutrition for infants, and contributes to their growth and development
- Improves women's health
- Enhances pregnancy spacing
- Provides economic benefits for the family and for the nation
- Mothers' ability to successfully breastfeed depends on sound knowledge, skills, and a positive attitude to start correctly and handle problems in a manner that support continuation

Participant Handout 2.1: Key Messages

1. "Breast is Best"
2. Breastfeeding in the developing world is responsible for the spacing of more children than all other family planning methods combined.
3. LAM is an important and effective family planning method for many women during the first six months postpartum. It is an equally vital element for child survival.
4. Contraceptive counseling should begin in the prenatal period and be reinforced at every prenatal encounter, and postpartum period.

Participant Handout 2.2: Importance of Breastfeeding

Importance of Breastfeeding

- Breastfeeding is not a new technology. It is, however, an effective method of child spacing of limited duration, provided that certain conditions are met, and it can significantly reduce infant mortality and morbidity.
- Globally, breastfeeding practices have declined in the move to modernization and urbanization. Urban women, working women, women living away from extended family support systems, are all less likely to breastfeed than rural women. Not all hospitals, community programs or health professionals actively promote breastfeeding. Many are not convinced of its contraceptive effectiveness. Some do not understand how it works. Few employers encourage or make it possible for women to breastfeed (through day-care or time off). In many cultures, breastfeeding declined when commercial baby formula products became widely available and were promoted to be as good as breast milk, more modern, and a sign of being better educated or well-off. Young, impressionable women (and their families) are still targeted by advertising media with this message, though promotion of breastmilk substitutes has declined.
- It was and is commonly believed that a woman naturally knows how to breastfeed, that she doesn't need to be prepared psychologically, physically or taught the benefits and skills of breastfeeding--"she just knows." Not so, especially among women who are away from family and lack other support systems.
- Many women depend on breastfeeding to protect them from pregnancy. But few women know what to do to gain contraceptive effects from lactation. Myths or a lack of information about breastfeeding and its effect on fertility prevents LAM's full use.

Breastfeeding should be promoted for 100% use by adequately explaining benefits to women in the prenatal period. Women should be physically (examine nipples and breasts) and emotionally prepared for breastfeeding.

A word of caution: breastfeeding should be promoted as birth spacing method **only** if the conditions for LAM as an effective method are **fully discussed and fully understood by the mother**. Otherwise, this method will be ineffective.

Breastfeeding and Fertility

- In countries where breastfeeding is widely and optimally practiced, it is reported to contribute to an average birth spacing of two or more years. In many countries, breastfeeding is an important element in reducing fertility, particularly in rural areas of the country where access to other child spacing methods are not readily and/or easily available.
- If breastfeeding practice should significantly decline, contraceptive prevalence rates for other methods would have to significantly increase to keep in check the current population growth rate of 2.2%. Additionally, one may also see an increase in the Infant Mortality Rate, and possibly an increase in the Maternal Mortality Rate.

Participant Handout 2.2: Importance of Breastfeeding (cont.)

Breastfeeding and Fertility (cont.)

Note: *The increase in infant mortality results from a cycle of early weaning, diarrhea, ARI, and malnutrition. Maternal mortality increases result from the high risk associated with frequent/closely spaced pregnancies and maternal depletion syndrome.*

- While most women in developing countries breastfeed their infants, relatively few women breastfeed **exclusively, fully or nearly fully** for the first six months, and many do not continue to breastfeed throughout the first year of life.

Breastfeeding and Child Survival

We are all aware of the relationship that exists between child survival and birth interval. As shown in the slides, the shorter the interval between births, the higher the mortality risk for the infant. The reduction in infant mortality we could expect if all births were spaced by at least two years is significant.

There is clear scientific evidence that confirms the benefits to mother and baby of breastfeeding, the unique properties of breastmilk, and the strong link between breastfeeding and infant survival. A study in Brazil in 1989 showed that an exclusively breastfed infant is:

- 14.2 times less likely to die from diarrhea
- 3.6 times less likely to die from respiratory infection
- 2.5 times less likely to die from other infections.

Other studies conducted in the Philippines, India, Malaysia, Egypt, and Chile show that the risk of death from all diseases for non-breastfed infants is nearly twice that of breastfed infants.

Participant Handout 2.3: Definition of the Lactational Amenorrhea Method

The Lactational Amenorrhea Method (LAM) is a contraceptive method that relies on the condition of infertility that results from specific breastfeeding patterns. There are three criteria and a fourth parameter that must be met to use LAM:

Criteria

1. Woman's menses has not returned,
2. Woman fully or nearly fully breastfeeds infant,
3. Infant is less than six months old.

Parameter

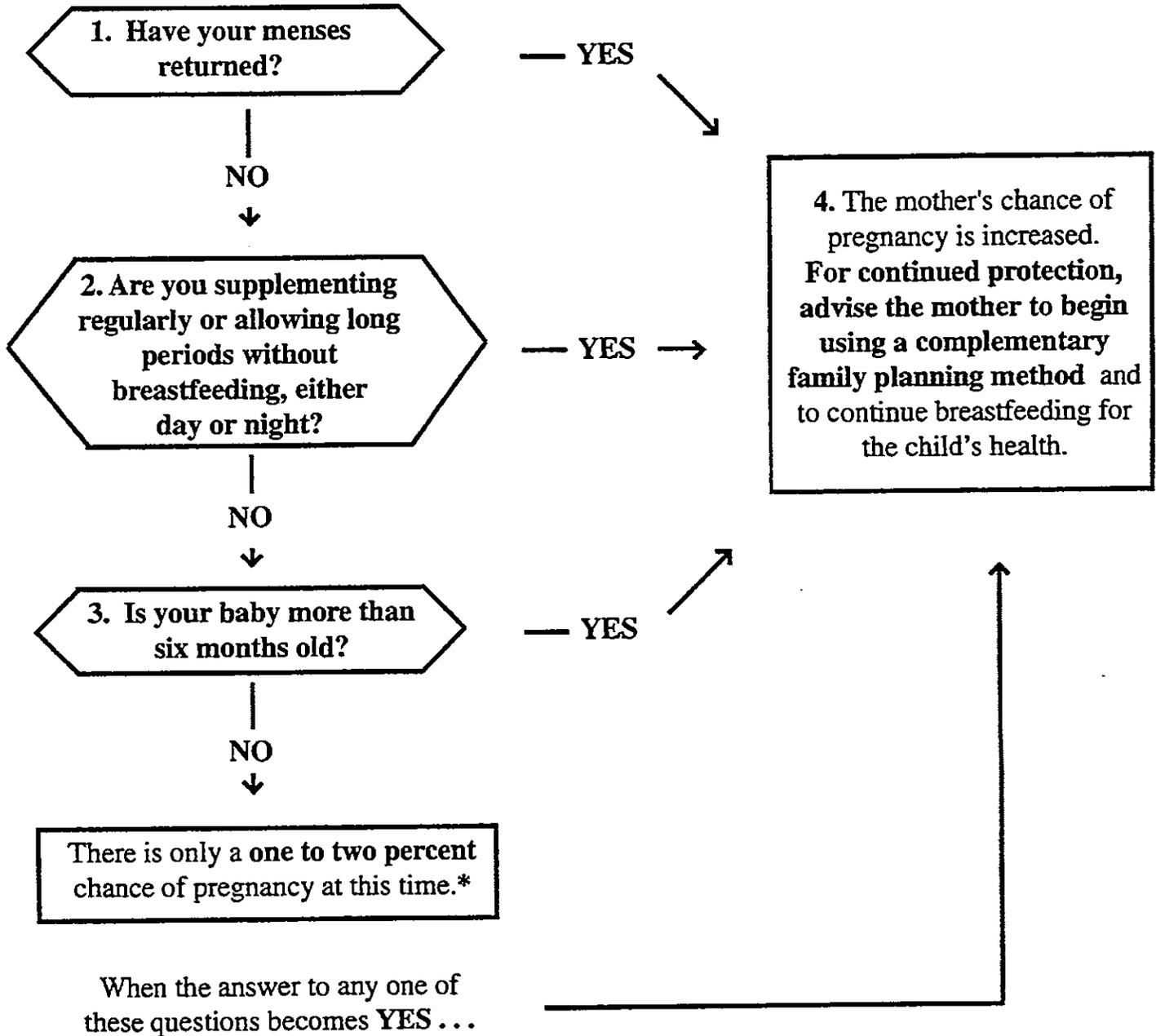
4. If any one of the three criteria changes, another contraceptive must be started immediately.

Effectiveness

LAM effectiveness has been shown in clinical trials and programatic use. Assured that all three criteria are met, the method is 98%-99% effective per use. If any one of the criteria are not met, then another method, which is appropriate while breastfeeding, should be recommended to continue high pregnancy protection.

Source: Technical Guidance/Competence Working Group, *Recommendations for Updating Selected Practices in Contraceptive Use Vol. II*, Draft, TG/CWG (1997).

Participant Handout 2.3a: The Use of LAM for Child Spacing During the First Six Months Postpartum



Source: *Guidelines: Breastfeeding, Family Planning, and Lactational Amenorrhea Method (LAM)*. Institute for Reproductive Health, 1994.

Participant Handout 2.4: The Physiology of LAM

Physiology/Mechanism of Action

- The physiology of LAM is based on the hypothalamic-pituitary-ovarian feedback system. Stimulation of the mother's nipple by the infant's suckling sends neural signals to the hypothalamus. This changes the level and rhythm of gonadotropin releasing hormone (GnRH) secretion. GnRH influences pituitary release of follicle stimulating hormone (FSH) and luteinizing hormone (LH), the hormones responsible for follicle development and ovulation. Hence, breastfeeding results in decreased and disorganized follicular development.
- The return of menses is associated with the return of fertility (ovulation), and thus, is a good indicator of ovulation in the early postpartum months among fully lactating women.

