Managing the Breastfeeding Woman

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Objectives

• To understand the benefits of breastfeeding for both the mother and the child.

• To understand breastfeeding mechanics and proper technique.

• To recognize the additional energy, vitamin and mineral requirements for women during lactation.

• To understand potential obstacles and contraindications to breastfeeding.
Healthy People 2020 Goals

- Increase to at least 80% the proportion of mothers breastfeeding upon discharge and 60% still breastfeeding when the infant is 6 months of age.

![Bar chart showing breastfeeding rates from 1995 to 2020]

- Discharge
- 6 Months
Obstacles to Initiating and Continuing Breastfeeding

- Physician apathy and misinformation
- Insufficient pre-natal breastfeeding education
- Distribution and promotion of infant formula
- Disruptive hospital policies
- Inappropriate interruptions of breastfeeding
- Early hospital discharge
- Lack of social support
Role of the Physician

- Establish positive attitudes in pregnancy
- Address medical issues/physical obstacles
- Encourage nursing immediately after delivery
- Provide post-partum support
- Explain nutritional needs
- Assess substance use
- Discuss employment concerns
Establish Positive Attitudes

• Endorse and encourage breastfeeding because it is best for mother and baby.
• Ask about previous experience
• Provide positive statements about breastfeeding
• Offer confirmatory words from all office staff
• Distribute appropriate education materials
• Be supportive no matter what the woman plans
General Benefits of Breastfeeding

- Maternal-infant bonding
- Inexpensive
- Convenient (no preparation)
- Perfect temperature
- Easily digested
- Immunological protection
- Allergy prophylaxis
Breastfeeding Advantages for Mothers

• May delay return of ovulation.
• Loss of pregnancy associated adipose tissue.
• Reduction in postpartum blood loss due to increased oxytocin levels.
• Reduction in pre-menopausal breast cancer and reduced risk of ovarian cancer.
• Improved bone remineralization postpartum.
Immunological Contents of Breast Milk

- Immunoglobulins
  - IgA, IgG, IgM, leukocytes, cytokines
- Host resistance factors
  - Complement macrophages, lymphocytes, lactoferrin
- Anti-inflammatory components
  - Enzymes: catalase, histaminase, lysozymes, lactoperoxidase
  - Antioxidants: ascorbic acid, alpha-tocopherol
  - Prostaglandins
- Interleukin-6
  - Stimulates an increase in mononuclear cells in breast milk.
Breastfeeding
Advantages for Baby

• Decreased incidence and/or severity of otitis media, diarrhea, lower respiratory infections, bacteremia, bacterial meningitis, botulism, urinary tract infections, and necrotizing enterocolitis.

• Less hospitalization in first 6 months.

• Possible protective effect against sudden infant death syndrome, type 1 diabetes, Crohn’s disease, ulcerative colitis, lymphoma, allergies, and chronic digestive diseases.
Evaluating the Pregnant Woman

• Consider physical obstacles
  - Physical examination of breasts and nipples.
  - Inverted or flat nipples.
  - Use breast shells for 6-8 weeks before delivery.
  - Breast cancer-avoid pregnancy and lactation for 5 years.

• Encourage communication and support
  - Misinformation, fears, self assurance.
  - Father’s and family’s attitudes.
  - Prenatal referral to lactation consultants/educators.
Physiology of Lactation

- Suckling stimulates nipple --> pituitary gland secretes oxytocin --> let down reflex results in milk ejecting cells contract forcing milk from milk cells into milk ducts.

- Milk pools in lactiferous sinuses under the areola. Suckling stimulates milk to come from the nipple.
When to Breastfeed

• Initiate feeding as soon as possible after delivery.
• Signs of hunger include:
  ➢ Alertness, increased activity, mouthing and rooting
• Feed on demand at least every 4 hours.
  ➢ 10 minutes per breast for first few weeks.
  ➢ Breast milk empties from stomach in 1.5 hours.
  ➢ Not unusual to breast feed every 2 to 3 hours or 8 to 12 times in a 24 hour period.
• Do not give glucose water to infant.
Proper Positioning of the Infant

- Cradle position
- Football hold
- Lying down
Latch on Properly

- Hold the breast in the opposite hand.

