The Journey to Successful Breastfeeding: Hospital Discharge through the First 2 weeks

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Faculty Disclosure Information

I have nothing to disclose, except that I am a firm believer that human milk is the optimal feeding for all human babies, with very few exceptions.

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The participant will be able to:

- Discuss the importance of supporting breastfeeding families through the crucial first 2 weeks of life;
- List practices which derail successful breastfeeding, why, and how to avoid these "booby traps" in the first 2 weeks of life;
- Discuss successful interventions in the issues that cause women to stop breastfeeding in the first 2 weeks of life;
- Be able to list at least three possible resources for mothers/families in need of support.
AAP Policy Statement*

- Human milk is species-specific
- Uniquely superior for infant feeding
- Exclusive breastfeeding is the reference or normative model against which all alternative feeding methods must be measured with regard to growth, health, development, and other short- and long-term outcomes*


ACOG Committee Opinion

- The American College of Obstetricians and Gynecologists (the College) strongly supports breastfeeding as the preferred method of feeding for newborns and infants and recommends exclusive breastfeeding until the infant is approximately 6 months of age.

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WHAT IS ALL THE FUSS ABOUT??
A Little History……

Mammals: characterized by glands specialized in producing milk

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Throughout most of human's history, breastfeeding was the only way babies and young children were fed. Very few survived who were fed any other way.

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To understand how we interact with and affect our patients’ feeding choices, we need to understand

How did we get from ←here, to here→, and how to find our way back on this journey.

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Artificial Feedings

- 19th century, the prevalence of wet nursing decreased, while the practice of feeding babies mixtures based on animal milk rose in popularity.
- As early as 1846, scientists and nutritionists noted an increase in medical problems and infant mortality were both associated with artificial feeding.
- In 1867, Justus von Liebig developed the world's first commercial infant formula, Liebig's Soluble Food for Babies.

Late 19th Century

- Infant mortality from unsafe artificial feeding became an acknowledged public health problem.
- Public health nurses promoted breastfeeding and home pasteurization of cows' milk.
- Commercial formula companies found a market for artificial baby milks as “safer alternatives to cows' milk.”
- Infant feeding recommendations became the purview of the newly organized medical profession.
  - The support of physicians.
  - A vision of “scientific” infant care.
  - Widespread use of formula as a breastmilk substitute for healthy mothers and babies emerged in the first half of the 20th century.

Berlin 1918
Mid 20th century:
- Most physicians did not advocate breastfeeding
- Most women did not choose to breastfeed

Entire generation of women and physicians grew up not viewing breastfeeding as norm

Despite resurgence of breastfeeding in the late 20th century US:
- Breastfeeding and formula feeding continued to be seen as virtually equivalent;
- Representing merely a lifestyle choice parents make without significant health sequelae.
The WHO Code of Marketing of Breastmilk Substitutes (1981)

- Protect and promote breastfeeding by ensuring appropriate marketing and distribution of breastmilk substitutes.
- Applies to breastmilk substitutes, bottles and teats.
- No advertising of above products to the public.
- No free samples to mothers, their families or health workers.
- No gifts or samples to health workers.
- No free or low-cost supplies of breastmilk substitutes.

Current attitudes of infant nutrition

- Molded by the manufacturers of human milk substitutes
- Aggressively created markets for their products
- Advertise to physicians
- Advertise directly to the public
- Ways that are inconsistent with the International Code of Marketing for Human Milk Substitutes ("The Code")

Pakistan, 1989

© Unicef
The Ten Steps to Successful Breastfeeding are:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in the skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within one hour of birth.
5. Show mothers how to breastfeed and how to maintain lactation, even if they are separated from their infants.
6. Give infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming in - allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no pacifiers or artificial nipples to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center.

Show mothers how to breastfeed and how to maintain lactation

- Develop skill in explaining optimal breastfeeding practices and demonstrating correct breastfeeding technique to mothers and families.
- Use sample breastfeeding aids (e.g., infant slings, nursing footstools, nursing pillows, breast pumps if needed) when instructing new mothers.
- Recognize and make modifications and/or adjustments to meet the literacy and language needs of mothers.