During the **first three to six months postpartum**, for a **fully lactating woman** who has her first menstrual period, it is **unlikely** (but not certain) that the **first** period will be preceded by ovulation. Why? Even if follicular development had occurred, the risk of pregnancy is small because the occurrence of both a mature ovum and follicle with adequate luteal activity is rare.

Once the first menses has resumed, however, there is a high probability that the next menstrual cycle will be ovulatory, and lactation will no longer protect a woman from pregnancy.

- A study by Perez et al. (1972) indicates that ovulation tends to precede the first menses in the later months of lactation rather than in the early months. The breastfeeding status of the mother is the important influencing factor. In other words, the longer the postpartum interval, the greater the chance that ovulation will precede menses.

After six months postpartum, the chance that ovulation will occur before the first menstruation significantly increases, **even in a fully lactating amenorrheic woman**.

- Any factor that causes a decrease in suckling can result in the return of ovulation and decreased milk production.

These factors include:

- use of pacifiers/supplemental feedings
 - reduction in number of breastfeeds or long intervals between breastfeeds
 - maternal stress, maternal/child illness
- The longer the time into the postpartum period, and as supplemental feedings are introduced and suckling decreases, or the feeding pattern is changed, prolactin levels will diminish leading to ovarian follicle development, ovulation, and menses.

Participant Handout 2.5: Advantages and Disadvantages of LAM

Advantages of LAM

- It can be started immediately after delivery
- It is economical and easily available
- It does not require a prescription
- No action is required at the time of intercourse
- There are no side effects or precautions to its use
- No commodities or supplies are required for clients or for the family planning program
- It is used for a limited time and serves as a bridge to using other methods
- It is consistent with religious and cultural practices
- It is effective

Disadvantages of LAM

- Fully or nearly fully breastfeeding pattern may be difficult for some women to maintain
- The duration of the method's effectiveness is limited to a brief six-month postpartum period
- It can only be used by breastfeeding women
- There is no protection against sexually transmitted infections, including HIV

In addition, it may be difficult to convince some providers who are unfamiliar with the method that LAM is a reliable contraceptive.

Indications for LAM

There are **three conditions**, which must be met if a woman wishes to use LAM as a **sole method of contraception**. *When any one of these conditions is no longer met, her chances of getting pregnant are increased and she must start another family planning method to prevent an unwanted pregnancy.*

Indications/Criteria

1. **She must be less than six months postpartum:** If she is fully breastfeeding and her menses have not returned, the effectiveness of LAM diminishes over time. Ovulation resumes in 20 - 50% of women **near the end of the six month postpartum period.**
2. **Her menses must not have returned:** While the chance of ovulation **preceding** the first menses in fully breastfeeding women is small, ovulation preceding the second and subsequent cycles is more common, even when fully breastfeeding. An alternative and appropriate contraceptive method compatible with breastfeeding must be discussed with a woman **well in advance of this time frame.**

Participant Handout 2.5: Advantages and Disadvantages of LAM (cont.)

Indications/Criteria (cont.)

Note: *In the first six to eight weeks postpartum (i.e., in the first 56 days postpartum), there is often continued spotting. This is **not** considered to be a menstrual period if the woman is fully lactating.*

3. She must be fully or almost fully breastfeeding:

- "Fully/Nearly Fully" breastfeeding may be divided into two definitions:
 - "Fully" means no supplements of any sort are given.
 - "Nearly fully" means very small amounts (one or two swallows) of water, juice, or ritual foods are not given more than once per day.
- "Partial" breastfeeding means occasional feeding of liquids and solids in addition to breastfeeds. For LAM to remain effective, 85% or more of feedings must be breastfeeds.

Furthermore, a positive correlation between the intensity and frequency of suckling and the duration of contraceptive effect offered by breastfeeding has been shown.

Simply put, the woman should use both breasts to breastfeed her baby on demand with no more than a four hour interval between any two daytime feeds and no more than a six hour interval between any two nighttime feeds. If returning to a clinic will be difficult for the client, there is no reason not to provide a complementary family planning method for use, when needed. Use condoms simultaneously if there is a risk of STD/HIV infection.

Precautions

As soon as any **one** of the following conditions are met, your client is at risk for pregnancy and will need another complementary contraceptive method (compatible with breastfeeding):

- the baby reaches six months,
- the woman has menstrual bleeding,
- the baby is receiving regular supplemental feedings (more than 20% of the time).

You may consider offering your client a complementary contraceptive method **before** she no longer meets the LAM criteria so that she is fully protected **before** she is at risk for pregnancy.

Participant Handout 2.6: Complementary Family Planning Methods for Breastfeeding Women

Complementary FP Methods for the Lactating Woman

As soon as a woman relying on LAM for contraception no longer meets **all three criteria for LAM**, she should start a complementary contraceptive method. If the woman wishes to continue breastfeeding, the contraceptive methods available can be ranked according to the effect they have on her ability to breastfeed.

Non-hormonal methods of contraception are First Choice methods in this case, as they do not interfere with breastmilk and do not enter the bloodstream. These methods include:

- Condoms
- Spermicides
- Diaphragms
- IUDs
- Tubal ligation
- Vasectomy

Progestin-only methods are Second Choice methods in this case, as they do not interfere with breastfeeding. Progestin-only methods include:

- DMPA (injectable)
- Progestin-only pills (POPs)
- Norplant implants

Third choice options include both estrogens and progestins. The estrogen in these methods can reduce the production of breastmilk, and are thus generally not recommended. These methods include:

- Combined oral contraceptives (COCs)
- Combined injectable hormones

Participant Handout 2.7: Counseling for LAM

Key Essentials of LAM Counseling

The LAM method is simple, has many advantages, and can be easily understood by the mother if time is taken to explain it in language she understands, and her concerns and questions are addressed. The desired outcome of LAM counseling is a woman who:

- clearly understands (and can repeat back to you) the three major conditions under which LAM is effective,
- knows what optimal breastfeeding practices are and how to carry them out,
- knows the conditions that indicate **when** to stop using LAM as a method of contraception and to adopt another contraceptive method if she is to avoid an unwanted pregnancy,
- knows **what** kind of method she wants to use that is most compatible with continued breastfeeding,
- knows that condoms should be used while practicing LAM if there is risk of STD/HIV infection.

When counseling mothers about LAM, the most important messages to convey include:

How to practice optimal breastfeeding:

- Begin immediately after delivery, the colostrum is especially good for the infant.
- Feed on demand, day and night.
- Feed from both breasts.
- Avoid intervals of more than four hours between any two daytime feeds and more than six hours between any two nighttime feeds.
- Breastfeed fully or nearly fully for about six months.
- When supplemental feeds are introduced, breastfeed first and then give supplemental feed.
- Avoid use of pacifiers, nipples, or bottles.
- Express breastmilk if separated from baby.
- Breastfeed even when mother or baby is sick.
- Encourage mother to maintain a nutritionally sound diet and to satisfy her own hunger/thirst (and identify what local foods constitute a sound diet).
- It is not necessary to give baby water/teas. If baby appears thirsty, it is best for mother to drink more water and breastfeed more frequently; that way she will produce more milk.
- Continue to breastfeed for as long as possible (two years or beyond).

Participant Handout 2.7: Counseling for LAM (cont.)

When to stop using LAM as the sole contraceptive method:

- The baby reaches six months.
- The woman has menstrual bleeding.
- The baby is receiving regular supplemental feedings (more than 20% of the time).

*Discuss complementary FP methods for the breastfeeding mother in both pre- and postpartum period, so that she may make an informed choice about her options, and plan for a definite appointment well **before** the client needs to use a birth spacing method.*

Participant Handout 2.8: LAM Role Plays

Role Play #1

Dr. [X] has just addressed a gathering of the Innerwheel Club, a women's association, on the benefits of breastfeeding. During the presentation she stressed lactational amenorrhea as a method of contraception.

During the question-answer period, [Y], a lactating woman six months postpartum, and [Z], a new grandmother whose grand-son is just six weeks old, each had a few questions to ask Dr. [X].

[Y] expressed great interest in using LAM as her preferred contraceptive method. [Z] wondered if this method might suit her daughter-in-law with the six week old baby.

Consider the following in your simulation:

1. Can [Y] use LAM?
2. What information would Dr. [X] give to [Y] concerning her use of LAM as a contraceptive method? What other advice might she give [Y]?
3. Can [Z]'s daughter use LAM?
4. What would Dr. [X] tell [Z] about LAM?

Role Play #2

[A] is a 19 year-old woman visiting her family doctor for her six month prenatal checkup. She is well and has only a few minor complaints. This is her first pregnancy. [A] and her husband have recently moved from [PLACE A] to [PLACE B] where her husband has a job with the State Government. [A] is also employed as a telephone operator in a [PLACE B] hotel. She plans to quit her job and stay at home after the baby is born because both her and her husband's family live far away. She tells the doctor she plans to bottlefeed her baby because she is nervous about breastfeeding.

Consider the following in your simulation:

1. What can the doctor say or do to allay [A]'s fears about breastfeeding?
2. What would the doctor say to convince [A] about the advantages of breastfeeding for herself and her baby?
3. What questions might [A] ask about breastfeeding?

Participant Handout 2.8A: LAM Role Plays (Answer Key)

Role Play #1

Dr. [X] has just addressed a gathering of the Innerwheel Club, a women's association, on the benefits of breastfeeding. During the presentation she stressed lactational amenorrhea as a method of contraception.

During the question-answer period, [Y], a lactating woman six months postpartum, and [Z], a new grandmother whose grand-son is just six weeks old, each had a few questions to ask Dr. [X].