- Stroke the baby’s cheek or lips with the nipple to get him to open his mouth (rooting reflex).

- Once his mouth is open, pull the baby towards the breast, making sure that his head is facing the breast and mother and baby are stomach to stomach.

- Get as much of the nipple and areola into the baby’s mouth as possible.
Care of the Breasts and Nipples

- Demonstrate proper latch on and positioning.
- Cleanliness and attention to fissures.
- Use Lansinoh (pure lanolin) for cracked nipples.
- Avoid soaps and other ointments.
- Insert nipple shield into bra for irritated nipples.
- Use breast pads for leakage and change often.
Assessing Breastfeeding

- Mom feels tugging on nipple without pain.
- Infant weight gain pattern consistent (4-7 oz/wk).
- Voiding: 6-8 wet diapers/day.
- Stooling: generally more stools than formula.
- Feeding pattern—generally every 2-3 hours.
- Duration of feedings—generally 10-20 minutes/side.
- Activity and vigor of infant.
Composition of Breast Milk

• Colostrum: small amount during days 3 to 5
  - High in protein, immunoglobulins and minerals,
  - Low in lactose and fat

• Transitional milk: produced during days 6 to 10
  - High in fat, lactose
  - Lower in protein and minerals

• Mature milk: available by 2 weeks post-partum
  - Average secretion: 750 mg/d
  - Provides 20-22 kcal/ounce
  - 60-80% whey protein, 40% lactose, 50% fat
  - Growth factor
  - Low in vitamin D
Nutritional Requirements During Lactation

• Breastfeeding is an anabolic state, resulting in increased energy and nutrient needs:
  - 500 kcal/day (birth to 6 mo)
  - 400 kcal/day (7 - 9 mo)

• Protein, zinc, niacin, vitamins A, E, C requirements increase above those in pregnancy.
  - Protein = 71 g/day

• Chronically low maternal iron, vitamin B, C, D, thiamin, and folate intake leads to low content in breast milk.
Engorged Breasts

• Usually occurs 2 - 3 days post-partum from the increased blood flow and milk supply.
• Wear a supportive nursing bra which is not too tight.
• Nurse frequently, such as every 1 - 3 hours.
• Take warm shower before breastfeeding.
• Apply cold packs for short period after nursing.
Sore Nipples

• May result from improper latch on or disengagement.
  ➢ Areola must be placed in the infant’s mouth
  ➢ Place finger inside infant’s mouth to break suction

• May result from use of abrasive soaps or alcohol.
  ➢ Rinse nipples with water and air dry after nursing
  ➢ Use only Lansinoh for dry, cracked skin

• Late onset (after 1 month) causing burning throughout breast.
  ➢ May be caused by yeast (Monilia) infection and treated with Mycostatin
Mastitis

• **Symptoms**
  - Breast pain, swelling, flu-like symptoms, headache and fever

• **Causes**
  - Clogged ducts, cracked nipples, feeding on one breast only
  - Tight bra, wet breast pads, infrequent feeding
  - Anemia, fatigue, stress

• **Treatment**
  - Nurse frequently, feeding on unaffected breast first
  - Apply moist heat before nursing
  - Rest, wear comfortable bra, change breast pads often
  - May require antibiotics- (Dicloxacillin)
Jaundice

• Early onset (3 to 4 days postpartum)
  - Encourage mothers to nurse frequently (>8X/day)
  - Avoid supplemental formula or glucose water

• Late onset (7 to 10 days postpartum, peaks by 10 to 15 days and may persist 27 to 80 days)
  - Stop breastfeeding at bilirubin > 17 mg/dl.
  - Resume breastfeeding after bilirubin decreases.