“This practice enthusiastically supports parents’ plans to breastfeed their baby. We believe that breastfeeding ensures the best possible health, development, and psychosocial outcomes for your baby. In support of this commitment, we...”
For all who follow-up families after hospital discharge...

...it is important to know why exclusive breastfeeding is important in order to support exclusive breastfeeding.

Make a commitment to the importance of breastfeeding.

- Learn the health benefits associated with breastfeeding, particularly exclusive breastfeeding for the first 6 months of an infant’s life, and then with appropriate complementary foods through the first year and for as long as mutually acceptable.
- Endorse breastfeeding as an important preventive health care strategy.

Agency for Healthcare Research and Quality
April 2007

http://www.ahrq.gov/clinic/tp/brfouttp.htm
Agency for Healthcare Research and Quality (AHRQ)

- >9000 abstracts screened
  - Infant health—43 primary studies
  - Maternal health—43 primary studies
  - 29 systematic reviews or meta-analyses
  - Covered ~ 400 individual studies
- Conclusions:
  - Hx of breastfeeding associated with reduced risk of many diseases in infants and mothers from developed countries
  - Observational studies and wide range of quality do not allow inference of causality
  - Suggestions for “cleaner” future studies to help with interpreting outcomes
- Having knowledge of the “benefits” of (or risks of not) breastfeeding allows you to endorse and advocate as an important preventive health care strategy!

Infant Health Outcomes in Developed Countries (AHRQ 2007)

- History of breastfeeding significantly associated with reduction in risk of: (% reduction)
  - Acute otitis media: (ever bf 23%; exclusive bf 50%)
  - Non-specific gastroenteritis: (64%)
  - Severe lower respiratory tract infections: (exclusive bf >4 months 72% reduction hospitalization)
  - Atopic dermatitis: (with family hx atopy 42%)
  - Asthma: (young children) (27% no fam hx; 40% fam hx)
  - Obesity: (ever to never bf 24%; each month bf assoc with ↓4%)
  - Diabetes: ever to never Type 1 (25% and 34%); Type 2 (39%)
  - Childhood leukemia: (ALL 19%; AML 15% (1 meta-analysis))
  - Sudden infant death syndrome: (ever vs never 36%)
  - Necrotizing enterocolitis: (4-82%)

Infant Health Outcomes in Developed Countries (AHRQ 2007)

- There was no relationship demonstrated between breastfeeding and:
  - Term infants’ cognitive performance
- An unclear relationship was demonstrated between breastfeeding and:
  - Cardiovascular disease
  - Infant mortality in developed countries
    - 1 large study showed 21% reduction in infant mortality (ever vs never), but only subgroup analysis that held was SIDS
Disease Protection in Children
“Dose Dependent”

1. AOM 50% less EBF>3-6 months
2. Atopic dermatitis less 4.2% EBF>3 months
3. LRTI and hospitalization less 7.2% with EBF>4 months
4. Asthma less 40% for EBF>3 months
5. Obesity less 4-24%; with EBF less 34%
6. T1DM less 19-27% EBF>3 months
7. T2DM less 39% with any BF vs. None
8. Cancer:
   1. ALL less 19% with BF>6 months
   2. AML less 15% with BF>6 months
   3. SIDS less 36% with any BF vs. None
9. Gastro less 64% with any BF vs. None

Breastfeeding Leads to Self-Regulation

Exclusive breastfeeding of breast: 27%
Depressed breast milk in bottle: 47%
Combination breastfeeding: 50%
All formula in a bottle: 68%


Exclusive 4 vs. 6 Months

Liesbeth D. et al. Pediatrics June 2010
Allergy

- Milk allergy can develop after exposure to as little as 40 mL (1 1/3 oz) of cow's milk formula...
- ...one supplement while in the hospital??

