

Session 1:

The national infant feeding situation

Facts on infant and young child feeding

- About 2 million child deaths could be prevented every year through optimal breastfeeding.
- Exclusively breastfed infants have at least 2½ times fewer illness episodes than infants fed breast-milk substitutes.
- Infants are as much as 25 times more likely to die from diarrhoea in the first 6 months of life if not exclusively breastfed.
- Among children under one year, those who are not breastfed are 3 times more likely to die of respiratory infection than those who are exclusively breastfed.

From: Jones et al., 2003,; Chandra, 1979; Feachem, 1984; and Victora, 1987.

Facts on infant and young child feeding

- Infants exclusively breastfed for 4 or more months have half the mean number of acute otitis media episodes of those not breastfed at all.
- In low-income communities, the cost of cow's milk or powdered milk, plus bottles, teats, and fuel for boiling water, can consume 25 to 50% of a family's income.
- Breastfeeding contributes to natural birth spacing, providing 30% more protection against pregnancy than all the organized family planning programmes in the developing world.

From: Duncan et al, 1993; UNICEF/WHO/UNESCO/UNFPAA, 1993; and Kleinman, 1987.

Facts on infant and young child feeding

- The peak period of malnutrition is between 6 and 28 months of age.
- Malnutrition contributes to about half of under-five mortality and a third of this is due to faulty feeding practices.
- Counselling on breastfeeding and complementary feeding leads to improved feeding practices, improved intakes and growth.
- Counselling on breastfeeding and complementary feeding contributes to lowering the incidence of diarrhoea.

WHO's infant and young child feeding recommendations

- Initiate breastfeeding within one hour of birth.
- Breastfeed exclusively for the first six months of age (180 days).
- Thereafter give nutritionally adequate and safe complementary foods to all children.
- Continue breastfeeding for up to two years of age or beyond.

Adapted from the *Global Strategy*.

Breastfeeding and complementary feeding terms and definitions

- **EXCLUSIVE BREASTFEEDING:** the infant takes only breast milk and no additional food, water, or other fluids with the exception of medicines and vitamin or mineral drops.
- **PARTIAL BREASTFEEDING or MIXED FEEDING:** the infant is given some breast feeds and some artificial feeds, either milk or cereal, or other food or water.
- **BOTTLE-FEEDING:** the infant is feeding from a bottle, regardless of its contents, including expressed breast milk.

Breastfeeding and complementary feeding terms and definitions

- **ARTIFICIAL FEEDING:** the infant is given breast-milk substitutes and not breastfeeding at all.
- **REPLACEMENT FEEDING:** the process of feeding a child of an HIV-positive mother who is not receiving any breast milk with a diet that provides all the nutrients the child needs.
- **COMPLEMENTARY FEEDING:** the process of giving an infant food in addition to breast milk or infant formula, when either becomes insufficient to satisfy the infant's nutritional requirements.

Key questions to compare the country situation with WHO infant and young child feeding recommendations

- Percentage of infants breastfeeding exclusively for the first six months of life (180 days).
- Percentage of infants with continued breastfeeding at 1 year.
- Percentage of infants that introduced solid, semi-solid and soft foods at 6 months.
- Percentage of children with minimum dietary diversity.
- Percentage of children with minimum meal frequency.

Key questions to compare health facility data with WHO recommendations

- **Early initiation:** percentage of babies who start breastfeeding within 1 hour of birth.
- **Rooming-in:** percentage of babies who “room-in” on a 24-hour basis with their mothers after delivery.
- **Exclusive breastfeeding:** percentage of babies who are exclusively breastfed from birth to discharge.
- **Bottle-feeding:** percentage of babies who are getting any feeds from bottles between birth and discharge.

Session 2:

The benefits of breastfeeding

Benefits of breastfeeding for the infant

- Provides superior nutrition for optimum growth.
- Provides adequate water for hydration.
- Protects against infection and allergies.
- Promotes bonding and development.

Summary of differences between milks

	Human milk	Animal milks	Infant formula
Protein	correct amount, easy to digest	too much, difficult to digest	partly corrected
Fat	enough essential fatty acids, lipase to digest	lacks essential fatty acids, no lipase	no lipase
Water	enough	extra needed	may need extra
Anti-infective properties	present	absent	absent

Adapted from: Breastfeeding counselling: A training course. Geneva, World Health Organization, 1993 (WHO/CDR/93.6).

No water necessary

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

(normal osmolarity: 50-1400 mOsm/l)

Adapted from: *Breastfeeding and the use of water and teas*. Geneva, World Health Organization, 1997.

Breast milk composition differences (dynamic)

- Gestational age at birth
(preterm and full term)
- Stage of lactation
(colostrum and mature milk)
- During a feed
(foremilk and hindmilk)

Colostrum

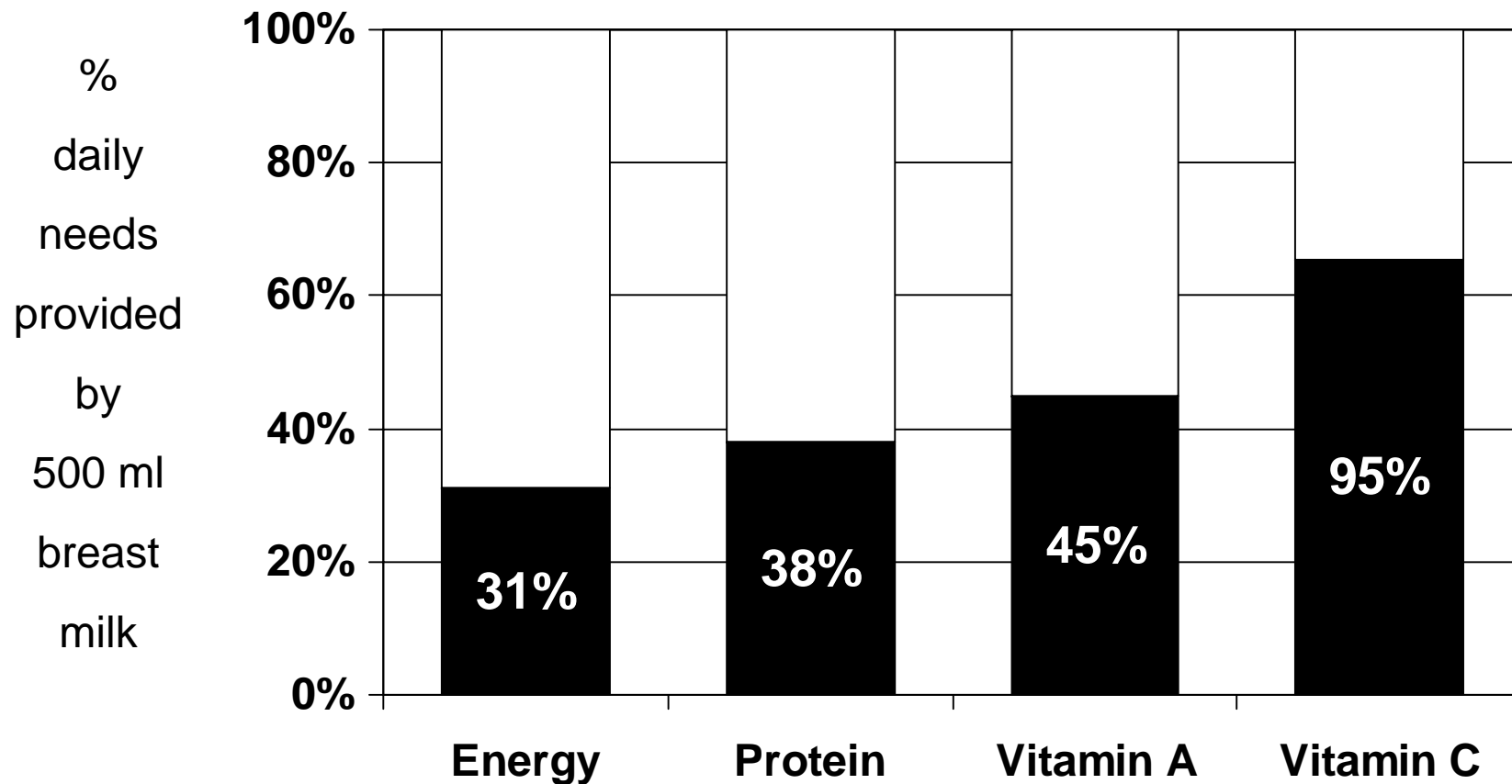
Property

- Antibody-rich
- Many white cells
- Purgative
- Growth factors
- Vitamin-A rich

Importance

- Protects against infection and allergy
- Protects against infection
- Clears meconium; helps prevent jaundice
- Helps intestine mature; prevents allergy, intolerance
- Reduces severity of some infection (such as measles and diarrhoea); prevents vitamin A-related eye diseases

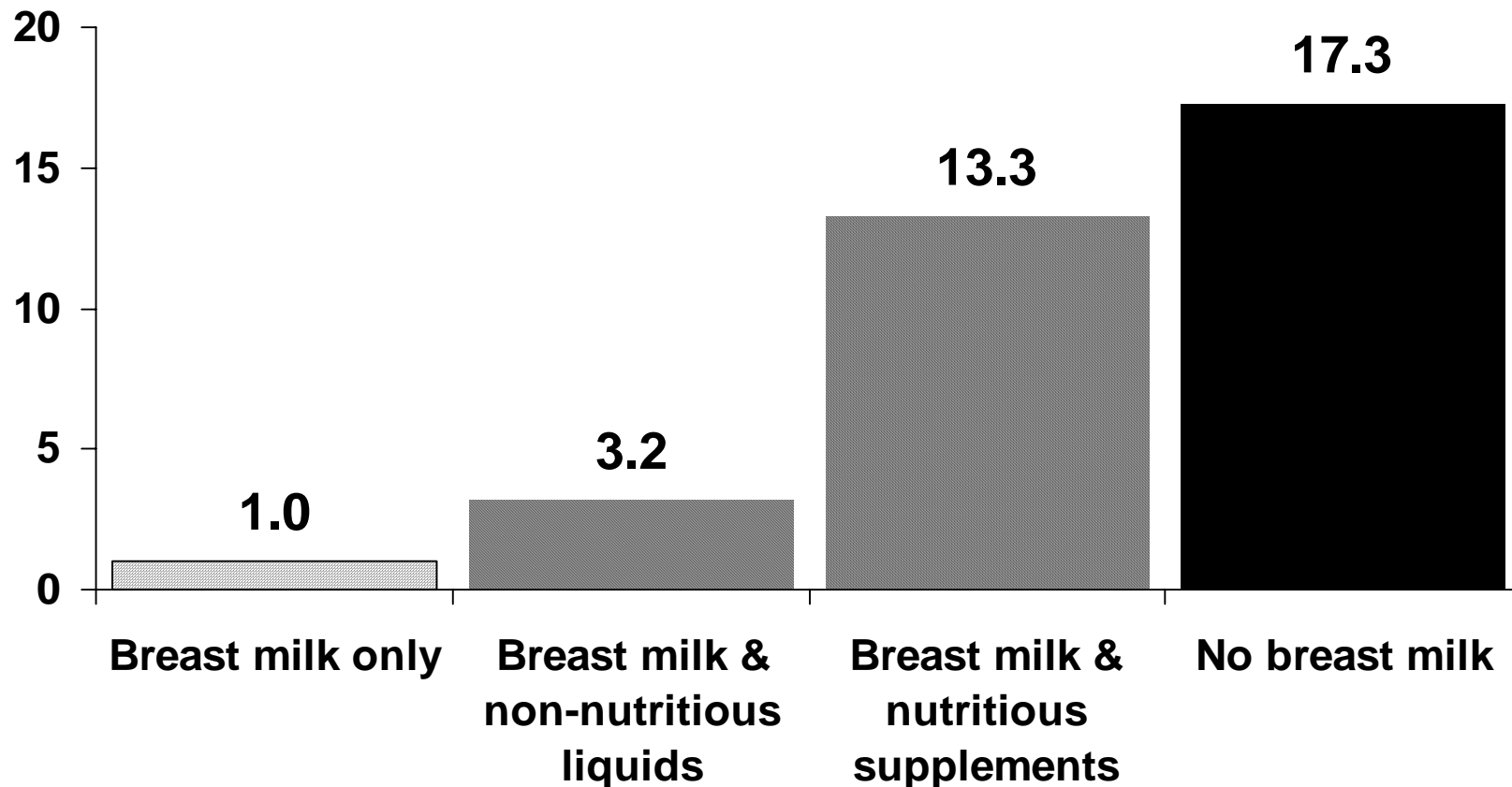
Breast milk in second year of life



From: Breastfeeding counselling: A training course. Geneva, World Health Organization, 1993 (WHO/CDR/93.6).

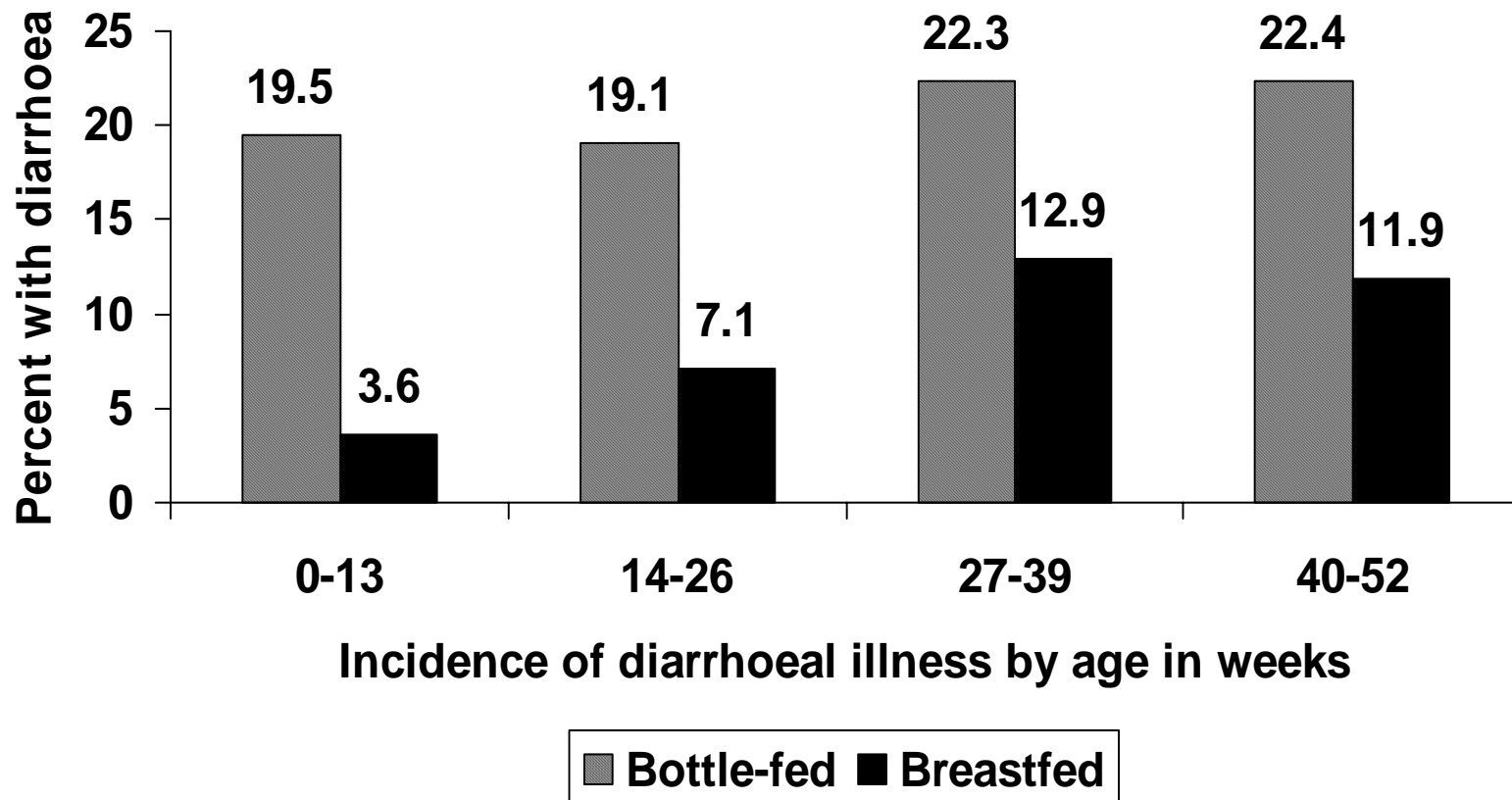
Protective effect of breastfeeding on infant morbidity

Risk of diarrhoea by feeding method for infants aged 0-2 months, Philippines



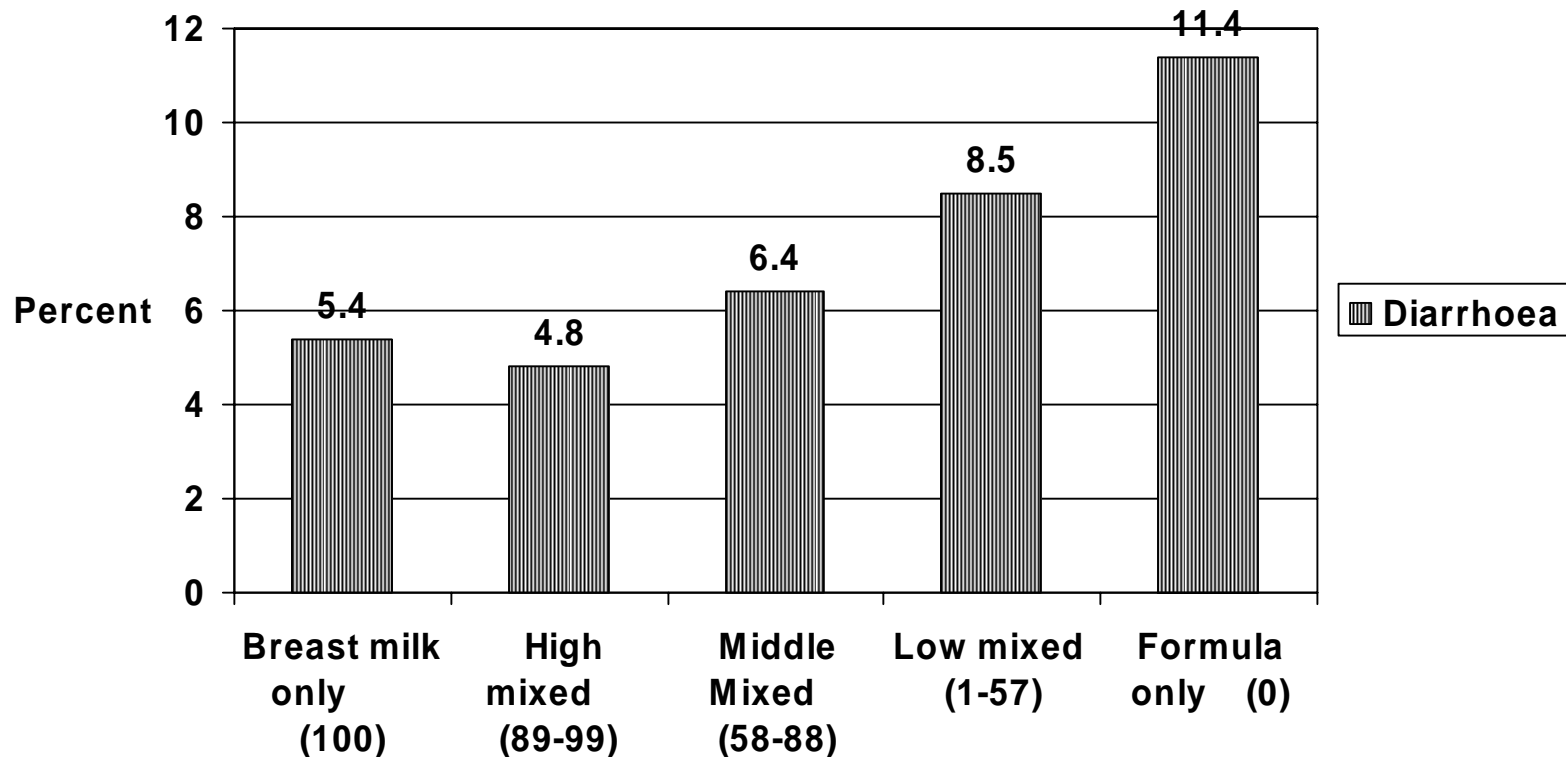
Adapted from: Popkin BM, Adair L, Akin JS, Black R, et al. Breastfeeding and diarrheal morbidity. *Pediatrics*, 1990, 86(6): 874-882.

Percentage of babies bottle-fed and breastfed for the first 13 weeks that had diarrhoeal illness at various weeks of age during the first year, Scotland



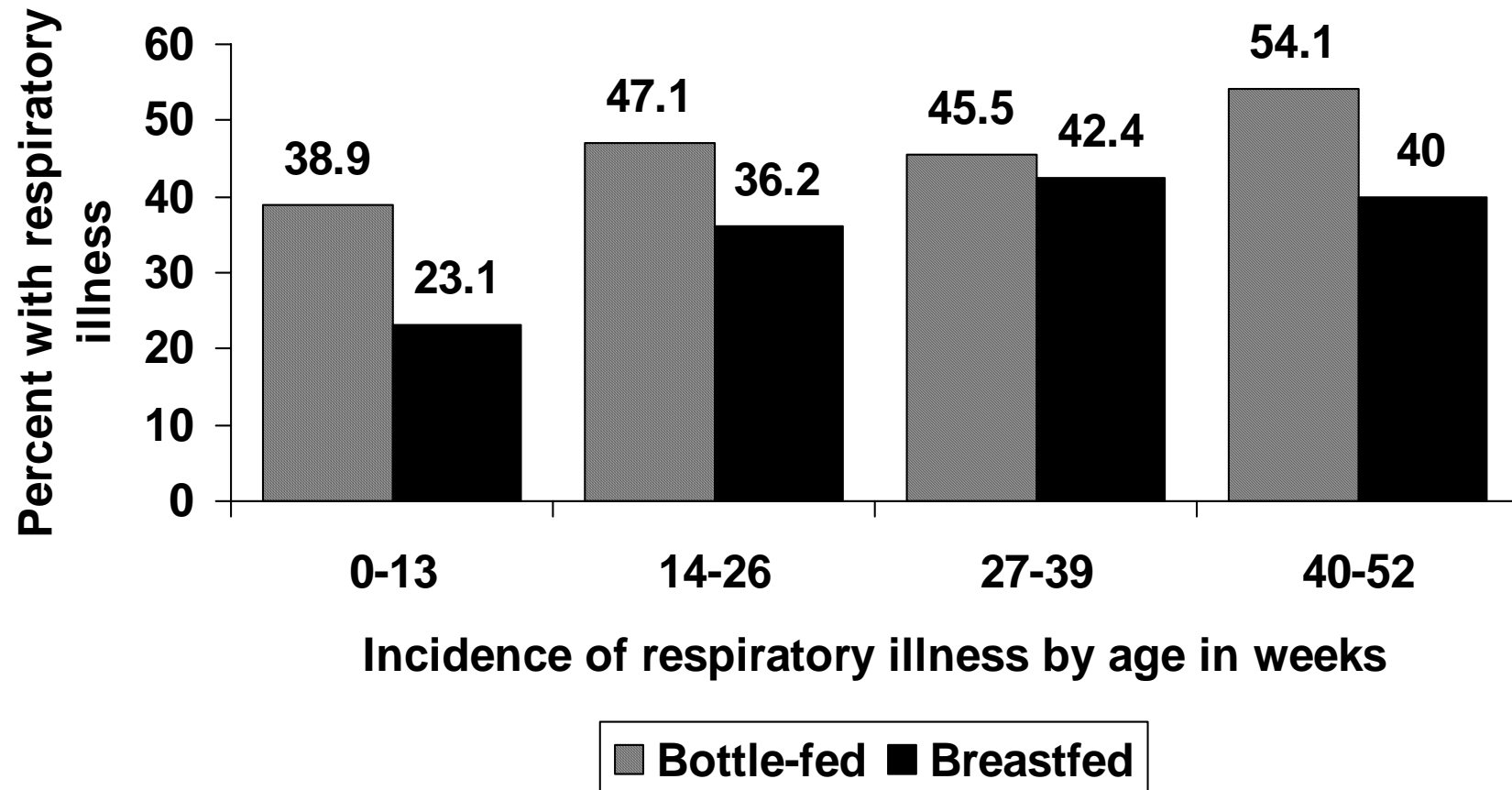
Adapted from: Howie PW, Forsyth JS, Ogston SA, Clark A, Florey CV. Protective effect of breastfeeding against infection. *Br Med J*, 1990, 300: 11-15.

Percentage of infants 2-7 months of age reported as experiencing diarrhoea, by feeding category in the preceding month in the U.S.



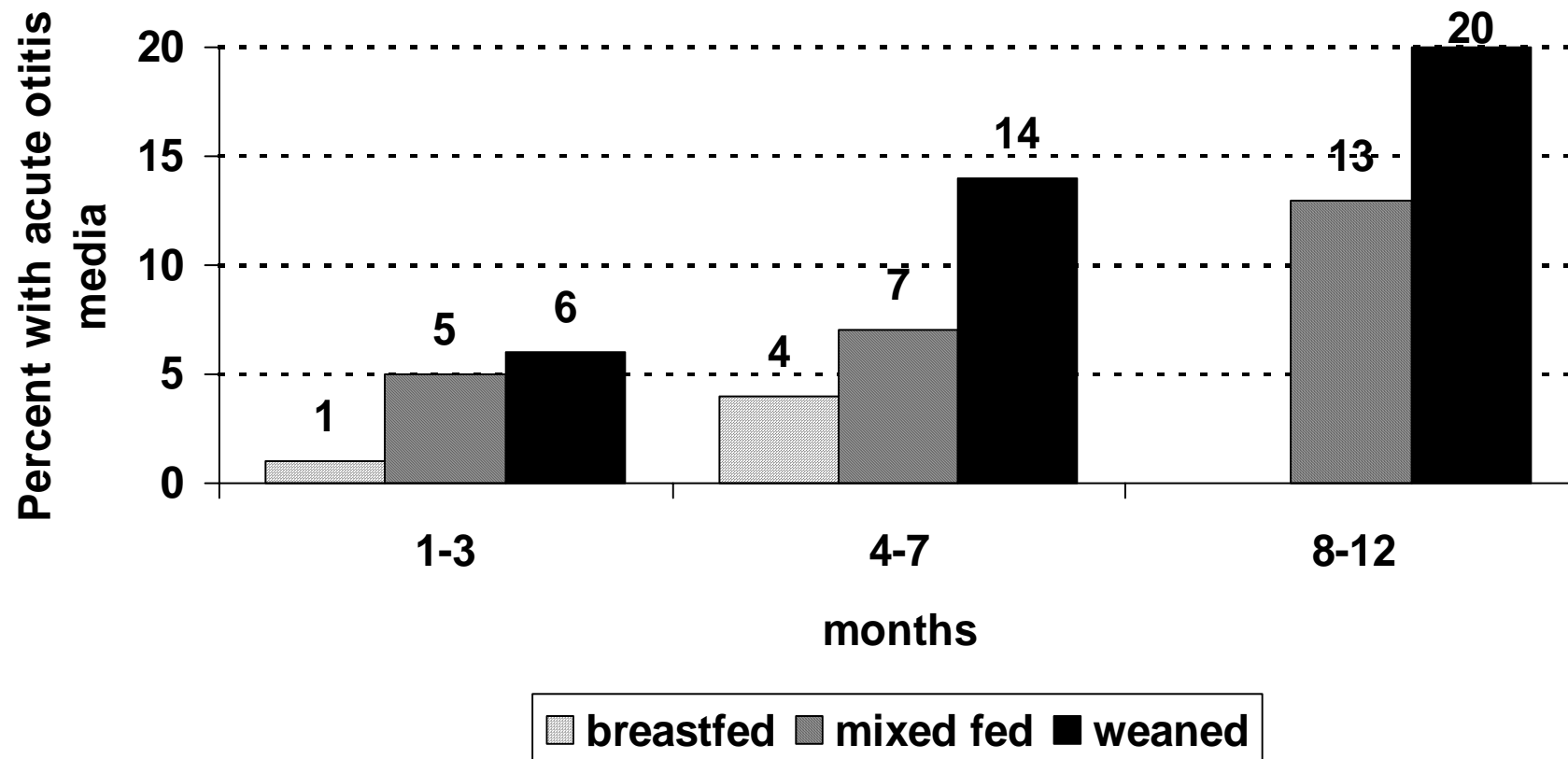
Adapted from: Scariati PD, Grummer-Strawn LM, Fein SB. A longitudinal analysis of infant morbidity and the extent of breastfeeding in the United States. *Pediatrics*, 1997, 99(6).

Percentage of babies bottle-fed and breastfed for the first 13 weeks that had respiratory illness at various weeks of age during the first year, Scotland



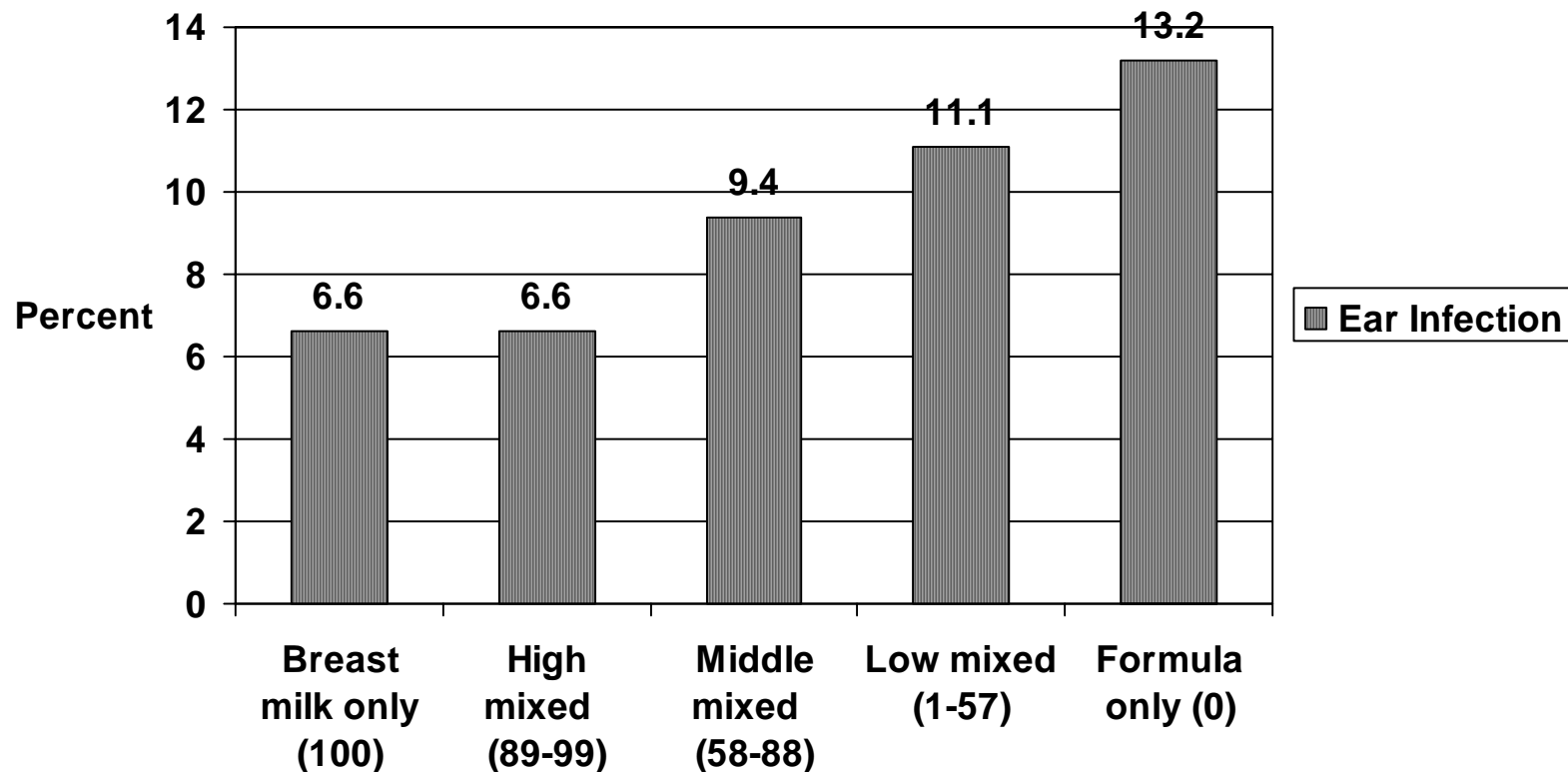
Adapted from: Howie PW, Forsyth JS, Ogston SA, Clark A, Florey CV. Protective effect of breastfeeding against infection. *Br Med J*, 1990, 300: 11-15.

Frequency of acute otitis media in relation to feeding pattern and age, Sweden



Adapted from: Aniansson G, Alm B, Andersson B, Hakansson A et al. A prospective coherent study on breast-feeding and otitis media in Swedish infants. *Pediat Infect Dis J*, 1994, 13: 183-188.

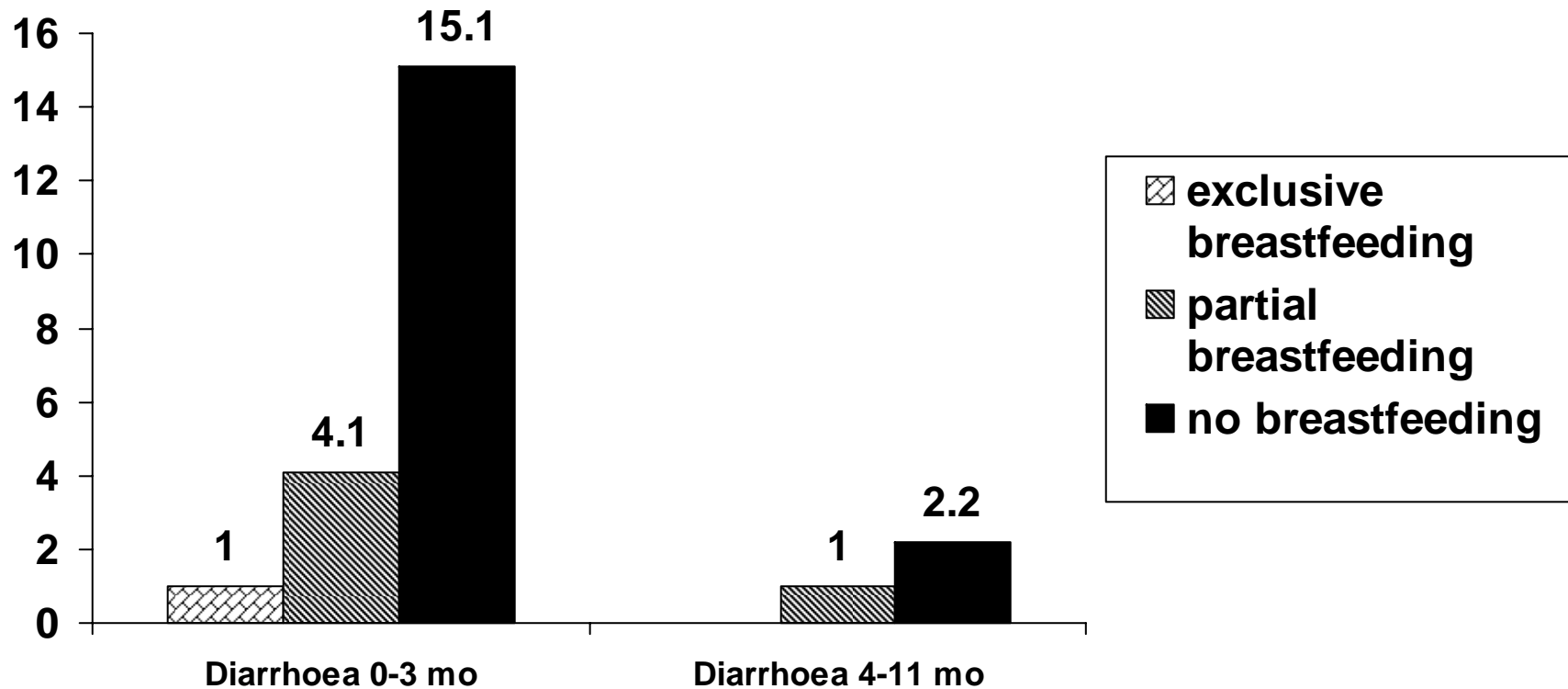
Percentage of infants 2-7 months of age reported as experiencing ear infections, by feeding category in the preceding month in the U.S.



Adapted from: Scariati PD, Grummer-Strawn LM, Fein SB. A longitudinal analysis of infant morbidity and the extent of breastfeeding in the United States. *Pediatrics*, 1997, 99(6).