• Majority of infants require no intervention and can be safely observed.
Insufficient Lactation
Infant Failure-to-Thrive

• Maternal causes
  - Poor milk production: diet, illness, fatigue
  - Poor let down: psychological, drugs, smoking
  - Inverted nipples
  - Significant breast reduction

• Infant problems
  - Poor intake: poor suck, infrequent feedings, Cleft palate
  - Low intake: vomiting, diarrhea, malabsorption
  - High energy needs: CNS impairment, premie, SGA, CHD
Substance Abuse

• Smoking should be avoided, as nicotine can cause:
  ➢ Vomiting, diarrhea and restlessness for the baby.
  ➢ Decreased milk production for the mother.
  ➢ May increase risk of SIDS.
  ➢ Opportunity to urge and instruct on smoking cessation.

• Alcohol readily passes into breast milk and is neurotoxic.

• Recreational and illicit drugs are a contraindication to breastfeeding.
Drugs Compatible With Breastfeeding

• Acetaminophen
• Many antibiotics
• Antiepileptics (except Primidone)
• Most antihistamines
• Most antihypertensives
• Aspirin (with caution)

• Caffeine in moderation
• Decongestants
• Ibuprofen
• Insulin
• Quinine
• Thyroid medications
Drugs Contraindicated While Breastfeeding

- Bromocriptine (hormone antagonist)
- Cyclophosphamide/ Doxorubicin/ Methotrexate (antineoplastic agent)
- Cyclosporine (immunosuppressant)
- Ergotamine (migraine headaches)
- Lithium (psychotropic agent)
- Drugs of abuse (cocaine, PCP)
Contraindication to Breastfeeding

- Recreational and illicit drug use
- Untreated active tuberculosis
- Radioactive mineral use for diagnostic tests
- Known primary acute cytomegalovirus infection
- Human immunodeficiency virus (HIV) infection
- Human T-cell leukemia/lymphoma virus
- Herpes simplex virus
- Hepatitis B, C (potential risk)
Breastfeeding Recommendations

• “Exclusive breastfeeding is the ideal nutrition source and sufficient to support optimal growth and development for the first six months of life.”

• The American Academy of Pediatrics recommends breastfeeding continue for at least the first 12 months.

Introducing a Bottle

- Breastfeeding does not have to be all or nothing.
- Try to wait at least 6 weeks to introduce the bottle.
- Pumping breast milk is an ideal option.
- Give bottle when infant is not extremely hungry.
- Start at the mid-day feeding.
- Let spouse, relative or care-giver offer the bottle initially.
Employment Issues

- Rent an electric breast pump.
- Discuss milk storage facilities.
  - Use breast milk within 24 to 48 hours or freeze
- Consider traveling issues.
- Set an example and breast feed your children.
How to Wean

• Try to wait as long as possible to wean the baby.
• Eliminate the same feeding everyday for one week, assuming no pumping will occur.
• Gradually eliminate additional feedings.
• Let spouse, relative or care-giver offer the bottle initially.
Nutrition During Pregnancy

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Objectives

• To produce, healthy, normal weight infants while minimizing health risks to the mother.

• To determine appropriate weight gain during pregnancy for normal, under and overweight women.

• To recognize the additional energy, vitamin and mineral requirements for women during pregnancy.

• To understand changing nutritional needs during pregnancy
Increased Nutritional Risk

• Pregnant women who are:
  • Drug or alcohol abusers
  • Vegetarians
  • Smokers
  • Anorexic or bulimic, underweight, or obese

• Pregnant women with:
  • Hyperemesis
  • Poor weight gain or weight loss
  • Dehydration, constipation
  • Pre-existing medical conditions
Obstetrical History

- Past medical history (wt gained in pregnancy)
- Current dietary intake patterns and ETOH
- Vitamin, mineral and herbal intake
- PICA: dirt, starch, clay, ice, detergent
- Caffeine and other fluids
- Nausea, vomiting, and heartburn
- Constipation
Obstetrical Physical Exam

• Low pre-pregnancy weight and low maternal weight gain are risk factors for:
  - Intrauterine growth retardation
  - Low birth weight baby
  - Increased incidence of perinatal death

• Need to assess:
  - Pre-pregnancy weight (BMI)
  - Current weight (BMI)
  - Weight gain from previous visit
**Recommended Weight Gain**

<table>
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<th>Weight Gain (kg)</th>
<th>Weight Gain (lbs)</th>
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<tr>
<td><strong>Height (m²)</strong></td>
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<td>7.0-11.5</td>
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<td>BMI 25-29.9</td>
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<tr>
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<td>5.0-9.0</td>
<td>11-20</td>
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<tr>
<td>BMI &gt; 30.0</td>
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</tr>
</tbody>
</table>

Rate of Weight Gain

- Pattern of weight gain in pregnancy as important as total weight gain.