Epidemiological Evidence of Immune Modulation

- Non-EBF results in risk of autoimmune diseases; long after breastfeeding
  - Atopy and Asthma (response to LRTI)
  - Crohn's and Ulcerative Colitis
  - Celiac
  - Leukemia
  - Type 1 DM

Human Milk Influences the Development of Immune System
Newborn Intestinal Immune System

Enteric Bacterium Interact with Intestinal Microvillus of the Small intestine

**Bacterial-epithelial “cross-talk”**
- Organizes B, T, Macrophages and dendritic cells
- Regulates Ag transport
- Drives Ag specific and non-specific pathways for recognition
- Responses are both pro and anti-inflammatory

Exclusive Human Milk Necessary for Proper Colonization

- Exclusive HM: probiotic/commensal bacteria-bifidobacteria, and lactobacillus.
  - Supported by complex system of HMO (not other prebiotics)
  - Flora contribute to and are a marker of normal immune development, need certain toll-like receptors for hosting.
  - Formula feeding: bacteroides, clostridia, streptococci.
  - **just one bottle... leads to colonization with bacteria that induces an inflammatory response (enhanced by factors in human milk).**
Genes are Differentially Regulated by HM

3-dimensional bolstered gene expression discriminates between breast-fed (O) and formula-fed (Δ) infants Master genes are transcription factors associated with angiogenesis and wound repair


Make a commitment to the importance of breastfeeding.

- Understand that breastfeeding functions as a baby’s first and ongoing immunization.

<table>
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<tr>
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<th>Preterm colostrum</th>
<th>Term colostrum</th>
</tr>
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<tbody>
<tr>
<td>Total protein (g/L)</td>
<td>0.43 ± 1.3</td>
<td>0.31 ± 0.05</td>
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<tr>
<td>IgA (mg/g protein)</td>
<td>310.5 ± 70</td>
<td>168.2 ± 21</td>
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<tr>
<td>IgG (mg/g protein)</td>
<td>76 ± 3.9</td>
<td>8.4 ± 1</td>
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<tr>
<td>IgM (mg/g protein)</td>
<td>356 ± 23</td>
<td>36.1 ± 16</td>
</tr>
<tr>
<td>Lactoferrin (mg/g protein)</td>
<td>165 ± 37</td>
<td>102 ± 25</td>
</tr>
<tr>
<td>Total cells</td>
<td>6794 ± 1940</td>
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</tr>
<tr>
<td>Macrophage</td>
<td>4041 ± 1420</td>
<td>1597 ± 303</td>
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<tr>
<td>Lymphocyte</td>
<td>1850 ± 543</td>
<td>954 ± 143</td>
</tr>
<tr>
<td>Neutrophil</td>
<td>842 ± 404</td>
<td>512 ± 178</td>
</tr>
</tbody>
</table>

Mahur 1990
Maternal Health Outcomes in Developed Countries (AHRQ 2007)

- History of lactation associated with reduction in risk of:
  - Type 2 diabetes (each year of breastfeeding ↓16%)
  - If had GDM, no decrease risk associated with lactation
  - Breast (4.3% reduction/yr breastfeeding); and ovarian cancer (NS <12 months; >12 months 39%)
- Early cessation or not breastfeeding associated with increased risk of:
  - Postpartum depression
  - No relationship shown with risk of:
  - Osteoporosis
  - Effect negligible on:
  - Return to pre-pregnancy weight
  - Unclear effect on:
  - Postpartum weight loss

Why Know The Benefits?

- Risk/Benefit Assessment
  - Understand the consequences of not breastfeeding
  - Know there are gaps in research
  - Practice Evidence Based Medicine (EBM)
- Advocate for exclusivity
- Step 3 - Educate all pregnant women on the benefits and management of breastfeeding

% Breastfed US Babies

- Martinez 1979; Ryan 1991, 1997; Rosen Mother's Study 2002; CDC 2012; Healthy People 2020

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Booby Trap: Drugs and Human Milk

- Most drugs pass into human milk
- Almost all medication appears in only small amounts in human milk - usually less than 1% of the maternal dose
- Very few drugs are contraindicated for breastfeeding women
  - Drugs that make you “glow”
  - Drugs that treat cancer
  - Drugs that get you arrested (Dr. Jennifer Thomas)