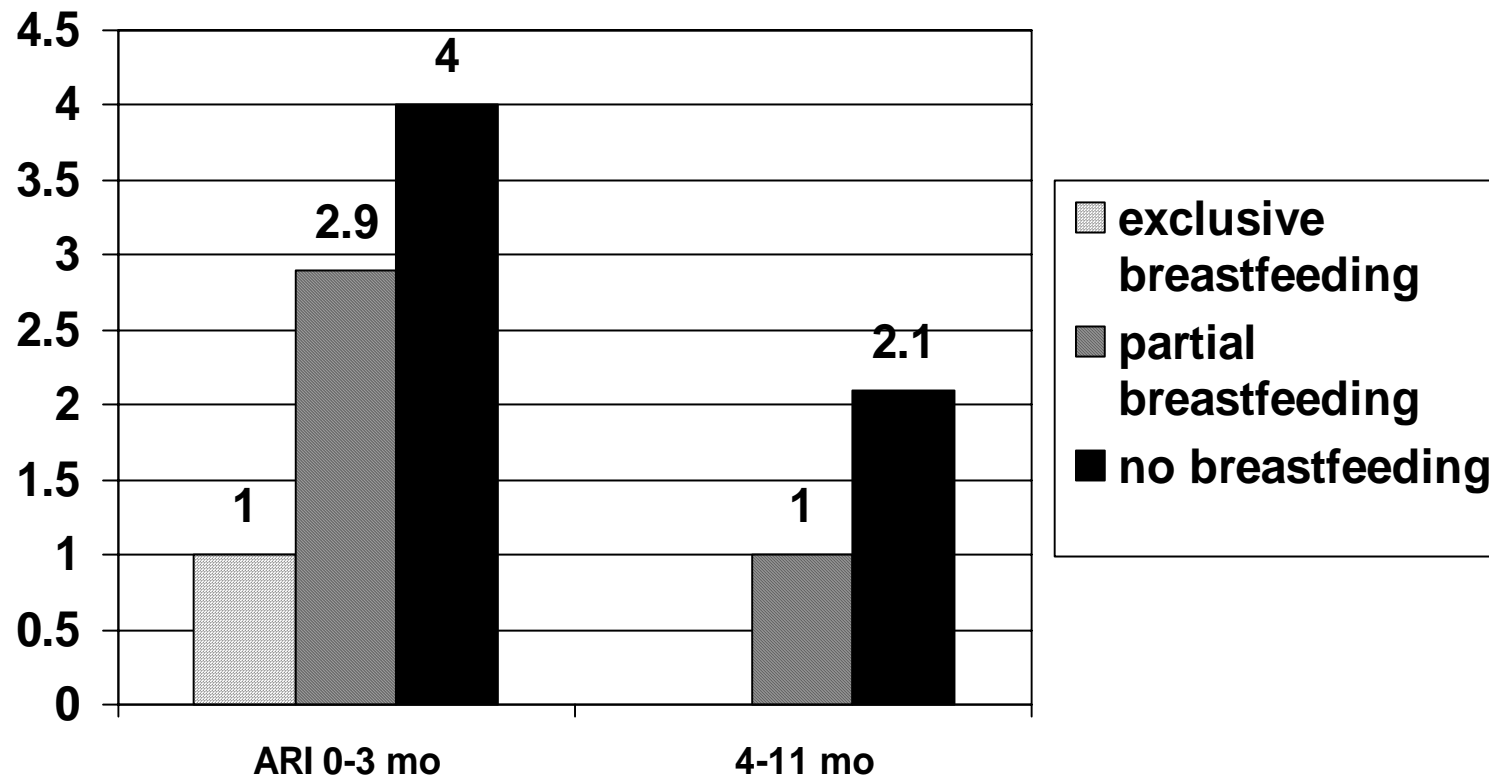
Protective effect of breastfeeding on infant mortality

Relative risks of death from diarrhoeal disease by age and breastfeeding category in Latin America



Adapted from: Betran AP, de Onis M, Lauer JA, Villar J. Ecological study of effect of breast feeding on infant mortality in Latin America. *BMJ*, 2001, 323: 1-5.

Relative risks of death from acute respiratory infections by age and breastfeeding category in Latin America



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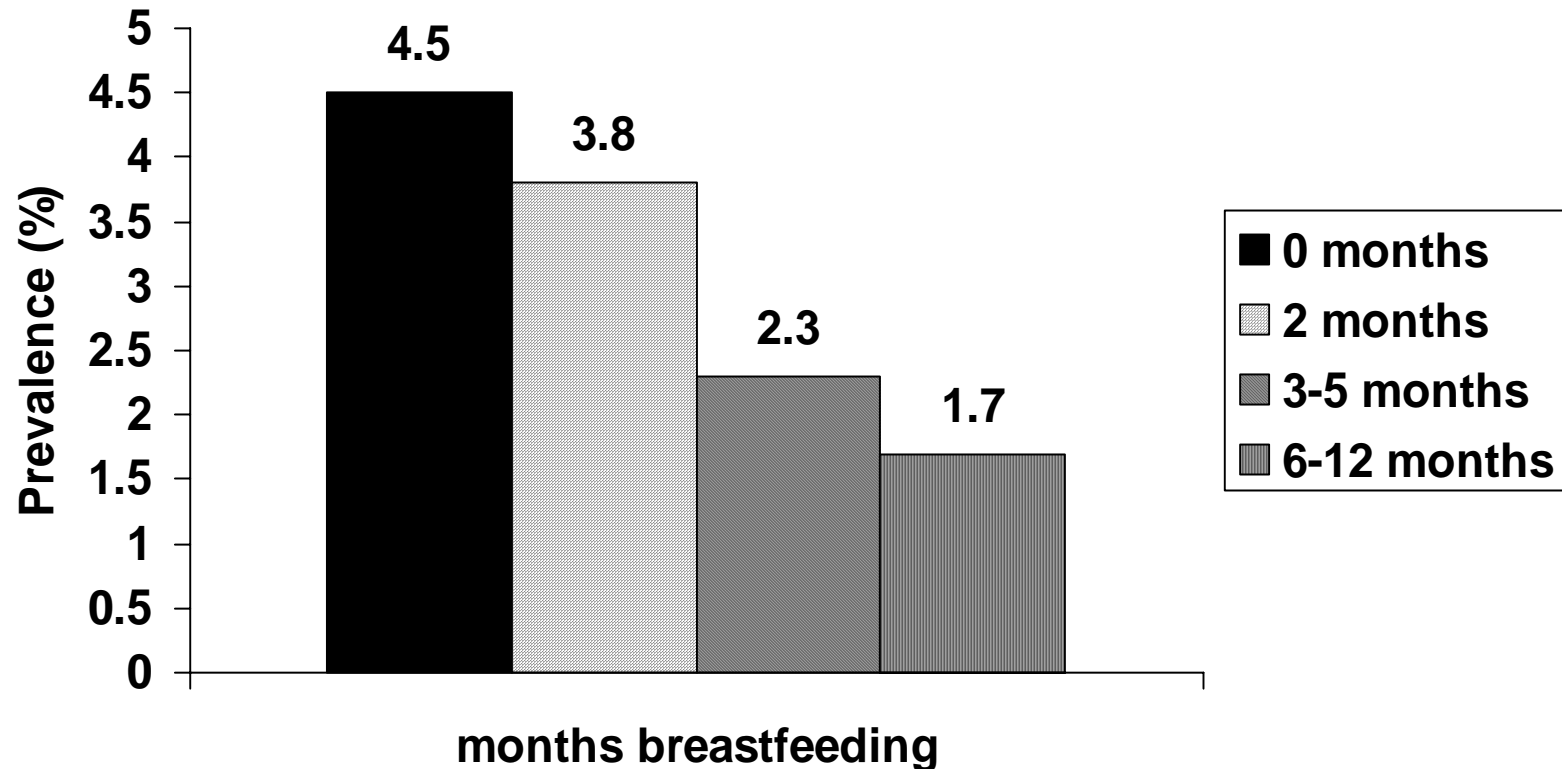
Breastfeeding reduces the risk of chronic disease

Breastfeeding decreases the risk of allergic disorders – a prospective birth cohort study

Type of feeding	Asthma	Atopic dermatitis	Allergic rhinitis
Children exclusively breastfed 4 months or more	7.7%	24%	6.5%
Children breastfed for a shorter period	12%	27%	9%

Adapted from Kull I. et al. Breastfeeding and allergic diseases in infants - a prospective birth cohort study. *Archives of Disease in Childhood* 2002; 87:478-481.

Breastfeeding decreases the prevalence of obesity in childhood at age five and six years, Germany



Adapted from: von Kries R, Koletzko B, Sauerwald T et al. Breast feeding and obesity: cross sectional study. *BMJ*, 1999, 319:147-150.

Breastfeeding has psychosocial and developmental benefits

Intelligence quotient by type of feeding

**BF 2 points
higher than FF
Study in 3-7
year-olds
1982**

**BF 2.1 points
higher than FF
Study in 6 months
to 2 year- olds
1988**

BF = breastfed
FF = formula fed
BM = breast milk



**BF 12.9 points
higher than FF
Study in 9.5
year-olds
1996**

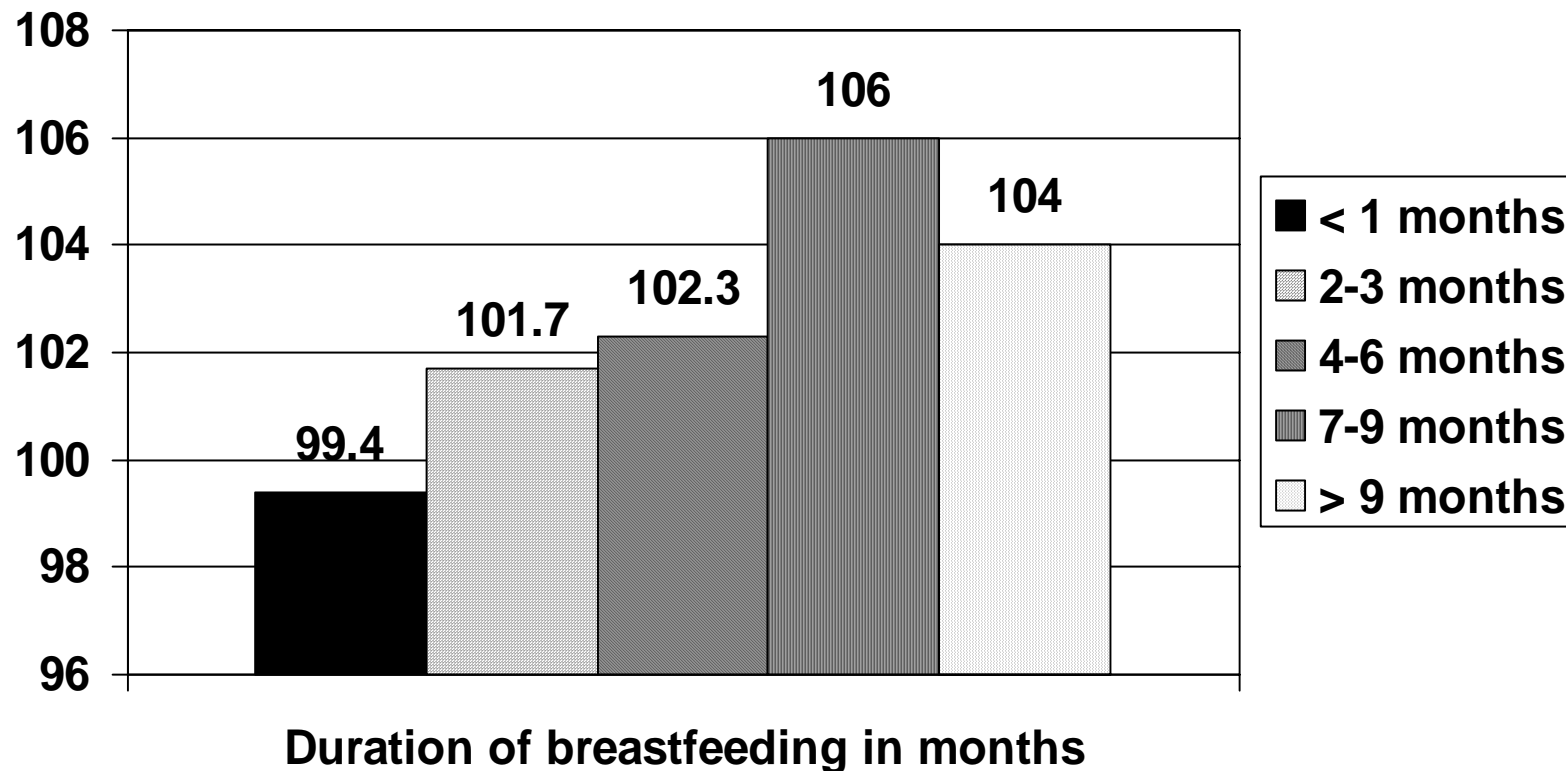
**BF 8.3 points
higher than FF
Study in 7.5-8
year-olds
1992**

**BM 7.5 points
higher than no BM
Study in 7.5-8
year-olds
1992**

References:

- Fergusson DM et al. Soc SciMed 1982
- Morrow-Tlucak M et al. SocSciMed 1988
- Lucas A et al. Lancet 1992
- Riva Eet al. Acta Paediatr 1996

Duration of breastfeeding associated with higher IQ scores in young adults, Denmark

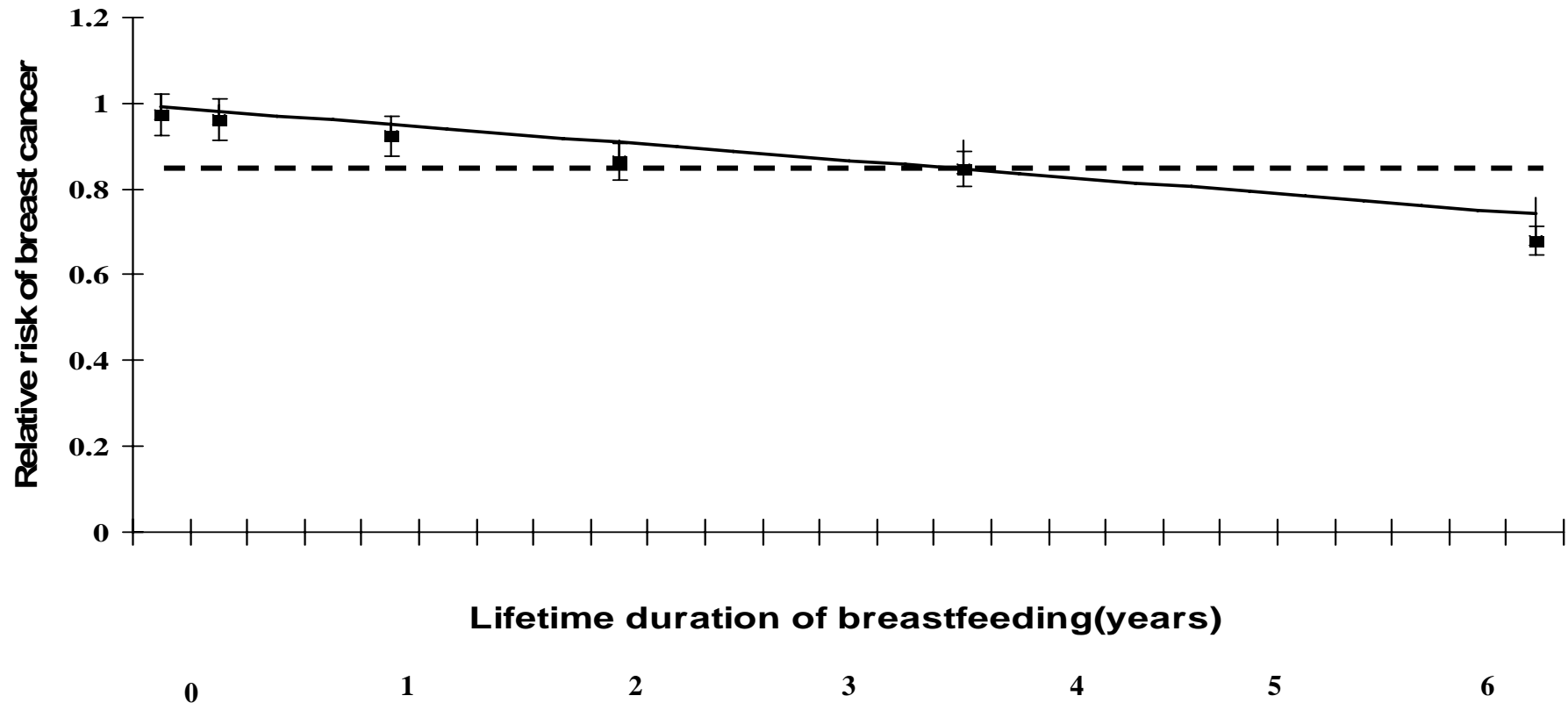


Adapted from: Mortensen EL, Michaelsen KF, Sanders SA, Reinisch JM. The association between duration of breastfeeding and adult intelligence. *JAMA*, 2002, 287: 2365-2371.

Benefits of breastfeeding for the mother

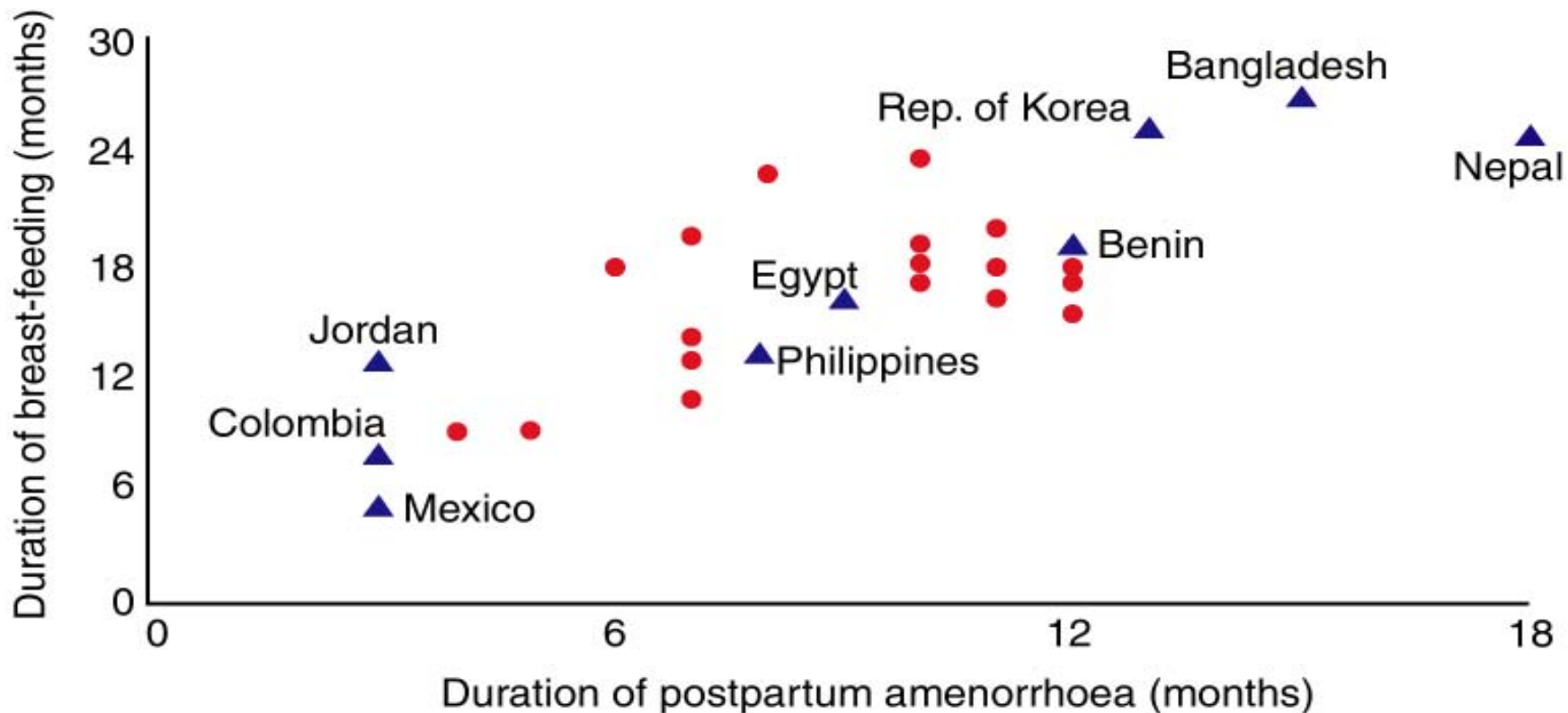
- Protects mother's health
 - helps reduces risk of uterine bleeding and helps the uterus to return to its previous size
 - reduces risk of breast and ovarian cancer
- Helps delay a new pregnancy
- Helps a mother return to pre-pregnancy weight

Breast cancer and breastfeeding: Analysis of data from 47 epidemiological studies in 30 countries



Adapted from: Beral V et al. (Collaborative group on hormonal factors in breast cancer). Breast cancer and breastfeeding: collaborative reanalysis of individual data from 47 epidemiological studies in 30 countries. *Lancet* 2002; 360: 187-95.

Relationship between duration of breastfeeding and postpartum amenorrhoea (in months)



Adapted from: Saadeh R, Benbouzid D. Breast-feeding and child spacing: importance of information collection to public health policy. *Bulletin of the WHO*, 1990, 68(5) 625-631.

Risks of artificial feeding

- Interferes with bonding

- More diarrhoea and respiratory infections
- Persistent diarrhoea
- Malnutrition
Vitamin A deficiency
- More likely to die



Mother

- More allergy and milk intolerance
- Increased risk of some chronic diseases
- Overweight
- Lower scores on intelligence tests

- May become pregnant sooner

- Increased risk of anaemia, ovarian and breast cancer

Benefits of breastfeeding for the family

- Better health, nutrition, and well-being
- Economic benefits
 - breastfeeding costs less than artificial feeding
 - breastfeeding results in lower medical care costs

Benefits of breastfeeding for the hospital

- Warmer and calmer emotional environment
- No nurseries, more hospital space
- Fewer neonatal infections
- Less staff time needed
- Improved hospital image and prestige
- Fewer abandoned children
- Safer in emergencies

Session 3:

The Baby-friendly Hospital Initiative

Goals of the Baby-friendly Hospital Initiative

1. To transform hospitals and maternity facilities through implementation of the “Ten steps”.
2. To end the practice of distribution of free and low-cost supplies of breast-milk substitutes to maternity wards and hospitals.



Every facility providing maternity services and care for newborn infants should follow these *Ten steps to successful breastfeeding*

- 1. Have a written breastfeeding policy that is routinely communicated to all health care staff.**
- 2. Train all health care staff in skills necessary to implement this policy.**
- 3. Inform all pregnant women about the benefits and management of breastfeeding.**
- 4. Help mothers initiate breastfeeding within a half-hour of birth.**
- 5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.**



Every facility providing maternity services and care for newborn infants should follow these *Ten steps to successful breastfeeding*

- 6. Give newborn infants no food or drink other than breast milk, unless medically indicated.**
- 7. Practise rooming-in — allow mothers and infants to remain together — 24 hours a day.**
- 8. Encourage breastfeeding on demand.**
- 9. Give no artificial teats or pacifiers (also called dummies or soothers) to breastfeeding infants.**
- 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.**

Key dates in the history of breastfeeding and BFHI

- 1979 – Joint WHO/UNICEF Meeting on Infant and Young Child Feeding, Geneva
- 1981 – Adoption of the International Code of Marketing of Breast-Milk Substitutes
- 1989 – Protecting, promoting and supporting breastfeeding. The special role of maternity services. A Joint WHO/UNICEF Statement
 - Convention on the Rights of the Child
- 1990 – Innocenti Declaration
 - World Summit for Children

Key dates in the history of breastfeeding and BFHI

- 1991 – Launching of Baby-friendly Hospital Initiative
- 2000 – WHO Expert Consultation on HIV and Infant Feeding
- 2001 – WHO Consultation on the optimal duration of exclusive breastfeeding
- 2002 – Endorsement of the Global Strategy for Infant and Young Child Feeding by the WHA
- 2005 – Innocenti Declaration 2005
- 2007 – Revision of BFHI documents

The International code of marketing of breast-milk substitutes:

Summary and role of baby-friendly hospitals

Aim

To contribute to the provision of safe and adequate nutrition for infants by:

- **The protection and promotion of breastfeeding**
- **Ensuring the proper use of breast-milk substitutes, when these are necessary, on basis of adequate information and through appropriate marketing and distribution**

Scope

Marketing, practices related, quality and availability, and information concerning the use of:

- **Breast-milk substitutes, including infant formula**
- **Other milk products, foods and beverages, including bottle-fed complementary foods, when intended for use as a partial or total replacement of breast milk**
- **Feeding bottles and teats**

Summary of the main points of the International Code

- **No advertising of breast-milk substitutes and other products to the public**
- **No donations of breast-milk substitutes and supplies to maternity hospitals**
- **No free samples to mothers**
- **No promotion in the health services**
- **No company personnel to advise mothers**
- **No gifts or personal samples to health workers**

Summary of the main points of the International Code

- **No use of space, equipment or education materials sponsored or produced by companies when teaching mothers about infant feeding.**
- **No pictures of infants, or other pictures idealizing artificial feeding on the labels of the products.**
- **Information to health workers should be scientific and factual.**
- **Information on artificial feeding, including that on labels, should explain the benefits of breastfeeding and the costs and dangers associated with artificial feeding.**
- **Unsuitable products, such as sweetened condensed milk, should not be promoted for babies.**

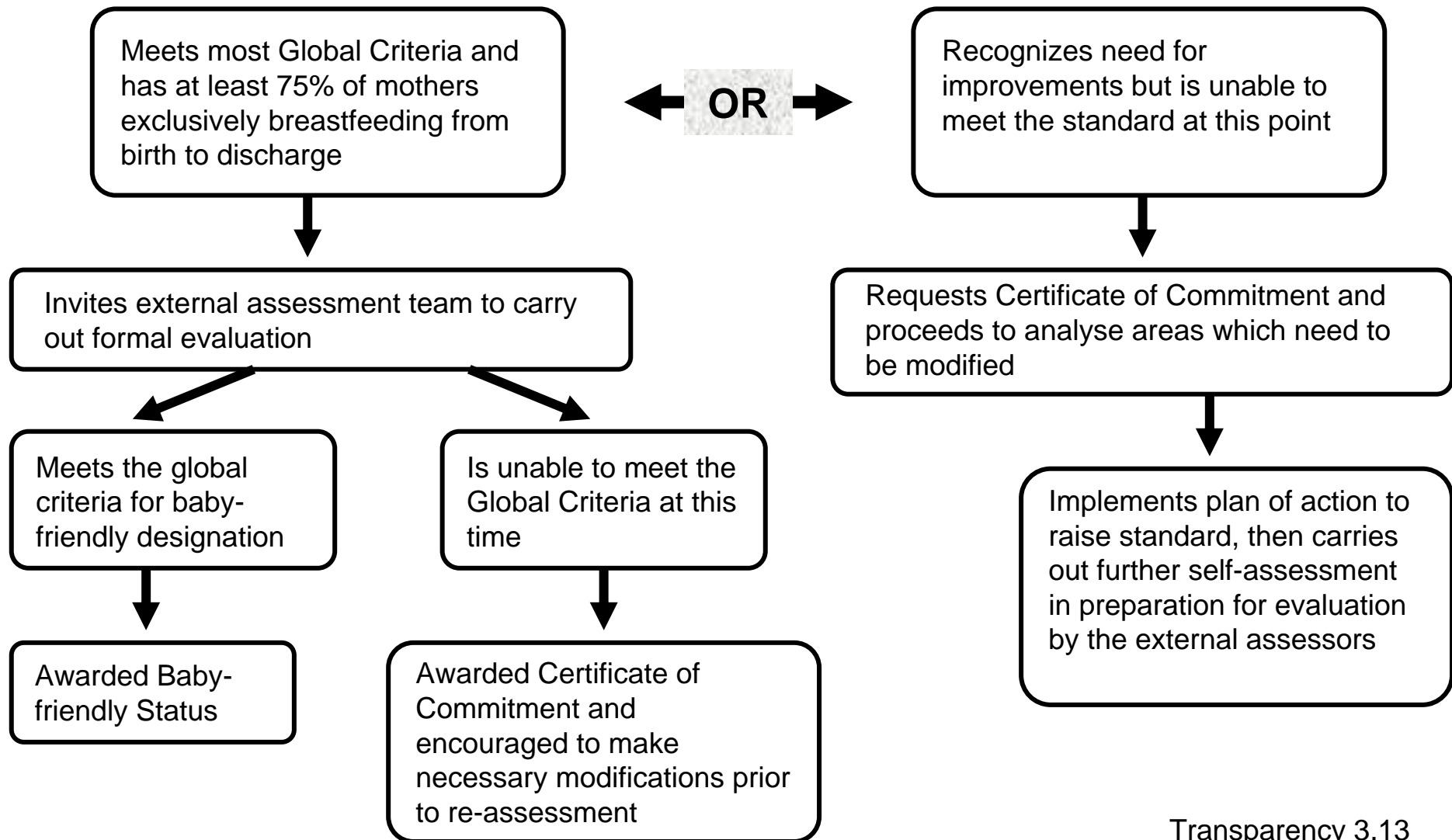
The role of administrators and staff in upholding the International Code

- **Free or low-cost supplies of breast-milk substitutes should not be accepted in health care facilities.**
- **Breast-milk substitutes should be purchased by the health care facility in the same way as other foods and medicines, and for at least wholesale price.**
- **Promotional material for infant foods or drinks other than breast milk should not be permitted in the facility.**
- **Pregnant women should not receive materials that promote artificial feeding.**
- **Feeding with breast-milk substitutes should be demonstrated by health workers only, and only to pregnant women, mothers, or family members who need to use them.**

The role of administrators and staff in upholding the International Code

- **Breast-milk substitutes in the health facility should be kept out of the sight of pregnant women and mothers.**
- **The health facility should not allow sample gift packs with breast-milk substitutes or related supplies that interfere with breastfeeding to be distributed to pregnant women or mothers.**
- **Financial or material inducements to promote products within the scope of the Code should not be accepted by health workers or their families.**
- **Manufacturers and distributors of products within the scope of the Code should disclose to the institution any contributions made to health workers such as fellowships, study tours, research grants, conferences, or the like. Similar disclosures should be made by the recipient.**

The route to baby-friendly designation



Differences between monitoring and reassessment

Monitoring	Reassessment
<ul style="list-style-type: none">■ Measures progress on the “10 steps”■ Identifies areas needing improvement and helps in planning actions■ Can be organized by the hospital or by the national BFHI coordination group	<ul style="list-style-type: none">■ Evaluates whether the hospital meets the Global Criteria for the “10 steps”■ Same, but also used to decide if hospital should remain designated “baby-friendly”■ Is usually organized by the national BFHI coordination group

Differences between monitoring and reassessment

Monitoring	Reassessment
<ul style="list-style-type: none">■ Can be performed by monitors “internal” to the hospital or from outside■ Quite inexpensive if performed “internally”■ Can be done frequently	<ul style="list-style-type: none">■ Must be performed by “external” assessors■ Somewhat more costly, as requires “external” assessors■ Usually scheduled less frequently

The role of the hospital administrator in BFHI

- **Become familiar with the BFHI process**
- **Decide where responsibility lies within the hospital structure. This can be a coordinating committee, working group, multidisciplinary team, etc.**
- **Establish the process within the hospital of working with the identified responsible body**
- **Work with key hospital staff to fill in the self-appraisal tool using the Global Criteria and interpret results**

The role of the hospital administrator in BFHI

- **Support staff in decisions taken to achieve “baby-friendliness”**
- **Facilitate any BFHI-related training that may be needed**
- **Collaborate with national BFHI coordination group and ask for an external assessment team when the hospital is ready for assessment**
- **Encourage staff to sustain adherence to the “10 steps”, arranging for refresher training and periodic monitoring and reassessment**

Global Strategy on Infant and Young Child Feeding (IYCF): Aim

- To improve – through optimal feeding – the nutritional status, growth and development, health, and thus the survival of infants and young children

Operational targets in the strategy

- **Develop, implement, monitor, and evaluate a comprehensive policy on IYCF**
- **Ensure that the health and other relevant sectors protect, promote and support exclusive breastfeeding for six months and continued breastfeeding up to two years of age or beyond, while providing women access to the support they require**
- **Promote timely, adequate, safe, and appropriate complementary feeding with continued breastfeeding**
- **Provide guidance on feeding infants and young children in exceptionally difficult circumstances**
- **Consider what new legislation or other suitable measures may be required, as part of a comprehensive policy on IYCF, to give effect to the principles and aim of the International Code of Marketing and to subsequent relevant Health Assembly resolutions**

Further strengthening of BFHI

The Global Strategy urges that hospital routines and procedures *remain* fully supportive of the successful initiation and establishment of breastfeeding through the:

- Implementation of the Baby-friendly Hospital Initiative
- Monitoring and reassessing already designated facilities; and
- Expanding the Initiative to include clinics, health centre, and paediatric hospitals

It also urges that support be given for feeding infants and young children in exceptionally difficult circumstances,

- With one aspect of this being to adapt the BFHI by taking account of HIV/AIDS,
- and by ensuring that those responsible for emergency preparedness are well trained to support appropriate feeding practices consistent with the Initiative's universal principles.

Session 4:

**The scientific basis
for the “Ten Steps”**

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

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

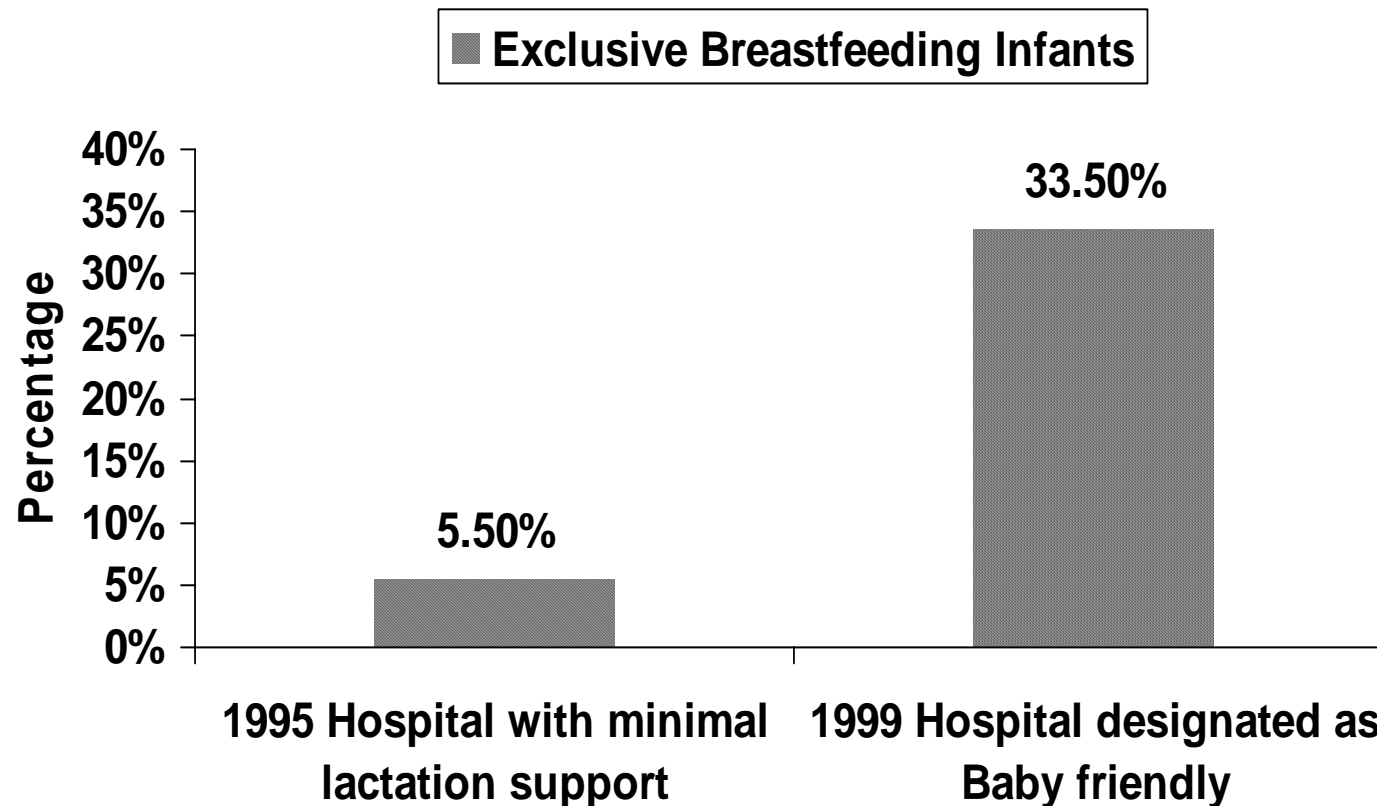
Breastfeeding policy

How should it be presented?

It should be:

- 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



Adapted from: Philipp BL, Merewood A, Miller LW et al. Baby-friendly Hospital Initiative improves breastfeeding initiation rates in a US hospital setting. *Pediatrics*, 2001, 108:677-681.

Ten steps to successful breastfeeding

Step 2. Train all health-care staff in skills necessary to implement this policy.