[Y] expressed great interest in using LAM as her preferred contraceptive method. [Z] wondered if this method might suit her daughter-in-law with the six week old baby.

Consider the following in your simulation:

1. Can [Y] use LAM?

No, [Y] cannot use LAM.

2. What information would Dr. [X] give to [Y] concerning her use of LAM as a contraceptive method? What other advice might she give [Y]?

[Y] now does not fit the criteria for LAM since the infant is six months or older at this point, her infant needs to be introduced to appropriate complementary foods. Consequently, the mother will not be able to breastfeed fully. [Y] can select from a variety of contraceptive methods which will not interfere with her ability to breastfeed and this would be the appropriate time to begin using one.

3. Can [Z]'s daughter use LAM?

Yes, if she fits the criteria for LAM and is willing to feed the infant on demand.

4. What would Dr. [X] tell [Z] about LAM?

Tell [Z] that the mother must be willing to breastfeed fully, with no more than four hours between any two daytime feeds and no more than six hours or between any two nighttime feeds. [X] should inform her about contraceptive methods that are compatible with breastfeeding so that she can choose a method before any one of the criteria can no longer be met.

Participant Handout 2.8A: LAM Role Plays (Answer Key, Cont.)

Role Play #2

[A] is a 19 year-old woman visiting her clinic for her six month prenatal checkup. She is well and has only a few minor complaints. This is her first pregnancy. [A] and her husband have recently moved from [PLACE A] to [PLACE B] where her husband has a job with the State Government. [A] is also employed as a telephone operator in a [PLACE B] hotel. She plans to quit her job and stay at home after the baby is born because both her and her husband's family live far away. She tells the doctor she plans to bottlefeed her baby because she is nervous about breastfeeding.

Consider the following in your simulation:

1. What can the provider say or do to allay [A]'s fears about breastfeeding?

Explain that breastfeeding is natural and that with assistance and counseling from clinic staff, she is capable of breastfeeding her infant. Explain the benefits of breastfeeding, especially as related to bottlefeeding and LAM.

2. What would the provider say to convince [A] about the advantages of breastfeeding for herself and her baby?

The provider could list many of the advantages of breastfeeding for the mother:

- ***Reduces bleeding postpartumly***
- ***Protects against ovarian and breast cancer***
- ***Offers contraceptive protection (LAM)***
- ***Enhances maternal-infant bonding***
- ***Reduces anxiety, stress, depression***
- ***Enhances positive self-image***
- ***Convenient form of infant nutrition***
- ***Economical form of infant nutrition***
- ***Hormones (prolactin, oxytocin) induce maternal behavior***
- ***Increases relaxation and interaction with infant***

Also list the benefits for the infant:

- ***Prevents hypothermia (low body temperature)***
- ***Supports growth and survival through strengthened maternal-infant bonding***
- ***Lower occurrences of infections (gastrointestinal, respiratory, otitis media)***
- ***Increases alertness; stronger arousal reactions***
- ***Breastfed infants tend to walk earlier***
- ***Breastmilk is easy to digest***
- ***Enhances brain development thus infants tend to be more intelligent***
- ***Lower occurrences of allergy***

Participant Handout 2.8A: LAM Role Plays (Answer Key, Cont.)

Role Play #2 (cont.)

- *Lower occurrences of infant abandonment*
- *Stimulates infant social interaction*
- *Fosters a sense of security*

3. What questions might [A] ask about breastfeeding?

[A] may ask questions about the disadvantages of breastfeeding, how it will effect her lifestyle, whether it will be painful, any rumors she may have heard, and how to address some of the common side effects (e.g., engorgement, cracked nipples), and how to breastfeed (i.e., how often, how to position the infant, etc.).

Participant Handout 2.9: Case History Checklist for Potential LAM Users

Clinician's Questions	Rationale for Question	Client Response		Recommended Action/Plan
		NO	YES	
1. Have you had a period since the birth of your baby? If yes, when did you have it? How long did it last? Was it light? Heavy?				
2. Is your baby more than six months old? How old is s/he?				
3. Do you give your baby any other food or drink besides breastmilk? How often and how much?				
4. How often do you breastfeed your baby? Are any two breastfeeds more than six hours apart? Do you feed your baby during the night? How often?				

Adapted from:

Guidelines for Clinical Procedures in Family Planning. INTRAH, 1992 .

Participant Handout 2.10: Learning Guide for LAM Counseling

Instructions: Place a checkmark in the "Cases" column if each step is performed adequately during counseling role play or clinical practicum, as appropriate.

Participant's Name: _____

Clinical Site: _____

Clinical Trainer's Name: _____

Activity/Task	Cases		
	1	2	3
General Counseling on LAM			
1. Assures necessary privacy			
2. Greets client respectfully.			
3. Asks what MCH/FP service she is seeking and responds to any general questions she may have			
4. Provides general information about MCH services and FP methods available			
5. Explains what to expect during clinic visit			
6. Discuss all available methods so client can make an informed choice: <ul style="list-style-type: none"> • asks client about reproductive goals • explores any attitudes or religious beliefs that may favor or rule out one or more methods • explains contraceptive choices available • explains benefits/advantages of each • explains risks/disadvantages of each • explains each contraceptive's effect on breastfeeding • asks client if she has any questions and respond to these • helps client to make decision about choice of method • asks client which method she prefers 			
7. Obtains necessary biographic data			
8. If client has chosen LAM: <ul style="list-style-type: none"> • asks her what she knows about breastfeeding as a contraceptive method • corrects any myths/rumors/misinformation she may have • asks if she has used breastfeeding in the past for child spacing purposes • asks what her experience was • repeats advantages of breastfeeding for baby and mother • asks if she has any questions and answer these 			

Activity/Task	Cases		
	1	2	3
Immediate Postpartum Period			
<p>9. Counsels client on optimal breastfeeding practices which include:</p> <ul style="list-style-type: none"> • breastfeeding immediately after delivery, to provide colostrum to infant • breastfeeding on demand, day and night • breastfeeding on both breasts • avoiding intervals of more than four hours between any two daytime feed and more than six hours between any two nighttime feeds • breastfeeding exclusively for the first six months • when supplements are introduced, feeding from breast first and then give supplement • avoiding use of pacifiers/bottles/nipples • breastfeeding even when mother or baby is ill • encouraging her to maintain sound diet • if separated from baby, to express and correctly store milk • breastfeeding as long as possible 			
<p>10. Demonstrates correct position for mother to help mother put baby on breast:</p> <ul style="list-style-type: none"> • have mother to sit/lie comfortably so that she is comfortable • hold baby so that baby is close to and facing the breast – baby’s stomach should be against the mother’s stomach • hold baby at back of shoulders – not head • mother should offer whole breast – not just nipple • mother should touch baby’s cheek/upper lip to stimulate rooting reflex • wait until baby’s mouth is wide open and quickly move baby well on to the breast 			
<p>11. Demonstrates to mother correct position for good suckling:</p> <ul style="list-style-type: none"> • baby’s whole body facing and close to mother’s body • baby’s face is close to breast • baby’s chin is touching breast • baby’s mouth is wide open and completely covers nipple and much of areola • baby’s lower lip is curled outward • more areola showing above baby’s upper lip and less areola showing below lower lip • mother can see baby is taking slow, deep sucks 			
<p>12. Discusses when to introduce an additional method of contraception. Stresses when any one of the following conditions occur, she is at risk for pregnancy:</p> <ul style="list-style-type: none"> • when she has a menstrual period • when baby reaches six months of age • when she starts to give regular supplementary feedings 			
<p>13. Asks client if she has questions and respond to these</p>			
<p>14. Asks client to repeat back the three LAM conditions and the most important optimal breastfeeding practices</p> <ul style="list-style-type: none"> • corrects any misunderstandings 			
<p>15.. Reassures client you are available to see her if she has any problems, questions or needs advice.</p>			

Activity/Task	Cases		
	1	2	3
Postpartum Visit			
16. If client is postpartum : <ul style="list-style-type: none"> asks if client is having any breastfeeding difficulties/problems and advises/treats as appropriate 			
17. Takes a history. Asks client: <ul style="list-style-type: none"> have you had a menstrual period since the birth of your baby? <p>Note: <i>Spotting in the first 56 days is not considered menses.</i></p> <ul style="list-style-type: none"> is your baby more than six months old? has your baby regularly started taking solid foods or liquids (more than sips of water/ritual foods)? 			
18. If answer to all three questions is "no", discusses and teaches client the three conditions under which LAM provides effective contraceptive protection: <ul style="list-style-type: none"> no menstrual period baby is less than six months old she is fully or nearly fully breastfeeding 			
Return Visit			
1. Asks if there are any problems or complaints and deal with these as appropriate			
2. Repeats the history checklist			
3. Repeats optimal breastfeeding practices			
4. Discusses other FP methods and identifies those which are complementary to breastfeeding			
5. Gives return appointment for checkup and eventual use of another FP method if client desires one			

Comments: _____

Participant Handout 2.11: Proper Positioning of the Baby at the Breast

Signs that the infant has fixed onto the breast in a good position:

- The infant's body is close to the mother.
- The infant's mouth and chin are close to the breast.
- The infant's mouth is wide open.
- You cannot see much areola.
- You can see the infant taking slow, deep sucks.
- The infant is relaxed and happy.
- The mother does not feel nipple pain.
- The lower lip is turned outward.
- Baby's tongue is under the nipple.



Source: Savage King F. *Helping Mothers to Breastfeed*. Rev. Ed. 1992.