Maternal Medications

- Most are compatible with breastfeeding
- Medication use in pregnancy is not the same as medication use in lactation
- Weigh benefits against risks

Problems

- “Authorities” often recommend weaning when a medication is known to pass into milk
- Many reports on lactation and drugs are single case studies
- Many physicians do not have knowledge of drugs in breastfeeding
  - easier and less threatening to recommend weaning
- “Temporary” wean may become permanent
Maternal Medications

- Choose the safest drug available
- Prescribe medications for the shortest length of time appropriate
- Use short-acting formulations
- Administer just after breastfeeding
- Monitor infant for side effects
- Report adverse effects to the proper authorities
- **PDA is the worst reference for breastfeeding!!**

Resources for Medications and Breastfeeding

- *Medications and Mother’s Milk*, Thomas Hale; 2012
- The Breastfeeding and Human Lactation Study Center 716-275-0088
- Dr. Philip Anderson, UCSD 900-285-3784
  - [http://www.elactancia.org/ingles/inicio.asp](http://www.elactancia.org/ingles/inicio.asp)
- Dr. Thomas Hale, Texas Tech 806-354-5529
  - [http://neonatal.ama.ttuhsc.edu/lact/](http://neonatal.ama.ttuhsc.edu/lact/)

Breastfeeding Counseling

- Advise moderation in caffeine intake
- Avoid alcohol
  - Passes readily into milk
  - However occasional drink not shown to be harmful
  - Avoid breastfeeding for 2 hours after ingestion of alcohol
- Encourage smoking cessation or limited use
  - Benefits outweigh risks of exposure
Booby trap? Medical Contraindications to Breastfeeding

- Galactosemia
- Phenylketonuria
  - Partial; breastmilk low in phenylalanine
- HIV
- Active untreated Tuberculosis
- Human T-cell Leukemia Virus Types I and II

Drugs
- Drugs associated with reduced milk production: estrogens, bromocriptine, ergotamine, antihistamines
- Some chemotherapeutic agents--but may be able to "pump and dump" intermittently around doses
- Drugs of Abuse
  - cocaine, heroin
  - Radioactive drugs--discontinue briefly
  - Radioactive I-131

Booby Trap: Nutrition During Lactation

- Generally healthy diet
- Additional 300-500 calories
- Drink fluids to thirst
- Do not need to drink cow's milk to produce human milk!
- Adequate protein and calories
- Calcium source
- Vitamin D
- Multivitamin supplement
- Breastfeeding women do not have food restrictions!!

Booby Trap: Maternal Trouble Signs

- Not normal:
  - Nipple pain
  - Nipple trauma
- Examine nipples
- Correct the latch!
- Observe a feeding

Barbara Wilson-Clay, Kay Hoover 2002
Treatment: Nipple Pain
- Depends on the cause
  - Correct the latch
  - Tongue tie?
  - Infection?
  - Plugged ducts?
  - Mastitis?
  - Pump related trauma?

Booby Trap: Maternal Trouble Signs
- Engorgement
  - Inadequate milk removal
  - Can inhibit milk production
  - Prevent by frequent feedings or expression
  - Cool or warm compresses, analgesics

Factors to support successful breastfeeding outcomes
- Work with maternity care professionals to identify patients with potential lactation risk factors:
  - flat or inverted nipples
  - previous breast surgery
  - no change in breast size during pregnancy
  - Hypoplastic breasts
  - Intact neuroendocrine reflex
  - Previous surgery
- Recommend appropriate interventions;
- Encourage early follow-up after delivery
Top 3 reasons women give for stopping breastfeeding

- “I thought I was not producing enough milk” (47%)
- “Breast milk alone did not satisfy my baby” (44%)
- “My baby had difficulty latching or nursing” (27%)

Booby Traps: Insufficient Milk Supply

- Real or perceived?
  - Failure of mother to make milk or failure of infant to extract milk
  - Primary lactation failure rare
  - Delayed lactogenesis II
  - Most commonly caused by inappropriate early feeding routines
    - Supplementation with formula
    - 24% breastfed babies supplemented with formula before 38 hrs old (2010 CDC NES)