A JOINT WHO/UNICEF STATEMENT (1989)

Areas of knowledge

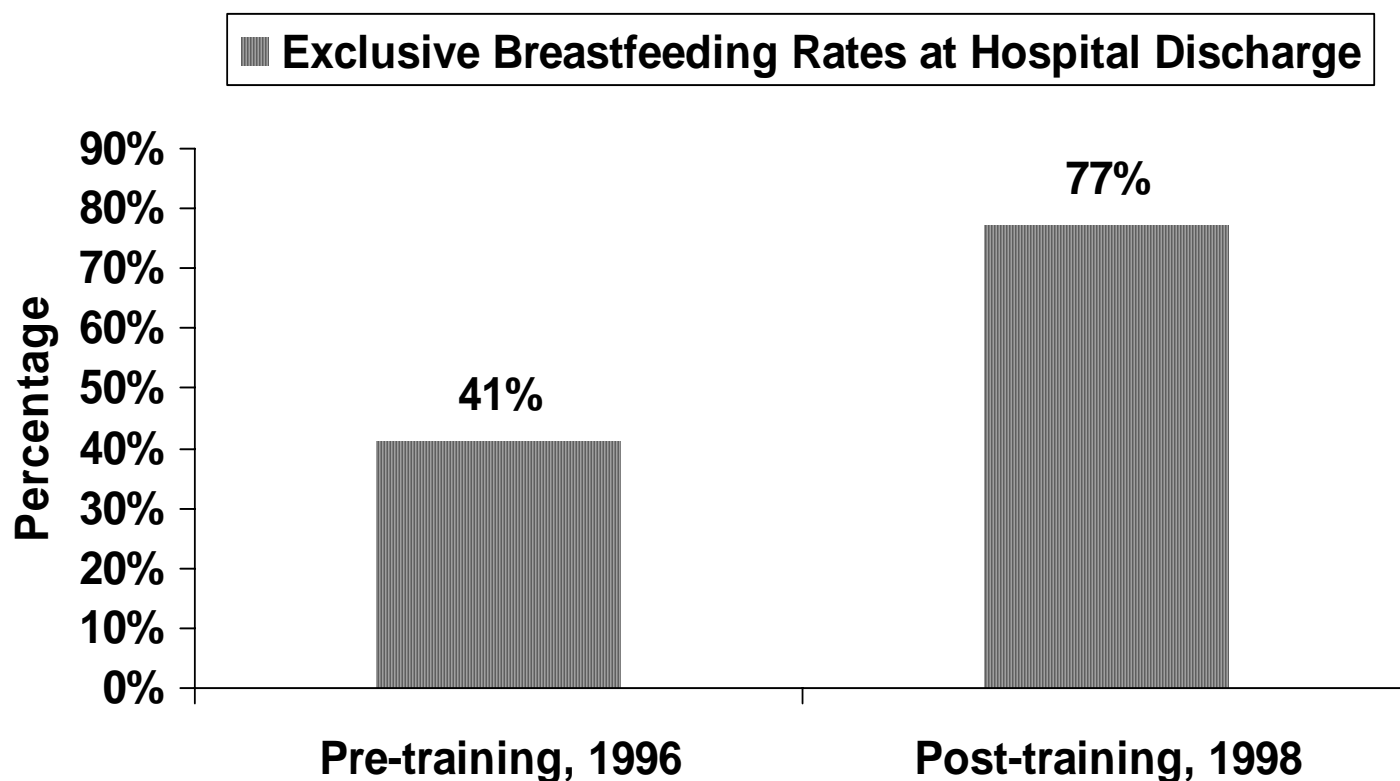
- Advantages of breastfeeding
- Risks of artificial feeding
- Mechanisms of lactation and suckling
- How to help mothers initiate and sustain breastfeeding
- How to assess a breastfeed
- How to resolve breastfeeding difficulties
- Hospital breastfeeding policies and practices
- Focus on changing negative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

Additional topics for BFHI training in the context of HIV

Train all staff in:

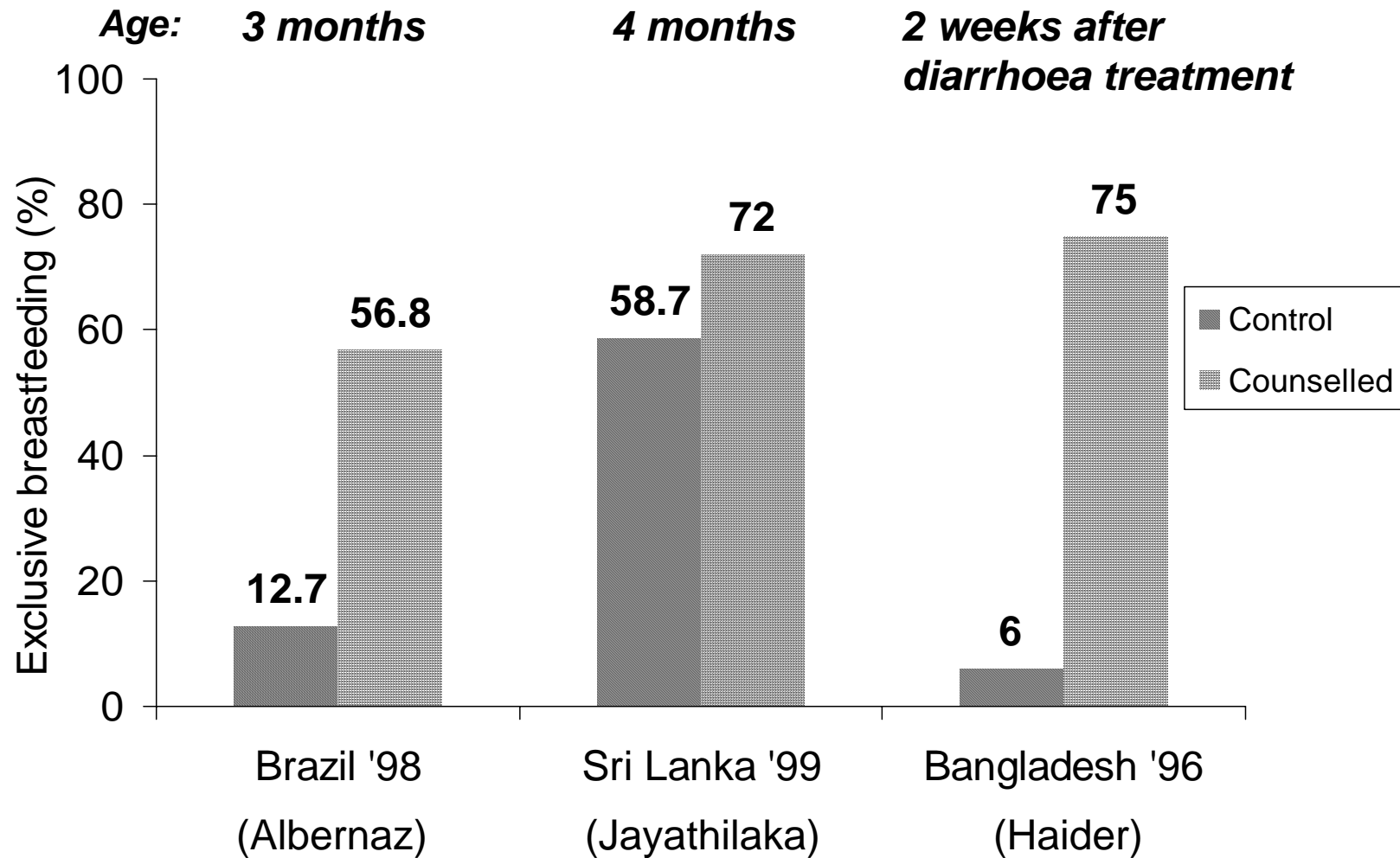
- Basic facts on HIV and on Prevention of Mother-to-Child Transmission (PMTCT)
- Voluntary testing and counselling (VCT) for HIV
- Locally appropriate replacement feeding options
- How to counsel HIV + women on risks and benefits of various feeding options and how to make informed choices
- How to teach 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



Adapted from: Cattaneo A, Buzzetti R. Effect on rates of breast feeding of training for the Baby Friendly Hospital Initiative. *BMJ*, 2001, 323:1358-1362.

Step 2: Breastfeeding counselling increases exclusive breastfeeding



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

**Which health professionals
other than perinatal staff
influence breastfeeding success?**

Ten steps to successful breastfeeding

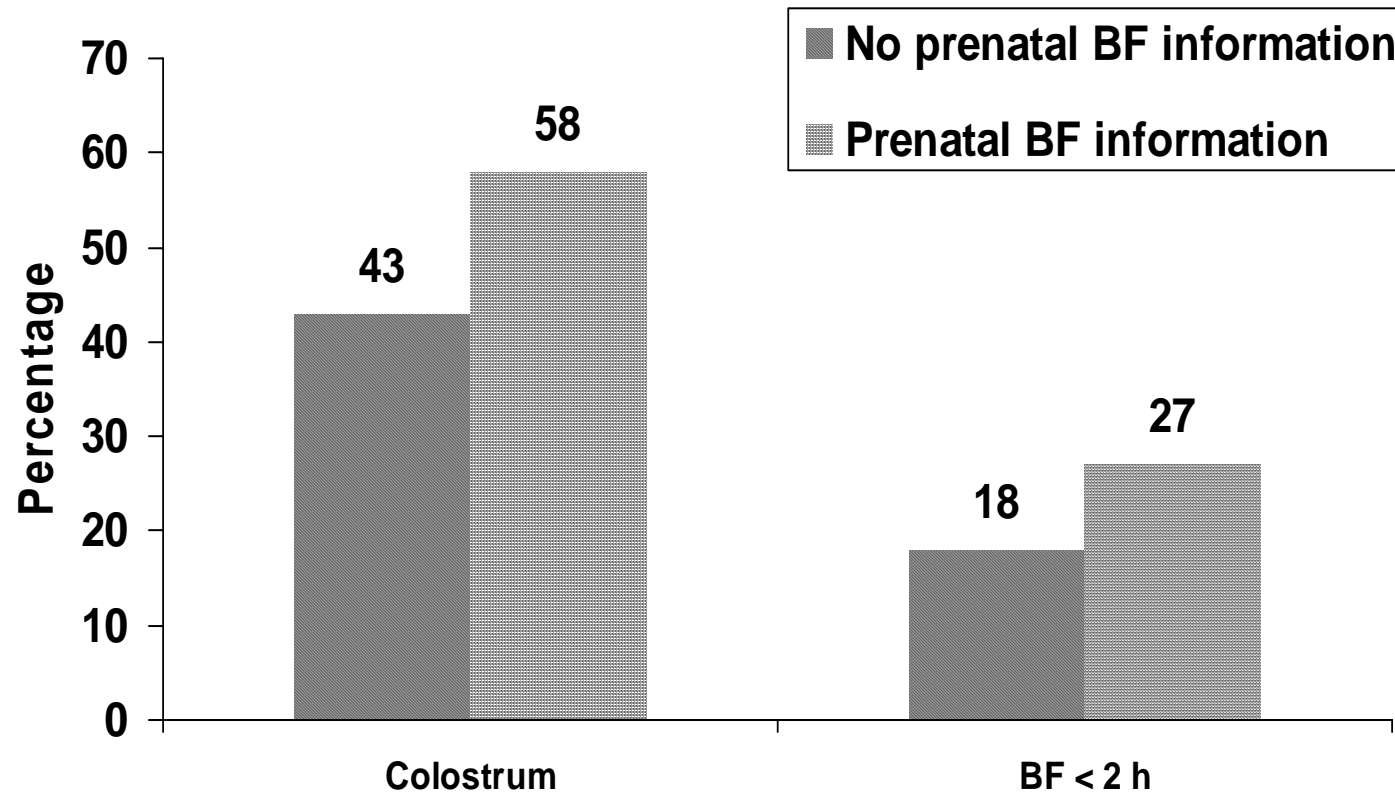
Step 3. Inform all pregnant women about the benefits of breastfeeding.

A JOINT WHO/UNICEF STATEMENT (1989)

Antenatal education should include:

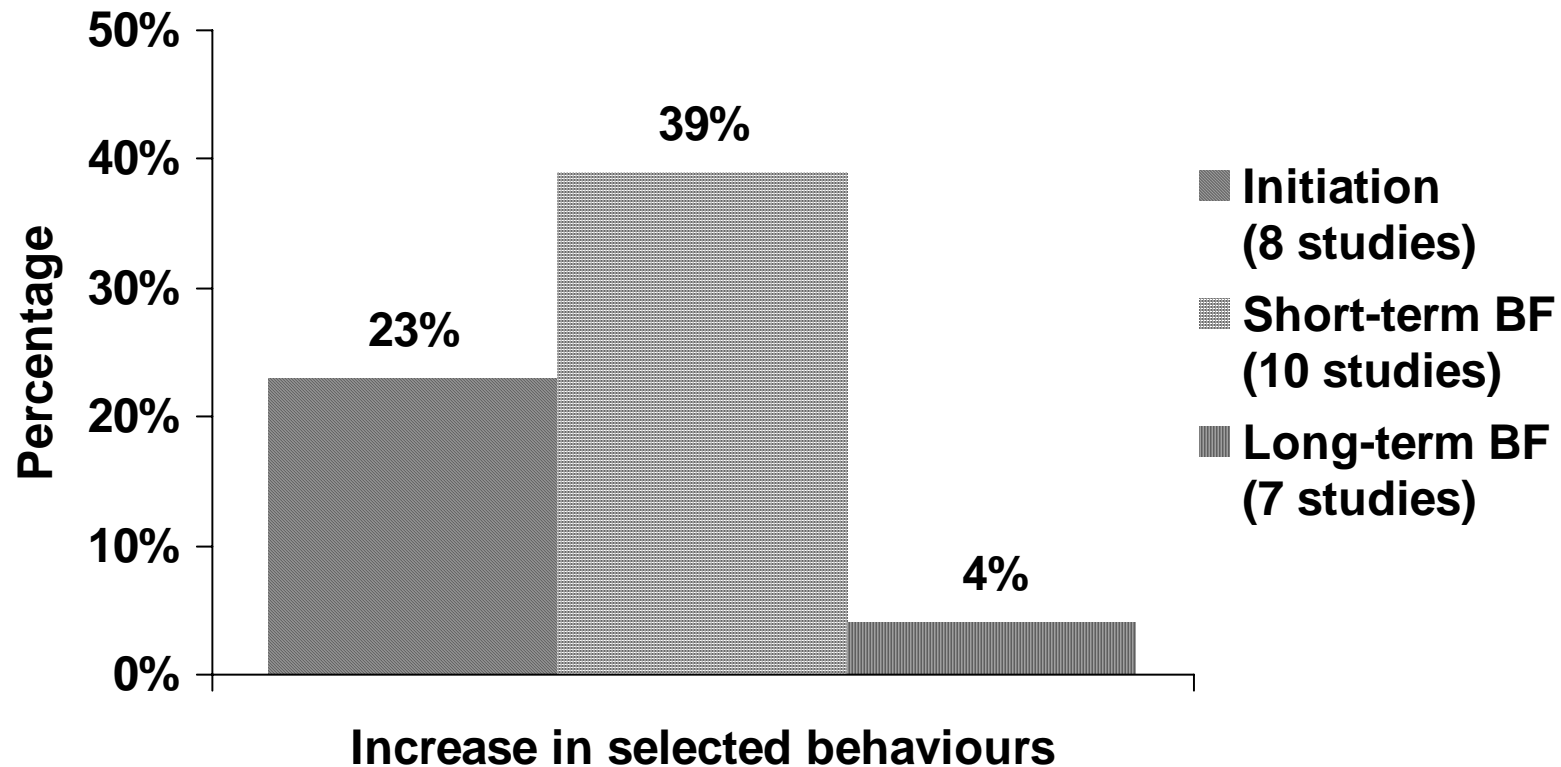
- Benefits of breastfeeding
- Early initiation
- Importance of rooming-in (if new concept)
- Importance of feeding on demand
- Importance of exclusive breastfeeding
- How to assure enough breast milk
- Risks of artificial feeding and use of bottles and pacifiers (soothers, teats, nipples, etc.)
- Basic 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

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



Adapted from: Nielsen B, Hedegaard M, Thilsted S, Joseph A, Liljestrand J. Does antenatal care influence postpartum health behaviour? Evidence from a community based cross-sectional study in rural Tamil Nadu, South India. *British Journal of Obstetrics and Gynaecology*, 1998, 105:697-703.

Step 3: Meta-analysis of studies of antenatal education and its effects on breastfeeding



Adapted from: Guise et al. The effectiveness of primary care-based interventions to promote breastfeeding: Systematic evidence review and meta-analysis... *Annals of Family Medicine*, 2003, 1(2):70-78.

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

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?

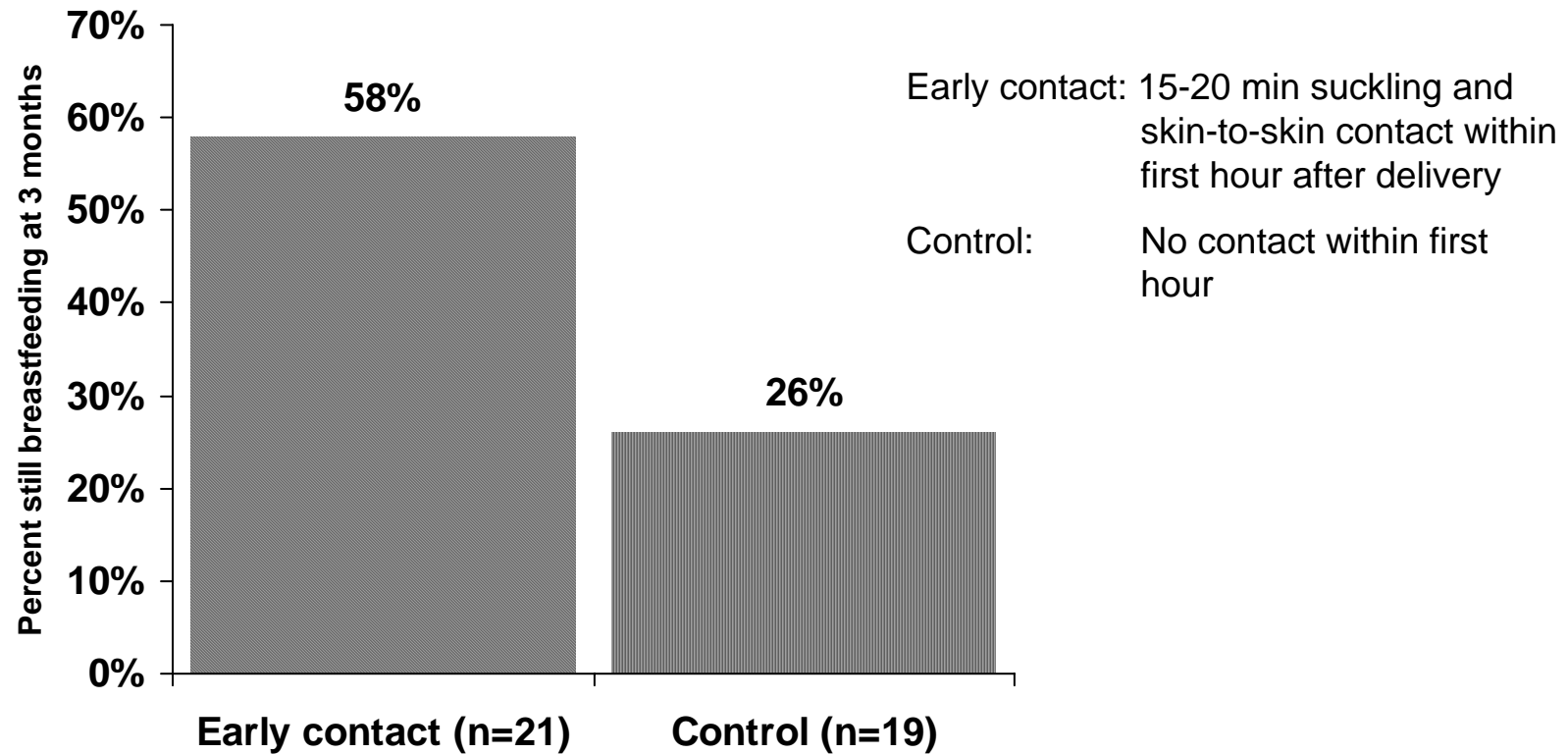
- Increases duration of breastfeeding
- Allows skin-to-skin contact for warmth and colonization of baby with maternal organisms
- Provides colostrum as the baby's first immunization
- Takes advantage of the first hour of alertness
- Babies learn to suckle more effectively
- Improved developmental outcomes

Early initiation of breastfeeding for the normal newborn

How?

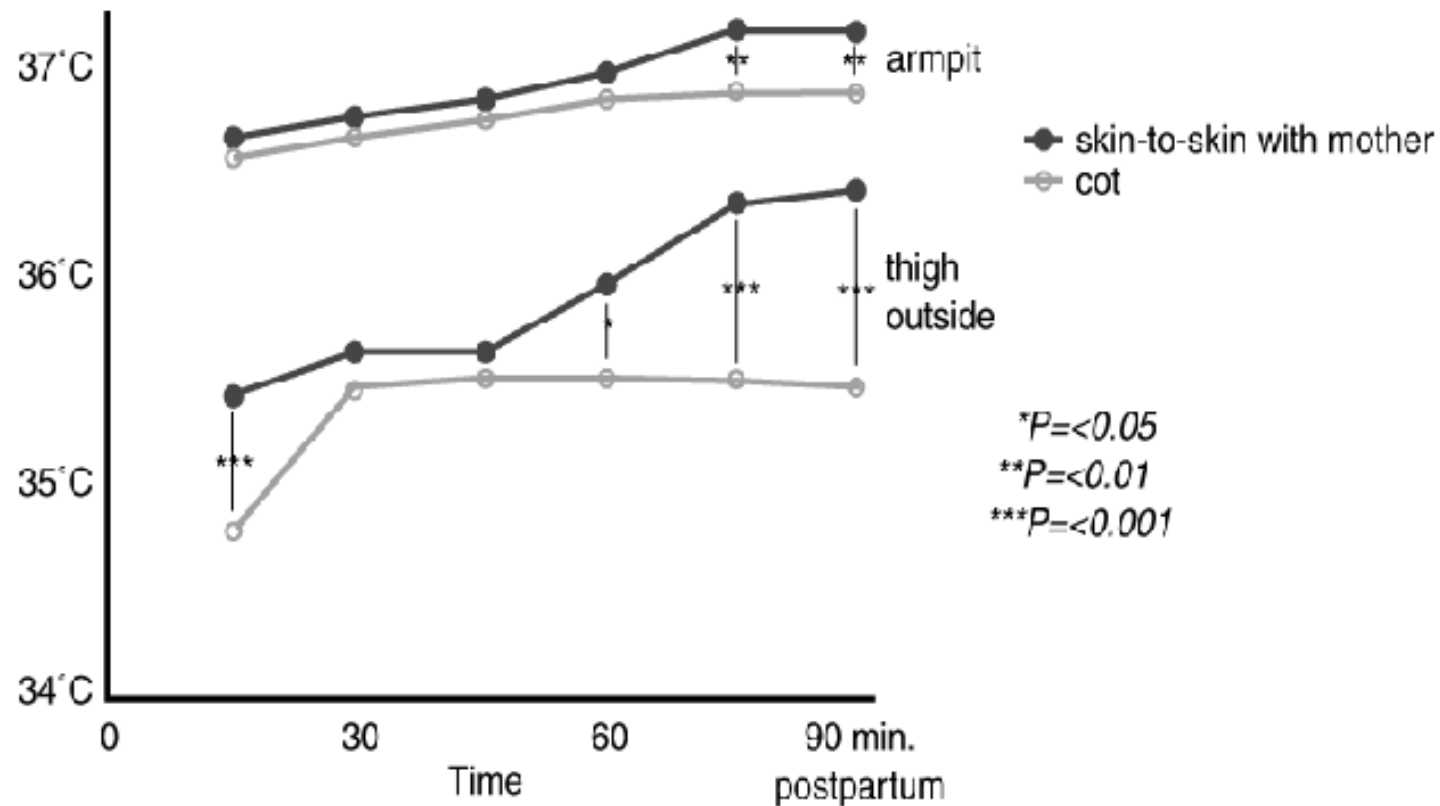
- Keep mother and baby together
- Place baby on mother's chest
- Let baby start suckling when ready
- Do not hurry or interrupt the process
- Delay non-urgent medical routines for at least one hour

Impact on breastfeeding duration of early infant-mother contact



Adapted from: DeChateau P, Wiberg B. Long term effect on mother-infant behavior of extra contact during the first hour postpartum. *Acta Paediatr*, 1977, 66:145-151.

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



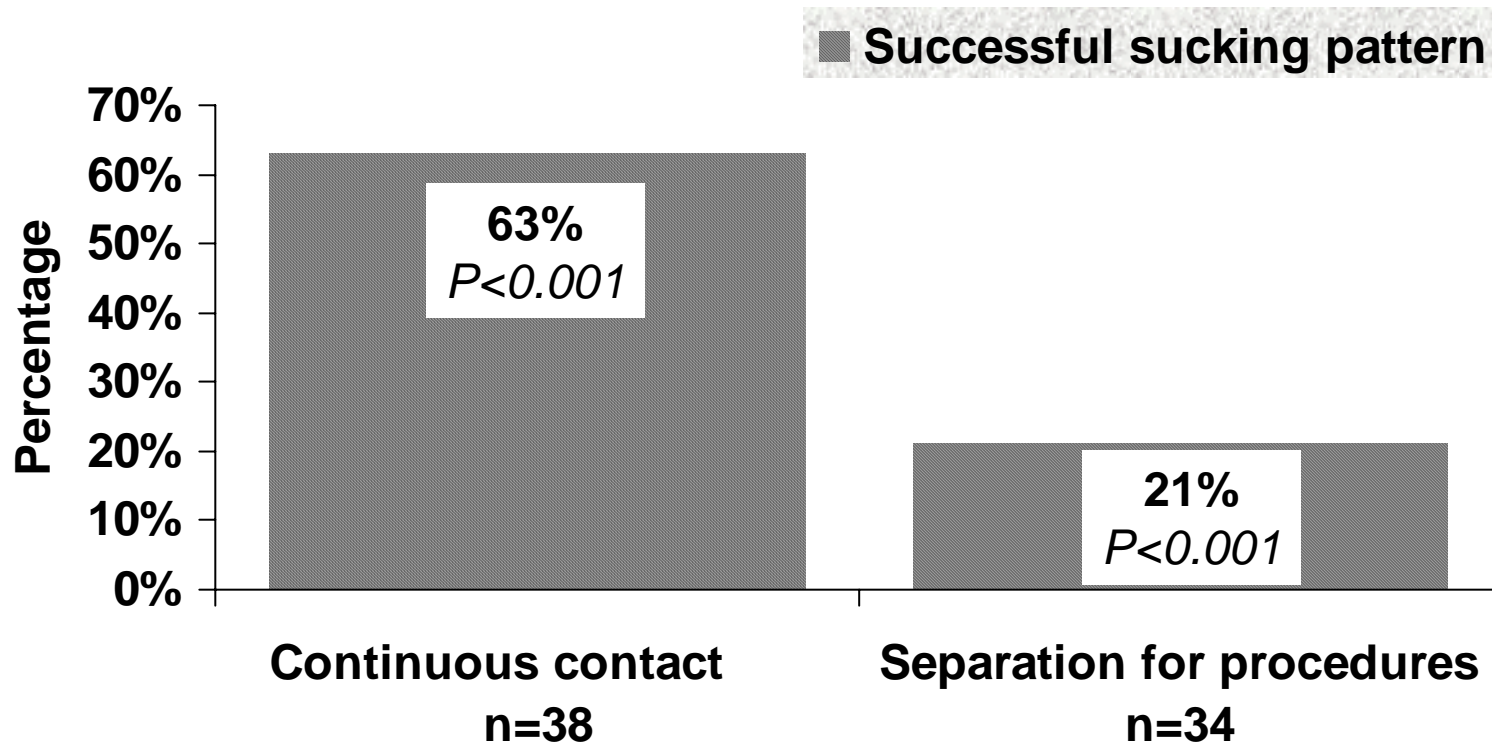
Adapted from: Christensson K et al. Temperature, metabolic adaptation and crying in healthy full-term newborns cared for skin-to-skin or in a cot. *Acta Paediatr*, 1992, 81:490.

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

Constituent	Measure	Colostrum (1-5 days)	Mature Milk (>30 days)
Total protein	G	23	9-10.5
Casein	mg	1400	1870
α -Lactalbumin	mg	2180	1610
Lactoferrin	mg	3300	1670
IgA	mg	3640	1420

From: Worthington-Roberts B, Williams SR. *Nutrition in Pregnancy and Lactation, 5th ed.* St. Louis, MO, Times Mirror/Mosby College Publishing, p. 350, 1993.

Effect of delivery room practices on early breastfeeding



Adapted from: Righard L, Alade O. Effect of delivery room routines on success of first breastfeed *Lancet*, 1990, 336:1105-1107.

Ten steps to successful breastfeeding

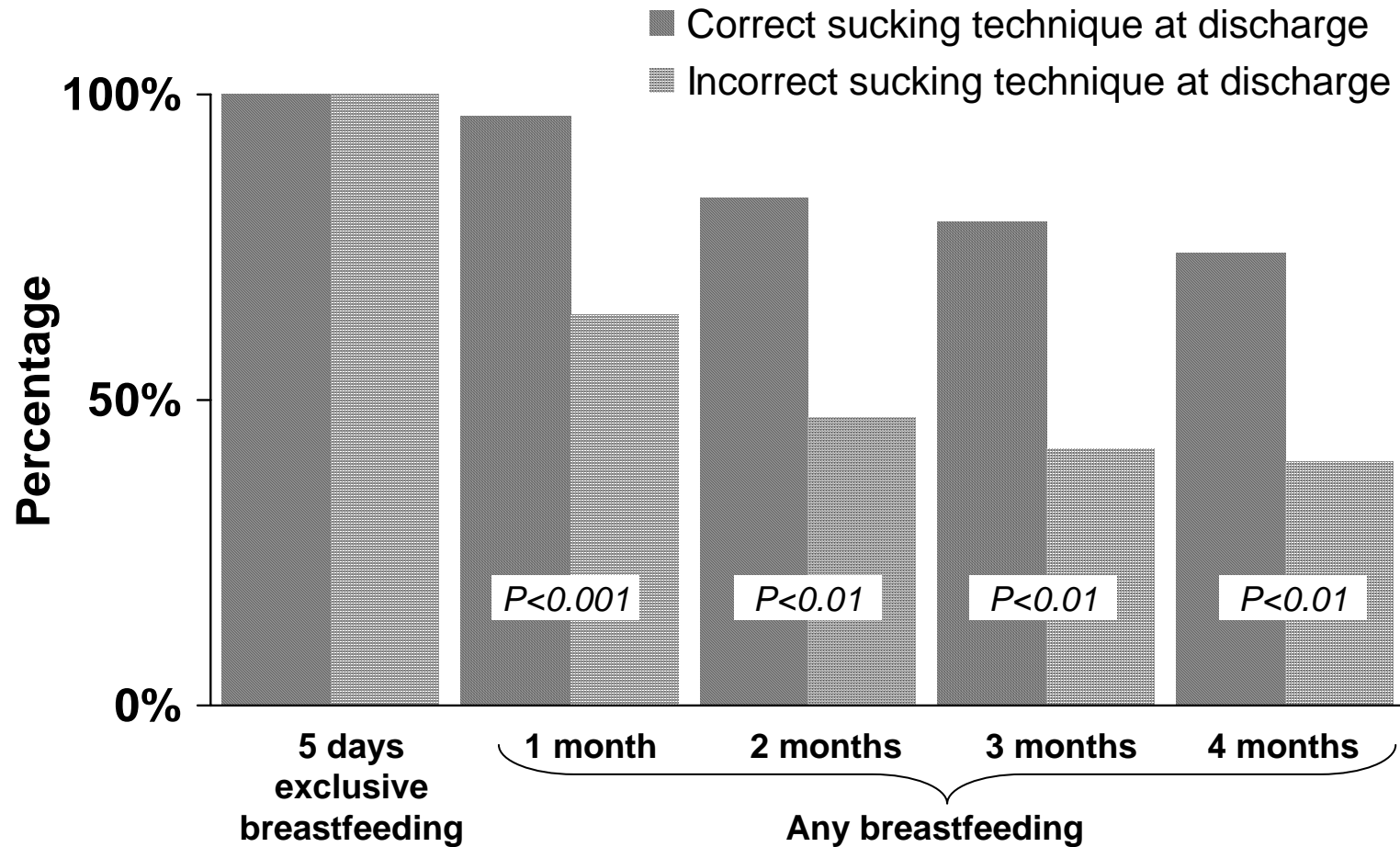
Step 5. Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants.

A JOINT WHO/UNICEF STATEMENT (1989)

“ 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.”

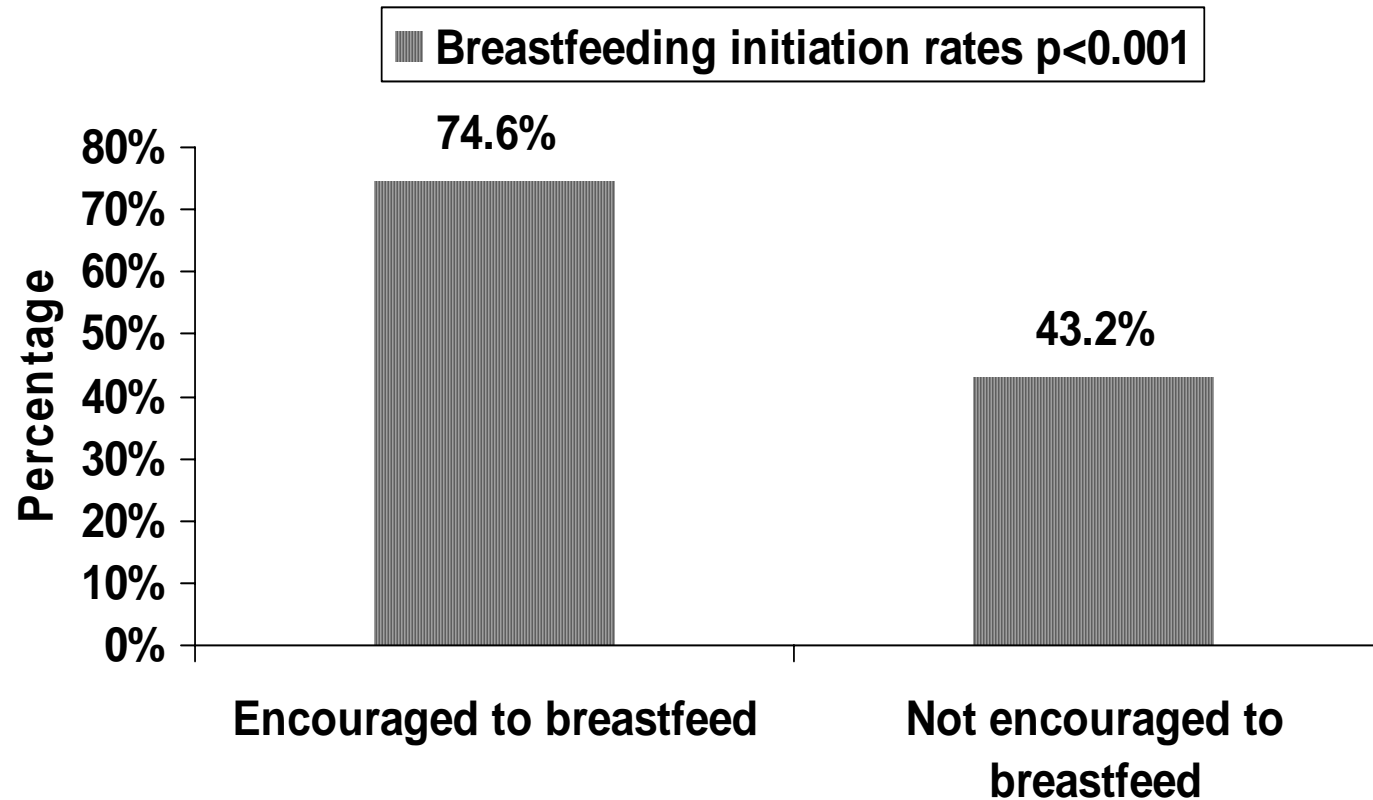
From: Woolridge M. The “anatomy” of infant sucking. *Midwifery*, 1986, 2:164-171.

Effect of proper attachment on duration of breastfeeding



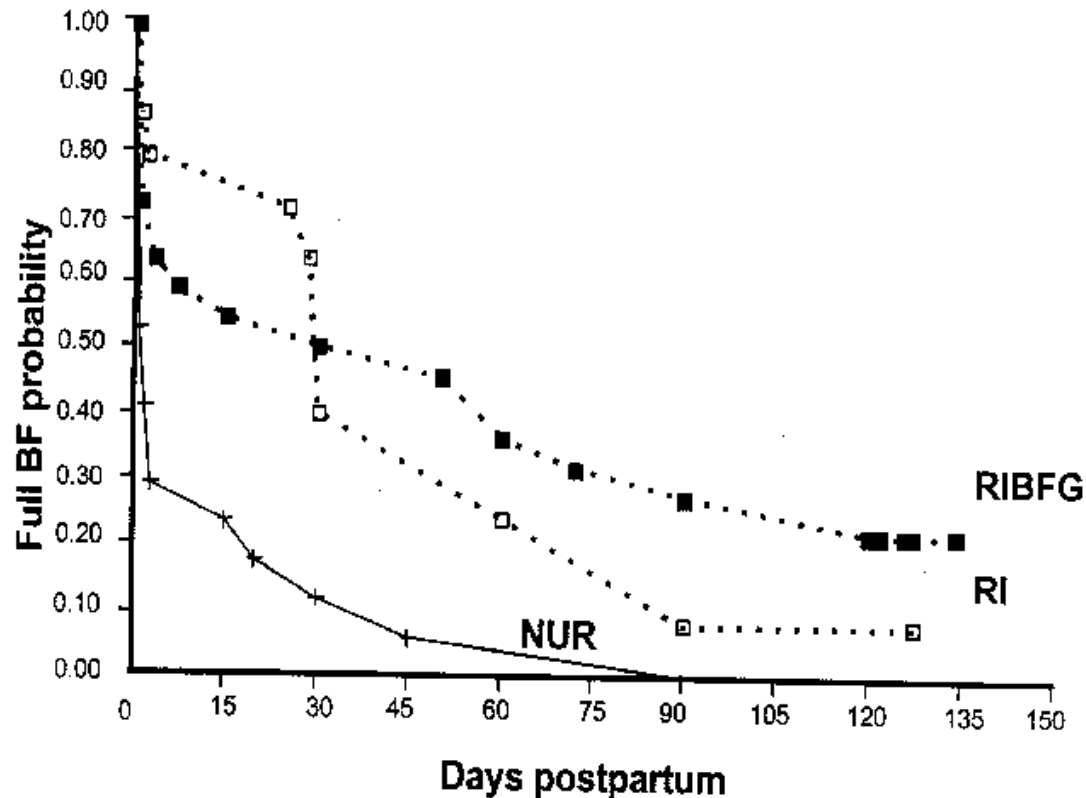
Adapted from: Righard L , Alade O. (1992) Sucking technique and its effect on success of breastfeeding. *Birth* 19(4):185-189.

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



Adapted from: Lu M, Lange L, Slusser W et al. Provider encouragement of breast-feeding: Evidence from a national survey. *Obstetrics and Gynecology*, 2001, 97:290-295.

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



NUR, nursery, n=17

RI, rooming-in, n=15

RIBFG, rooming-in with breastfeeding guidance, n=22

NUR significantly different from RI ($p<0.05$) and RIBFG ($p<0.05$)

From: Perez-Escamilla R, Segura-Millan S, Pollitt E, Dewey KG. Effect of the maternity ward system on the lactation success of low-income urban Mexican women. *Early Hum Dev.*, 1992, 31 (1): 25-40.

