Presentation for Session 4: The scientific basis for the “Ten steps to successful breastfeeding”

Ten steps to successful breastfeeding

Step 1. Have a written breastfeeding policy that is routinely communicated to all health care staff.

Breastfeeding policy

Why have a policy?

- Requires a course of action and provides guidance
- Helps establish consistent care for mothers and babies
- Provides a standard that can be evaluated

Breastfeeding policy

What should it cover?

- At a minimum, it should include:
  - The 10 steps to successful breastfeeding
  - An institutional ban on acceptance of free or low cost supplies of breast-milk substitutes, bottles, and teats and its distribution to mothers
  - A framework for assisting HIV positive mothers to make informed infant feeding decisions that meet their individual circumstances and then support for this decision
- Other points can be added

Breastfeeding policy

How should it be presented?

- Written in the most common languages understood by patients and staff
- Available to all staff caring for mothers and babies
- Posted or displayed in areas where mothers and babies are cared for

Step 1: Improved exclusive breast-milk feeds while in the birth hospital after implementing the Baby-friendly Hospital Initiative

Ten steps to successful breastfeeding

Step 2. Train all health-care staff in skills necessary to implement this policy.
Scientific basis for the Ten Steps

Areas of knowledge
- Advantages of breastfeeding
- Risks of artificial feeding
- Mechanisms of lactation and suckling
- How to help mothers initiate and sustain breastfeeding
- How to assess a breastfeed
- How to resolve breastfeeding difficulties
- Hospital breastfeeding policies and practices
- Focus on changing negative attitudes which set up barriers

Additional topics for BFHI training in the context of HIV
Train all staff in:
- Basic facts on HIV and on Prevention of Mother-to-Child Transmission (PMTCT)
- Voluntary testing and counselling (VCT) for HIV
- Locally appropriate replacement feeding options
- How to counsel HIV + women on risks and benefits of various feeding options and how to make informed choices
- How to teach mothers to prepare and give feeds
- How to maintain privacy and confidentiality
- How to minimize the "spill over" effect (leading mothers who are HIV - or of unknown status to choose replacement feeding when breastfeeding has less risk)

Step 2: Effect of breastfeeding training for hospital staff on exclusive breastfeeding rates at hospital discharge

Percentage Exclusive Breastfeeding Rates at Hospital Discharge

Pre-training, 1996: 41%
Post-training, 1998: 77%

Step 2: Breastfeeding counselling increases exclusive breastfeeding

Age:
- 3 months
- 4 months
- 2 weeks after diarrhoea treatment

Exclusive breastfeeding (%)
- Brazil '98: 12.7
- Sri Lanka '99: 56.8
- Bangladesh '96: 72
- Control
- Counselling

All differences between intervention and control groups are significant at p<0.001.
From: CAWHO based on studies by Albernaz, Jayathilaka and Haider.

Which health professionals other than perinatal staff influence breastfeeding success?

Ten steps to successful breastfeeding

Step 3. Inform all pregnant women about the benefits of breastfeeding.

Antenatal education should include:

- Benefits of breastfeeding
- Early initiation
- Importance of rooming-in (if new concept)
- Importance of feeding on demand
- Importance of exclusive breastfeeding
- How to assure enough breastmilk
- Risks of artificial feeding and use of bottles and pacifiers (soothers, teats, nipples, etc.)
- Antenatal education should not include group education on formula preparation

Step 3: The influence of antenatal care on infant feeding behaviour

- Basic facts on HIV
- Prevention of mother-to-child transmission of HIV (PMTCT)
- Voluntary testing and counselling (VCT) for HIV and infant feeding counselling for HIV+ women
- Antenatal education should not include group education on formula preparation

Ten steps to successful breastfeeding

Step 4. Help mothers initiate breastfeeding within a half-hour of birth.

New interpretation of Step 4 in the revised BFHI Global Criteria (2007):

“Place babies in skin-to-skin contact with their mothers immediately following birth for at least an hour. Encourage mothers to recognize when their babies are ready to breastfeed and offer help if needed.”

Early initiation of breastfeeding for the normal newborn Why?