Participant Handout 2.12: Indicators of Insufficient Milk

You can be confident your baby is getting enough milk if:

- S/he has six to eight really **wet diapers** and two to five **bowel movements** per day (24 hrs.). In an older baby (beyond six to eight weeks of age), the number of bowel movements per day may decrease, and the baby may have a bowel movement only once a day or even every three to four days. However, the number of wet diapers continues to signify that s/he is getting enough milk.
- S/he is **gaining weight** at an average of four to seven ounces a week or at least one pound (453 grams) per month. Although four to seven ounces per week is an average gain for an average baby, different babies gain at different rates. In addition, some weeks your baby will gain more or less than other weeks, which is perfectly normal. At your baby's first checkup, remember that most babies lose weight in the days immediately following birth. Weight gain should be determined from the lowest weight the baby reached rather than his birth weight. Some babies take two to three weeks to regain their birth weight.
- S/he is **nursing frequently**—every two to three hours or eight to twelve times in a twenty-four hour period. This is an average, and some babies may nurse less frequently while others nurse more often. Less frequent nursing is not a problem unless the baby is not gaining weight well.
- S/he **appears healthy** with good color and resilient skin; s/he is "filling out" and growing in length, and is alert and active with good muscle tone.

Possible signs that your baby is not getting enough milk include the following:

- not satisfied after a breastfeed
- cries often
- wants frequent breastfeeds
- takes very long breastfeeds
- refuses to breastfeed
- has hard, dry, or green stools
- has infrequent small stools
- has infrequent wet diapers

Participant Handout 2.13: LAM Case Studies

Case Study #1

Subjective: A 20 year-old para 1 delivered four months ago, and has been using LAM. She has had only one menstrual period, three weeks ago, and she and her husband had planned to have an IUD inserted with her next menses. They were using condoms until then. Last night her husband did not withdraw until flaccid, and the condom remained in her vagina with some ejaculate spilling when the condom was removed. This woman definitely does not want another pregnancy now and has come to you for advice.

Objective: Young woman clearly upset and in semi-panic. Breasts normal lactating and somewhat full. Pelvic examination normal; uterus retroverted, small, regular and firm. No evidence of genital tract infection.

Questions for Discussion:

1. Is this woman justified in worrying that she may become pregnant from this condom accident?
2. What advice are you going to give her under the circumstances? Are there any other alternatives to managing her case?
3. Would you give her the same advice if she had been breastfeeding fully and had not menstruated?

Assessment:

Plan:

Participant Handout 2.13: LAM Case Studies (cont.)

Case Study #2

Problem Statement: Sore breasts are a very common problem for breastfeeding mothers, especially if they are breastfeeding for the first time. Sore breasts are most commonly due to engorgement or plugged milk ducts, but may also indicate mastitis (infection).

Subjective: An 18 year-old para 1 had a normal home delivery one week ago and has been breastfeeding her infant on demand. Last evening she noted her right breast is very tender to touch and also swollen. It is so sore she cannot bear the thought of putting her baby to suckle on that side. She comes to you for advice.

Objective: Well-nourished 18 year-old woman, very uncomfortable, accompanied by her husband and baby girl. Temperature 37.2, BP 120/74. Breasts: Right breast significantly larger than left, evenly indurated, tender all over; no cracks on nipple or lumps noted.

Questions for Discussion:

1. What will help you to distinguish between engorged breasts, plugged milk duct, and an infected breast?
2. What is the treatment for breast infection?
3. How can you prevent breast infection?

Assessment:

Plan:

Participant Handout 2.13A: LAM Case Studies (Answer Key)

Case Study #1

Subjective: A 20 year-old para 1 delivered four months ago, and has been using LAM. She has had only one menstrual period, three weeks ago, and she and her husband had planned to have an IUD inserted with her next menses. They were using condoms until then. Last night her husband did not withdraw until flaccid, and the condom remained in her vagina with some ejaculate spilling when the condom was removed. This woman definitely does not want another pregnancy now and has come to you for advice.

Objective: Young woman clearly upset and in semi-panic. Breasts normal lactating and somewhat full. Pelvic examination normal; uterus retroverted, small, regular and firm. No evidence of genital tract infection.

Questions for Discussion:

1. Is this woman justified in worrying that she may become pregnant from this condom accident? ***Somewhat, although the first menses after lactational amenorrhea may be anovulatory (without ovulation), the subsequent menses are more likely to be preceded by ovulation, hence the increased risk of pregnancy. If her menses resumed a standard number of days (21-35 days) the condom accident may have occurred post-ovulation, and the risk of pregnancy would be absent.***
2. What advice are you going to give her under the circumstances? Are there any other alternatives to managing her case? ***Under the circumstances, the likelihood that she will become pregnant is low and she should continue to use condoms until her menses; review the points for successful condom use. She should be counseled to return to the clinic/provider if her menses does not return at the time she expects it; so that she can be examined and/or tested.***

If she is in a country where emergency contraceptive pills (ECPs) are available, she should be counseled and provided with this method. Once menses began, the IUD could have been inserted.

If she is not in a country where ECP are available, she should be counseled regarding the low risk of pregnancy, provided with condoms, and advised to return for IUD insertion with her menses.

If her menses does not come, she should be evaluated for pregnancy and counseled about her options and referred to the appropriate services.

Participant Handout 2.13A: LAM Case Studies (Answer Key)

Case Study #1 (Cont.)

3. Would you give her the same advice if she had been breastfeeding fully and had not menstruated? **No. If she were fully breastfeeding and not menstruating, her risk of pregnancy would be very low--approximately 2%.**

Assessment:

Four month postpartum woman, discontinued using LAM due to resumed menses three weeks ago; condom accident; concerned with risk of pregnancy.

Plan:

Counsel regarding the low risk of pregnancy; continue the use of condoms; return for IUD insertion with menses; return if menses does not resume. If ECPs are available, provide ECP counseling and method, including return visit.

Participant Handout 2.13A: LAM Case Studies (cont.) (Answer Key)

Case Study #2:

Problem Statement: Sore breasts are a very common problem for breastfeeding mothers, especially if they are breastfeeding for the first time. Sore breasts are most commonly due to engorgement or plugged milk ducts, but may also indicate mastitis (infection).

Subjective: An 18 year-old para 1 had a normal home delivery one week ago and has been breastfeeding her infant on demand. Last evening she noted her right breast is very tender to touch and also swollen. It is so sore she cannot bear the thought of putting her baby to suckle on that side. She comes to you for advice.

Objective: Well-nourished 18 year-old woman, very uncomfortable, accompanied by her husband and baby girl. Temperature 37.2, BP 120/74. Breasts: Right breast significantly larger than left, evenly indurated, tender all over; no cracks on nipple or lumps noted.

Questions for Discussion:

1. What will help you to distinguish between engorged breasts, plugged milk duct and an infected breast? ***Differentiate between the signs of engorgement, plugged milk duct, and infected breast by observing for the following:***
 - ***Engorged breast: Breast is swollen with no differentiation between the nipple and areola. The skin is firm, shiny, and there is a slight temperature elevation.***
 - ***Plugged milk duct: A discrete area over the milk duct is lumpy, and there is no temperature elevation.***
 - ***Infected breast (mastitis): There is a sudden onset after 10 days postpartum, usually effecting one breast. The breast is red, hot, and swollen, with intense localized pain. Temperature is greater than 38.4°C with flu-like symptoms.***
2. What is the treatment for breast infection? ***Encourage the mother to continue breastfeeding on both breasts, but offer the baby the unaffected breast first so that "let down" will occur in the effected breast. Advise the mother to empty the effected breast by breastfeeding, or by pumping or manual expression if the baby does not empty the breast during the feeding.***

Encourage the mother to maintain bed rest; get others to help with chores other than baby feeding. Provide antibiotics which can be tolerated by both the mother and the baby (e.g., amoxicillin if the baby is less than one month old or penicillin, ampicillin, or erythromycin if the baby is greater than one month old). A cephalosporin may be used. Continue antibiotics for 10 - 14 days.

Participant Handout 2.13A: LAM Case Studies (cont.) (Answer Key)

Case Study #2 (Cont.):

Apply heat or cold (whichever is more comforting) to the breast. Encourage the mother to take plenty of fluids, a mild pain reliever, and to wear a supportive bra (not tightly). If the mother develops an abscess, management will require needle aspiration or incision and drainage.

3. How can you prevent breast infection? **Breast infection (mastitis) develops as a result of invasion of breast tissue by bacteria in the presence of injury. Injury can be caused by bruising from rough handling, breast overdistention, plugged milk duct, or cracking of the nipple. The bacteria can originate from the mother's hands, hands of other people caring for the mother or the baby, the lactiferous duct, or the circulating blood stream. The most common cause is staphylococcus aureus. Stress and fatigue are also associated with mastitis.**

Prevention requires:

- **Careful attention to handwashing with soap**
- **Prevention of engorgement with early and frequent feedings**
- **Correct positioning of the baby on the breast**
- **Breast care which involved gentle handling**
- **Support of the breast with a well-fitting bra that is not tight**
- **Cleaning breasts with water only, not using drying agents**
- **Observing baby for signs of skin or cord infection**
- **Avoiding contact with people with known staphylococcus infections**

Assessment:

Engorged right breast

Plan:

1. *Advise mother to breastfeed from right breast first until engorgement is lessened; thereafter she should alternate both breasts for breastfeeding, and to breastfeed frequently.*
2. *Apply warm compress/cloth to breast.*
3. *She may try to express milk manually.*
4. *Provide general advice on how to breastfeed successfully, and how to avoid future breastfeeding problems.*
5. *Determine if she is relying on breastfeeding as a contraceptive method, and if so, she fulfills the criteria to successfully use the LAM method.*
6. *If she will not use the LAM method or if any one of the three criteria for LAM are not met, she needs advice on choosing and using another method complementary to breastfeeding, which should be started by six to eight weeks postpartum.*