Supply and demand

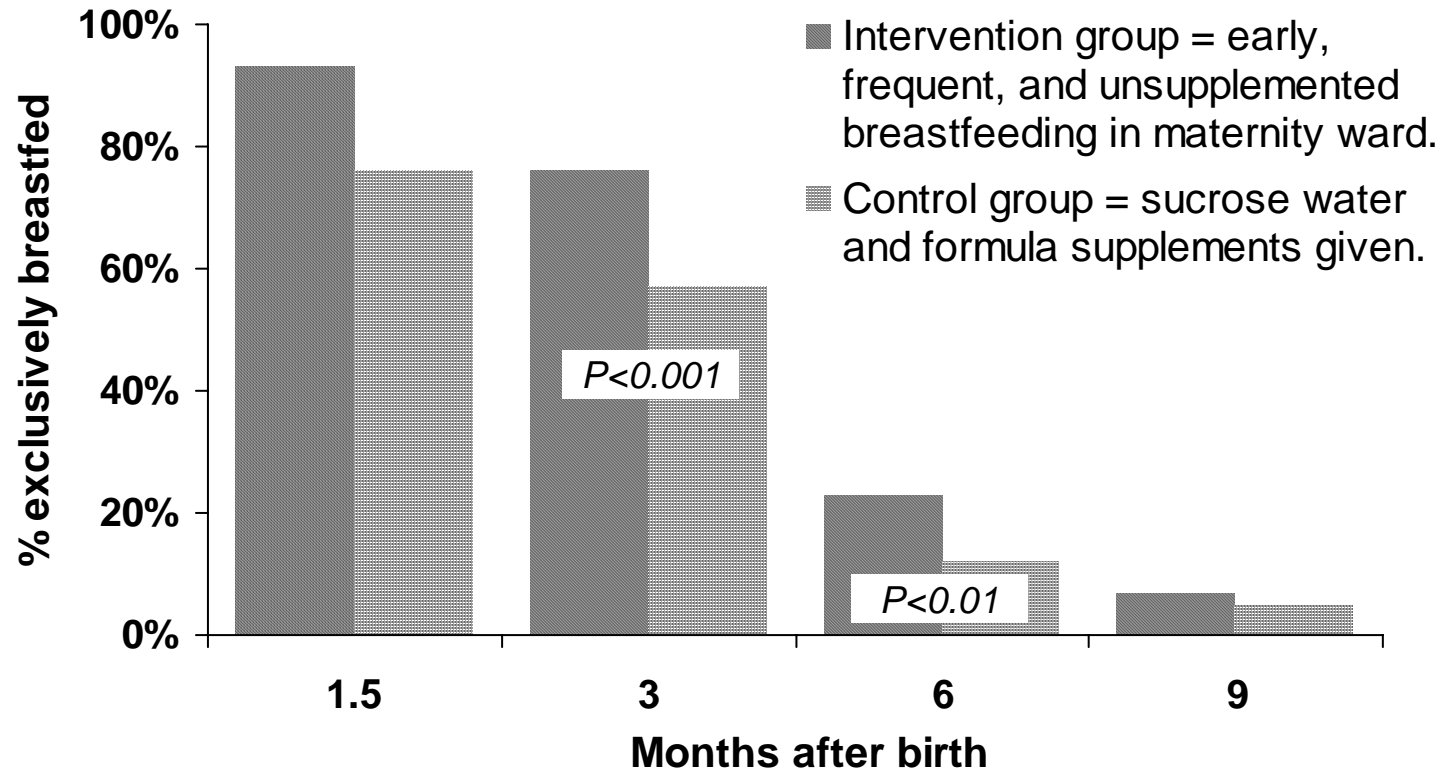
- Milk removal stimulates milk production.
- The amount of breast milk removed at each feed determines the rate of milk production in the next few hours.
- Milk removal must be continued during separation to maintain supply.

Ten steps to successful breastfeeding

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

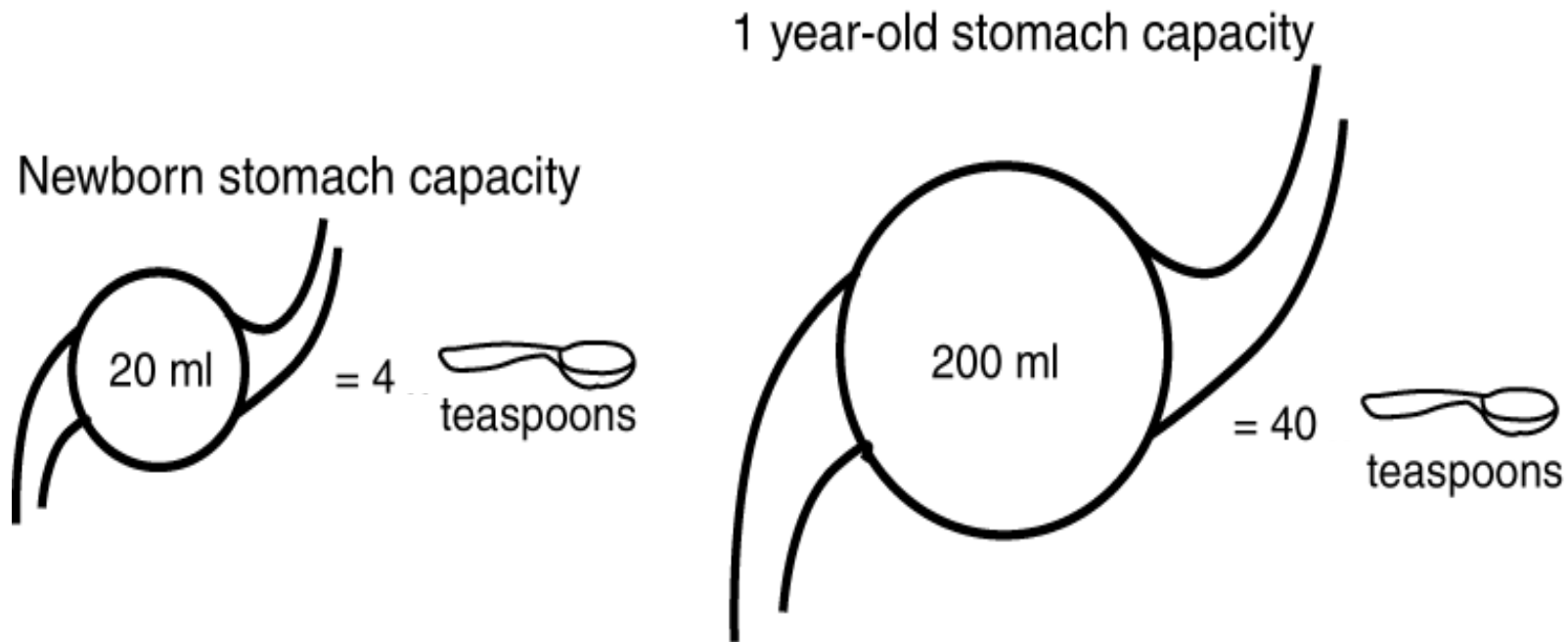
A JOINT WHO/UNICEF STATEMENT (1989)

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



Adapted from: Nylander G et al. Unsupplemented breastfeeding in the maternity ward: positive long-term effects. *Acta Obstet Gynecol Scand*, 1991, 70:208.

The perfect match: quantity of colostrum per feed and the newborn stomach capacity



Adapted from: Pipes PL. *Nutrition in Infancy and Childhood, Fourth Edition*. St. Louis, Times Mirror/Mosby College Publishing, 1989.

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

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.

From: Perez-Escamilla et al. Determinants of lactation performance across time in an urban population from Mexico. *Soc Sci Med*, 1993, (8):1069-78.

Summary of studies on the water requirements of exclusively breastfed infants

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

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

From: *Breastfeeding and the use of water and teas*. Division of Child Health and Development Update No. 9, Geneva, World Health Organization, reissued, Nov. 1997.

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.

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.

Maternal conditions:

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 – ¹³¹I better avoided given that safer alternatives are available; excessive use of topical iodine; cytotoxic chemotherapy usually requires mother to stop BF permanently.

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

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

Rooming-in

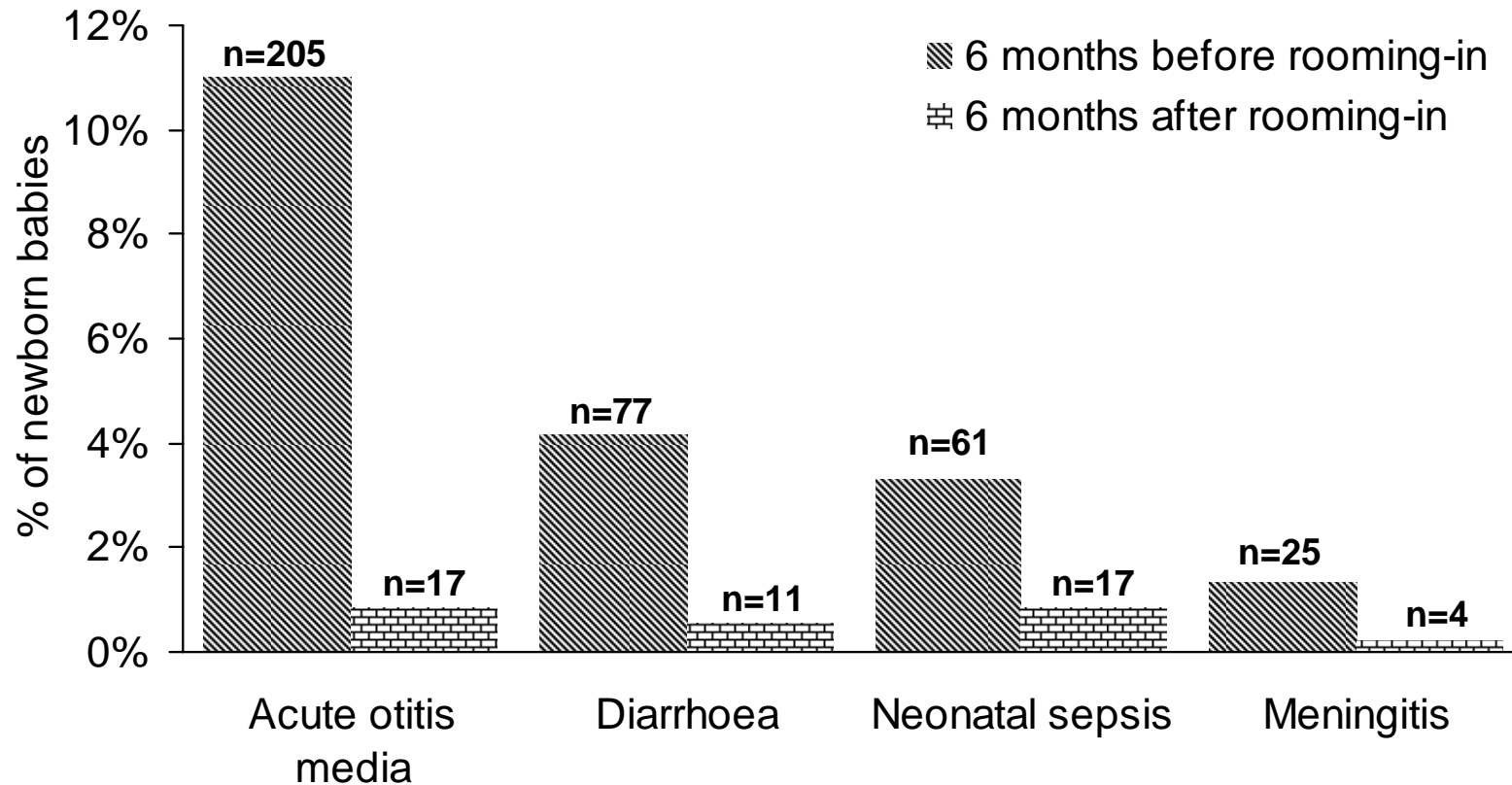
A hospital arrangement where a mother/baby pair stay in the same room day and night, allowing unlimited contact between mother and infant

Rooming-in

Why?

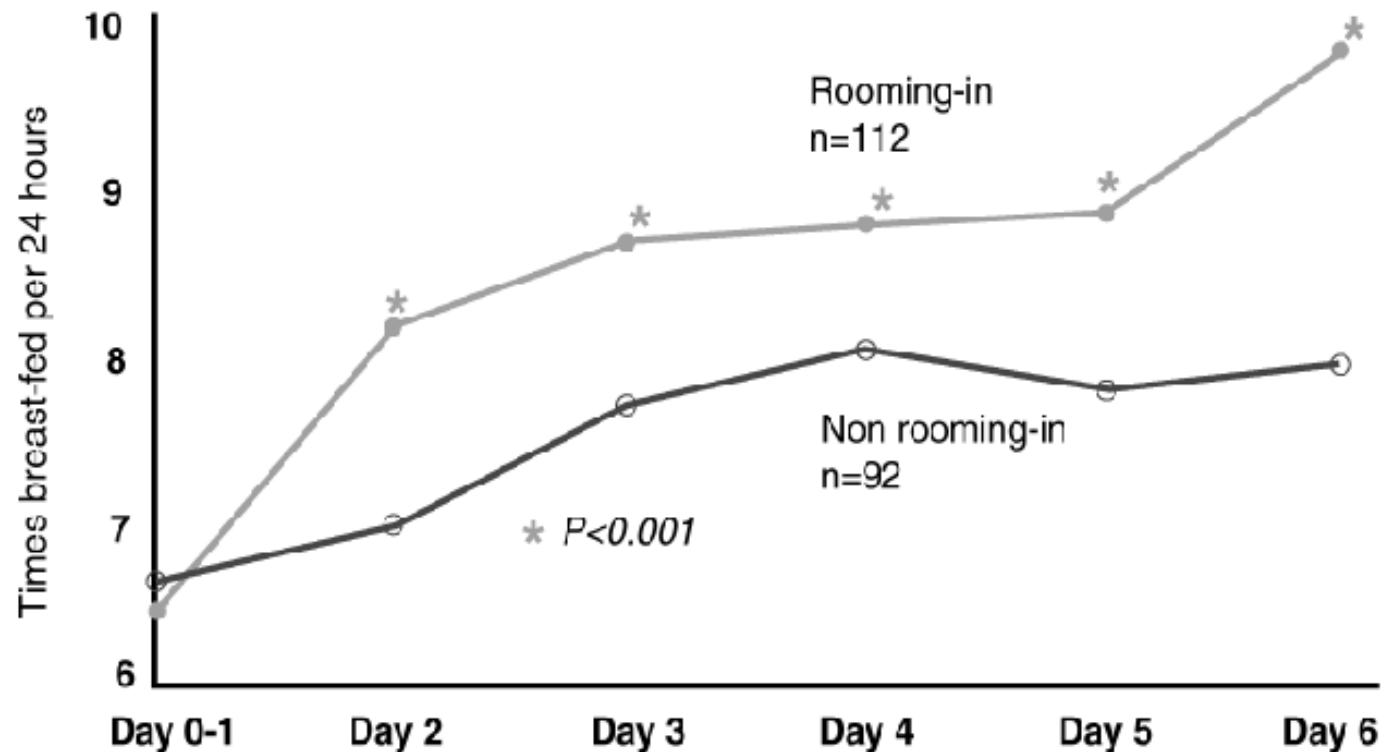
- Reduces costs
- Requires minimal equipment
- Requires no additional personnel
- Reduces infection
- Helps establish and maintain breastfeeding
- Facilitates the bonding process

Morbidity of newborn babies at Sanglah Hospital before and after rooming-in



Adapted from: Soetjningsih, Suraatmaja S. The advantages of rooming-in. *Pediatrica Indonesia*, 1986, 26:231.

Effect of rooming-in on frequency of breastfeeding per 24 hours



Adapted from: Yamauchi Y, Yamanouchi I . The relationship between rooming-in/not rooming-in and breastfeeding variables. *Acta Paediatr Scand*, 1990, 79:1019.

Ten steps to successful breastfeeding

Step 8. Encourage breastfeeding on demand.

A JOINT WHO/UNICEF STATEMENT (1989)

Breastfeeding on demand:

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

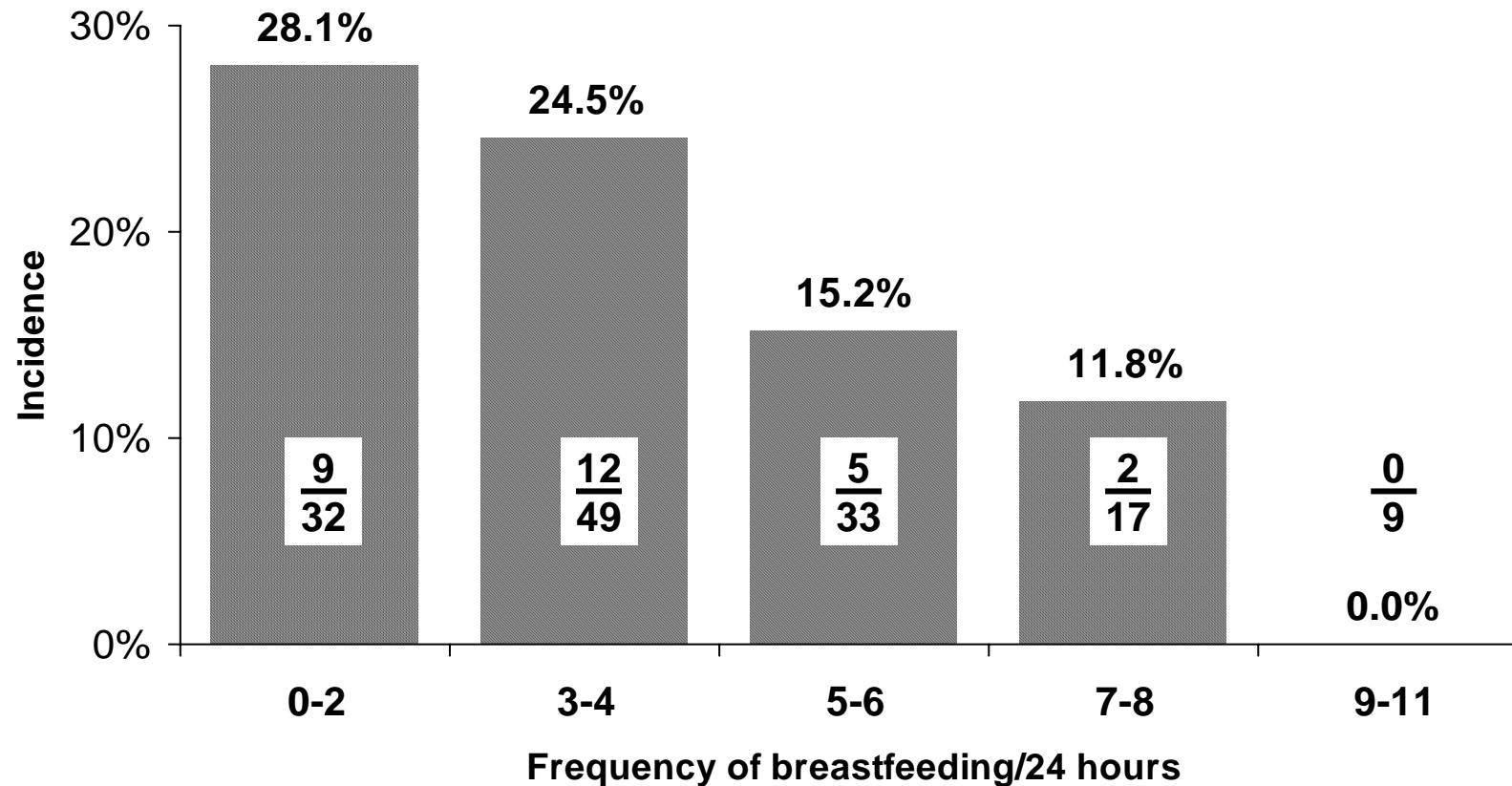
On demand, unrestricted breastfeeding

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

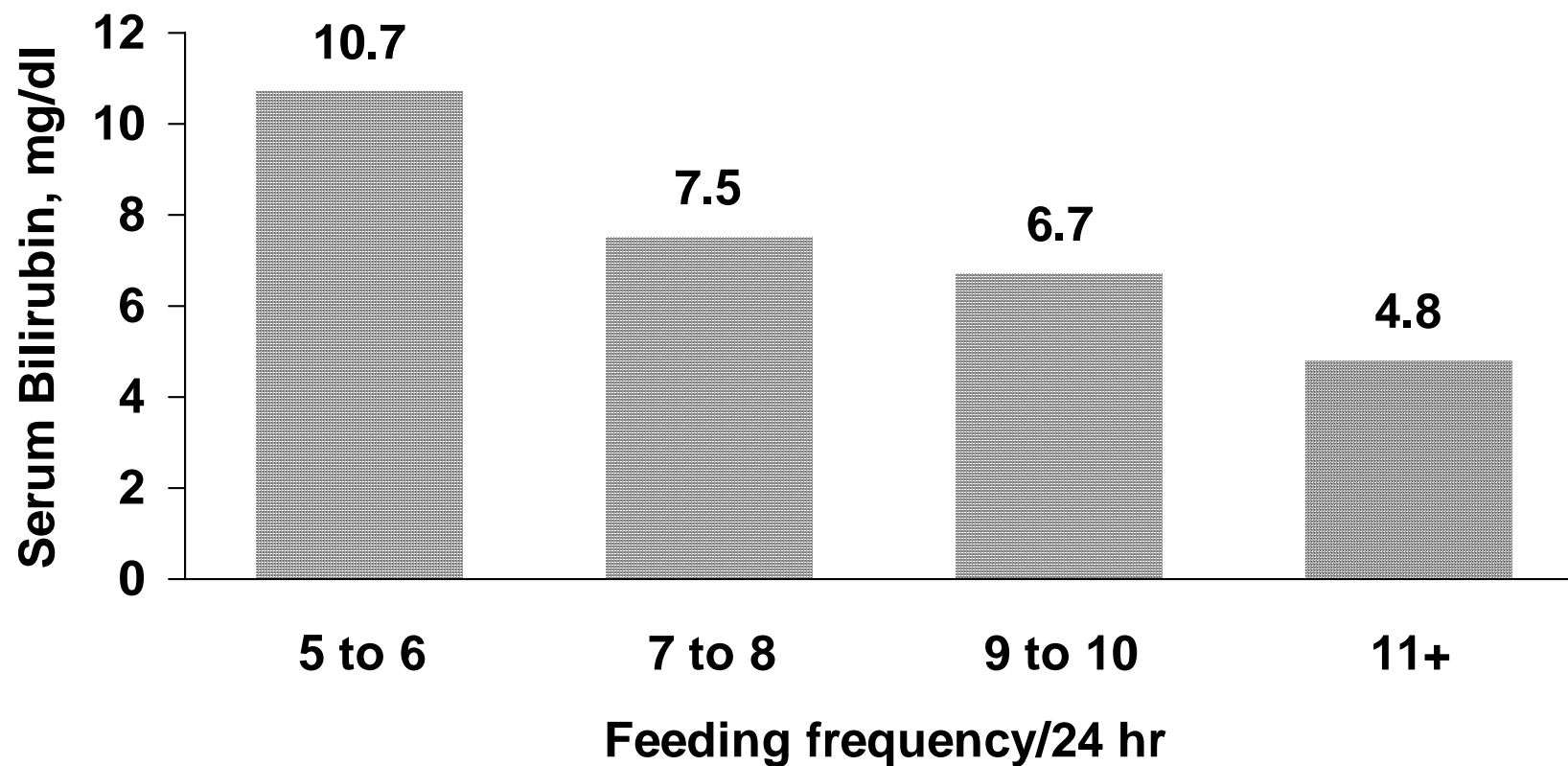
From: Yamauchi Y, Yamanouchi I. Breast-feeding frequency during the first 24 hours after birth in full-term neonates. *Pediatrics*, 1990, 86(2):171-175.

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



From: Yamauchi Y, Yamanouchi I. Breast-feeding frequency during the first 24 hours after birth in full-term neonates. *Pediatrics*, 1990, 86(2):171-175.

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



From: DeCarvalho et al. *Am J Dis Child* 1982; 136:737-738.

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

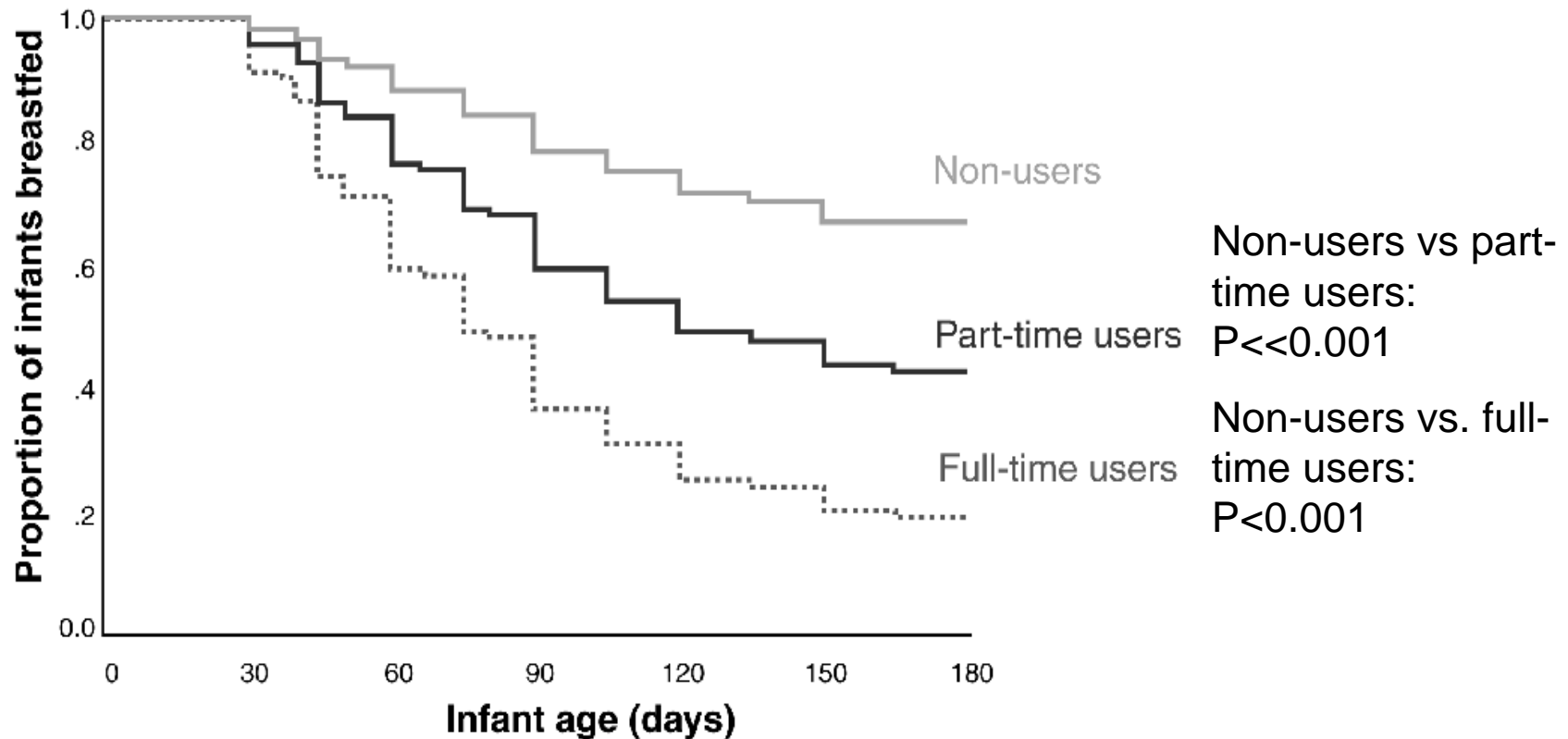
Alternatives to artificial teats

- 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



From: Victora CG et al. Pacifier use and short breastfeeding duration: cause, consequence or coincidence? *Pediatrics*, 1997, 99:445-453.

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.

A JOINT WHO/UNICEF STATEMENT (1989)

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

From: Saadeh RJ, editor. *Breast-feeding: the Technical Basis and Recommendations for Action*. Geneva, World Health Organization, pp. 62-74, 1993.

Support can include:

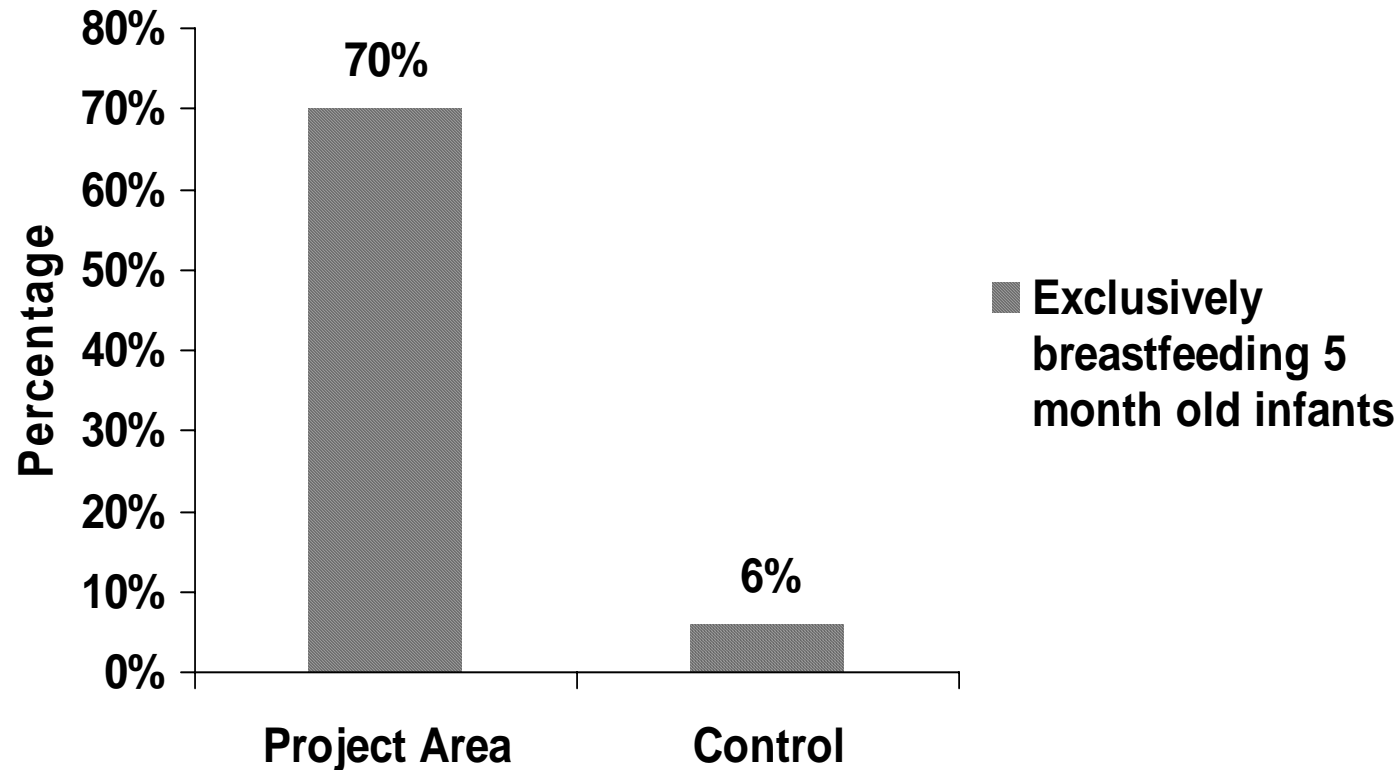
- Early postnatal or clinic checkup
- Home visits
- Telephone calls
- Community services
 - Outpatient breastfeeding clinics
 - Peer counselling programmes
- Mother support groups
 - Help set up new groups
 - Establish working relationships with those already in existence
- Family support system

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)

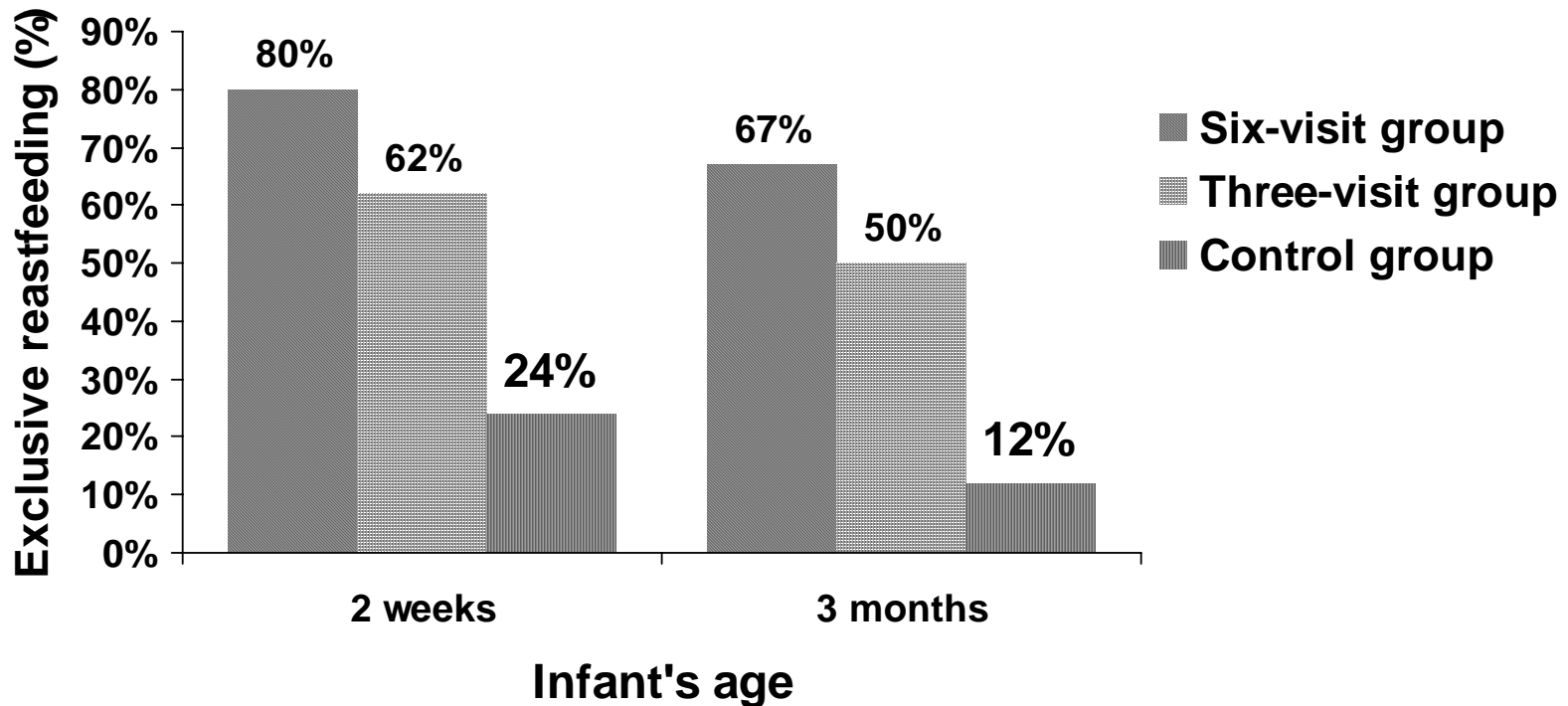
From: Jelliffe DB, Jelliffe EFP. The role of the support group in promoting breastfeeding in developing countries. *J Trop Pediatr*, 1983, 29:244.

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



Adapted from: Haider R, Kabir I, Huttly S, Ashworth A. Training peer counselors to promote and support exclusive breastfeeding in Bangladesh. *J Hum Lact*, 2002;18(1):7-12.

Home visits improve exclusive breastfeeding



From: Morrow A, Guerrereo ML, Shultis J, et al. Efficacy of home-based peer counselling to promote exclusive breastfeeding: a randomised controlled trial. *Lancet*, 1999, 353:1226-31

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.**

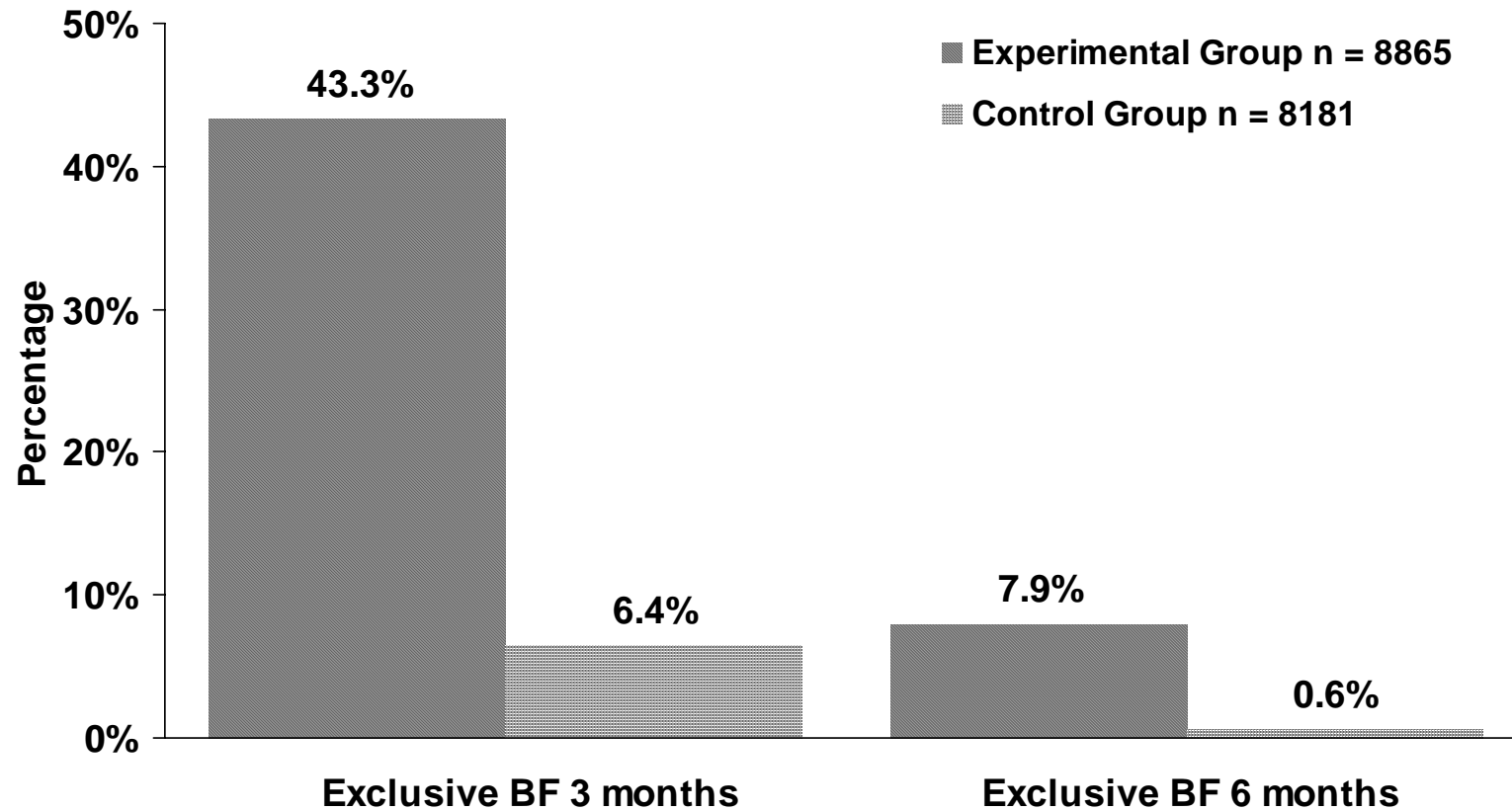
Adapted from: Kramer MS, Chalmers B, Hodnett E, et al. Promotion of breastfeeding intervention trial (PROBIT) A randomized trial in the Republic of Belarus. *JAMA*, 2001, 285:413-420.