- Increases duration of breastfeeding
- Allows skin-to-skin contact for warmth and colonization of baby with maternal organisms
- Provides colostrum as the baby’s first immunization
- Takes advantage of the first hour of alertness
- Babies learn to suckle more effectively
- Improved developmental outcomes
Early initiation of breastfeeding for the normal newborn

How?
- Keep mother and baby together
- Place baby on mother’s chest
- Let baby start suckling when ready
- Do not hurry or interrupt the process
- Delay non-urgent medical routines for at least one hour

Impact on breastfeeding duration of early infant-mother contact


Temperatures after birth in infants kept either skin-to-skin with mother or in cot


Protein composition of human colostrum and mature breast milk (per litre)


Effect of delivery room practices on early breastfeeding


Ten steps to successful breastfeeding

Step 5. Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants.

Contrary to popular belief, attaching the baby on the breast is not an ability with which a mother is born; rather it is a learned skill which she must acquire by observation and experience.


Effect of proper attachment on duration of breastfeeding

Correct sucking technique at discharge
Incorrect sucking technique at discharge

Transparency 4.5.2

Step 5: Effect of health provider encouragement of breastfeeding in the hospital on breastfeeding initiation rates

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Encouraged to breastfeed</th>
<th>Not encouraged to breastfeed</th>
</tr>
</thead>
<tbody>
<tr>
<td>74.6%</td>
<td>43.2%</td>
<td></td>
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</tbody>
</table>

Breastfeeding Initiation rates p<0.001


Effect of the maternity ward system on the lactation success of low-income urban Mexican women


Supply and demand

- Milk removal stimulates milk production.
- The amount of breast milk removed at each feed determines the rate of milk production in the next few hours.
- Milk removal must be continued during separation to maintain supply.

Ten steps to successful breastfeeding

Step 6. Give newborn infants no food or drink other than breast milk unless medically indicated.

Scientific basis for the Ten Steps

Long-term effects of a change in maternity ward feeding routines

- Intervention group = early, frequent, and unsupplemented breastfeeding in maternity ward.
- Control group = sucrose water and formula supplements given.

% exclusively breastfed

0% 20% 40% 60% 80% 100%

1.5 3 6 9 Months after birth


Transparency 4.6.2

Impact of routine formula supplementation

Decreased frequency or effectiveness of suckling

Decreased amount of milk removed from breasts

Delayed milk production or reduced milk supply

Some infants have difficulty attaching to breast if formula given by bottle

Transparency 4.6.4

Determinants of lactation performance across time in an urban population from Mexico

- Milk came in earlier in the hospital with rooming-in where formula was not allowed
- Milk came in later in the hospital with nursery (p<0.05)
- Breastfeeding was positively associated with early milk arrival and inversely associated with early introduction of supplementary bottles, maternal employment, maternal body mass index, and infant age.


Transparency 4.6.5

Summary of studies on the water requirements of exclusively breastfed infants

<table>
<thead>
<tr>
<th>Country</th>
<th>Temperature °C</th>
<th>Relative Humidity %</th>
<th>Urine osmolarity (mOsm/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>20-39</td>
<td>60-80</td>
<td>105-199</td>
</tr>
<tr>
<td>India</td>
<td>27-42</td>
<td>10-60</td>
<td>66-1234</td>
</tr>
<tr>
<td>Jamaica</td>
<td>24-28</td>
<td>62-90</td>
<td>103-468</td>
</tr>
<tr>
<td>Peru</td>
<td>24-30</td>
<td>45-96</td>
<td>30-544</td>
</tr>
</tbody>
</table>

Note: Normal range for urine osmolarity is from 50 to 1400 mOsm/kg.


Transparency 4.6.6

Medically indicated

There are rare exceptions during which the infant may require other fluids or food in addition to, or in place of, breast milk. The feeding programme of these babies should be determined by qualified health professionals on an individual basis.

Transparency 4.6.7
Ten steps to successful breastfeeding

Step 7. Practice rooming-in — allow mothers and infants to remain together — 24 hours a day.


Rooming-in

A hospital arrangement where a mother/baby pair stay in the same room day and night, allowing unlimited contact between mother and infant

Why?