Participant Handout 2.14: Summary

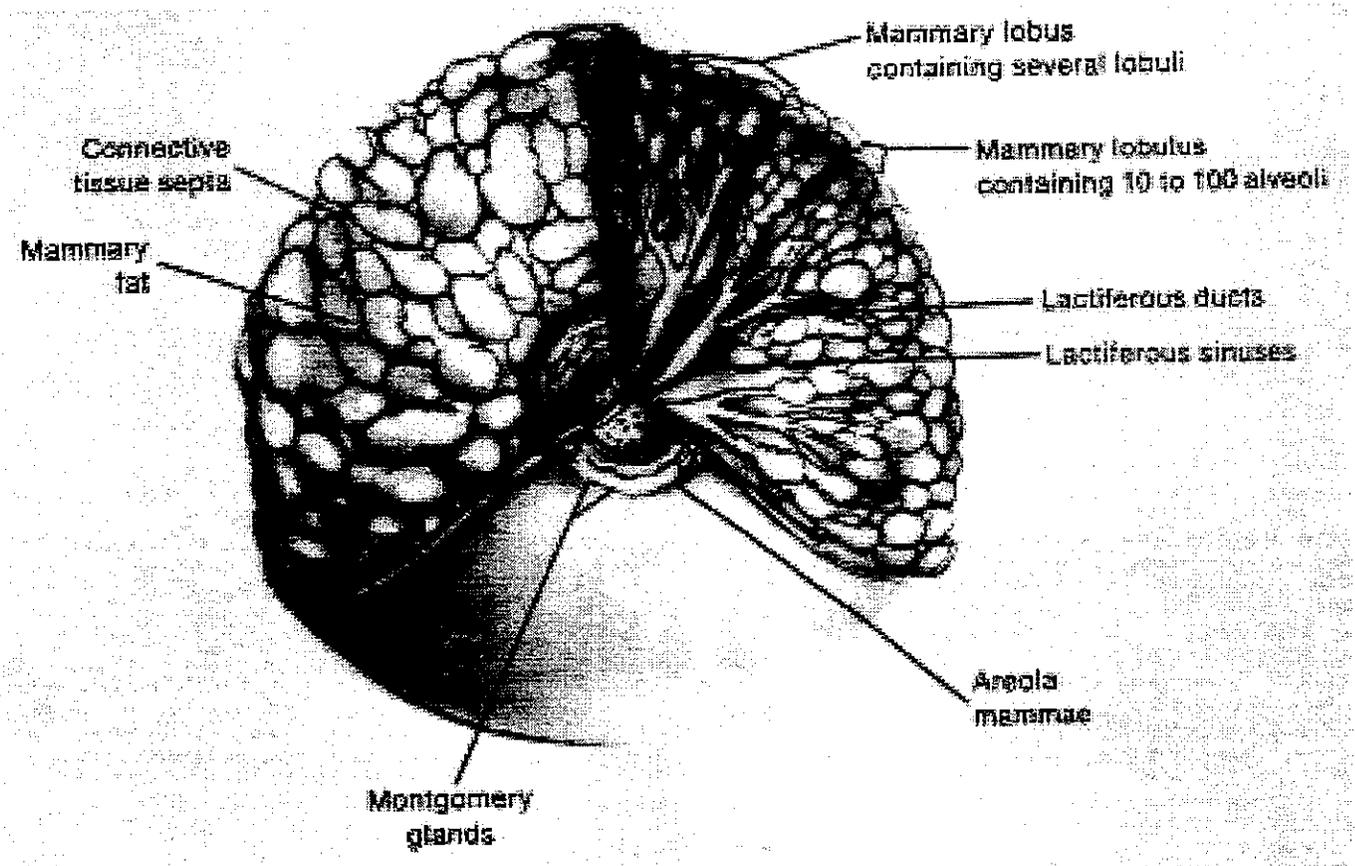
Health professionals play a vital role in encouraging and counseling women to breastfeed. Counseling must begin in the prenatal period, when women have time to prepare mentally and physically, and when the benefits and reduction in health risks for mother and baby can be stressed and absorbed. These messages need to be transmitted to woman at every prenatal encounter, and reinforced and supported in the immediate postpartum period.

Transparency 1.1: Unit 1 Objectives

By the end of this unit, participants will be able to:

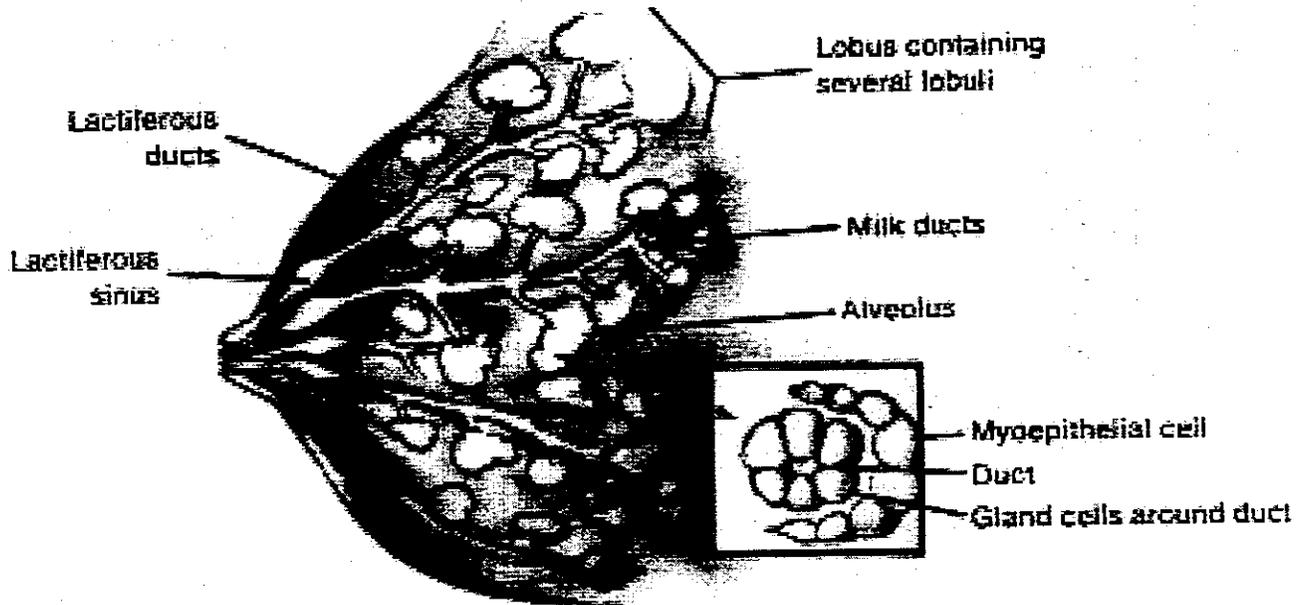
1. Explain the benefits of breastfeeding for the mother, the infant, the health care system, and the nation.
2. List the disadvantages of breastfeeding.
3. Share cultural and social practices which affect breastfeeding in their areas.
4. Identify anatomical structures of the breast, including their function.
5. Explain the physiology of lactation.
6. Discuss factors that influence lactation.
7. Discuss the role of health personnel in prenatal, intranatal and postnatal support for breastfeeding.
8. State the nutritional needs of lactating women.
9. Discuss the considerations for contraception in breastfeeding women.
10. Describe the management for breastfeeding conditions such as insufficient milk supply, sore or cracked nipples, breast engorgement, and mastitis.
11. Generate strategies for institutionalizing the support of optimal breastfeeding practices.

Transparency 1.2: Anatomy of the Breast (Front View)



Source: Lawrence R. *Breastfeeding: A Guide for the Medical Profession*. 4th Edition. 1994.

Transparency 1.3: Anatomy of the Breast (Side View)



Source: Lawrence R. *Breastfeeding: A Guide for the Medical Profession*. 4th Edition. 1994.

Transparency 2.1: Unit 2 Objectives

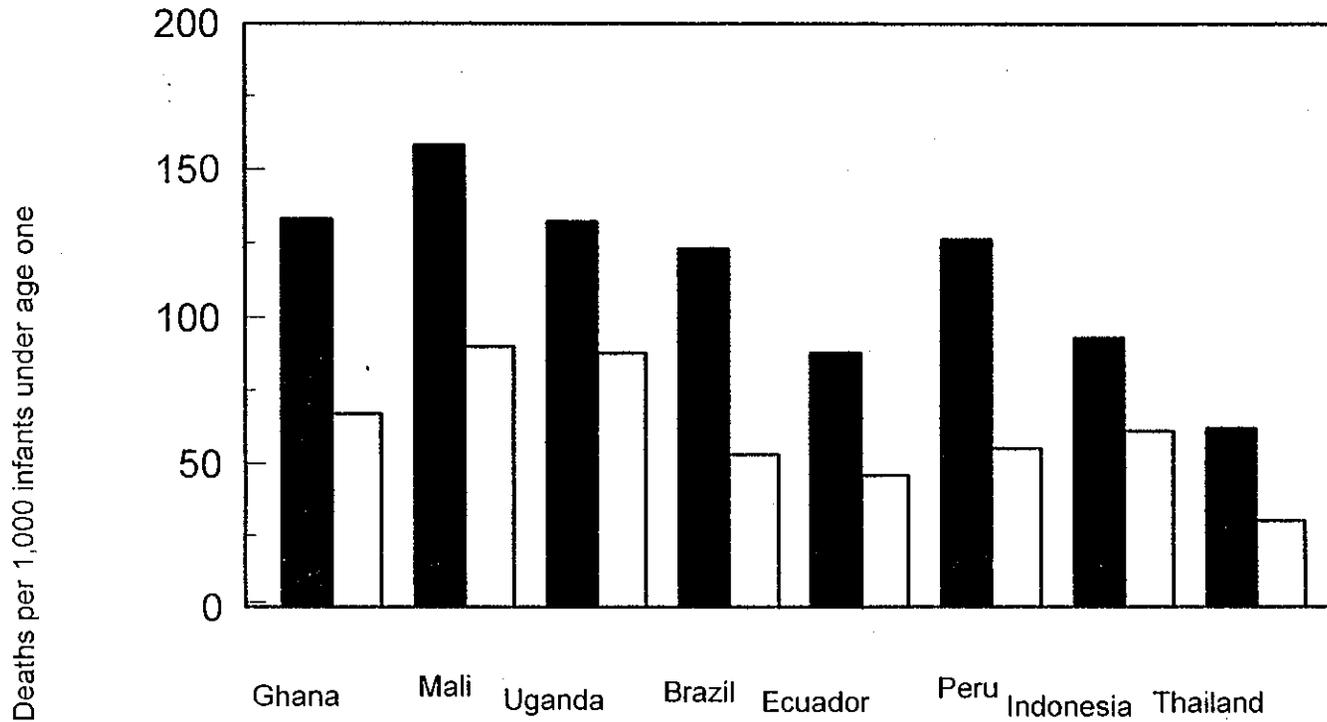
By the end of this unit, participants will be able to:

1. Explain key messages related to LAM.
2. Discuss the importance and need for promoting breastfeeding.
3. Describe the advantages and disadvantages of breastfeeding.
4. Define what is meant by the term Lactational Amenorrhea Method (LAM), and its effectiveness as a contraceptive method.
5. Explain the physiology of breastfeeding as it relates to fertility.
6. Explain the advantages, disadvantages, indications and precautions for use of LAM as a sole method of contraception, and when to introduce another child spacing method.
7. Explain the categories of complementary family planning methods for lactating women.
8. Counsel women on the benefits and use of LAM so it can be used effectively.
9. Recognize and manage common breastfeeding problems.

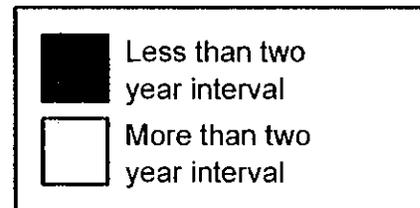
Transparency 2.2: Contraceptive Prevalence Required to Maintain Current Fertility Rates

Country	Contraceptive Prevalence Rate		
	current	with 25% decline in breastfeeding	with 50% decline in breastfeeding
Guatemala (1987)	23%	32%	46%
Peru (1986)	46%	51%	57%
Ghana (1988)	13%	24%	34%
Senegal (1986)	11%	23%	35%
Morocco (1987)	36%	41%	47%
Indonesia (1987)	48%	53%	58%

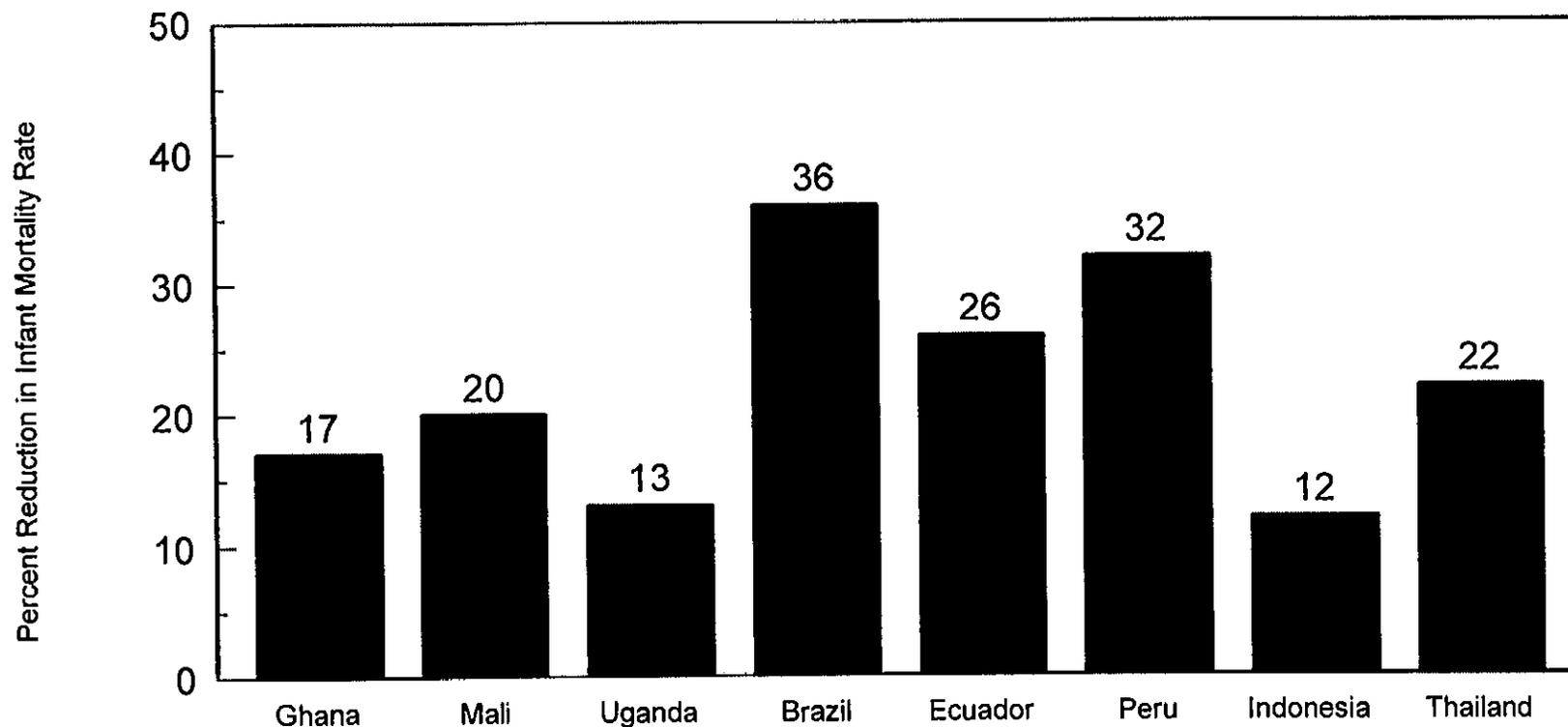
Transparency 2.3: Comparison of Mortality Rates for Babies Born after Short and Long Intervals



Source: Family Planning Saves Lives, 2nd. ed.
Washington, DC: Population Reference Bureau, 1991, p. 5.



Transparency 2.4: Estimated Percent Reduction in Infant Mortality if All Babies Born after a Two Year Interval



Source: *Family Planning Saves Lives*. 2nd Ed.
 Washington, DC: Population Reference Bureau, 1991, p. 8.

Transparency 2.5: Physiology of the Lactational Amenorrhea Method

The physiology of LAM is based on the hypothalamus-pituitary-ovarian feedback system. Suckling at the breast sends neural signals to the hypothalamus. This changes the level and rhythm of gonadotropin releasing hormone (GnRH) secretion. GnRH influences pituitary release of follicle stimulating hormone (FSH) and luteinizing hormone (LH), the hormones responsible for follicle development and ovulation. Hence, breastfeeding results in decreased and disorganized follicular development.

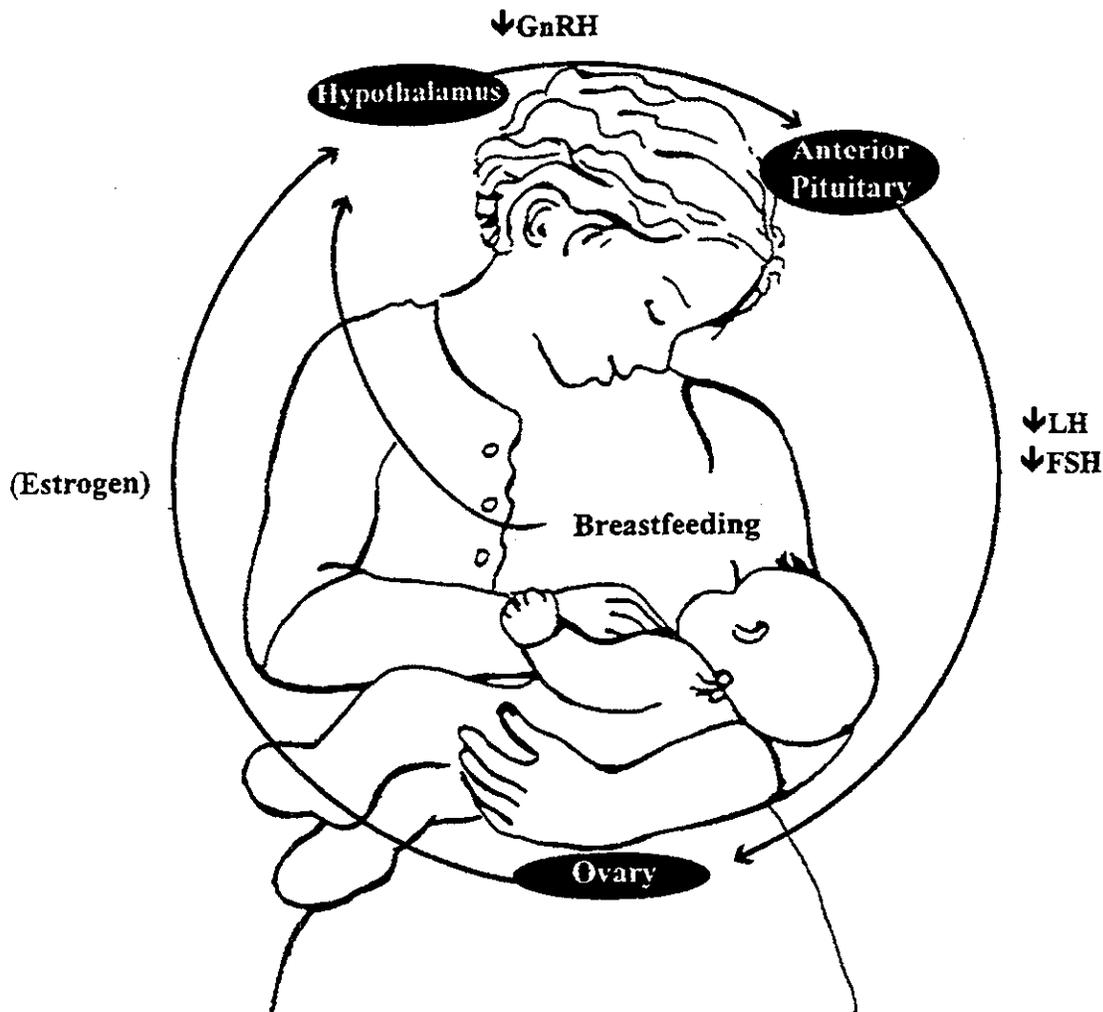


Illustration by: Beatrice Carrasco, adapted from Vlades, V and Perez, A. 1990. *Lactancia Materna*.