Differences following the intervention

Control hospitals:	Experimental hospitals:
<ul style="list-style-type: none"> ■ Routine separation of mothers & babies at birth 	<ul style="list-style-type: none"> ■ Mothers & babies together from birth
<ul style="list-style-type: none"> ■ Routine tight swaddling 	<ul style="list-style-type: none"> ■ No swaddling—skin-to-skin contact encouraged
<ul style="list-style-type: none"> ■ Routine nursery-based care 	<ul style="list-style-type: none"> ■ Rooming-in on a 24-hr basis
<ul style="list-style-type: none"> ■ Incorrect latching & positioning techniques 	<ul style="list-style-type: none"> ■ Correct latching & positioning techniques
<ul style="list-style-type: none"> ■ Routine supplementation with water & milk by bottle 	<ul style="list-style-type: none"> ■ No supplementation
<ul style="list-style-type: none"> ■ Scheduled feedings every 3 hrs 	<ul style="list-style-type: none"> ■ Breastfeeding on demand
<ul style="list-style-type: none"> ■ Routine use of pacifiers 	<ul style="list-style-type: none"> ■ No use of pacifiers
<ul style="list-style-type: none"> ■ No BF support after discharge 	<ul style="list-style-type: none"> ■ BF support in polyclinics

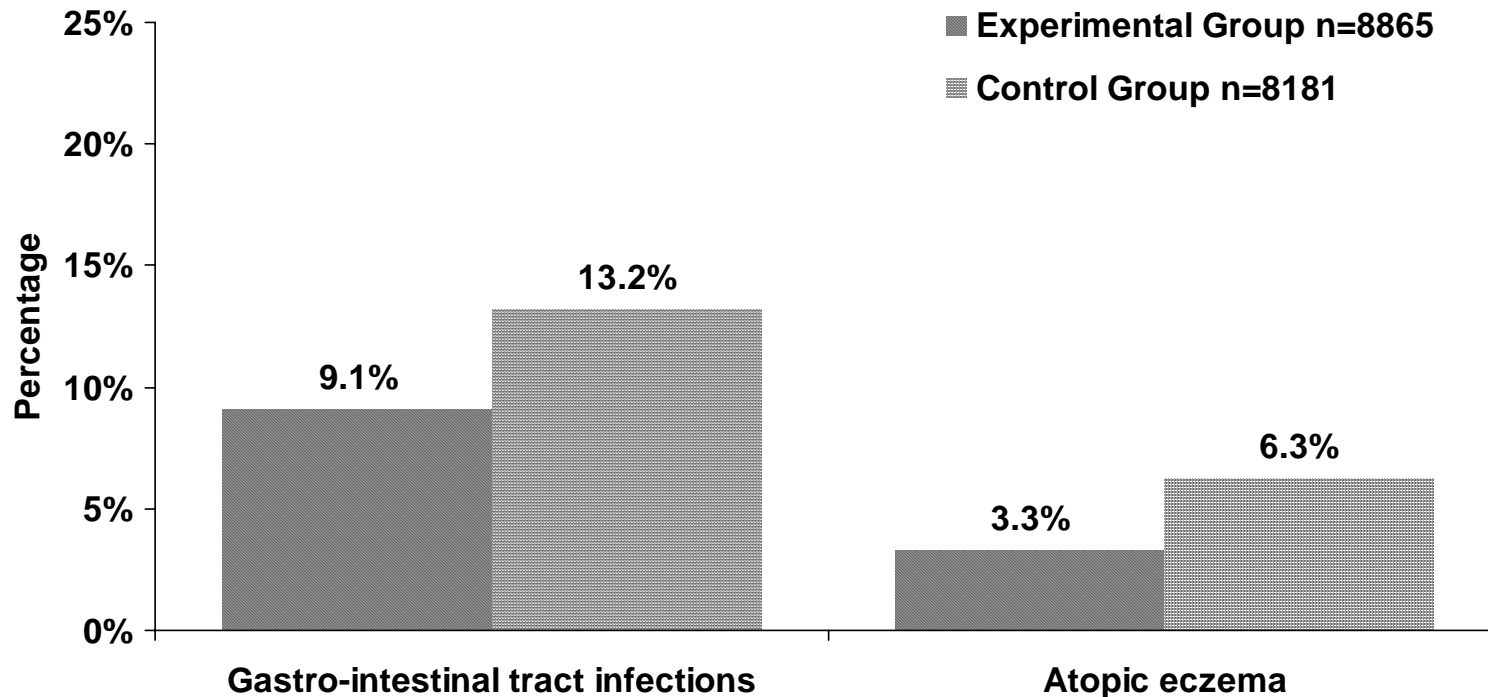
Communication from Chalmers and Kramer (2003)

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



Adapted from: Kramer et al. (2001)

Impact of baby-friendly changes on selected health conditions



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

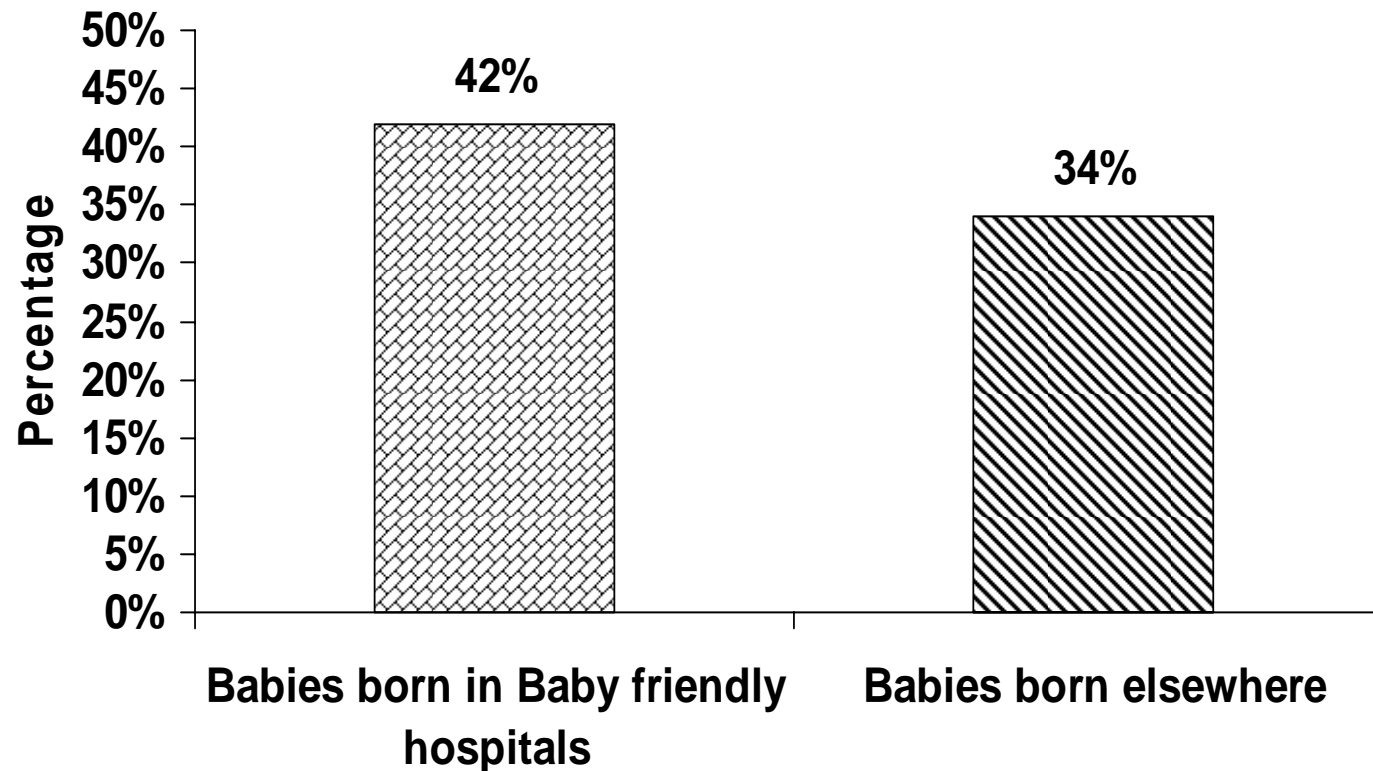
Adapted from: Kramer et al. (2001)

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.

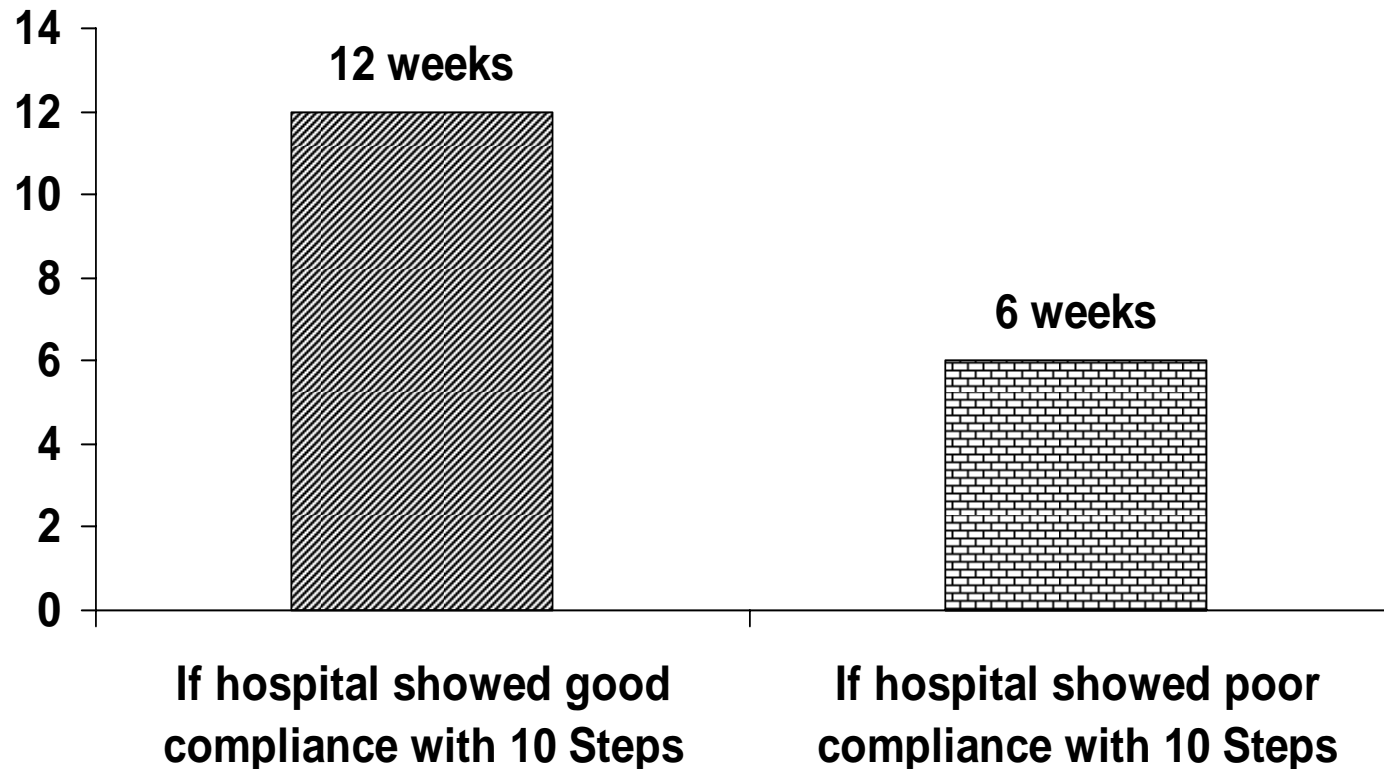
Adapted from: Merten S et al. Do Baby-Friendly Hospitals Influence Breastfeeding Duration on a National Level? *Pediatrics*, 2005, 116: e702 – e708.

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



.Adapted from: Merten S et al. Do Baby-Friendly Hospitals Influence Breastfeeding Duration on a National Level? *Pediatrics*, 2005, 116: e702 – e708.

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



.Adapted from: Merten S et al. Do Baby-Friendly Hospitals Influence Breastfeeding Duration on a National Level? *Pediatrics*, 2005, 116: e702 – e708.

Session 4 – HIV:

**The scientific basis for the “Ten Steps”
for settings with high HIV prevalence**

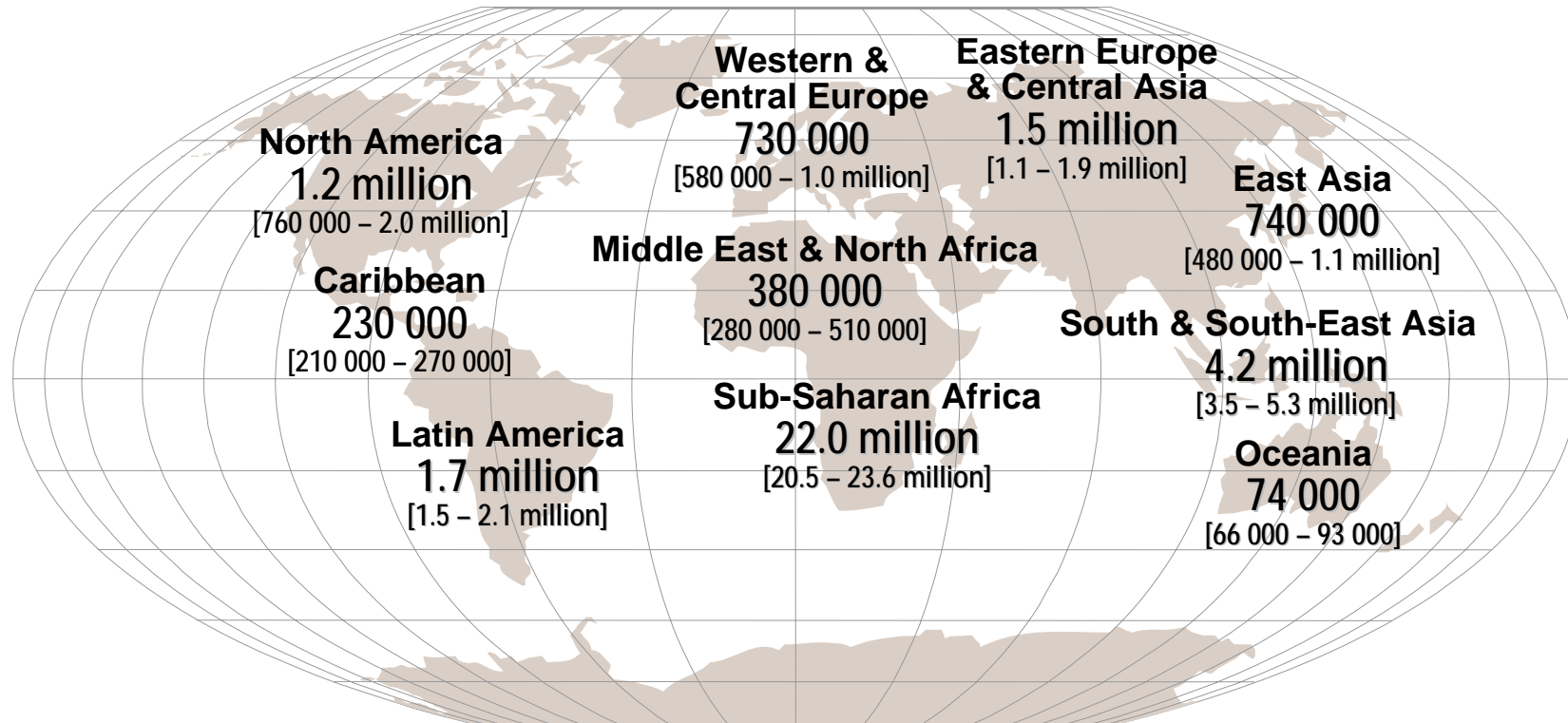
Global summary of the HIV & AIDS epidemic, December 2007

Number of people living with HIV/AIDS in 2007	Total	33 million (30-36 million)
	Adults	30.8 million (28.2 – 34.0 million)
	Women	15.5 million (14.2 – 16.9 million)
	Children under 15	2.0 million (1.9 – 2.3 million)
People newly infected with HIV in 2007	Total	2.7 million (2.2 – 3.2 million)
	Adults	2.3 million (1.9 – 2.8 million)
	Children under 15	370 000 (330 000 - 410 000)
AIDS deaths in 2007	Total	2.0 million (1.8 - 2.3 million)
	Adults	1.8 million (1.6 - 2.1 million)
	Children under 15	270 000 (250 000 - 290 000)

The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information.

From: UNAIDS/WHO. AIDS Epidemic Update, 2008.

Adults and children estimated to be living with HIV, 2007



Total: 33 million (30 – 36 million)

Regional HIV statistics for women, 2006

Region	# of women (15+) living with HIV	% of HIV+ adults who are women (15+)
Sub-Saharan Africa	13.3 million	59%
N. Africa & Middle East	200,000	48%
S. & S.A. Asia	2.2 million	29%
East Asia	210,000	29%
Oceania	36,000	47%
Latin America	510,000	31%
Caribbean	120,000	50%
Eastern Europe & Central Asia	510,000	30%
W. & C. Europe	210,000	28%
North America	350,000	26%
TOTAL:	17.7 million	48%

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

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

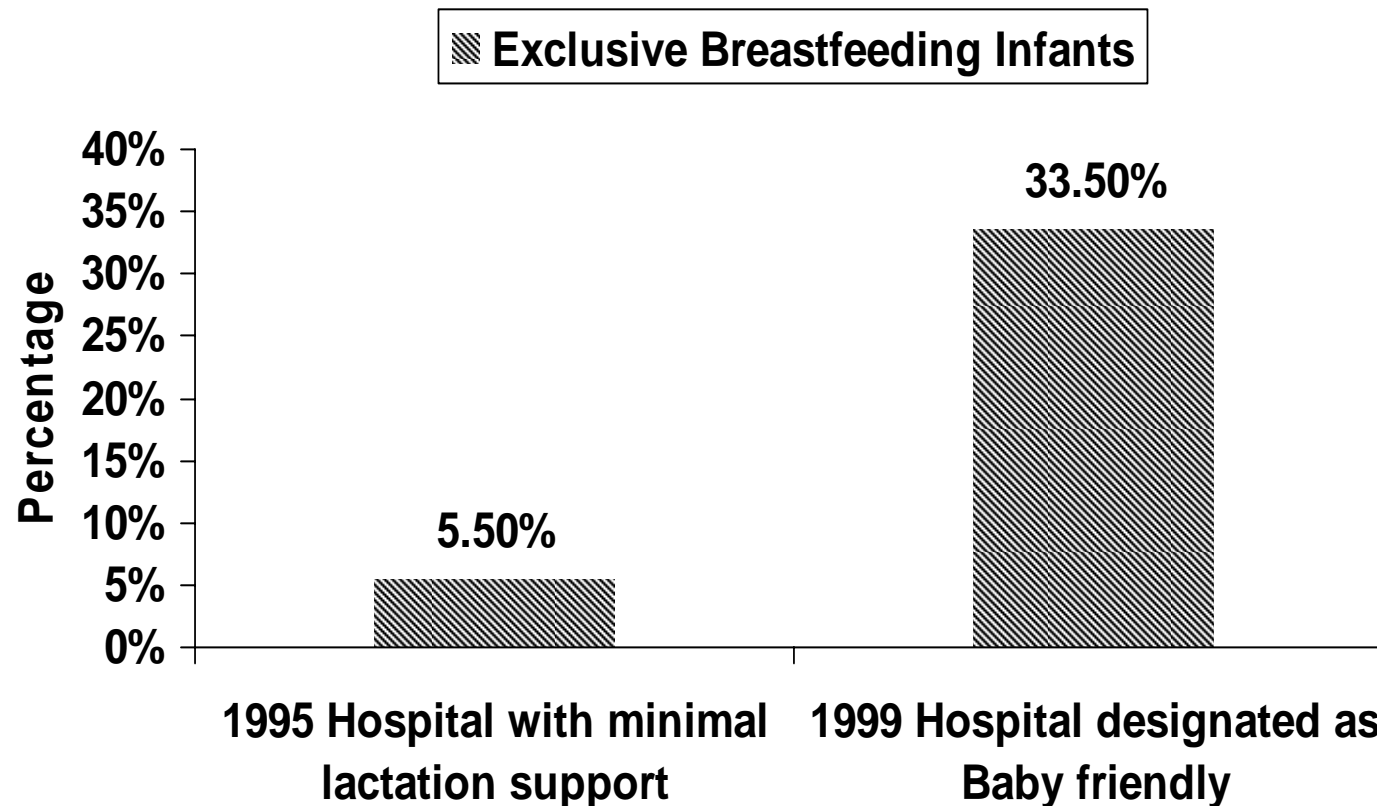
Breastfeeding policy

How should it be presented?

It should be:

- 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



Adapted from: Philipp BL, Merewood A, Miller LW et al. Baby-friendly Hospital Initiative improves breastfeeding initiation rates in a US hospital setting. *Pediatrics*, 2001, 108:677-681.

Ten steps to successful breastfeeding

Step 2. Train all health-care staff in skills necessary to implement this policy.

A JOINT WHO/UNICEF STATEMENT (1989)

Areas of knowledge

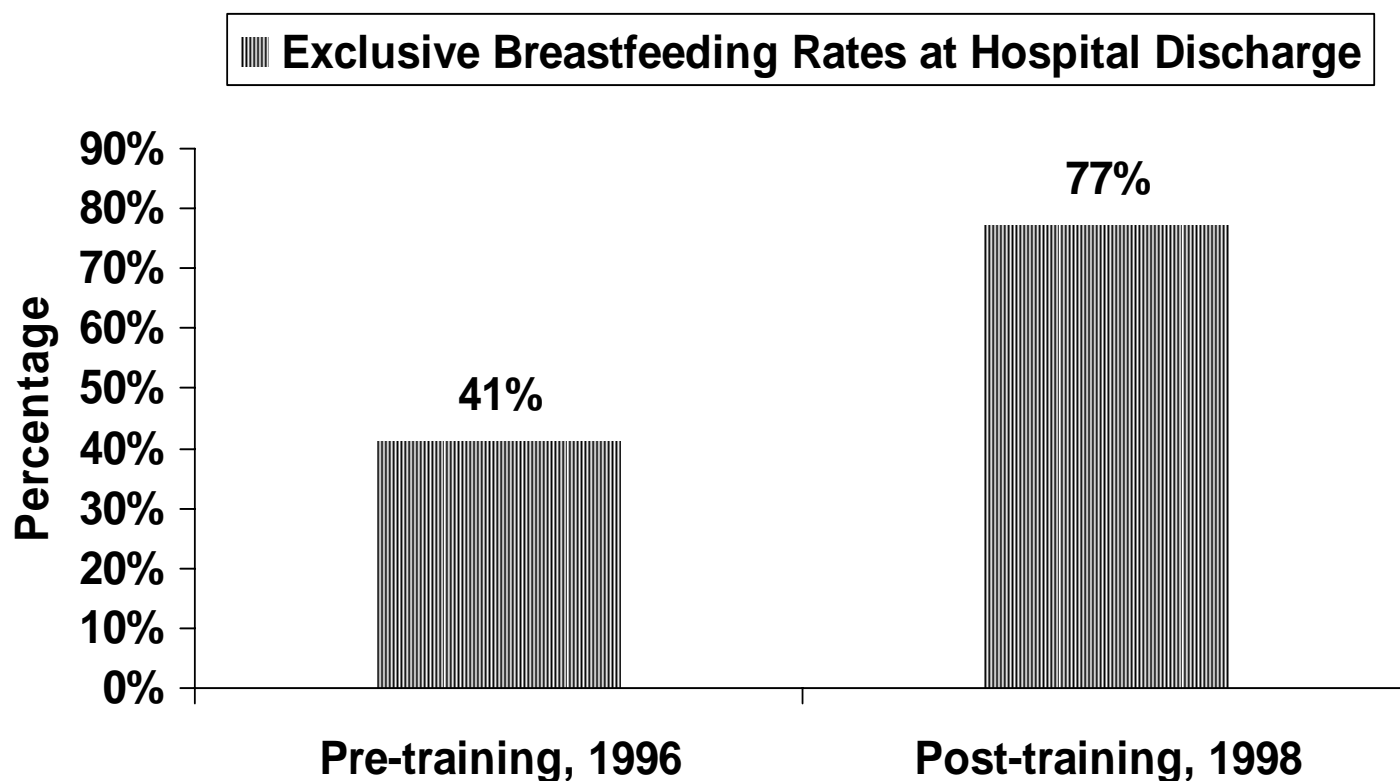
- Advantages of breastfeeding
- Risks of artificial feeding
- Mechanisms of lactation and suckling
- How to help mothers initiate and sustain breastfeeding
- How to assess a breastfeed
- How to resolve breastfeeding difficulties
- Hospital breastfeeding policies and practices
- Focus on changing negative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

Additional topics for BFHI training in the context of HIV

Train all staff in:

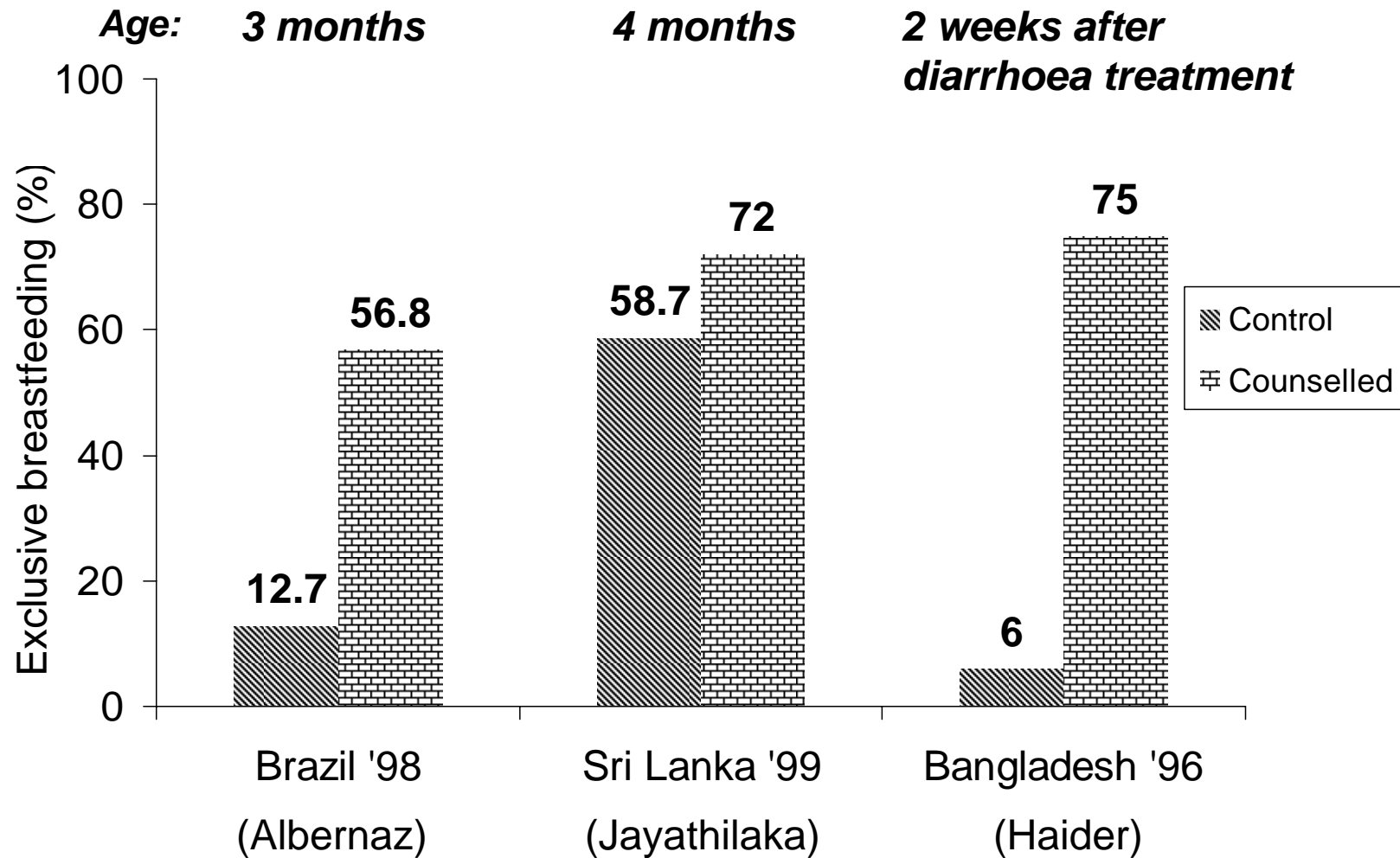
- Basic facts on HIV and on Prevention of Mother-to-Child Transmission (PMTCT)
- Voluntary testing and counselling (VCT) for HIV
- Locally appropriate replacement feeding options
- How to counsel HIV + women on risks and benefits of various feeding options and how to make informed choices
- How to teach 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



Adapted from: Cattaneo A, Buzzetti R. Effect on rates of breast feeding of training for the Baby Friendly Hospital Initiative. *BMJ*, 2001, 323:1358-1362.

Step 2: Breastfeeding counselling increases exclusive breastfeeding



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

**Which health professionals
other than perinatal staff
influence breastfeeding success?**

Ten steps to successful breastfeeding

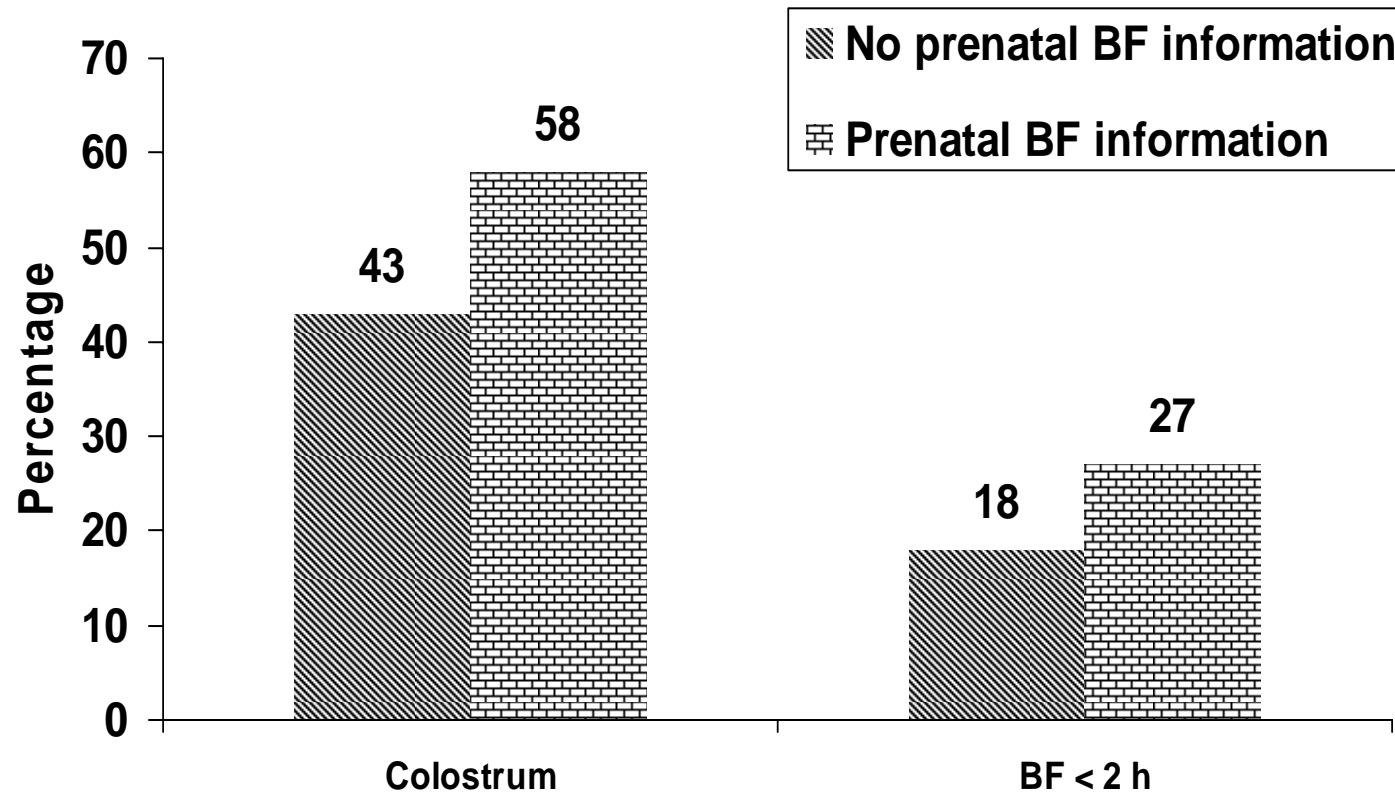
Step 3. Inform all pregnant women about the benefits of breastfeeding.

A JOINT WHO/UNICEF STATEMENT (1989)

Antenatal education should include:

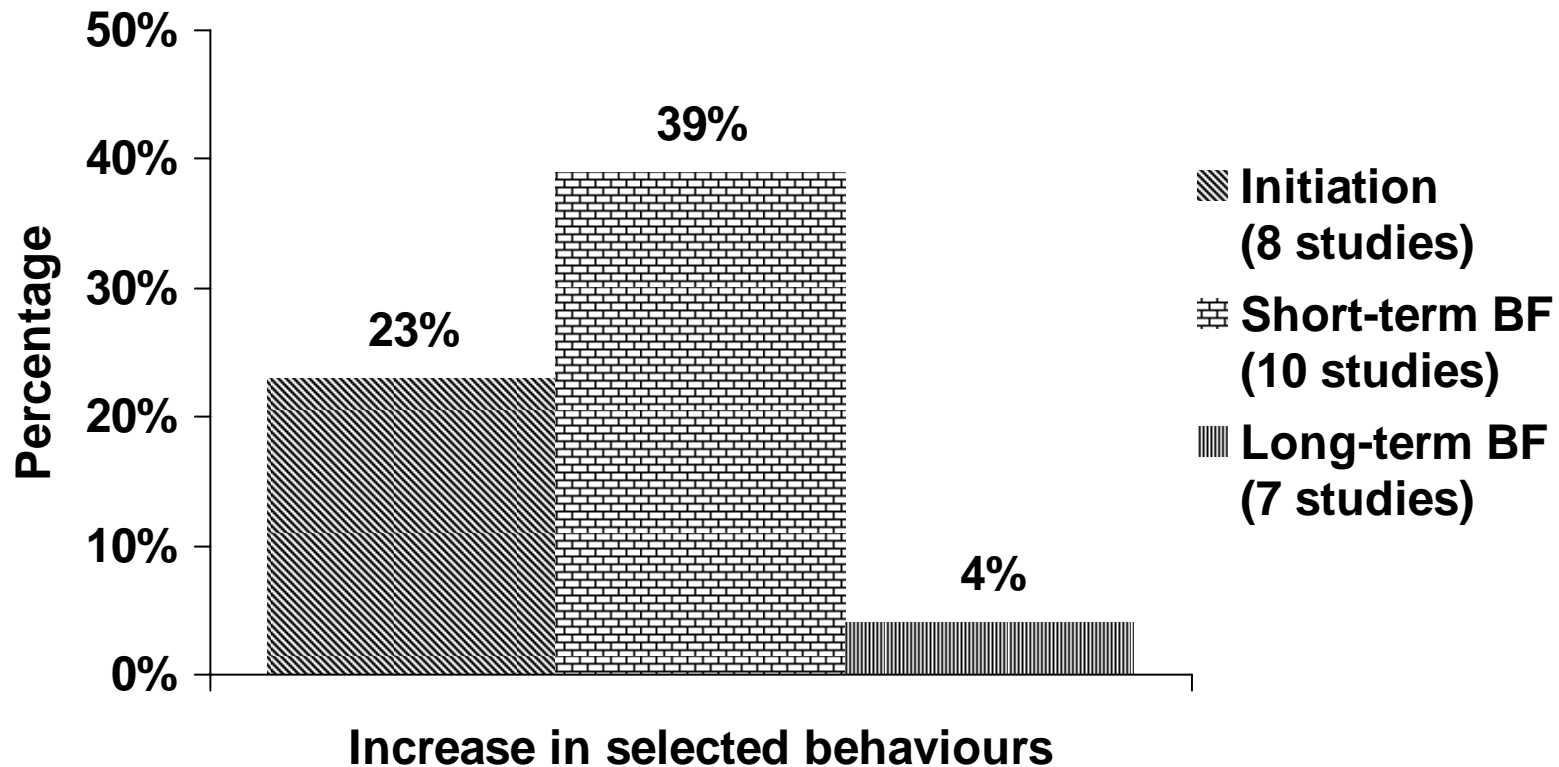
- Benefits of breastfeeding
- Early initiation
- Importance of rooming-in (if new concept)
- Importance of feeding on demand
- Importance of exclusive breastfeeding
- How to assure enough breast milk
- Risks of artificial feeding and use of bottles and pacifiers (soothers, teats, nipples, etc.)
- Basic 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

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



Adapted from: Nielsen B, Hedegaard M, Thilsted S, Joseph A, Liljestrand J. Does antenatal care influence postpartum health behaviour? Evidence from a community based cross-sectional study in rural Tamil Nadu, South India. *British Journal of Obstetrics and Gynaecology*, 1998, 105:697-703.

Step 3: Meta-analysis of studies of antenatal education and its effects on breastfeeding



Adapted from: Guise et al. The effectiveness of primary care-based interventions to promote breastfeeding: Systematic evidence review and meta-analysis... *Annals of Family Medicine*, 2003, 1(2):70-78.

Why test for HIV in pregnancy?