- Reduces costs
- Requires minimal equipment
- Requires no additional personnel
- Reduces infection
- Helps establish and maintain breastfeeding
- Facilitates the bonding process

Acceptable medical reasons for use of breast-milk substitutes

Infant conditions:

- Infants who should not receive breast milk or any other milk except specialized formula:
  - Classic galactosemia: A special galactose-free formula is needed.
  - Maple syrup urine disease: A special formula free of leucine, isoleucine and valine is needed.
  - Phenylketonuria: A special phenylalanine free formula is required (some BF is possible, under careful monitoring).

- Infants for whom breast milk remains the best feeding option but may need other food in addition to breast milk for a limited period:
  - Very low birth weight infants (less than 1500g)
  - Very preterm infants (less than 32 weeks gestational age)
  - Newborn infants at risk of hypoglycaemia.

Mothers who can continue breastfeeding:

- Breast abscess
- Hepatitis B – infants should get vaccine.
- Hepatitis C
- Mastitis – if painful, remove milk by expression
- TB – manage together following national guidelines
- Substance use: maternal use of nicotine, alcohol, ecstasy, amphetamines, cocaine and related stimulants have harmful effects on BF babies; alcohol, opioids, benzodiazepines and cannabis can cause sedation in mother and baby

Mothers who may need to avoid BF permanently:

- HIV infection – if replacement feeding is AFASS.

Mothers who may need to avoid BF temporarily:

- Severe illness that prevents a mother from caring for her infant
- Herpes simplex virus type 1. (If lesions on breasts, avoid BF until active lesions have resolved.)
- Maternal medications – sedating psychotherapeutic drugs; radioactive iodine – 131 better avoided given that safer alternatives are available; excessive use of topical iodine; cytotoxic chemotherapy usually requires mother to stop BF permanently.

Maternal conditions:

- HIV infection – if replacement feeding is AFASS.
- Severe illness that prevents a mother from caring for her infant
- Herpes simplex virus type 1. (If lesions on breasts, avoid BF until active lesions have resolved.)
- Maternal medications – sedating psychotherapeutic drugs; radioactive iodine – 131 better avoided given that safer alternatives are available; excessive use of topical iodine; cytotoxic chemotherapy usually requires mother to stop BF permanently.

Infant conditions:

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Why?

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- Requires no additional personnel
- Reduces infection
- Helps establish and maintain breastfeeding
- Facilitates the bonding process
Scientific basis for the Ten Steps

Ten steps to successful breastfeeding

Step 8. Encourage breastfeeding on demand.

Breastfeeding on demand:
Breastfeeding whenever the baby or mother wants, with no restrictions on the length or frequency of feeds.

On demand, unrestricted breastfeeding

Why?
- Earlier passage of meconium
- Lower maximal weight loss
- Breast-milk flow established sooner
- Larger volume of milk intake on day 3
- Less incidence of jaundice


Breastfeeding frequency during the first 24 hours after birth and incidence of hyperbilirubinaemia (jaundice) on day 6

Mean feeding frequency during the first 3 days of life and serum bilirubin

![Graph showing mean feeding frequency and serum bilirubin levels over different feeding frequencies.]


**Ten steps to successful breastfeeding**

Step 9. Give no artificial teats or pacifiers (also called dummies and soothers) to breastfeeding infants.


Alternatives to artificial teats

- cup
- spoon
- dropper
- Syringe

Cup-feeding a baby

Proportion of infants who were breastfed up to 6 months of age according to frequency of pacifier use at 1 month

![Graph showing proportion of infants breastfed up to 6 months by pacifier use at 1 month.]


**Ten steps to successful breastfeeding**

Step 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

“The key to best breastfeeding practices is continued day-to-day support for the breastfeeding mother within her home and community.”