- Deviations from expected patterns of weight gain are signals for intervention.

- Pre-term birth doubles when 3rd trimester weight gain is low or inadequate.

- Pregnancy is an anabolic state, resulting in increased energy (300 kcal/day) and nutrient needs.
Nausea and Vomiting

• Associated with increased levels of HCG
  ➢ Peaks at 12 weeks gestation

• Strategies for managing morning sickness:
  ➢ Eat small, low-fat meals and snacks
  ➢ Drink fluids between meals, avoid caffeine
  ➢ Reduce citrus, spearmint, peppermint
  ➢ Limit spicy and high-fat foods
  ➢ Avoid lying down after eating or drinking
  ➢ Take a walk after meals
  ➢ Wear loose-fitting clothes
Constipation

• Constipation during pregnancy is associated with:
  - increased progesterone levels and smooth-muscle relaxation of the GI tract.
  - This results in GI discomfort, a bloated sensation, increased hemorrhoids, and decreased appetite.
  - Increase fluid and fiber intake to reduce constipation.
Nutritional Needs During Pregnancy

• Energy:
  - First Trimester - no change
  - Second Trimester - increases 340 kcal/day
  - Third Trimester - increases 452 kcal/day

• Protein:
  - Increases from 0.8 g/kg/day to 1.1 g/kg/day

• Fat:
  - Encourage Long-Chain Polyunsaturated Fatty Acids
Vitamin and Mineral Requirements in Pregnancy

• Pregnant women are at increased risk for folic acid, iron, and calcium deficiencies.

• Recommendations are:
  – Iron – increases to 30 mg/day
  – Folate – increases to 0.6 mg/day
  – Calcium - 1000 mg/day
  – Magnesium - increases to 360 mg/day
  – Vitamin C - increases to 85 mg/day
Calculus Requirements

• **DRI Calcium Recommendations**
  - 9 - 18 y/o: 1300 mg/day
  - 19 - 50 y/o: 1000 mg/day (adults, pregnant and lactating)
  - >51 y/o: 1200 mg/day
  - Increased requirements during the third trimester
  - Supplementation shown to reduce hypertension during pregnancy

• **Dietary sources**
  - Milk, yogurt (8 oz), cheese (1 oz) ~ 300 mg calcium
  - Orange juice- fortified (1 cup = 300 mg)
  - Broccoli, kale (1 cup cooked = 90 mg)
  - Bok choy, mustard green (1 cup cooked =180 mg)
  - Tofu (made with calcium citrate- (½ cup =260 mg)
  - Canned salmon (3 oz = 180 mg)
Neural Tube Defects (NTD) Prevention: Role of Folate

- Folate deficiency is the most common deficiency during pregnancy.

- Functions:
  - Serves as a co-factor in one-carbon transfers, (nucleic acids and amino acids) and therefore required during periods of rapid growth.
  - Increased maternal erythropoesis causes increased folate needs during second and third trimesters.

- Role in Prevention:
  - NTD are thought to result from a dietary deficiency of folate and/or a genetic defect affecting folate metabolism.
  - During pregnancy, the neural tube is formed from the 18th to the 26th DAY of gestation.
Folate Requirements in Pregnancy

• Adequate folate is critical before and during the first 4 weeks of pregnancy.

• Since 50% of pregnancies are unplanned and most women do not seek prenatal care until 8 weeks gestation, folate supplements prior to conception are critical to prevent NTD.

• Folate Antagonists (taken during 2nd or 3rd trimester doubles fetal CV defects):
  - Phenobarbtiotic
  - Phenytoin
  - Primidone
  - Carbamazepine
  - Trimethoprin
  - Triamterene
Knowledge that Folate Prevents Birth Defects: Still Low

Women Taking a Daily Multivitamin Containing Folate

Folate Requirements in Pregnancy

- DRI=600 µg pregnancy or 500 µg lactating female, 400 µg for non-pregnant woman.