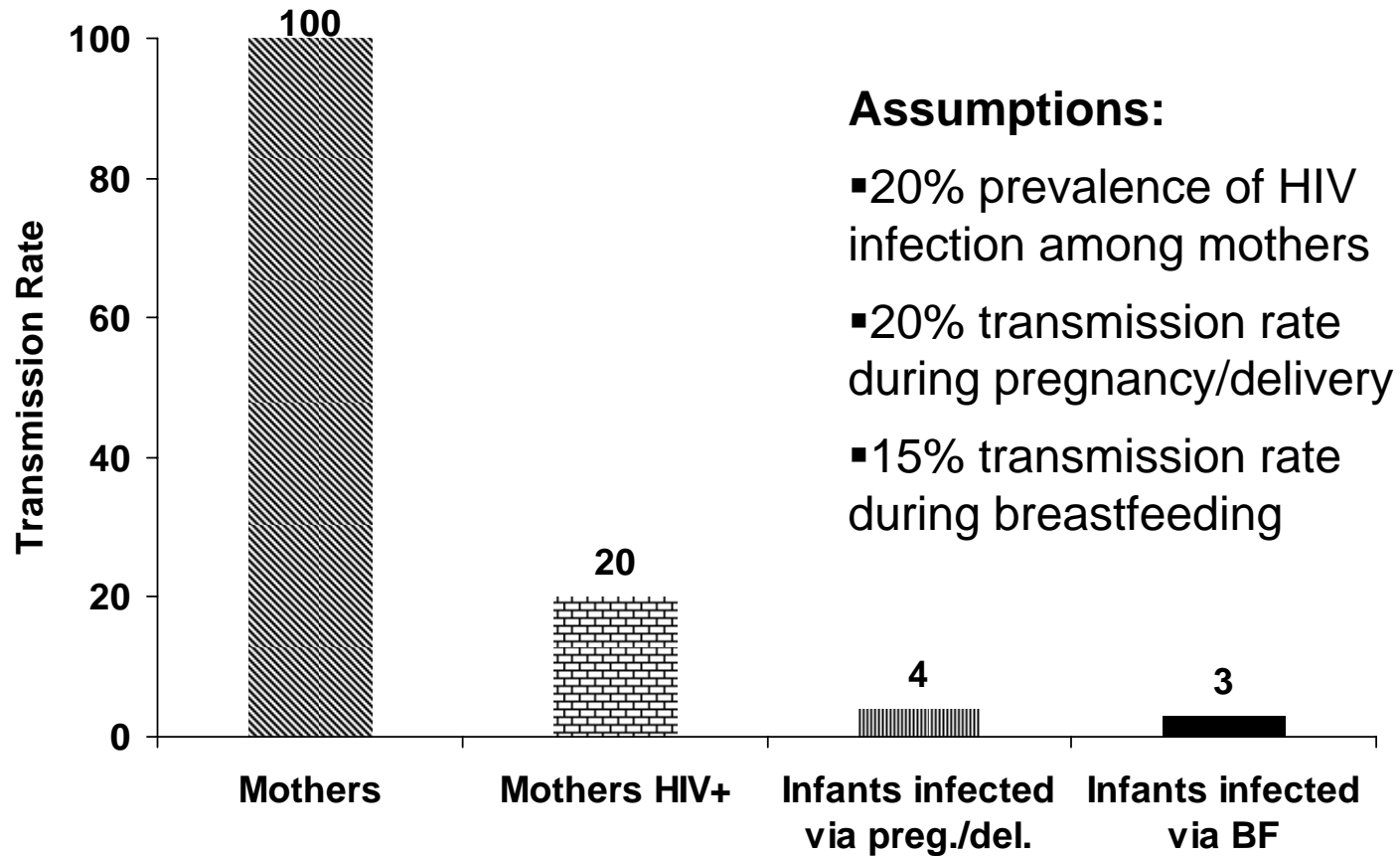
- **If HIV negative**
 - Can be counseled on prevention and risk reduction behaviors
 - Can be counseled on exclusive breastfeeding
- **If HIV positive**
 - Can learn ways to reduce risk of MTCT in pregnancy, at delivery and during infant feeding
 - Can better manage illnesses and strive for “positive” living
 - Can plan for safer infant feeding method and follow-up for baby
 - Can decide about termination (if a legal option) and future fertility
 - Can decide to share her status with partner /family for support



Definition of replacement feeding

- The process, in the context of HIV/AIDS, of feeding a child who is not receiving any breast milk with a diet that provides all the nutrients the child needs.
- During the first six months this should be with a suitable breast-milk substitute, usually commercial formula.
- After six months it should preferably be with a suitable breast-milk substitute, and complementary foods made from appropriately prepared and nutrient-enriched family foods, given three times a day. If suitable breast-milk substitutes are not available, appropriately prepared family foods should be further enriched and given five times a day.

Risk of mother-to-child transmission of HIV



Based on data from *HIV & infant feeding counselling tools: Reference Guide*. Geneva, World Health Organization, 2005.

WHO recommendations on infant feeding for HIV+ women

Exclusive breastfeeding is recommended for HIV-infected mothers for the first six months of life unless replacement feeding is acceptable, feasible, affordable, sustainable and safe for them and their infants before that time.

When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended.

WHO/UNICEF/UNAIDS/UNFPA, HIV and Infant Feeding Update. Based on the Technical Consultation held on behalf of the IATT on Prevention of HIV Infection in Pregnant Women, Mothers and their Infants. Geneva 25-27 October 2006. Geneva, World Health Organization, 2007.

Transparency 4.3.8 (HIV)

HIV & infant feeding recommendations

If the mother's HIV status is unknown:

- Encourage her to obtain HIV testing and counselling
- Promote optimal feeding practices (exclusive BF for 6 months, introduction of appropriate complementary foods at about 6 months and continued BF to 24 months and beyond)
- Counsel the mother and her partner on how to avoid exposure to HIV

Adapted from WHO/Linkages, *Infant and Young Child Feeding: A Tool for Assessing National Practices, Policies and Programmes*. Geneva, World Health Organization, 2003 (Annex 10, p. 137).

Transparency 4.3.9 (HIV)

If the mother's HIV status is negative:

- Promote optimal feeding practices (see above)
- Counsel her and her partner on how to avoid exposure to HIV

If the mother's HIV status is positive:

- Provide access to anti-retroviral drugs to prevent MTCT and refer her for care and treatment for her own health
- Provide counselling on the risks and benefits of various infant feeding options, including the acceptability, feasibility, affordability, sustainability and safety (AFASS) of the various options.
- Assist her to choose the most appropriate option
- Provide follow-up counselling to support the mother on the feeding option she chooses

If the mother is HIV positive and chooses to breastfeed:

- Explain the need to exclusively breastfeed for the first six months with cessation when replacement feeding is AFASS
- Support her in planning and carrying out a safe transition
- Prevent and treat breast conditions and thrush in her infant

If the mother is HIV positive and chooses replacement feeding:

- Teach her replacement feeding skills, including cup-feeding and hygienic preparation and storage, away from breastfeeding mothers

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

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?

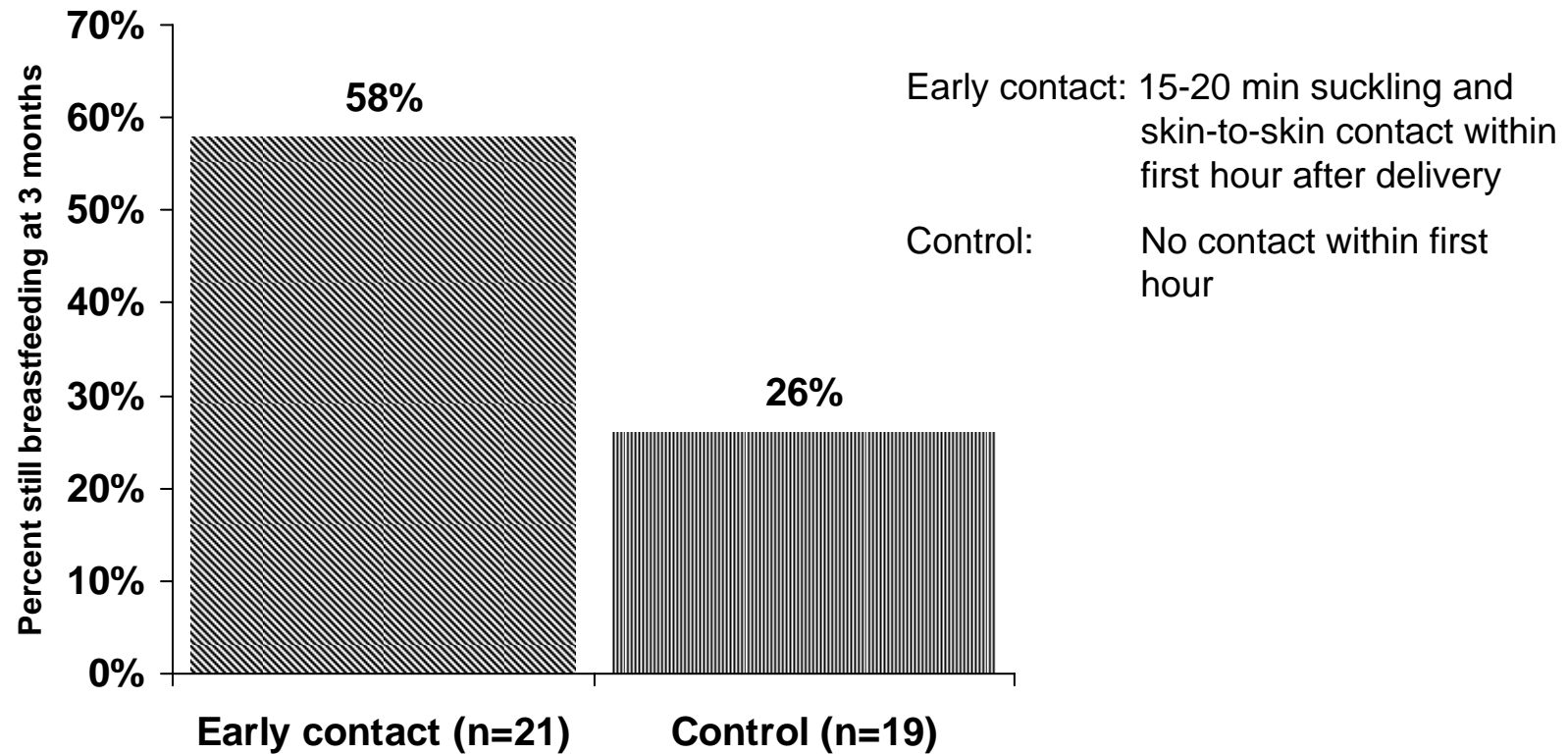
- Increases duration of breastfeeding
- Allows skin-to-skin contact for warmth and colonization of baby with maternal organisms
- Provides colostrum as the baby's first immunization
- Takes advantage of the first hour of alertness
- Babies learn to suckle more effectively
- Improved developmental outcomes

Early initiation of breastfeeding for the normal newborn

How?

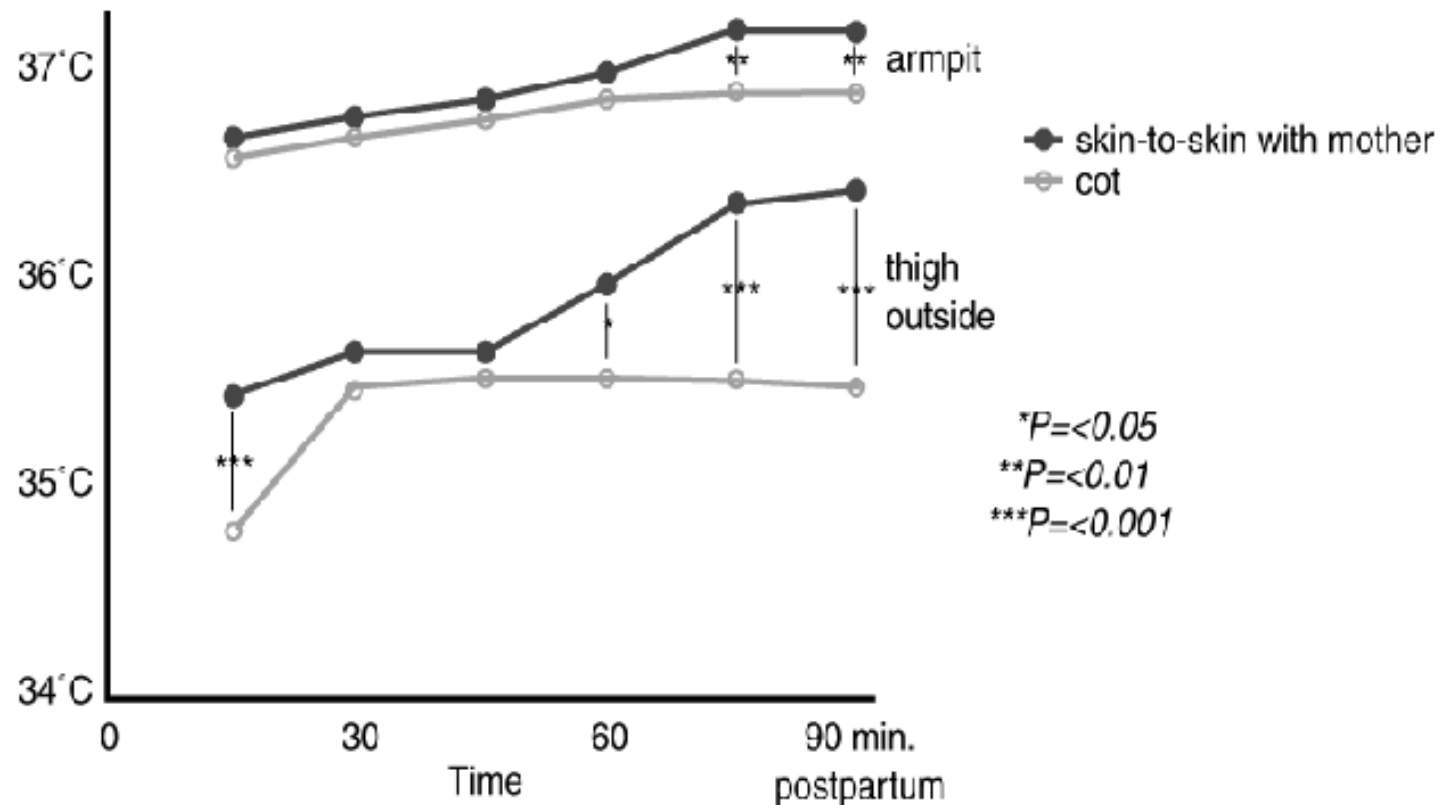
- Keep mother and baby together
- Place baby on mother's chest
- Let baby start suckling when ready
- Do not hurry or interrupt the process
- Delay non-urgent medical routines for at least one hour

Impact on breastfeeding duration of early infant-mother contact



Adapted from: DeChateau P, Wiberg B. Long term effect on mother-infant behavior of extra contact during the first hour postpartum *Acta Paediatr*, 1977, 66:145-151.

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



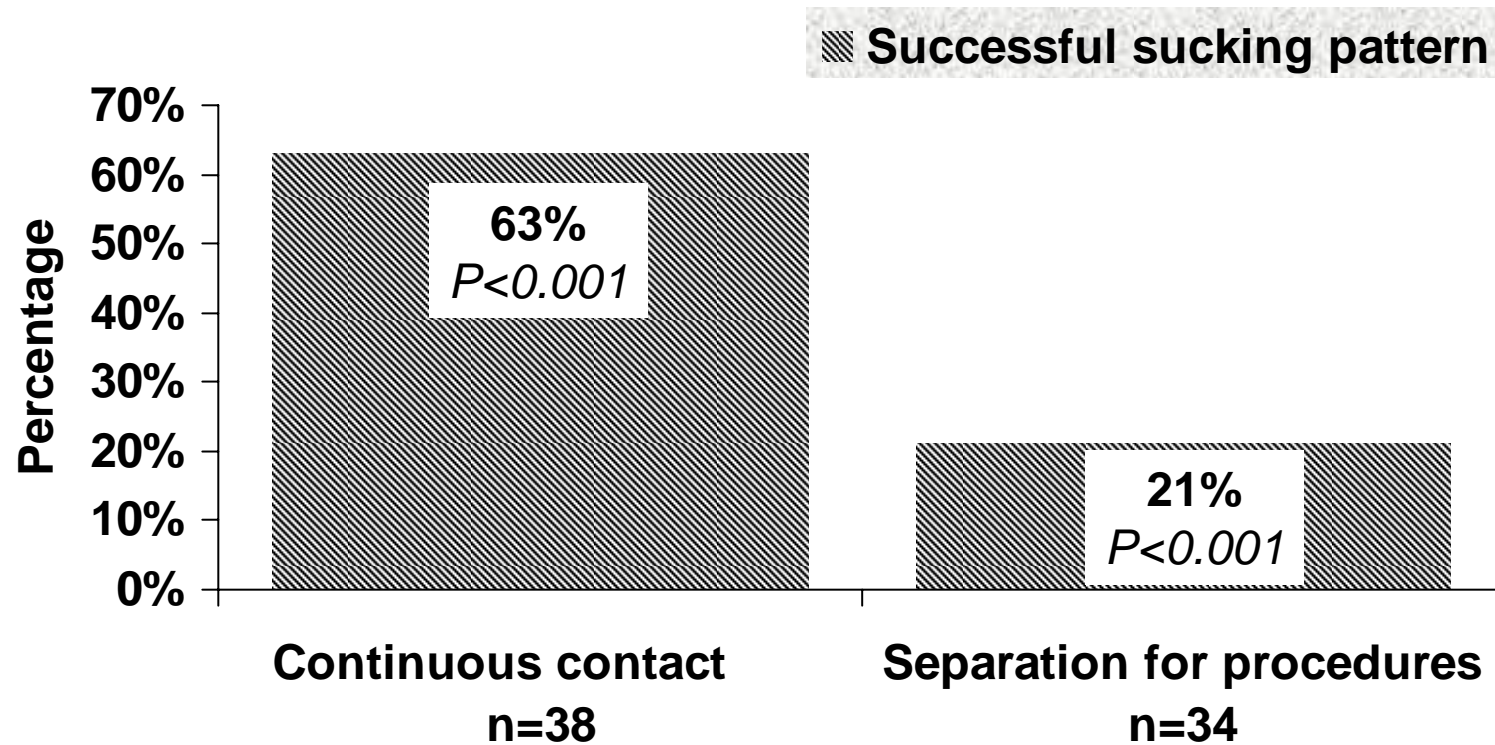
Adapted from: Christensson K et al. Temperature, metabolic adaptation and crying in healthy full-term newborns cared for skin-to-skin or in a cot. *Acta Paediatr*, 1992, 81:490.

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

Constituent	Measure	Colostrum (1-5 days)	Mature Milk (>30 days)
Total protein	G	23	9-10.5
Casein	mg	1400	1870
α -Lactalbumin	mg	2180	1610
Lactoferrin	mg	3300	1670
IgA	mg	3640	1420

From: Worthington-Roberts B, Williams SR. *Nutrition in Pregnancy and Lactation, 5th ed.* St. Louis, MO, Times Mirror/Mosby College Publishing, p. 350, 1993.

Effect of delivery room practices on early breastfeeding



Adapted from: Righard L , Alade O. Effect of delivery room routines on success of first breastfeed. *Lancet*, 1990, 336:1105-1107.

Ten steps to successful breastfeeding

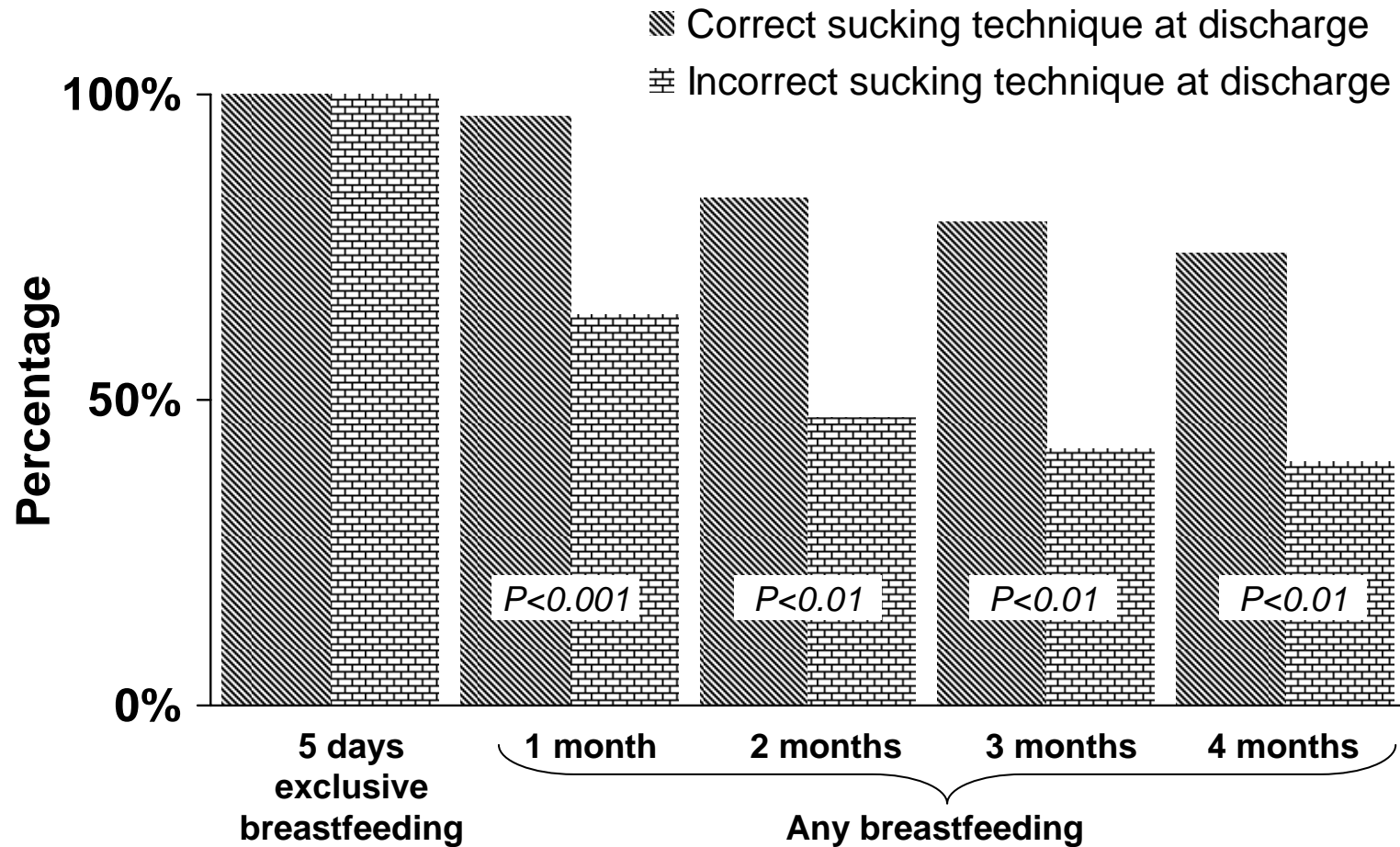
Step 5. Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants.

A JOINT WHO/UNICEF STATEMENT (1989)

“ 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. ”

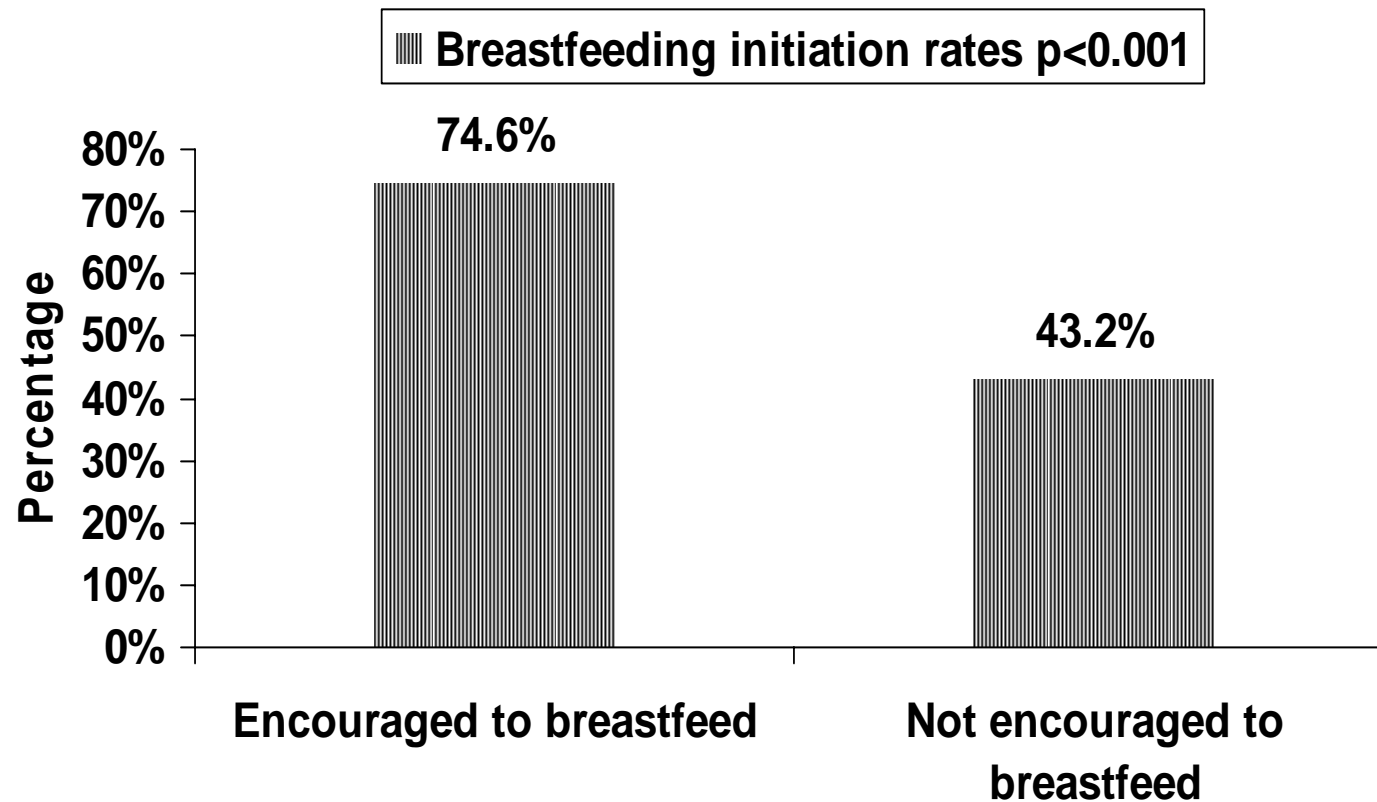
From: Woolridge M. The “anatomy” of infant sucking. *Midwifery*, 1986, 2:164-171.

Effect of proper attachment on duration of breastfeeding



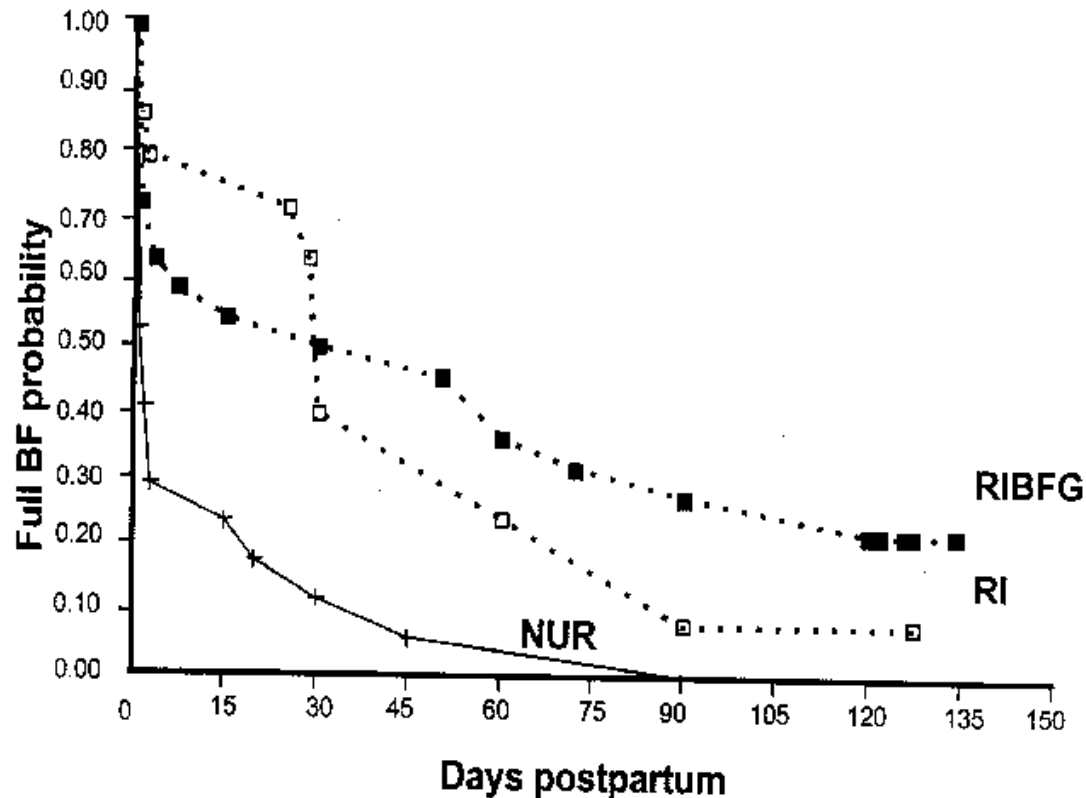
Adapted from: Righard L , Alade O. (1992) Sucking technique and its effect on success of breastfeeding. *Birth* 19(4):185-189.

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



Adapted from: Lu M, Lange L, Slusser W et al. Provider encouragement of breast-feeding: Evidence from a national survey. *Obstetrics and Gynecology*, 2001, 97:290-295.

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



NUR, nursery, n=17

RI, rooming-in, n=15

RIBFG, rooming-in with breastfeeding guidance, n=22

NUR significantly different from RI ($p < 0.05$) and RIBFG ($p < 0.05$)

From: Perez-Escamilla R, Segura-Millan S, Pollitt E, Dewey KG. Effect of the maternity ward system on the lactation success of low-income urban Mexican women. *Early Hum Dev.*, 1992, 31 (1): 25-40.

Supply and demand

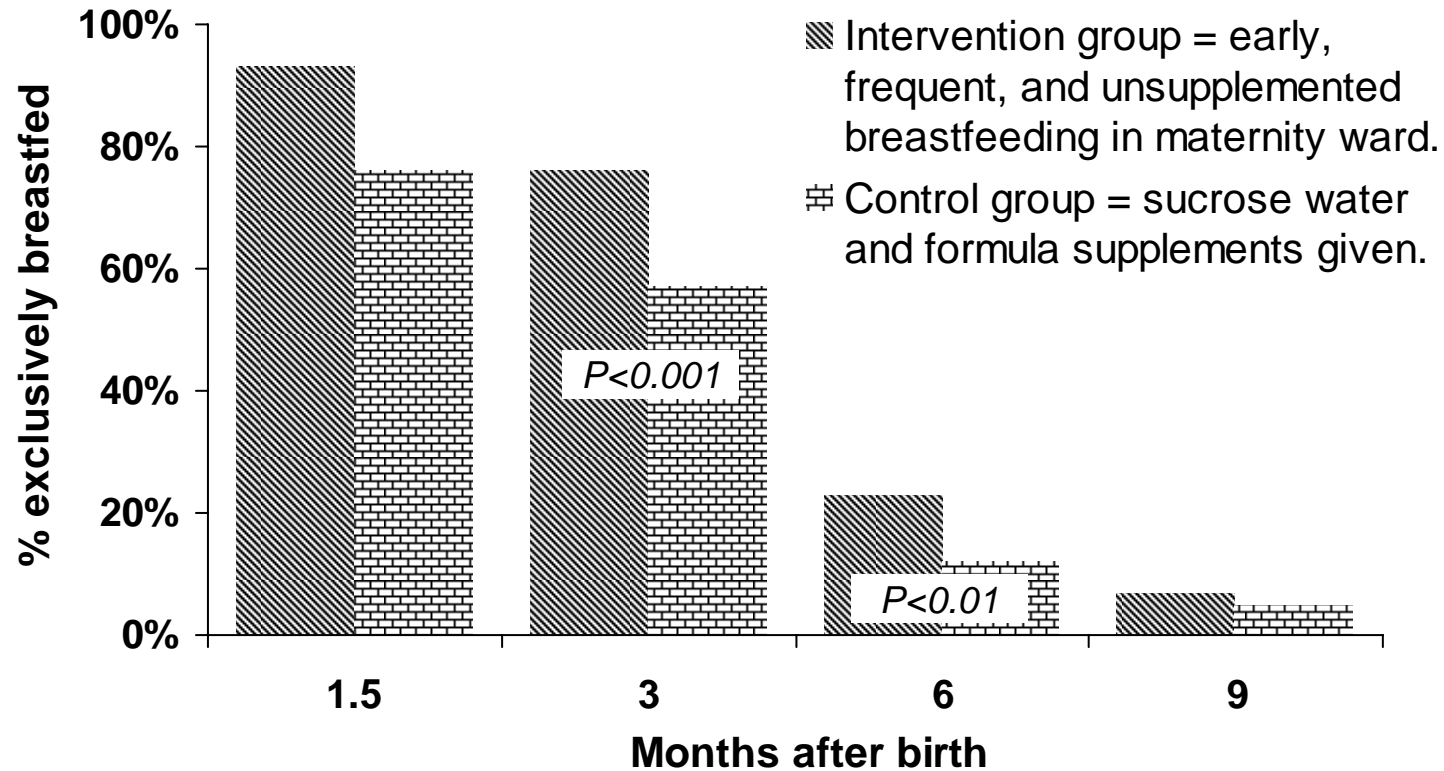
- Milk removal stimulates milk production.
- The amount of breast milk removed at each feed determines the rate of milk production in the next few hours.
- Milk removal must be continued during separation to maintain supply.

Ten steps to successful breastfeeding

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

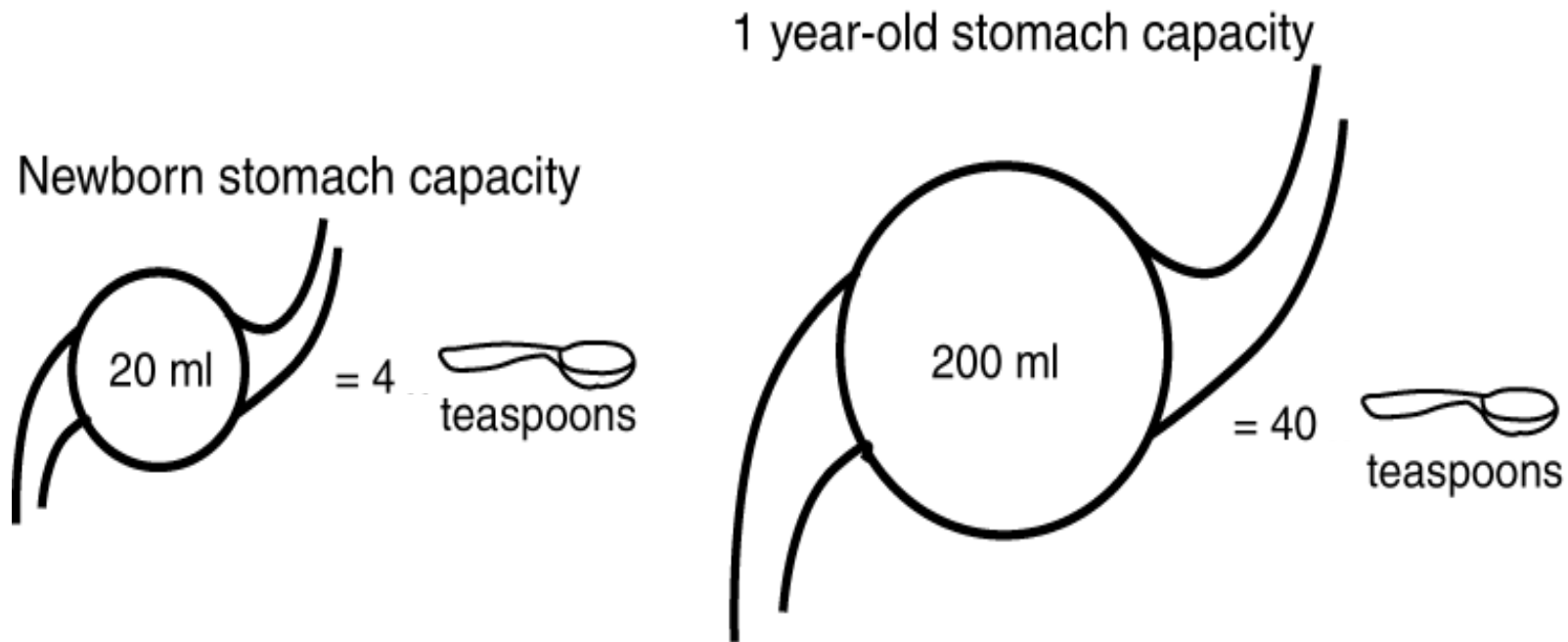
A JOINT WHO/UNICEF STATEMENT (1989)

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



Adapted from: Nylander G et al. Unsupplemented breastfeeding in the maternity ward: positive long-term effects *Acta Obstet Gynecol Scand*, 1991, 70:208.

The perfect match: quantity of colostrum per feed and the newborn stomach capacity



Adapted from: Pipes PL. *Nutrition in Infancy and Childhood, Fourth Edition*. St. Louis, Times Mirror/Mosby College Publishing, 1989.

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

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.

From: Perez-Escamilla et al. Determinants of lactation performance across time in an urban population from Mexico. *Soc Sci Med*, 1993, (8):1069-78.

Summary of studies on the water requirements of exclusively breastfed infants

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

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

From: *Breastfeeding and the use of water and teas*. Division of Child Health and Development Update No. 9. Geneva, World Health Organization, reissued, Nov. 1997.

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.

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.

Maternal conditions:

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.