Transparency 2.7: Schema for Breastfeeding Definition

Breastfeeding patterns are highly variable. The following description defines the different patterns and indicates their physiological impact on fertility and milk production.

SIGNIFICANT FERTILITY IMPACT

Full Breastfeeding

- *Fully*: No other liquid or solid is given to the infant.
- *Nearly fully*: Small amounts of vitamins, mineral water, juice, or ritualistic feeds are given not more than once a day in addition to breastfeeds. (One or two swallows not more than once a day.)

Partial Breastfeeding

- *High*: Vast majority of feeds are breastfeeds (85% or more).

LITTLE FERTILITY IMPACT

Partial Breastfeeding (Cont.)

- *Medium*: About half of all feeds are breastfeeds.
- *Low*: Vast majority of feeds are not breastfeeds.

Token Breastfeeding

- *Token*: Minimal breastfeeds (e.g., ritual breastfeeding).

Unit 1: Breastfeeding Pre-/Post-Test

Name: _____ Date: _____

Instructions: Write in the correct answer next to the letters.

1. Three benefits to the mother from breastfeeding are:
 - (a) _____
 - (b) _____
 - (c) _____
2. Three benefits to the infant from breastfeeding are:
 - (a) _____
 - (b) _____
 - (c) _____
3. Two benefits to the health care system from breastfeeding are:
 - (a) _____
 - (b) _____
4. One benefit to the nation from breastfeeding is:
 - (a) _____
5. The anatomical structure of the breast whose cells produce milk is the _____.
6. The structure located under the areola which must be compressed by the infant's mouth for adequate feeding is the _____.
7. The hormone responsible for "let-down" is _____.
8. The hormone which is stimulated by the suckling of the infant, and which stimulates milk production is _____.

9. List five things that can be done during the prenatal period to support successful breastfeeding.
- (a)
 - (b)
 - (c)
 - (d)
 - (e)
10. List two things that can be done during the intrapartal period to support successful breastfeeding.
- (a)
 - (b)
11. List five things that can be done during the postnatal period to support successful breastfeeding.
- (a)
 - (b)
 - (c)
 - (d)
 - (e)
12. Mrs. A. is three months postpartum and using LAM for contraception. Her baby has just started sleeping for more than six hours during the night.
- (a) Can she continue using LAM as reliable contraception? State your reason.
 - (b) If not, what would be her first choice methods?
 - (c) What would be her second choice methods?
 - (d) What would be her third choice methods?

True or False

Instructions: Write "True" on the line next to the statement if the statement is true; write "False" if the statement is false.

13. _____ Malnourished mothers cannot breastfeed.
14. _____ The milk of a malnourished mother is less nutritious to the infant than the milk from a well-fed mother.
15. _____ If a mother does not have enough milk, she can increase her supply by feeding more often and for slightly longer periods of time.
16. _____ If a mother has cracked nipple(s), she can no longer breastfeed.
17. _____ If a mother has mastitis, she can continue to breastfeed, even from the affected breast, while taking antibiotics and having bed rest.
18. _____ It is normal if a mother's breast is engorged, and she should be assisted to express enough milk manually to soften the areola so that the baby can be positioned correctly on the breast.
19. _____ One way for an institution to support mothers to successfully breastfeed is to train the health personnel in lactation management.
20. _____ Another way for an institution to support mothers to successfully breastfeed is to give them packages of breastmilk substitute (formulas) until their mature milk comes in.

Unit 1: Breastfeeding Pre-/Post-Test (Answer Key)

Name: _____ Date: _____

Instructions: Write in the correct answer next to the letters.

1. Three benefits to the mother from breastfeeding are:

Any three of the following benefits: • reduces hemorrhage postnatally, • facilitates involution, • protects against ovarian and breast cancer, • offers contraceptive protection (LAM), • enhances maternal-infant bonding, • reduces anxiety, • stress, • depression, • enhances positive self-image, • convenient form of infant nutrition, • economical form of infant nutrition, • hormones (prolactin, oxytocin) induce maternal behavior, • and increases relaxation and interaction with infant.

2. Three benefits to the infant from breastfeeding are:

Any three of the following benefits: • prevents hypothermia (low body temperature), • supports growth and survival through strengthened maternal-infant bonding, • lower occurrences of infections (gastrointestinal, respiratory, otitis media), • increases alertness, • stronger arousal reactions, • infants tend to walk earlier, • breastmilk is easy to digest, • enhances brain development thus infants tend to be more intelligent, • lower occurrences of allergy, • lower occurrences of infant abandonment, • stimulates infant social interaction, • and fosters a sense of security.

3. Two benefits to the health care system from breastfeeding are:

Any two of the following benefits: • when mothers and infants stay together and breastfeed on demand, there are cost savings because there is no need for separate space, • equipment for feeding and warming infants, and separate staff, • reduces cost associated with supplying breastmilk substitutes and drugs to prevent uterine atony, • reduces cost of hospitalization for diarrheal disease and other infections, • and reduces costs in family planning programs where LAM is supported for the first six months postpartum.

4. One benefit to the nation from breastfeeding is:

Any one of the two following benefits: • reduces foreign exchange by lessening demands for breastmilk substitutes, bottles, associated supplies, • and reduces cumulative cost from health care sites in providing care for diarrheal disease and infections.

5. The anatomical structure of the breast whose cells produce milk is the Alveolus.
6. The structure located under the areola which must be compressed by the infant's mouth for adequate feeding is the Lactiferous sinus.
7. The hormone responsible for "let-down" is oxytocin.
8. The hormone which is stimulated by the suckling of the infant, and which stimulates milk production is prolactin.
9. List five things that can be done during the prenatal period to support successful breastfeeding.

These preparations include:

- Health education messages to mothers during this period should including information on benefits to mother and infant, etc.,
- provision of written or graphic materials to women and linkages to successful breastfeeders in the community can extend the role of the health care provider,
- physical examination which includes careful assessment of the breast (Size is not a factor in the success of or failure to breastfeeding.),
- assessment of the areola and nipple to test for freedom of protrusion,
- determine whether nipples are inverted or flat.

10. List two things that can be done during the intrapartal period to support successful breastfeeding.

Two things that can be done during the intrapartal period include the following:

- Facilitate breastfeeding immediately after birth, as long as the mother is not heavily sedated, the infant's Apgar at 5 minutes is not under 6, or the infant is not under 36 weeks premature,
- and position the baby beside the mother,
- assist the mother to turn on her side,
- help infant to position its mouth on the breast correctly with mother and baby stomach-to-stomach, skin to skin.

11. List five things that can be done during the postnatal period to support successful breastfeeding.

Activities to help breastfeeding in the postnatal period include the following:

- help mothers learn a variety of comfortable positions for feeding,
- help mothers gain confidence in positioning the infant correctly on the breast,
- help mothers to correctly hold the breast for the infant,
- never push the infant's head toward the breast because the infant will push back and arch away from the breast,
- help mothers position the infant on the second breast,
- show mothers how to break the infant's suction,
- when the infant falls asleep on the breast,
- explain that nonnutritive suckling while asleep is especially irritating to the nipple in the first few days,
- do not give sweet water, water, or breastmilk substitutes after breastfeeds, or in place of a

breastfeed, • show mothers, when waking the infant before positioning on the second breast, to unwrap the blanket and use gentle stimulation, • show mother how to gently burp the infant after feeding to satisfaction on the first breast, • keep mothers and infants together, • and encourage mothers to nap frequently as rest is essential to lactation.

12. Mrs. A. is three months postpartum and using LAM for contraception. Her baby has just started sleeping for more than six hours during the night.

(a) Can she continue using LAM as reliable contraception? State your reason.

No. She no longer meets the three criteria for using LAM, since there is a gap of more than six hours between the two nighttime feeds.

(b) If not, what would be her first choice methods?

Non-hormonal methods: condoms, spermicides, diaphragm, IUD, VSC.

(c) What would be her second choice methods?

Progestin-only methods: DMPA (injectable), progestin-only pills, Norplant implants.

(d) What would be her third choice methods?

Combined oral contraceptives, combined injectable contraceptives.

True or False

Instructions: Write "True" on the line next to the statement if the statement is true; write "False" if the statement is false.

13. False Malnourished mothers cannot breastfeed.

14. False The milk of a malnourished mother is less nutritious to the infant than the milk from a well-fed mother.

15. True If a mother does not have enough milk, she can increase her supply by feeding more often and for slightly longer periods of time.