Insufficient Milk Supply: Management

- Depends on cause
  - Usually depends on increasing frequency and effectiveness of breastfeeding
  - May need to mechanically express
  - May need to supplement the infant
  - Regardless of whether real or perceived, mothers need lots of support!
Booby Traps: Infant Assessment

- Proper positioning at the breast
  - Ear, shoulder and hip in straight line
- Proper latch and lip closure
  - Sufficient areola in infant's mouth
- Tongue extends over lower gums
- Adequate jaw excursion with suckling
- Effective swallowing motion
- Coordination of suck-swallow-breathe
- Laid back breastfeeding

Latch

- Stimulate rooting reflex
- Take sufficient areola into mouth
- Flange lips around the breast—"fish lips"
- Have wide angle at corner of mouth
- Self-latching with laid-back breastfeeding

Infant Assessment: Feeding Pattern

- Encourage at least 8–12 feedings per day
  - Colostrum contains a laxative agent
- Not timed
- Alternate the breast that is offered first
- Allow infant to nurse on at least one side until infant falls asleep or comes off the breast to increase fat and calorie consumption
Infant Assessment: Infant Weight

Weight Loss
- Average loss of 5% first 3–4 days.
- Loss greater than 7% mandates careful evaluation of breastfeeding
  - *Not necessarily reason to begin formula supplements (learning; milk supply)*

Slow Weight Gain
- Begins with increase in mother’s milk production by at least day 4–5
- Expect gain of 15–30 g/day (1/2 to 1 oz per day) through the first 2–3 months of life

Problem: Weight loss/Poor weight gain
- Inadequate milk supply or milk transfer
- Organic problem (much rarer)

Signs and Symptoms
- Delayed or infrequent bowel movements
- Decreased urinary output
- Early jaundice
- Inconsolable hungry baby
- Lethargy
- <8-10% loss of birth weight**

Infant Assessment: Elimination Pattern

- Meconium gone by day 3-4
- 6–8 pale or colorless voids/day and 4–5 loose yellow stools by day 5
- Loose, yellow, curd-like stools after most feedings through first month
- Constipation unusual in the first month—may indicate insufficient milk intake
  - Infrequent stools are common after the first month in the healthy breastfed infant
Infant Assessment: Infant Weight

- Evaluation
  - Perinatal History - maternal and infant factors
  - General state of health
  - Hydration status
  - Neurologic exam
  - Direct observation of feeding
  - Objective measures of growth
  - Weigh infant, feed infant, weigh again - Scale accurate ±2 grams

Infant Assessment: Infant Weight

- Solution
  - Correct latch and positioning
  - Improve milk production and transfer
  - Increase frequency and duration of feeding (Breast emptying)
  - Need for lactation referral?
  - When to supplement?
  - What to supplement?

AAP Policy Statement

- Direct breastfeeding is best.
- Expressed breastmilk, is next best.
- Donor Milk
- Artificial formulas
- For all babies, even premature.
AAP Policy Statement
Caution:
- Before advising against breastfeeding or recommending premature weaning, weigh the benefits of breastfeeding against the risks of not receiving human milk.
- Don't jump to offer formula if breastfeeding problem noted!

Medical Indications for Formula Supplementation
- Breastmilk/donor milk not available
- Very low birth weight or some premature infants
- Hypoglycemia that does not respond to breastfeeding
- Severe maternal illness
- Inborn errors of metabolism
- Acute dehydration not responsive to routine breastfeeding or excessive weight loss
- Maternal medication use incompatible with breastfeeding

To Avoid these Booby Traps: Recommended Breastfeeding Practices
- Formal evaluation of breastfeeding in first 24–48 hours and again at 3–5 days and 2–3 weeks of age
- Assess
  - Infant weight
  - General health
  - Breastfeeding
  - Jaundice
  - Hydration
  - Elimination pattern
Recommended Breastfeeding Practices