Support can include:

- Early postnatal or clinic checkup
- Home visits
- Telephone calls
- Community services
  - Outpatient breastfeeding clinics
  - Peer counselling programmes
- Mother support groups
  - Help set up new groups
  - Establish working relationships with those already in existence
- Family support system


Types of breastfeeding mothers’ support groups

- Traditional
  - extended family
  - culturally defined doulas
  - village women
- Modern, non-traditional
  - Self-initiated
  - by mothers
  - by concerned health professionals
  - Government planned through:
    - networks of national development groups, clubs, etc.
    - health services — especially primary health care (PHC) and trained traditional birth attendants (TBAs)

From: Jelliffe DB, Jelliffe EFP. The role of the support group in promoting breastfeeding in developing countries. J Trop Pediatr, 1983, 29:244.

Step 10: Effect of trained peer counsellors on the duration of exclusive breastfeeding

![Graph showing percentage of exclusively breastfeeding 5 month old infants]

Project Area: 70%
Control: 6%

Exclusively breastfeeding 5 month old infants


Types of breastfeeding mothers’ support groups

- Traditional
  - extended family
  - culturally defined doulas
  - village women
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Combined Steps: The impact of baby-friendly practices: The Promotion of Breastfeeding Intervention Trial (PROBIT)

- In a randomized trial in Belarus 17,000 mother-infant pairs, with mothers intending to breastfeed, were followed for 12 months.
- In 16 control hospitals & associated polyclinics that provide care following discharge, staff were asked to continue their usual practices.
- In 15 experimental hospitals & associated polyclinics staff received baby-friendly training & support.


Home visits improve exclusive breastfeeding

![Graph showing percentage of exclusively breastfeeding at 2 weeks and 3 months]

- Six-visit group: 89% at 2 weeks, 67% at 3 months
- Three-visit group: 62% at 2 weeks, 59% at 3 months
- Control group: 24% at 2 weeks, 12% at 3 months


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### Differences following the intervention

<table>
<thead>
<tr>
<th>Control hospitals:</th>
<th>Experimental hospitals:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine separation of mothers &amp; babies at birth</td>
<td>Mothers &amp; babies together from birth</td>
</tr>
<tr>
<td>Routine tight swaddling</td>
<td>No swaddling—skin-to-skin contact encouraged</td>
</tr>
<tr>
<td>Routine nursery-based care</td>
<td>Rooming-in on a 24-hr basis</td>
</tr>
<tr>
<td>Incorrect latching &amp; positioning techniques</td>
<td>Correct latching &amp; positioning techniques</td>
</tr>
<tr>
<td>Routine supplementation with water &amp; milk by bottle</td>
<td>No supplementation</td>
</tr>
<tr>
<td>Routine use of pacifiers</td>
<td>No use of pacifiers</td>
</tr>
<tr>
<td>No BF support after discharge</td>
<td>BF support in polyclinics</td>
</tr>
</tbody>
</table>


### Effect of baby-friendly changes on breastfeeding at 3 & 6 months

![Graph showing comparison between experimental and control groups for breastfeeding at 3 and 6 months](image)

Exclusive BF 3 months: 42.5% vs 39.0%
Exclusive BF 6 months: 6.9% vs 7.3%

Adapted from: Kramer et al. (2001)

### Impact of baby-friendly changes on selected health conditions

![Graph showing comparison between experimental and control groups for selected health conditions](image)

- Gastro-intestinal tract infections: 9.1% vs 3.3%
- Atopic eczema: 13.2% vs 6.3%

Note: Differences between experimental and control groups for various respiratory tract infections were small and statistically non-significant.

Adapted from: Kramer et al. (2001)

### Combined Steps: The influence of Baby-friendly hospitals on breastfeeding duration in Switzerland

- Data was analyzed for 2861 infants aged 0 to 11 months in 145 health facilities.
- Breastfeeding data was compared with both the progress towards Baby-friendly status of each hospital and the degree to which designated hospitals were successfully maintaining the Baby-friendly standards.


### Proportion of babies exclusively breastfed for the first five months of life -- Switzerland

![Graph showing comparison between babies born in Baby-friendly hospitals and those born elsewhere](image)

- Babies born in Baby-friendly hospitals: 42%
- Babies born elsewhere: 34%


### Median duration of exclusive breastfeeding for babies born in Baby-friendly hospitals -- Switzerland

- If hospital showed good compliance with 10 Steps: 12 weeks
- If hospital showed poor compliance with 10 Steps: 6 weeks