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

Risk factors for HIV transmission during breastfeeding*

Mother

- Immune/health status
- Plasma viral load
- Breast milk virus
- Breast inflammation (mastitis, abscess, bleeding nipples)
- New HIV infection

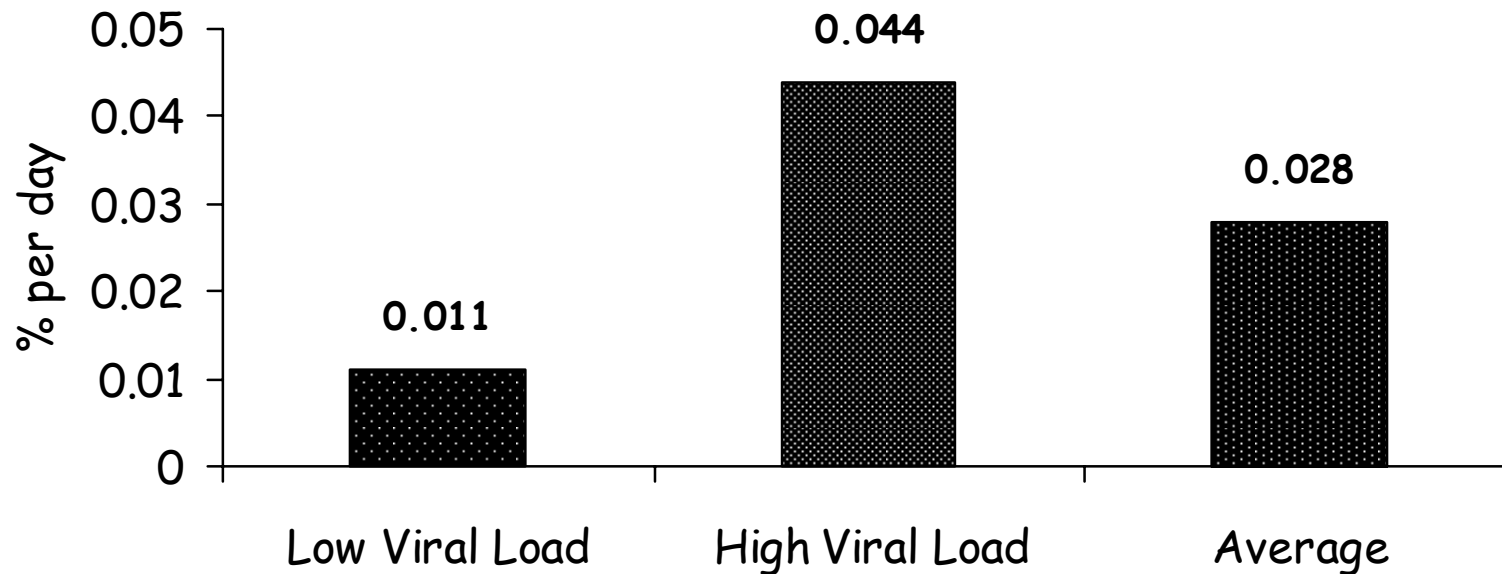
Infant

- Age (first month)
- Breastfeeding duration
- Non-exclusive BF
- Lesions in mouth, intestine
- Pre-maturity, low birth weight
- Genetic factors – host/virus

* Also referred to as postnatal transmission of HIV (PNT)

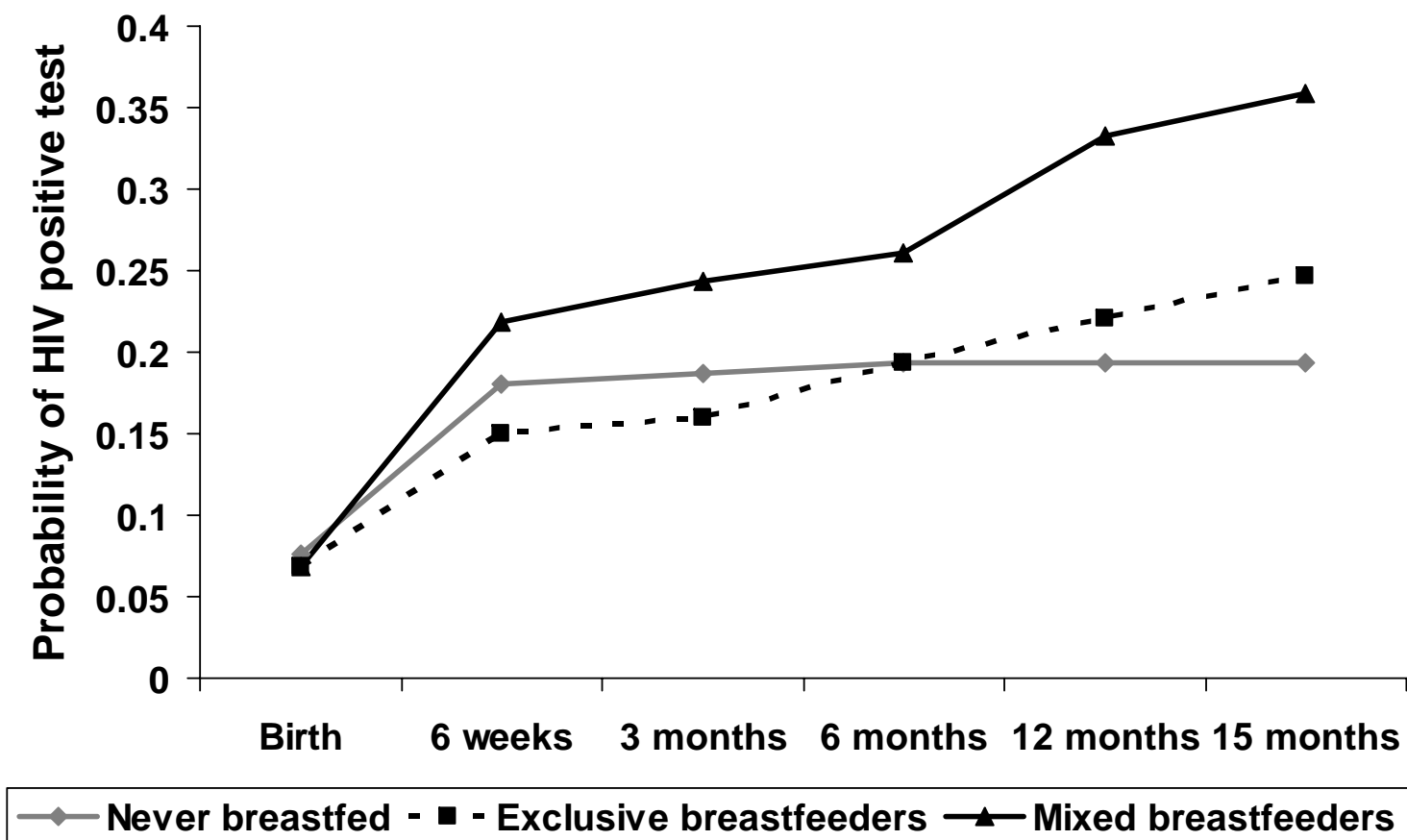
**Risk factor:
Maternal blood viral load**

**Risk of HIV transmission per day of
BF in Nairobi, Kenya (%)**



From: Richardson et al, Breast-milk Infectivity in Human Immunodeficiency Virus Type 1 – Infected Mothers, *JID*, 2003 187:736-740 (adapted by Ellen Piwoz)

Feeding pattern & risk of HIV transmission



From: Coutsooudis et al. Method of feeding and transmission of HIV-1 from mothers to children by 15 months of age: prospective cohort study from Durban, South Africa. *AIDS*, 2001 Feb 16; 15(3):379-87.

HIV & Infant feeding study in Zimbabwe

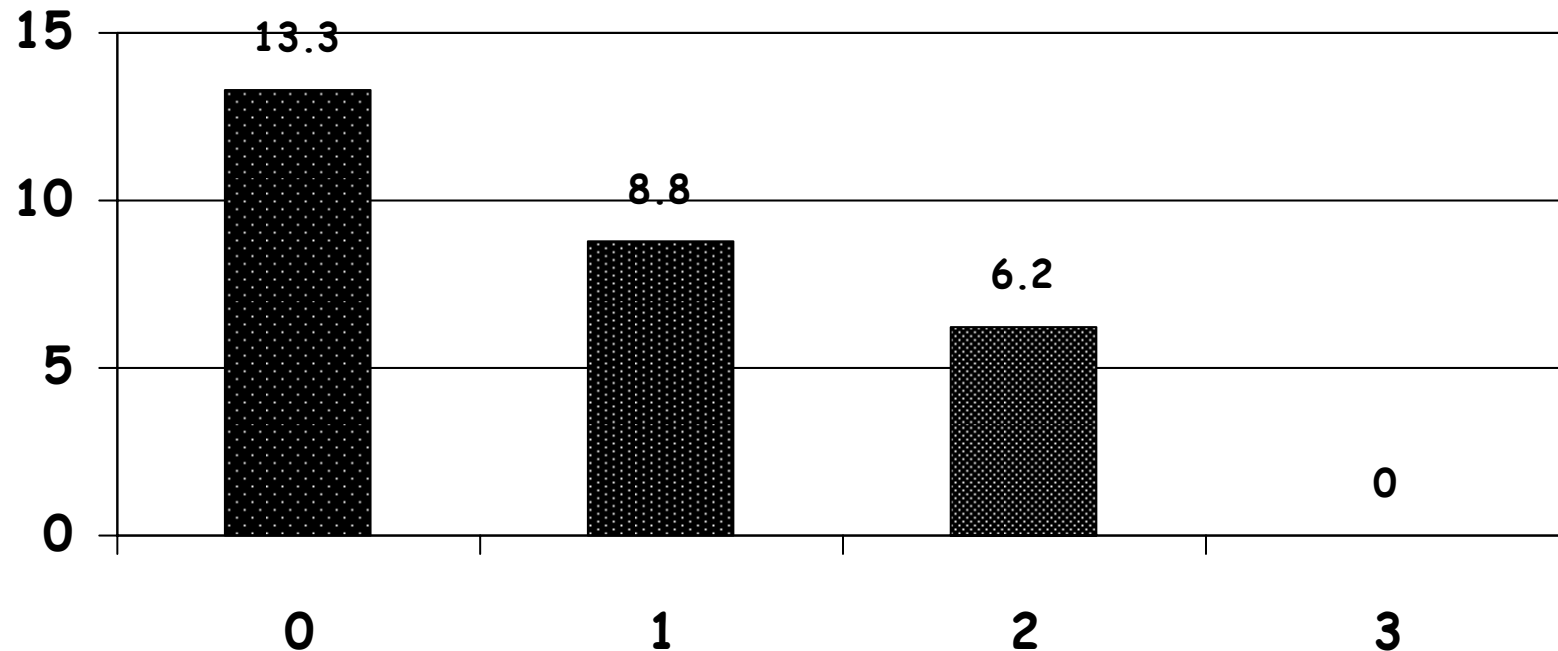
Elements of safer breastfeeding:

- Exclusive breastfeeding
- Proper positioning & attachment to the breast to minimize breast pathology
- Seeking medical care quickly for breast problems
- Practicing safe sex

Piwoz et al. An education and counseling program for preventing breastfeeding-associated HIV transmission in Zimbabwe: Design & Impact on Maternal Knowledge & Behavior. *J Nutr* 2005, 135(4):950-5

Exposure to safer breastfeeding intervention was associated with reduced postnatal transmission (PNT) by mothers who did not know their HIV status

Cumulative PNT HIV transmission (%) according to reported exposure to SBF program



N=365; p=0.04 in test for trend. Each additional intervention contact was associated with a 38% reduction in PNT after adjusting for maternal CD4

Piwoz et al. An education and counseling program for preventing breastfeeding-associated HIV transmission in Zimbabwe: Design & Impact on Maternal Knowledge & Behavior. *J Nutr* 2005, 135(4):950-5

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

Rooming-in

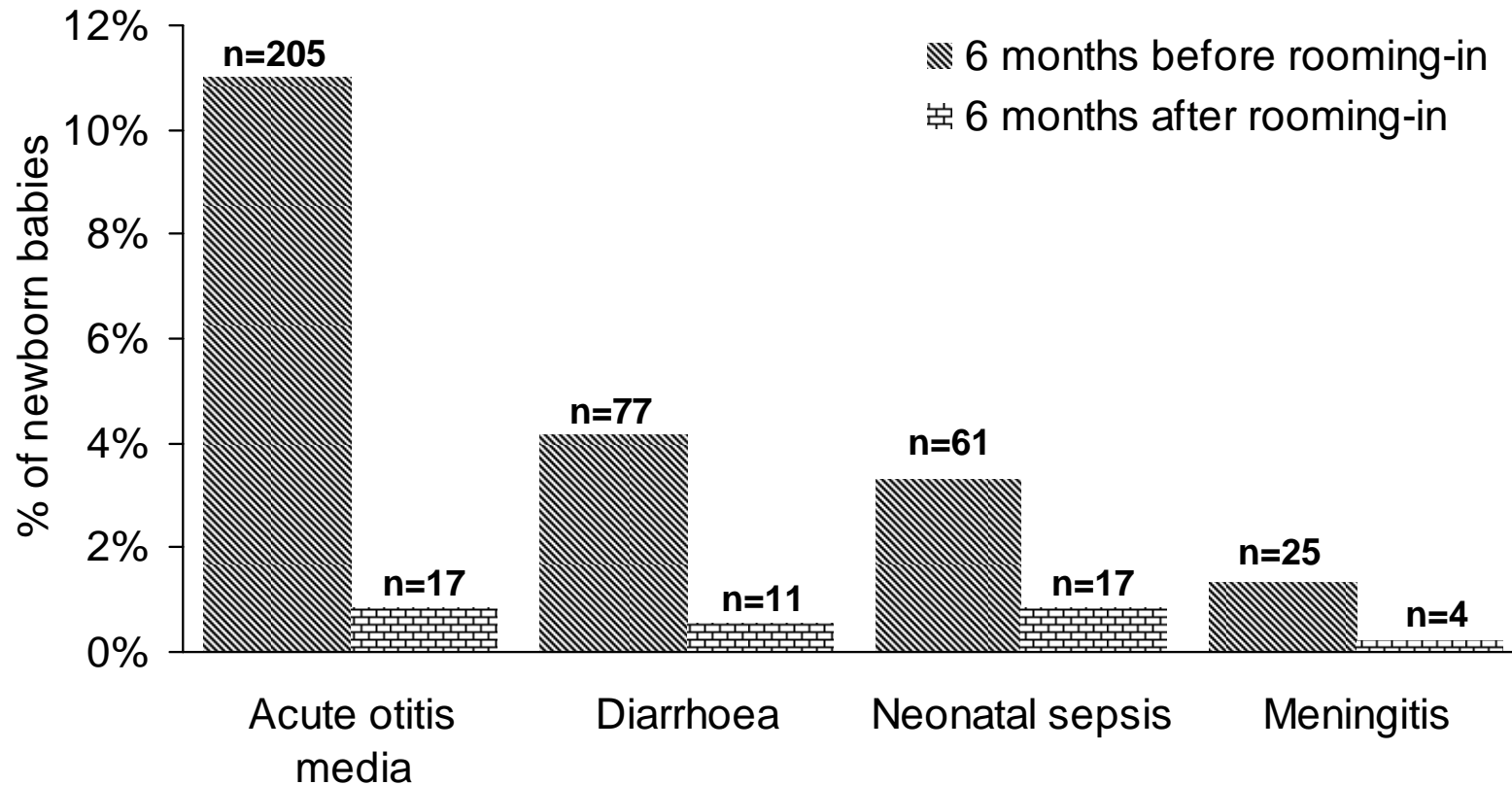
A hospital arrangement where a mother/baby pair stay in the same room day and night, allowing unlimited contact between mother and infant

Rooming-in

Why?

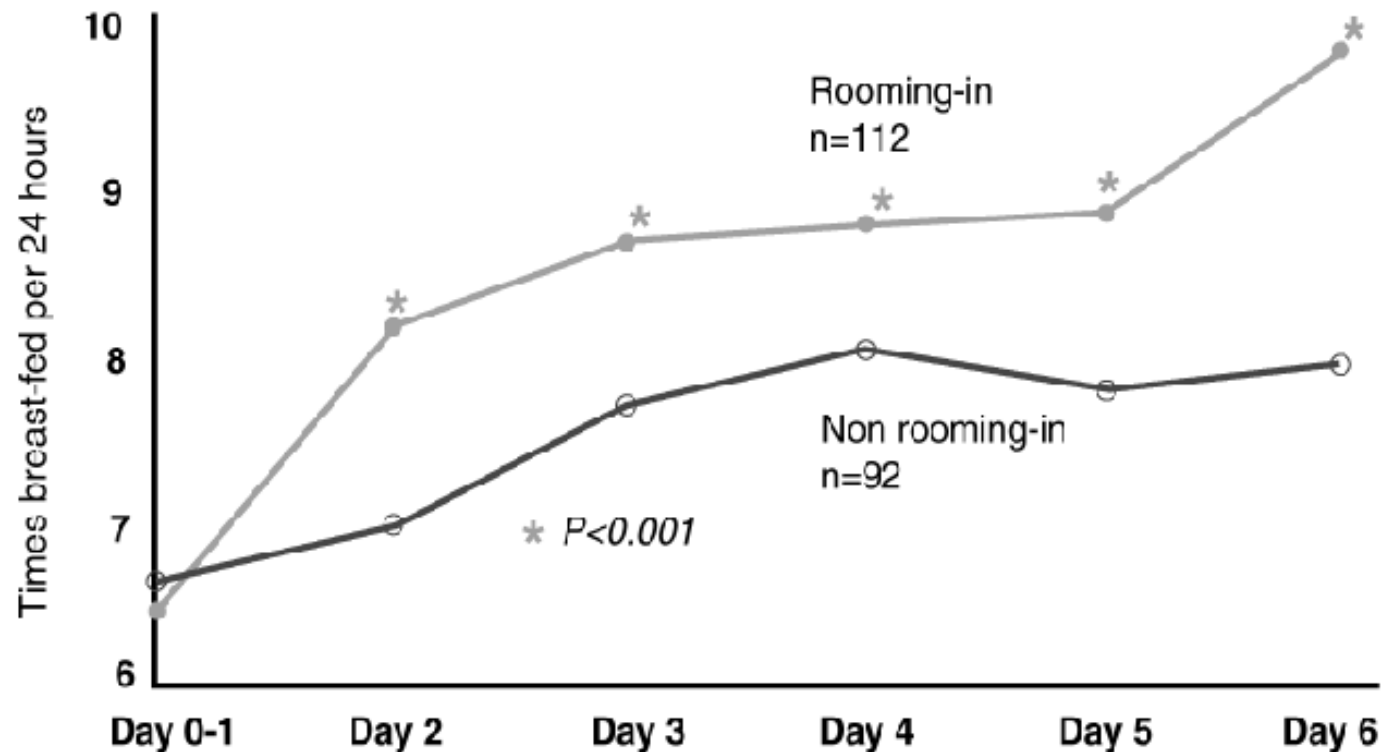
- Reduces costs
- Requires minimal equipment
- Requires no additional personnel
- Reduces infection
- Helps establish and maintain breastfeeding
- Facilitates the bonding process

Morbidity of newborn babies at Sanglah Hospital before and after rooming-in



Adapted from: Soetjningsih, Suraatmaja S. The advantages of rooming-in. *Pediatrica Indonesia*, 1986, 26:231.

Effect of rooming-in on frequency of breastfeeding per 24 hours



Adapted from: Yamauchi Y, Yamanouchi I . The relationship between rooming-in/not rooming-in and breastfeeding variables. *Acta Paediatr Scand*, 1990, 79:1019.

Ten steps to successful breastfeeding

Step 8. Encourage breastfeeding on demand.

A JOINT WHO/UNICEF STATEMENT (1989)

Breastfeeding on demand:

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

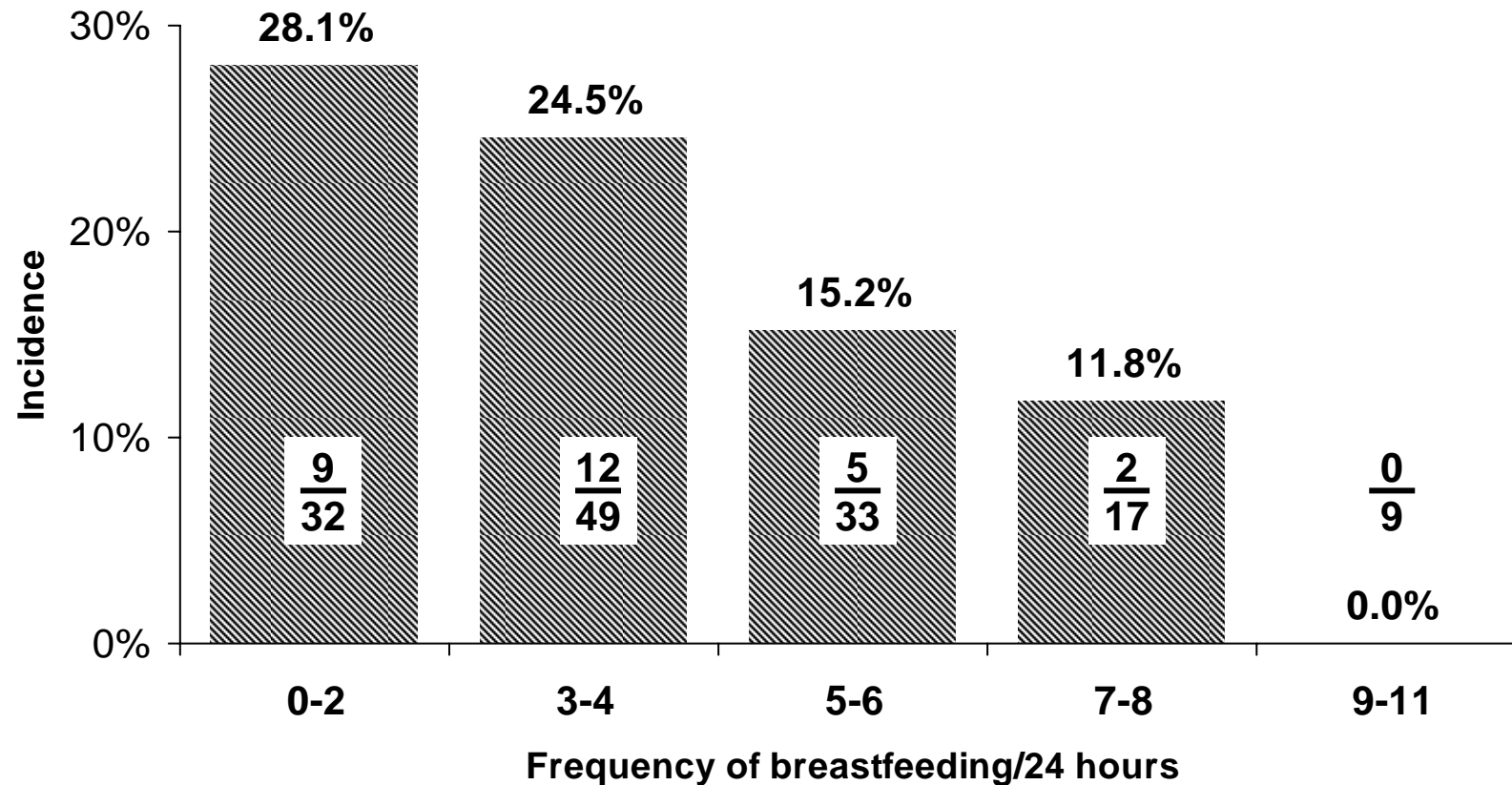
On demand, unrestricted breastfeeding

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

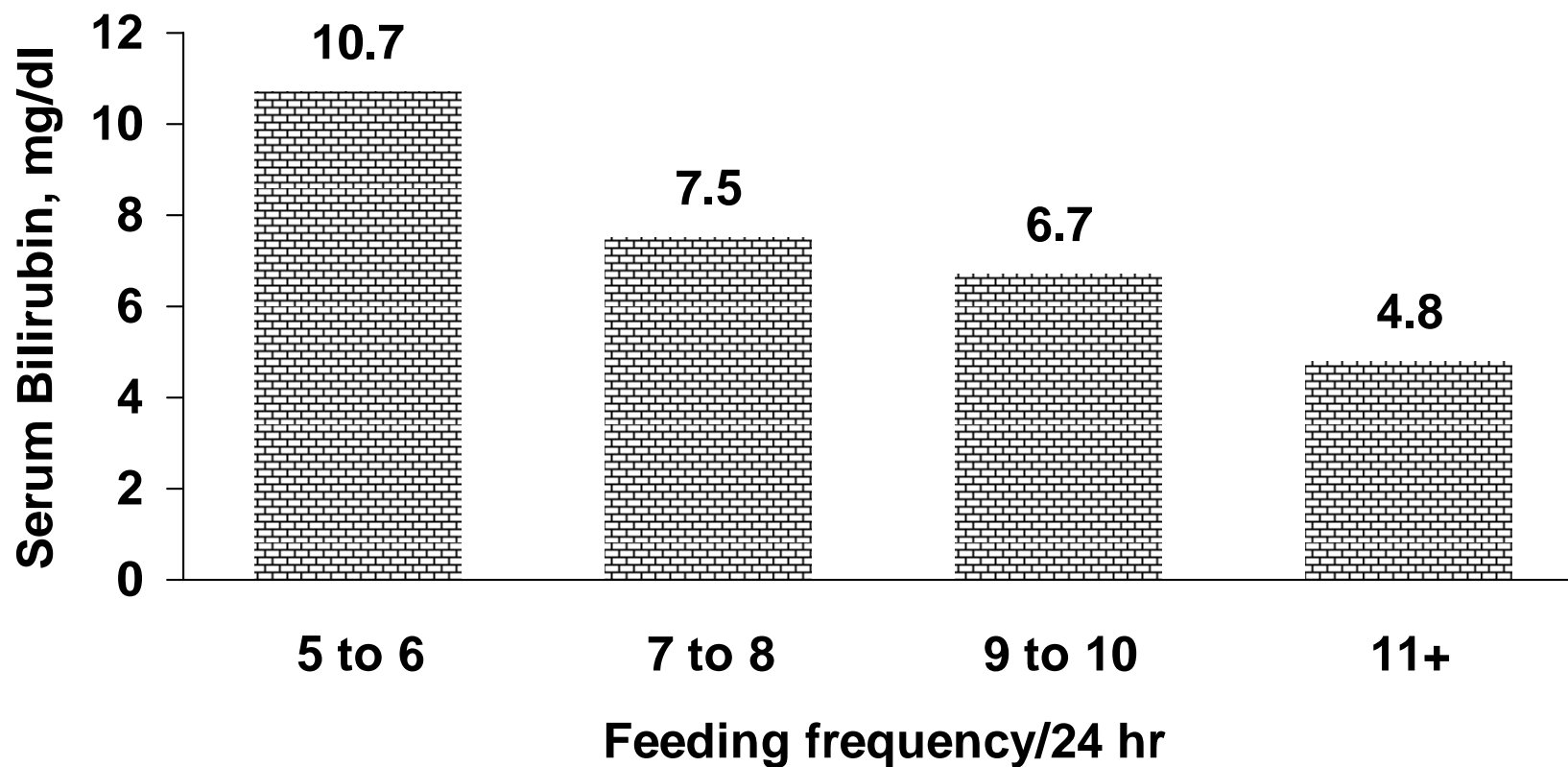
From: Yamauchi Y, Yamanouchi I. Breast-feeding frequency during the first 24 hours after birth in full-term neonates. *Pediatrics*, 1990, 86(2):171-175.

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



From: Yamauchi Y, Yamanouchi I. Breast-feeding frequency during the first 24 hours after birth in full-term neonates. *Pediatrics*, 1990, 86(2):171-175.

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



From: DeCarvalho et al. *Am J Dis Child* 1982; 136:737-738

Ten steps to successful breastfeeding

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

A JOINT WHO/UNICEF STATEMENT (1989)

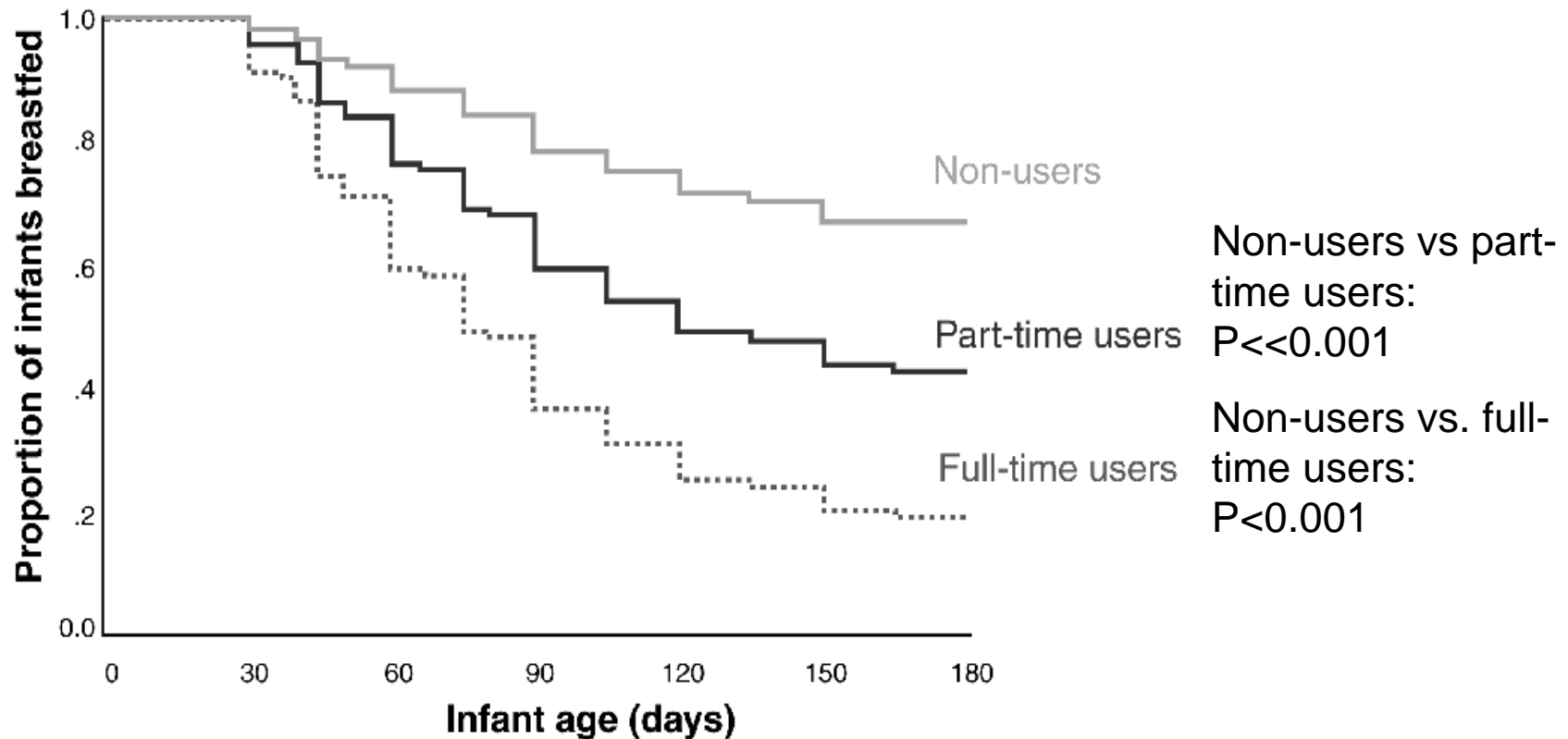
Alternatives to artificial teats

- 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



From: Victora CG et al. Pacifier use and short breastfeeding duration: cause, consequence or coincidence? *Pediatrics*, 1997, 99:445-453.

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.

A JOINT WHO/UNICEF STATEMENT (1989)

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

From: Saadeh RJ, editor. *Breast-feeding: the Technical Basis and Recommendations for Action*. Geneva, World Health Organization, pp. 62-74, 1993.

Support can include:

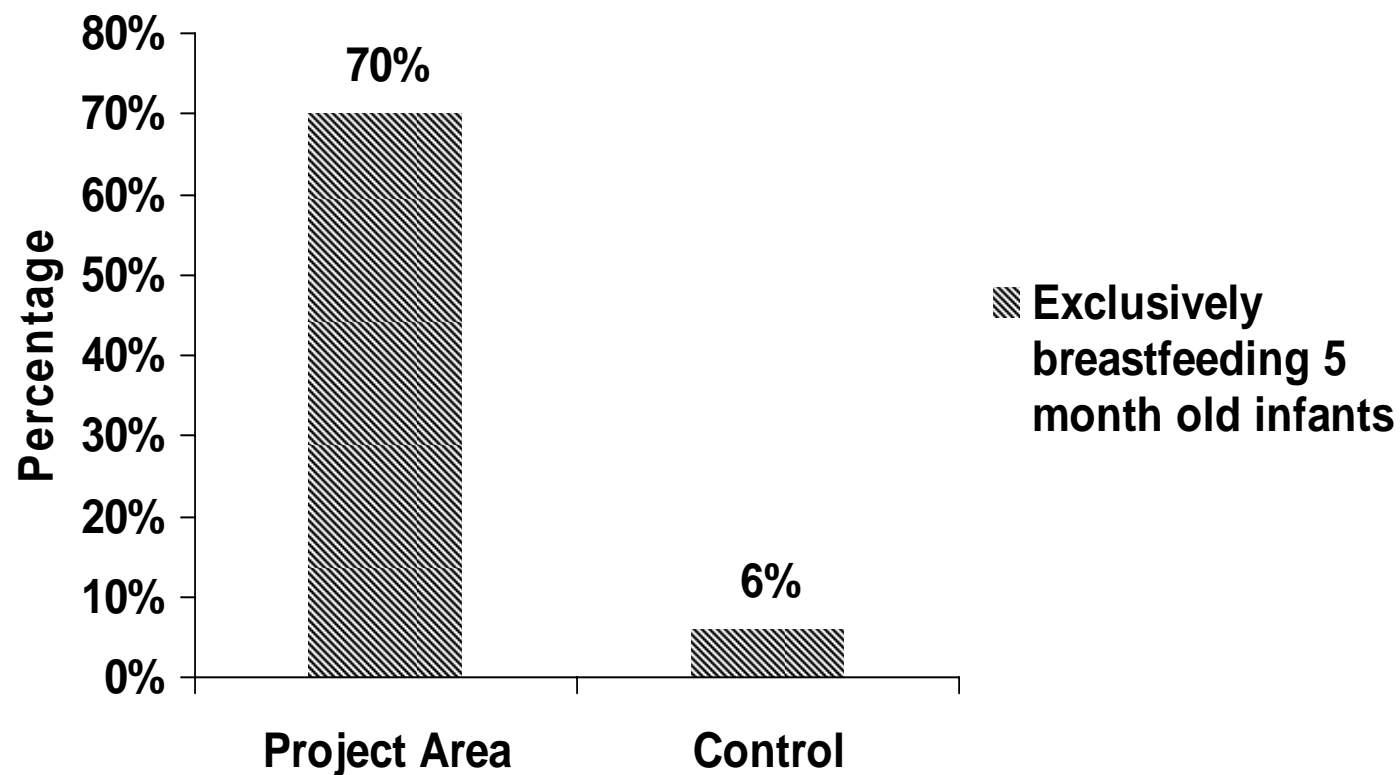
- Early postnatal or clinic checkup
- Home visits
- Telephone calls
- Community services
 - Outpatient breastfeeding clinics
 - Peer counselling programmes
- Mother support groups
 - Help set up new groups
 - Establish working relationships with those already in existence
- Family support system

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)

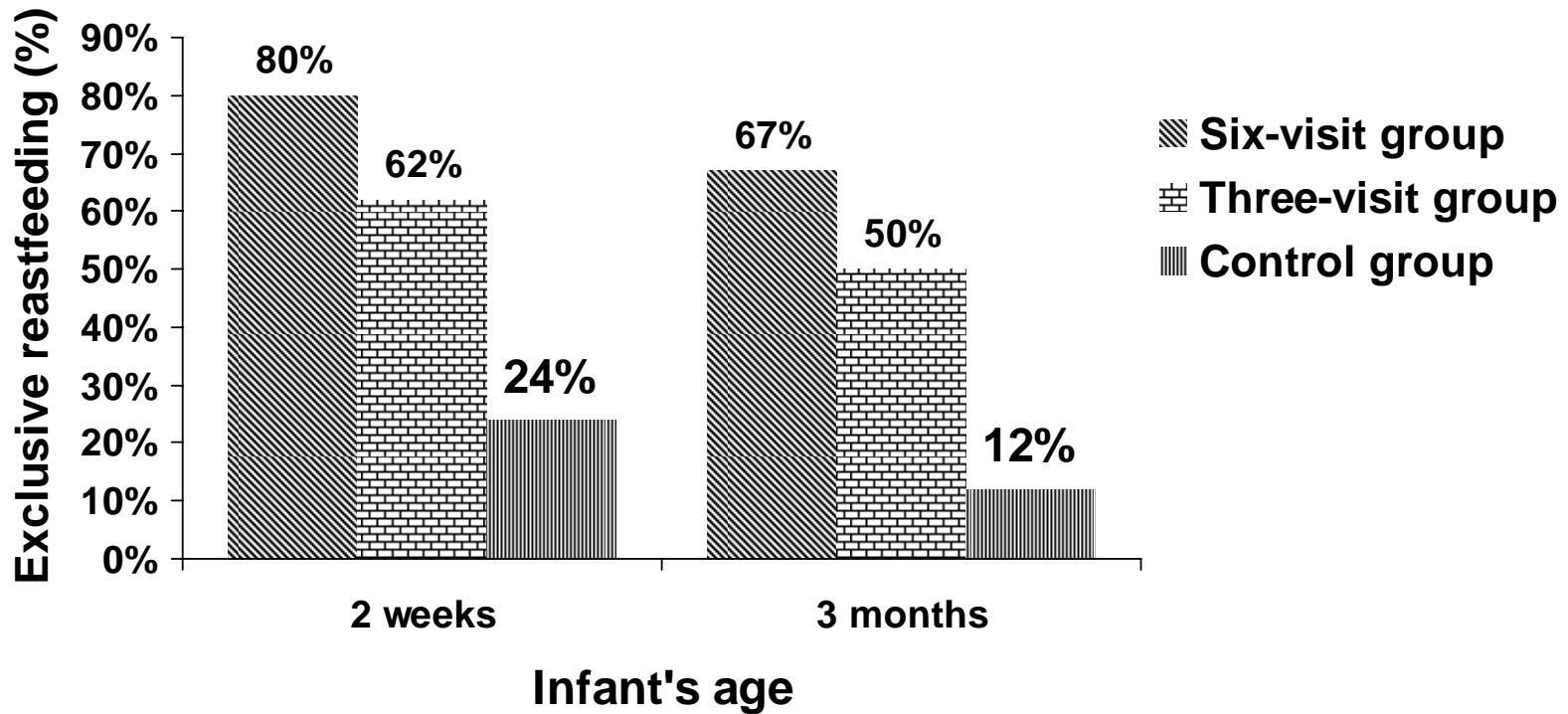
From: Jelliffe DB, Jelliffe EFP. The role of the support group in promoting breastfeeding in developing countries. *J Trop Pediatr*, 1983, 29:244.