- Beans, peas, orange juice, green leafy vegetables, fortified cereals are good sources.

- Prenatal vitamins contain 1000 µg folate.

Adapted from The Department of Health and Human Services Center of Disease Control and Prevention, 2006.
Folic Acid Knowledge and Behavior 1995 - 2004

Why Women Might Be Encouraged to Take a Daily Multivitamin

- Advised by a health care provider: 34%
- Change in health: 11%
- Feeling run down: 4%
- Needed vitamins: 4%
- Remembered to take: 4%
- More info about benefits: 3%
- Someone to remind me: 3%
- If pregnant: 3%

Source: March of Dimes Survey 2002
Iron in Pregnancy

• Iron is an essential element in all cells of the body.

• During pregnancy, maternal blood volume increases 20-30%.

• Iron needs increase from 15 to 30 mg/day during pregnancy.

• Deficiency increases risk of maternal and infant death, preterm delivery, and low birth weight babies.
Diagnosis of Iron Deficiency Anemia

• The CDC reference criteria for anemia during pregnancy:
  - First trimester  Hgb <11.0 g/dl or Hct <33%
  - Second trimester  Hgb < 10.4 g/dl or Hct <32%
  - Third trimester Hgb <11.0 g/dl or Hct <33%
Iron Deficiency Anemia

• Susceptible Populations:
  ➢ Pregnant women who have not been taking iron supplements
  ➢ Infants and children
  ➢ Menstruating females
  ➢ Teens
  ➢ Low income women

• Etiology:
  ➢ Poor iron intake - only 25% of females 12 - 49 meet needs
  ➢ Diet with low bioavailable iron
Iron Deficiency Anemia

- Weakness, fatigue, poor work performance, and changes in behavior.

- Physical signs include pallor, fatigue, coldness and paresthesia of the extremities, greater susceptibility to infections.

- Infants and young children with iron deficiency may have low IQ levels, poor cognitive and motor development, learning, and behavioral problems.
Iron Treatment Recommendations

• Iron-rich foods:
  - Meat, fish, poultry, eggs
  - Organ meats
  - Peas and beans
  - Dried fruit
  - Whole grain and enriched cereal

• Therapeutic dose/supplements
  - 30 mg – 120 mg/day but can be constipating
  - IV iron, but may cause a reaction
Prevalence of Anemia by Trimester of Pregnancy, 1989-2009 PNSS

Adapted from Pregnancy Nutrition Surveillance, 1996 full report
Food Borne Illness

• Raw and highly carnivorous fish should be avoided.
  ➢ Including: fresh tuna, shark, tilefish, swordfish, king mackerel

• All dairy foods and juices should be pasteurized.

• Food contaminated with heavy metals can have neurotoxic effects for the fetus. (Mercury)

• *Listeria monocytogenes* contamination in pregnancy develop into a serious blood borne, transplacental infection.
  ➢ Wash vegetables and fruits
  ➢ Cook meats
  ➢ Avoid processed, precooked meats (cold cuts)
  ➢ Avoid soft cheeses (brie, blue cheese, etc.)
Exercise During Pregnancy

• Benefits of exercise during pregnancy:
  ➢ Helps reduce backaches, constipation, bloating, and swelling
  ➢ May help prevent or treat gestational diabetes
  ➢ Increases energy, improves mood and sleep
  ➢ Improves your posture, promotes muscle tone, strength, and endurance

• Acceptable activities:
  ➢ Walking, dancing, biking
  ➢ Swimming, Yoga

• Exercises to avoid:
  ➢ Downhill Skiing, Scuba Diving, Trampoline
  ➢ Contact Sports (Ice Hockey, Basketball, Amusement Slides)
  ➢ Hot tubs

• Warning Signs to stop exercise:
  ➢ Vaginal bleeding, uterine contractions, decreased fetal movement, fluid leaking from the vagina
  ➢ Dizziness or feeling faint, increased shortness of breath
  ➢ Chest pain, headache, muscle weakness, calf pain or swelling
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