16. False If a mother has cracked nipple(s), she can no longer breastfeed.

17. True If a mother has mastitis, she can continue to breastfeed, even from the affected breast, while taking antibiotics and having bed rest.

18. True It is normal if a mother's breast is engorged, and she should be assisted to express enough milk manually to soften the areola so that the baby can

be positioned correctly on the breast.

19. **True** One way for an institution to support mothers to successfully breastfeed is to train the health personnel in lactation management.
20. **False** Another way for an institution to support mothers to successfully breastfeed is to give them packages of breastmilk substitute (formulas) until their mature milk comes in.

Unit 2: Lactational Amenorrhea Method (LAM) Pre-/Post-Test

Name: _____ Date: _____

Instructions: Circle the letter(s) of the correct answer(s).

1. It is best to begin counseling a woman about LAM
 - a. in the prenatal period
 - b. during the early stages of labor
 - c. immediately following expulsion of placenta
 - d. after two months postpartum

2. Breastfeeding contributes significantly to (circle all that apply)
 - a. reduction of infant mortality rate
 - b. increase of infant mortality rate
 - c. increase of total fertility rate
 - d. reduction of total fertility rate

3. LAM reliably protects a woman from pregnancy only
 - a. until after she has had two menstrual periods
 - b. for the first six months and has no menstrual periods
 - c. for two to three months after mother starts feeding baby supplementary foods
 - d. for the first six months if she has no menstrual periods and is fully or nearly fully breastfeeding

4. When established criteria exist and instructions are followed, LAM is
 - a. 70% effective
 - b. 80% effective
 - c. 90% effective
 - d. 98% effective

5. To gain maximum protection from pregnancy when using LAM, a woman must breastfeed (circle all that apply)
 - a. no more than four times per day
 - b. on demand day and night
 - c. only during the day and supplement during the night
 - d. even when she or baby is ill
 - e. fully or nearly fully

6. When counseling a woman about LAM, a clinician **must** include the following information (Circle all that apply):
 - a. the three major criteria for LAM to be effective
 - b. when to start another family planning method
 - c. the mechanism of action is through increased prolactin levels and altered LH secretion
 - d. optimal breastfeeding practices
 - e. breastfeeding will make a woman less susceptible to HIV and hepatitis B infections

7. Factors that **enhance** the contraceptive effect offered by LAM are optimal breastfeeding practices. Two of these practices are:
 - a. breastfeeding on demand
 - b. mother's diet
 - c. breastfeeding at intervals no longer than four hours apart during the day and no longer than six hours apart during the night
 - d. use of pacifiers/supplemental feedings
 - e. maternal/baby illness or stress

8. Ovulation is more likely to precede menses in the breastfeeding woman
 - a. in the first two months postpartum
 - b. in the first postpartum menses
 - c. in the second postpartum menses
 - d. will not occur at all as long as the woman is exclusively breastfeeding

9. The chance of pregnancy **increases** when (Circle all that apply)
 - a. the woman is amenorrheic and fully/nearly fully breastfeeding, and less than six months postpartum
 - b. menses has returned in a woman who is fully or nearly fully breastfeeding
 - c. the woman is amenorrheic, partially breastfeeding and using supplements
 - d. the woman is six months postpartum, amenorrheic and fully breastfeeding

10. Appropriate complementary family planning methods for a breastfeeding woman are (Circle all that apply)
 - a. IUD
 - b. DMPA
 - c. Combined low-dose contraceptive pills
 - d. Condom with spermicides
 - e. Diaphragm with spermicides
 - f. Progestin-only pill

11. TRUE or FALSE : Write "T" on the line next to the statement if it is true; write "F" if the statement is false.

- a. Most women know instinctively how to properly breastfeed without advice or help.
- b. In developing countries, most women exclusively breastfeed their baby for the first six months.
- c. Counseling women for effective use of LAM is simple and does not require much time or expertise on the part of clinicians.
- d. LAM always needs a back-up method for its effective use as a contraceptive method.
- e. Colostrum should be expressed and discarded prior to putting baby on breast.
- f. Babies should be put on breast as frequently as they demand.
- g. A common cause of a mother's complaint that "baby not getting enough milk" is improper positioning of baby at breast.
- h. Bottle-fed babies are twice as likely to die within the first year from various diseases than breastfed babies.
- i. In order for LAM to remain effective as a child spacing method, 60% of feedings must be breastfeeds.

Unit 2: Lactational Amenorrhea Method (LAM) Pre-/Post-Test (Answer Key)

Name: _____ Date: _____

Instructions: Circle the letter(s) of the correct answer(s).

1. It is best to begin counseling a woman about LAM
 - a. **in the prenatal period**
 - b. during the early stages of labor
 - c. immediately following expulsion of placenta
 - d. after two months postpartum

2. Breastfeeding contributes significantly to (circle all that apply)
 - a. **reduction of infant mortality rate**
 - b. increase of infant mortality rate
 - c. increase of total fertility rate
 - d. **reduction of total fertility rate**

3. LAM reliably protects a woman from pregnancy only
 - a. until after she has had two menstrual periods
 - b. for the first six months and has no menstrual periods
 - c. for two to three months after mother starts feeding baby supplementary foods
 - d. **for the first six months if she has no menstrual periods and is fully or nearly fully breastfeeding**

4. When established criteria exist and instructions are followed, LAM is
 - a. 70% effective
 - b. 80% effective
 - c. 90% effective
 - d. **98% effective**

5. To gain maximum protection from pregnancy when using LAM, a woman must breastfeed (circle all that apply)
 - a. no more than four times per day
 - b. **on demand day and night**
 - c. only during the day and supplement during the night
 - d. **even when she or baby is ill**
 - e. **fully or nearly fully**

6. When counseling a woman about LAM, a clinician **must** include the following information (Circle all that apply):
 - a. **the three major criteria for LAM to be effective**
 - b. **when to start another family planning method**
 - c. the mechanism of action is through increased prolactin levels and altered LH secretion
 - d. **optimal breastfeeding practices**
 - e. breastfeeding will make a woman less susceptible to HIV and hepatitis B infections

7. Factors that **enhance** the contraceptive effect offered by LAM are optimal breastfeeding practices. Two of these practices are:
 - a. **breastfeeding on demand**
 - b. mother's diet
 - c. **breastfeeding at intervals no longer than four hours apart during the day and no longer than six hours apart during the night**
 - d. use of pacifiers/supplemental feedings
 - e. maternal/baby illness or stress

8. Ovulation is more likely to precede menses in the breastfeeding woman
 - a. in the first two months postpartum
 - b. in the first postpartum menses
 - c. **in the second postpartum menses**
 - d. will not occur at all as long as the woman is exclusively breastfeeding

9. The chance of pregnancy **increases** when (Circle all that apply)
 - a. the woman is amenorrheic and fully/nearly fully breastfeeding, and less than six months postpartum
 - b. **menses has returned in a woman who is fully or nearly fully breastfeeding**
 - c. **the woman is amenorrheic, partially breastfeeding and using supplements**
 - d. **the woman is six months postpartum, amenorrheic and fully breastfeeding**

10. Appropriate complementary family planning methods for a breastfeeding woman are (Circle all that apply)
 - a. **IUD**
 - b. **DMPA**
 - c. Combined low-dose contraceptive pills
 - d. **Condom with spermicides**
 - e. **Diaphragm with spermicides**
 - f. **Progestin-only pill**

11. TRUE or FALSE : Write "T" on the line next to the statement if it is true; write "F" if the statement is false.

- False a. Most women know instinctively how to properly breastfeed without advice or help.
- False b. In developing countries, most women exclusively breastfeed their baby for the first six months.
- False c. Counseling women for effective use of LAM is simple and does not require much time or expertise on the part of clinicians.
- False d. LAM always needs a back-up method for its effective use as a contraceptive method.
- False e. Colostrum should be expressed and discarded prior to putting baby on breast.
- True f. Babies should be put on breast as frequently as they demand.
- True g. A common cause of a mother's complaint that "baby not getting enough milk" is improper positioning of baby at breast.
- True h. Bottle-fed babies are twice as likely to die within the first year from various diseases than breastfed babies.
- False i. In order for LAM to remain effective as a child spacing method, 60% of feedings must be breastfeeds.

Comprehensive FP/RH Curriculum Participant Evaluation

Module 8: Breastfeeding and LAM

Rate each of the following statements as to whether or not you agree with them, using the following key:

- 5 Strongly agree
- 4 Somewhat agree
- 3 Neither agree nor disagree
- 2 Somewhat disagree
- 1 Strongly disagree

Course Materials

I feel that:

- The objectives of the module were clearly defined. 5 4 3 2 1
- The material was presented clearly and in an organized fashion. 5 4 3 2 1
- The pre-/post-tests accurately assessed my in-course learning. 5 4 3 2 1
- The competency-based performance checklist was useful. 5 4 3 2 1

Technical Information

- I learned new information in this course. 5 4 3 2 1
- I will now be able to:
- counsel women about breastfeeding for maternal and child health. 5 4 3 2 1
 - provide prenatal and postnatal breastfeeding support. 5 4 3 2 1
 - counsel women about the Lactational Amenorrhea Method of family planning. 5 4 3 2 1

Training Methodology

- The trainers' presentations were clear and organized. 5 4 3 2 1
- Class discussion contributed to my learning. 5 4 3 2 1
- I learned practical skills in the role plays and case studies. 5 4 3 2 1
- The required reading was informative. 5 4 3 2 1
- The trainers encouraged my questions and input. 5 4 3 2 1

Training Location & Schedule

The training site and schedule were convenient.

5 4 3 2 1

The necessary materials were available.

5 4 3 2 1

Suggestions

What was the most useful part of this training? _____

What was the least useful part of this training? _____

What suggestions do you have to improve the module? Please feel free to reference any of the topics above. _____