- Avoid pacifiers in early weeks until breastfeeding is well established (>3-4 weeks)
  - Potential nipple confusion
  - Encourage optimal milk production
  - Ensure that feeding cues result in infant placed on breast
- Avoid supplemental bottles, unless medically indicated (ABM Protocol # 3 Supplementation; www.bfmed.org)
- Excessive pacifier use may be marker of breastfeeding problems

Booby Traps: Anticipated return to work/school

- Counseling should begin prenatally
  - Reason to never begin or stop prematurely
- Make arrangements at work/school before delivery
  - Discuss with employer
  - Problem solve place to express/feed the baby
- Child care options
  - Use of human milk

Booby Traps: Anticipated return to work/school

- Anticipated milk expression and storage
- Alternative feeding method
- Begin in later part of week, short days, every other day
- Flex-time
- Attempt to mirror infant’s schedule if possible
- Anticipate infant’s schedule changing
Resources

USBC
- Workplace Support in Federal Law:
- Workplace Accommodations to Support and Protect Breastfeeding (2010 - background paper)
- USBC issue paper: Breastfeeding and Child Care

LLL
- Breastfeeding Guide (On-line)
  http://viewer.zmags.com/publication/5c632362#/5c632362/12
  http://www.llli.org/

Health Resources and Services Administration (HRSA) Maternal and Child Health: Business Case for Breastfeeding
- http://mchb.hrsa.gov/pregnancyandbeyondbreastfeeding/
- Lactation support toolkit
- Worksite promotional materials
- Outreach toolkit
Train all staff in skills necessary to support breastfeeding

- Develop skill and comfort in evaluating breastfeeding through culturally relevant history and physical assessment.
- Develop knowledge and skills in the management of common breastfeeding problems.
- Know the medical contraindications to breastfeeding.

Landscape of breastfeeding support

- Peers (LLL, peer counselors, family(?)
- Lactations counselors
- Lactation consultants
- Dieticians
- Oro-motor specialists (OT’s)
- Nurses with extra training
- Physicians
- Who else?

Surgeon General Regina Benjamin

“Everyone can support breastfeeding!”
How To Have a Breastfeeding Friendly Practice

As the breastfeeding rates in the US increase, there is now more than ever, a need for health professionals who are able to counsel and support breastfeeding families in their practice. Here are a few suggestions for how to have a breastfeeding friendly practice:

- Display breastfeeding supportive signs and educational materials
- Avoid distributing free formula, soy, or formula-sponsored promotional materials to mothers who have chosen to breastfeed
- Encourage exclusive breastfeeding for the first 6 months of life whenever possible, and discourage inappropriate supplementation.
- Advertise that you are a "breastfeeding friendly" practice and encourage mothers to breastfeed in the office.

Additional Resources

These resources will help you get started on becoming a breastfeeding friendly practice.

- Breastfeeding: Baby's First Immunization

Tips for Lactation Consultant

- Employ a lactation consultant in the office who potentially can help increase breastfeeding rates of the practice. Although a lactation consultant cannot fill at the same professional level as a physician, she often can still communicate with her background (e.g., nurse or dentist). If the baby is being seen for another reason, the visit can be associated with the physician professional for whom appropriate. See the Breastfeeding and Lactation: The Pediatrician's Guide to Coding. www.aap.org/breastfeedinginitiative/documents/EDUCATION.pdf for help.
- Have a room within the office space dedicated to breastfeeding-related issues.
- Keep a stock of breastfeeding supplies for the mother (e.g., pump, nipple shields, bottle course, accessories for breast pumps, etc.). Depending on insurance policies in the area, breastfeeding supplies can be charged to the child's fee if the mother is not separately reimbursed as a patient.
- Have breastfeeding reference books available, particularly one which describes compatibility of breastfeeding with the mother's medications.

http://www2.aap.org/breastfeeding/files/pdf/AAP%20Have%20Friendly%20Practice.pdf

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Why are hospitals marketing baby formula?

Give the baby the boot!

Hospitals should market health, and nothing else.
Thank you!!
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