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



Adapted from: Haider R, Kabir I, Huttly S, Ashworth A. Training peer counselors to promote and support exclusive breastfeeding in Bangladesh. *J Hum Lact*, 2002;18(1):7-12.

Home visits improve exclusive breastfeeding



From: Morrow A, Guerrereo ML, Shultis J, et al. Efficacy of home-based peer counselling to promote exclusive breastfeeding: a randomised controlled trial. *Lancet*, 1999, 353:1226-31

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.**

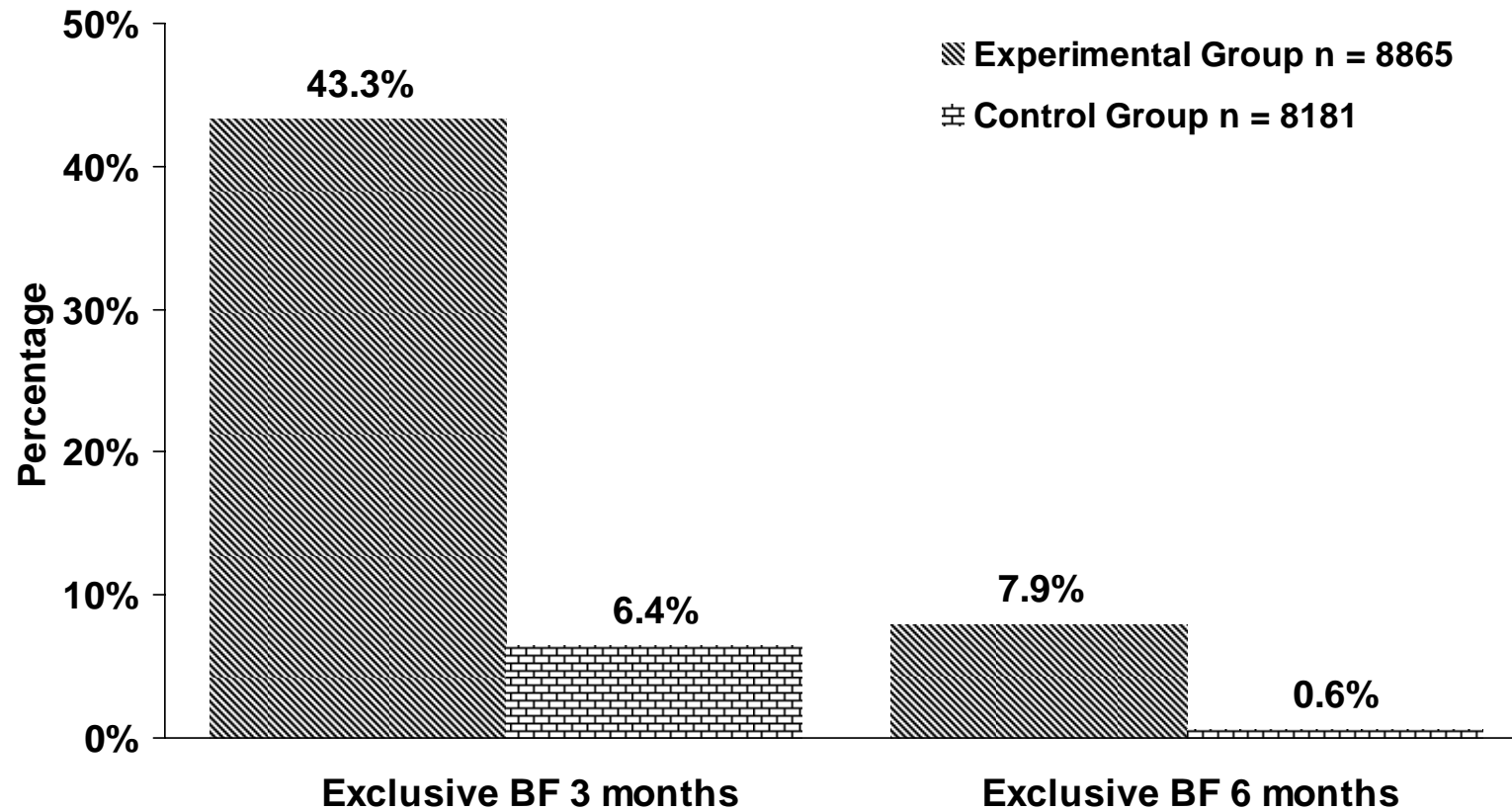
Adapted from: Kramer MS, Chalmers B, Hodnett E, et al. Promotion of breastfeeding intervention trial (PROBIT) A randomized trial in the Republic of Belarus. *JAMA*, 2001, 285:413-420.

Differences following the intervention

Control hospitals:	Experimental hospitals:
<ul style="list-style-type: none"> ■ Routine separation of mothers & babies at birth 	<ul style="list-style-type: none"> ■ Mothers & babies together from birth
<ul style="list-style-type: none"> ■ Routine tight swaddling 	<ul style="list-style-type: none"> ■ No swaddling—skin-to-skin contact encouraged
<ul style="list-style-type: none"> ■ Routine nursery-based care 	<ul style="list-style-type: none"> ■ Rooming-in on a 24-hr basis
<ul style="list-style-type: none"> ■ Incorrect latching & positioning techniques 	<ul style="list-style-type: none"> ■ Correct latching & positioning techniques
<ul style="list-style-type: none"> ■ Routine supplementation with water & milk by bottle 	<ul style="list-style-type: none"> ■ No supplementation
<ul style="list-style-type: none"> ■ Scheduled feedings every 3 hrs 	<ul style="list-style-type: none"> ■ Breastfeeding on demand
<ul style="list-style-type: none"> ■ Routine use of pacifiers 	<ul style="list-style-type: none"> ■ No use of pacifiers
<ul style="list-style-type: none"> ■ No BF support after discharge 	<ul style="list-style-type: none"> ■ BF support in polyclinics

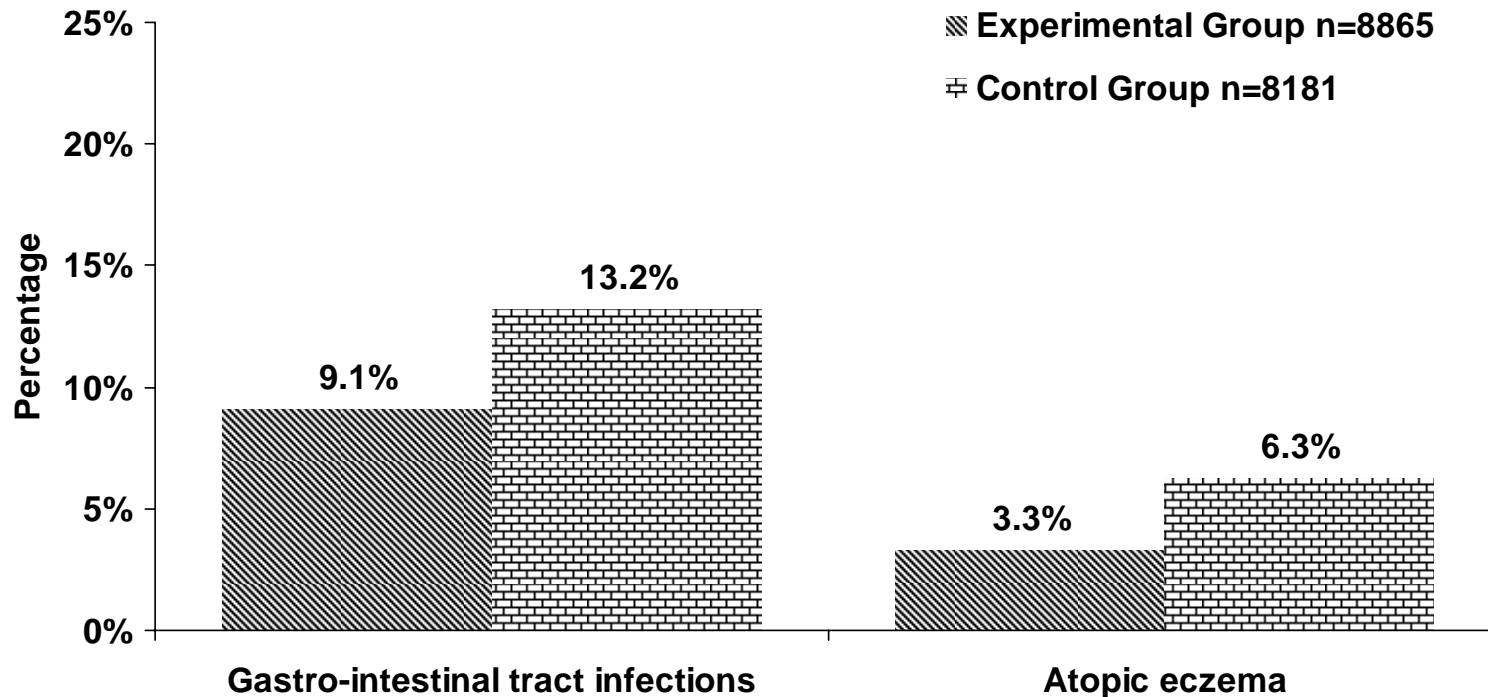
Communication from Chalmers and Kramer (2003)

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



Adapted from: Kramer et al. (2001)

Impact of baby-friendly changes on selected health conditions



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

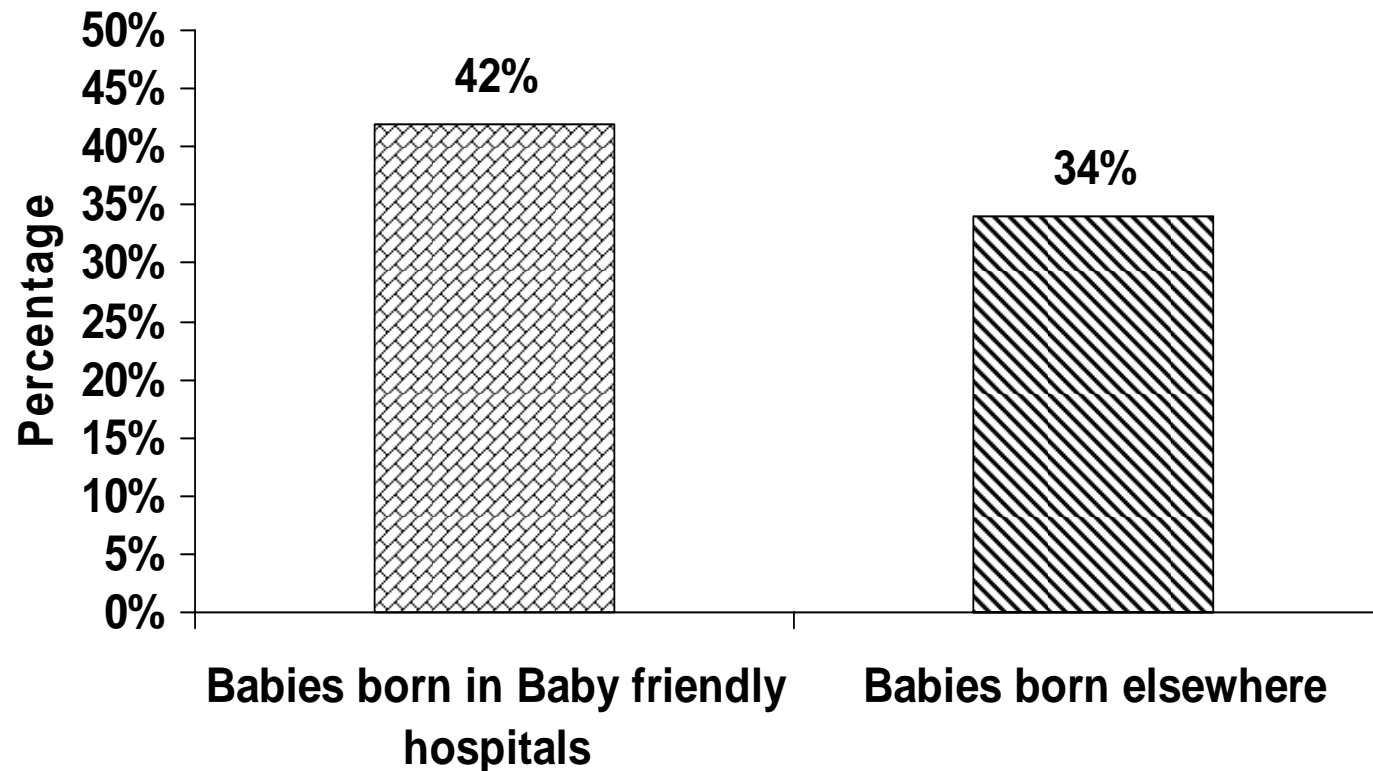
Adapted from: Kramer et al. (2001)

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.

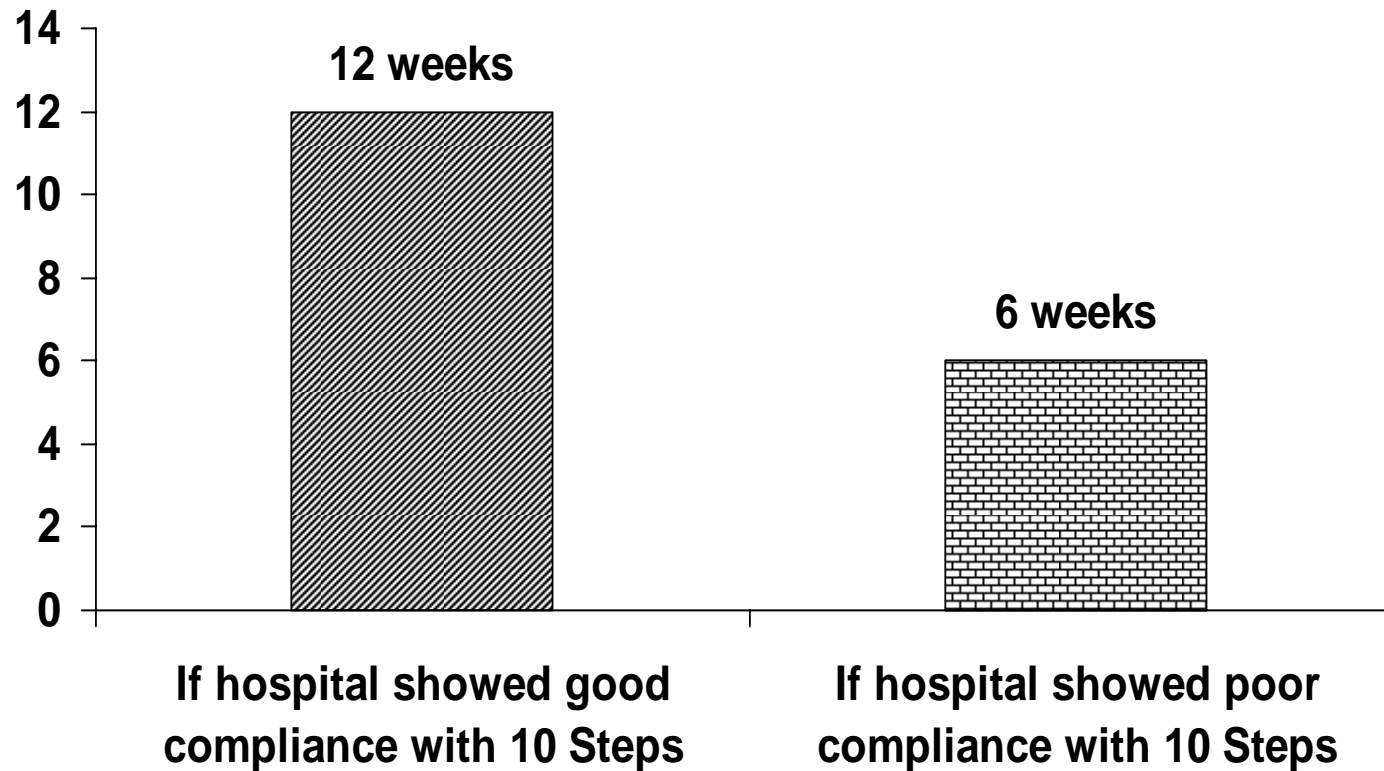
Adapted from: Merten S et al. Do Baby-Friendly Hospitals Influence Breastfeeding Duration on a National Level? *Pediatrics*, 2005, 116: e702 – e708.

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



.Adapted from: Merten S et al. Do Baby-Friendly Hospitals Influence Breastfeeding Duration on a National Level? *Pediatrics*, 2005, 116: e702 – e708.

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



Adapted from: Merten S et al. Do Baby-Friendly Hospitals Influence Breastfeeding Duration on a National Level? *Pediatrics*, 2005, 116: e702 – e708.

Session 5:

Becoming Baby-friendly

The Ten Steps to successful breastfeeding: Actions, concerns and solutions - worksheet Example

**STEP 1: Have a written breast-feeding policy that is
routinely communicated to all health care staff**

Actions necessary to implement the step

STEP 1: Have a written breast-feeding policy that is routinely communicated to all health care staff

Common concerns and solutions

Concerns	Solutions

The Ten Steps to successful breastfeeding: Actions, concerns and solutions - worksheet

Example

STEP 7: Practice rooming-in.

Common concerns and solutions

Concern	Solutions
It's difficult to supervise the condition of a baby who is rooming-in. In the nursery one staff member is sufficient to supervise several babies.	<ul style="list-style-type: none">■ Assure staff that babies are better off rooming-in with their mothers, with the added benefits of security, warmth, and feeding on demand.■ Stress that 24-hour supervision is not needed. Periodic checks and availability of staff to respond to mothers' needs are all that are necessary.

Concern	Solutions
Infection rates will be higher when mothers and babies are together than when they are in a nursery.	<ul style="list-style-type: none"><li data-bbox="987 416 1843 735">■ Stress that danger of infection is reduced when babies remain with mothers than when in a nursery and exposed to more caretakers.<li data-bbox="987 751 1843 1200">■ Provide staff with data showing that infection rates are lower with rooming-in and breastfeeding, for example, from diarrhoeal disease, neonatal sepsis, otitis media, and meningitis.

Concern	Solutions
Babies will fall off their mothers' beds.	<ul style="list-style-type: none"><li data-bbox="981 419 1848 539">■ Emphasize that newborns don't move.<li data-bbox="981 555 1921 943">■ If mothers are still concerned, arrange for beds to be put next to the wall or, if culturally acceptable, for beds to be put in pairs, with mothers placing babies in the centre.

Concern	Solutions
Full rooming-in, without more than half-hour separations, seems unfeasible because some procedures need to be performed on the babies outside their mothers' rooms.	<ul style="list-style-type: none"><li data-bbox="965 419 1895 807">■ Study these procedures well. Some are not needed. (Example: weighing baby before and after breastfeeding.) Other procedures can be performed in the mothers' rooms.<li data-bbox="965 823 1895 1070">■ Review advantages to mother and time saved by physician when infant is examined in front of mother.

The Ten Steps to successful breastfeeding: Actions, concerns and solutions - worksheet Example

STEP 7: Practice rooming-in.

Actions necessary to implement the step

- Make needed changes in physical facility. Discontinue nursery. Make adjustments to improve comfort, hygiene, and safety of mother and baby.
- Require and arrange for cross training of nursery and postpartum personnel so they all have the skills to take care of both baby and mother.
- Institute individual or group education sessions for mothers on mother-baby postpartum care. Sessions should include information on how to care for babies who are rooming-in.

Session 5 – HIV:

**Becoming Baby-friendly
in settings with high HIV
prevalence**

The ten steps to successful breastfeeding for settings where HIV is prevalent: Issues to consider

STEP 1: Have a written breastfeeding policy that is routinely communicated to all health care staff

- The hospital policy should promote, protect and support breastfeeding irrespective of the HIV infection rate within the population.
- The policy will need to be adapted so that providing appropriate support in the context of HIV is addressed.
- The policy should require the training of staff in HIV and infant feeding counselling.

STEP 1 (continued): Have a written breastfeeding policy that is routinely communicated to all health care staff

- The policy should include a recommendation that all pregnant and lactating women be offered or referred for HIV testing & counselling.
- The policy should require that the hospital offer counselling for HIV-positive pregnant women about feeding options.
- The policy should stress that full compliance with the “Code of Marketing of Breast-milk Substitutes” or a similar national measure is essential.
- The issue of confidentiality should be addressed in the policy.
- If there is a national level policy on infant feeding in the context of HIV the hospital policy should incorporate the national guidelines.

Step 2: Train all health care staff in skills necessary to implement this policy.

- Staff training needs may vary from facility to facility.
- If the hospital is already a baby-friendly hospital, then emphasis should be placed on refresher training related to HIV and infant feeding.
- If the facility has never implemented the BFHI then BFHI training will need to include guidance related to HIV and infant feeding, or additional training on this topic will need to be organized, requiring more time and training resources.
- Training may require a multi-sectoral training team from nutrition, HIV/AIDS and other MCH sections.
- If there are no master trainers available locally with experience in implementing BFHI in settings where HIV-positive mothers receive care, external trainers may be needed.

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

- WHO/UNAIDS recommends that pregnant women be offered VCT during antenatal care.
- Where VCT services do not yet exist, this will involve additional equipment, space, reagents, and staff time.
- Mothers may be HIV-infected but not know their status. They need to know their HIV status in order to make informed infant feeding choices.
- Pregnant women who are HIV-positive should be counselled about the benefits and risks of locally appropriate infant feeding options so they can make informed decisions on infant feeding.

Step 3 (continued): Inform all pregnant women about the benefits and management of breastfeeding.

- Mothers have to weigh the balance of risks: Is it safer to exclusively breastfeed for a period of time or to replacement feed, given the possibility of illness or death of a baby if not breastfed.
- Counsellors must be knowledgeable about the local situation relative to what replacement feeds are locally appropriate. They should be able to help mothers assess their own situations and choose feeding options.
- Counsellors need to recognize that the social stigma of being labelled as being “HIV-positive or having AIDS” may affect some mothers’ decisions on infant feeding.
- Counselling should be individual and confidential.

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

- All babies should be well dried, given to their mothers to hold skin-to-skin and covered, whether or not they have decided to breastfeed.
- Staff may assume that babies of HIV infected mothers must be bathed and even separated from their mothers at birth.
- They need to understand that HIV is not transmitted by mothers while they are holding their newborns - mothers need to be encouraged to hold and feel close and affectionate towards their newborn babies.
- HIV-positive mothers should be supported in using the feeding option of their choice. They shouldn't be forced to breastfeed, as they may have chosen to replacement feed without knowledge of the delivery room staff.

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

- Staff members will need to counsel mothers who have chosen to breastfeed (regardless of their HIV status) on how to maintain lactation by manual expression, how to store their breast milk safely, and how to feed their babies by cup.
- They will also need to counsel HIV-positive mothers on locally available feeding options and the risks and benefits of each, so they can make informed infant feeding choices.
- Staff members should counsel HIV-positive mothers who have chosen to breastfeed on the importance of doing it exclusively and how to avoid nipple damage and mastitis.
- Staff members should help HIV-positive mothers who have chosen to breastfeed to plan and implement early cessation of breastfeeding.

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

- Staff members will need to counsel HIV-positive mothers who have chosen replacement feeds on their preparation and use and how to care for their breasts while waiting for their milk to cease and how to manage engorgement.
- Mothers should have responsibility for feeding while in the hospital. Instructions should be given privately.
- Breast milk is particularly valuable for sick or low birth weight infants. Heat treating breast milk is an option.
- If there is a breast-milk bank, WHO guidelines will need to be followed for heat treatment of breast milk. Wet nursing is an option as well, if the wet nurse is given proper support.
- Staff members should try to encourage family and community support of HIV-positive mothers after discharge, but will need to respect the mothers' wishes in regards to disclosure of their status.

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

- Staff members should find out whether HIV-positive mothers have made a feeding choice and make sure they don't give babies of breastfeeding mothers any other food or drink.
- Being an HIV-positive mother and having decided not to breastfeed is a medical indication for replacement feeding.
- Staff members should counsel HIV-positive mothers who have decided to breastfeed on the risks if they do not exclusively breastfeed. Mixed feeding brings both the risk of HIV from breastfeeding and other infections.
- Even if many mothers are giving replacement feeds, this does not prevent a hospital from being designated as baby-friendly, if those mothers have all been counselled and offered testing and made genuine choices.

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

- In general it is best that HIV-positive mothers be treated just like mothers who are not HIV-positive and provided the same post partum care, including rooming-in/bedding-in. This will be best for the mothers and babies and will help protect privacy and confidentiality concerning their status.
- HIV-positive mothers who have chosen not to breastfeed should be counselled as to how to have their babies bedded in with them, skin-to-skin, if they desire, without allowing the babies access to the breast. General mother-to-child contact does not transmit HIV.
- Staff members who are aware of an HIV-positive mother's status need to take care to ensure that she is not stigmatised or discriminated against. If confidentiality is not insured, mothers are not likely to seek the services and support they need.

Step 8: Encourage breastfeeding on demand.

- This step applies to breastfeeding mothers regardless of their HIV status.
- Babies differ in their hunger. The individual needs of both breastfed and artificially fed infants should be respected and responded to.

Step 9: Give no artificial teats or pacifiers.

- This step is important regardless of mothers' HIV status and whether they are breastfeeding or replacement feeding.
- Teats, bottles, and pacifiers can carry infections and are not needed, even for the non-breastfeeding infant. They should not be routinely used or provided by facilities.
- If hungry babies are given pacifiers instead of feeds, they may not grow well.
- HIV-positive mothers who are replacement feeding need to be shown ways of soothing other than giving pacifiers.
- Mothers who have chosen to replacement feed should be given instructions on how to cup feed their infants and the fact that cup feeding has less risk of infection than bottle-feeding.

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

- The facility should provide information on MTCT and HIV and infant feeding to support groups and others providing support for HIV-positive mothers in the community.
- The facility should make sure that replacement-feeding mothers are followed closely in their communities, on a one-to-one basis to ensure confidentiality. In some settings it is acceptable to have support groups for HIV-positive mothers.
- HIV-positive mothers are in special need of on-going skilled support to make sure they continue the feeding options they have chosen. Plans should be made before discharge.
- The babies born to HIV-positive mothers should be seen at regular intervals at well baby clinics to ensure appropriate growth and development.

**The Ten Steps to successful breastfeeding
for settings where HIV is prevalent:
Actions, concerns and solutions - worksheet
Example**

**STEP 1: Have a written breastfeeding policy that is
routinely communicated to all health care staff**

Actions necessary to implement the step

STEP 1: Have a written breastfeeding policy that is routinely communicated to all health care staff

Common concerns and solutions

Concerns	Solutions

**The ten steps to successful breastfeeding
for settings where HIV is prevalent :
Actions, concerns and solutions - worksheet
Example**

STEP 7: Practice rooming-in.

Common concerns and solutions

Concern	Solutions
It's difficult to supervise the condition of a baby who is rooming-in. In the nursery one staff member is sufficient to supervise several babies.	<ul style="list-style-type: none">■ Assure staff that babies are better off rooming-in with their mothers, with the added benefits of security, warmth, and feeding on demand.■ Stress that 24-hour supervision is not needed. Periodic checks and availability of staff to respond to mothers' needs are all that are necessary.

Concern	Solutions
Infection rates will be higher when mothers and babies are together than when they are in a nursery.	<ul style="list-style-type: none"><li data-bbox="992 422 1865 742">■ Stress that danger of infection is reduced when babies remain with mothers than when in a nursery and exposed to more caretakers.<li data-bbox="992 758 1865 1212">■ Provide staff with data showing that infection rates are lower with rooming-in and breastfeeding, for example, from diarrhoeal disease, neonatal sepsis, otitis media, and meningitis.

Concern	Solutions
Babies will fall off their mothers' beds.	<ul style="list-style-type: none"><li data-bbox="981 421 1854 539">■ Emphasize that newborns don't move.<li data-bbox="981 555 1926 944">■ If mothers are still concerned, arrange for beds to be put next to the wall or, if culturally acceptable, for beds to be put in pairs, with mothers placing babies in the centre.

Concern	Solutions
<p>Full rooming-in, without more than half-hour separations, seems unfeasible because some procedures need to be performed on the babies outside their mothers' rooms.</p>	<ul style="list-style-type: none"><li data-bbox="965 419 1899 807">■ Study these procedures well. Some are not needed. (Example: weighing baby before and after breastfeeding.) Other procedures can be performed in the mothers' rooms.<li data-bbox="965 823 1899 1070">■ Review advantages to mother and time saved by physician when infant is examined in front of mother.

Concern	Solutions
<p>A mother in the postnatal ward may be seen by others while she is replacement feeding her infant, and confidentiality will be hard to protect.</p>	<ul style="list-style-type: none"><li data-bbox="965 419 1912 879">■ For an HIV-positive mother who chooses replacement feeding it is likely others will notice, but she has been counselled and has already decided how she will make this change in her life even after she has left the maternity.<li data-bbox="965 879 1912 1211">■ For an HIV-positive mother who chooses breastfeeding, she should be supported to exclusively breastfeed and there should be no obvious difference in her care.

**The ten steps to successful breastfeeding
for settings where HIV is prevalent :
Actions, concerns and solutions - worksheet
Example**

STEP 7: Practice rooming-in.

Actions necessary to implement the step

- Make needed changes in physical facility. Discontinue nursery. Make adjustments to improve comfort, hygiene, and safety of mother and baby.
- Require and arrange for cross training of nursery and postpartum personnel so they all have the skills to take care of both baby and mother.
- Institute individual or group education sessions for mothers on mother-baby postpartum care. Sessions should include information on how to care for babies who are rooming-in.
- Protect privacy and confidentiality of a mother's HIV status by providing the same routine care to ALL mothers and babies, including rooming-in/bedding-in, so that no one is stigmatised or set apart as different.

Session 6:

Costs and savings

Breastfeeding promotion:

**Costs and savings
for health facilities**

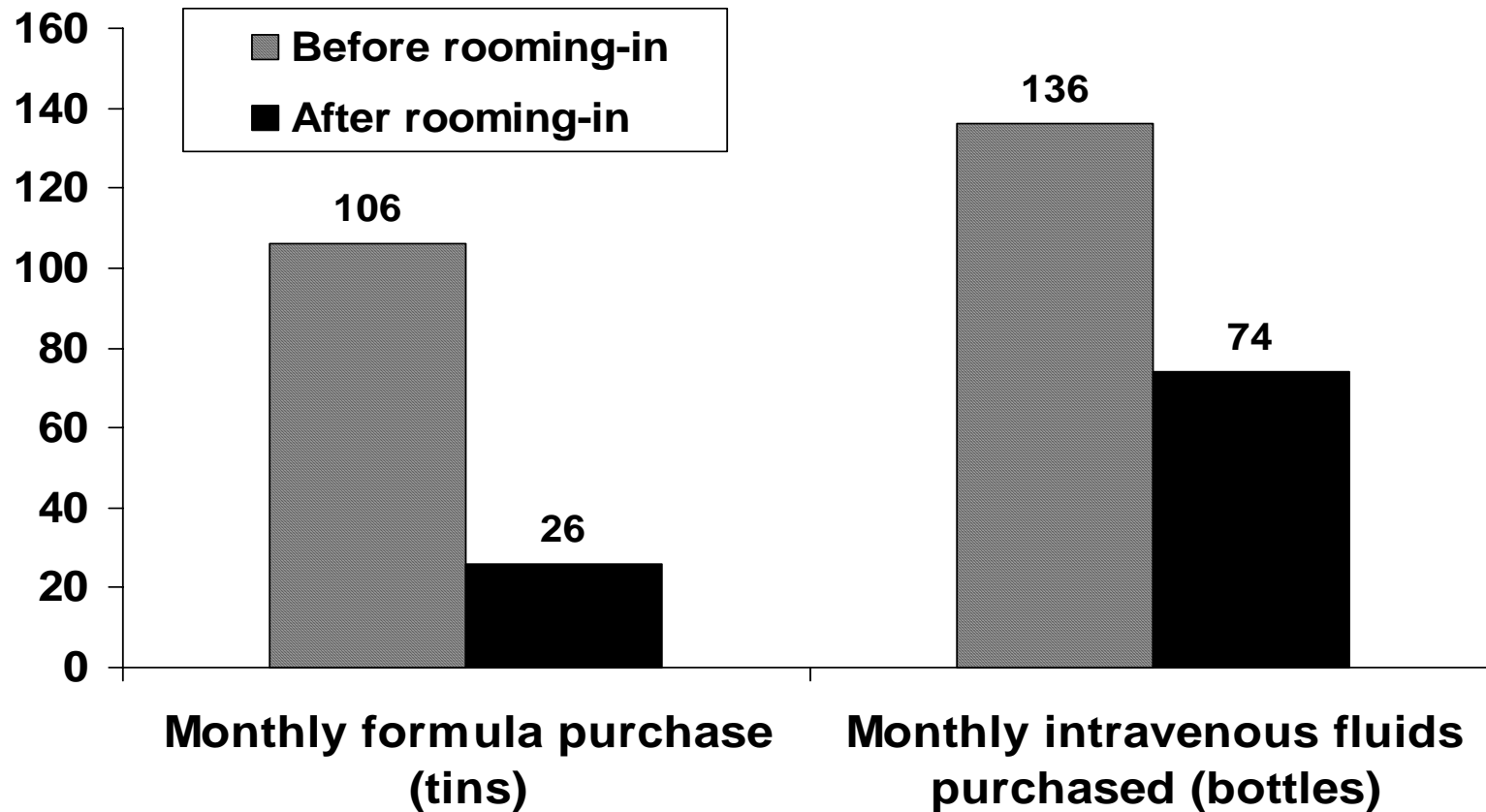
The Maternal and Child Hospital in Tegucigalpa, Honduras, with approximately 12,000 deliveries a year, instituted an intensive breastfeeding promotion and rooming-in programme which resulted in major savings for:

■ Formula:	\$8,500
■ Bottles:	\$7,500
■ Glucose Solution:	\$1,500
■ Oxytocin (Methergine):	\$1,000

The change saved the hospital \$16,500 annually

Adapted from: Huffman SL et al. *Breastfeeding Promotion in Central America: High Impact at Low Cost*. Washington D.C., Nutrition Communication Project, AED, 1991.

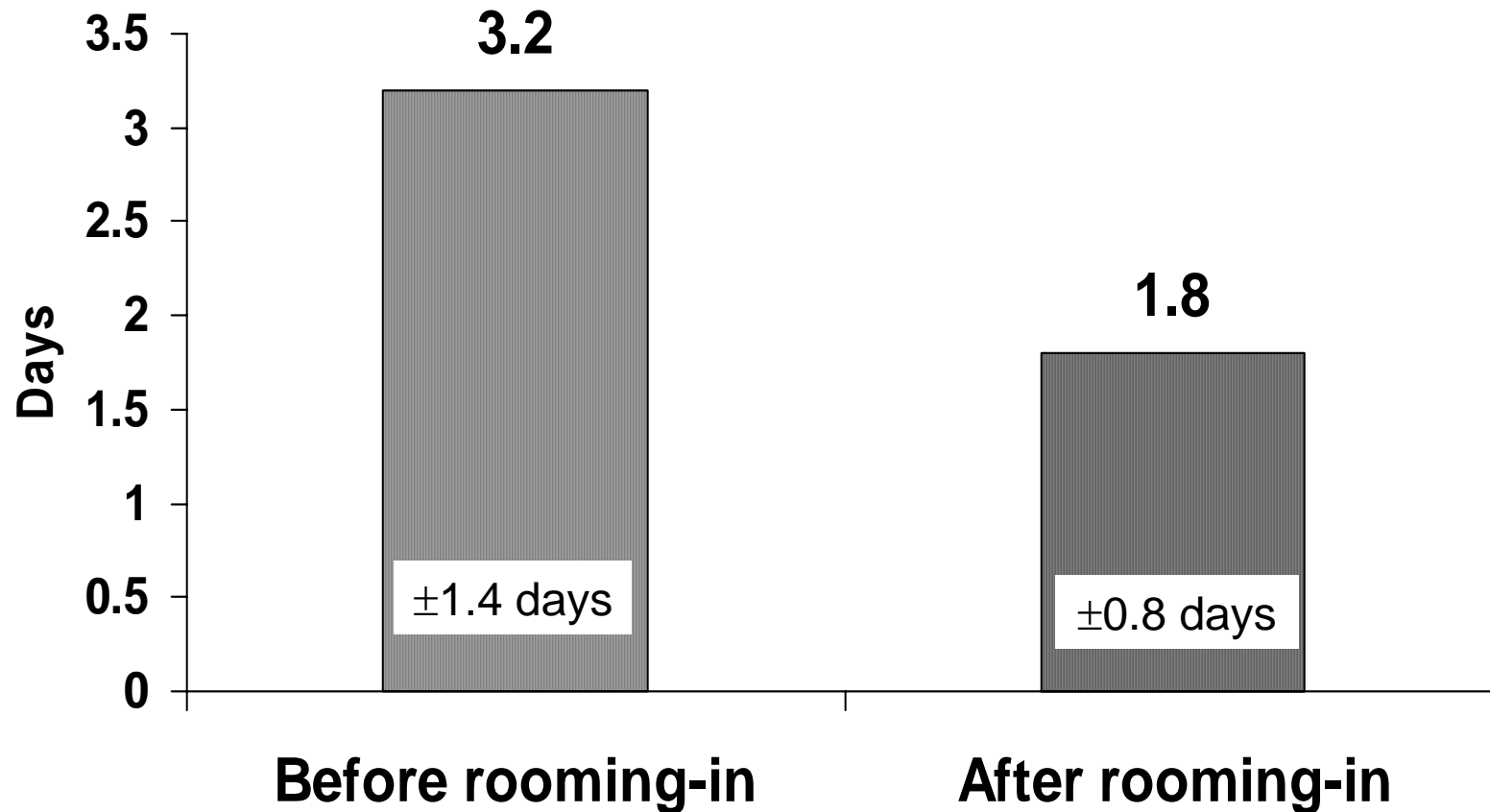
Cost savings realized through intensified rooming-in programme at Sanglah Hospital, Indonesia*



*Annual deliveries 3,000-3,500

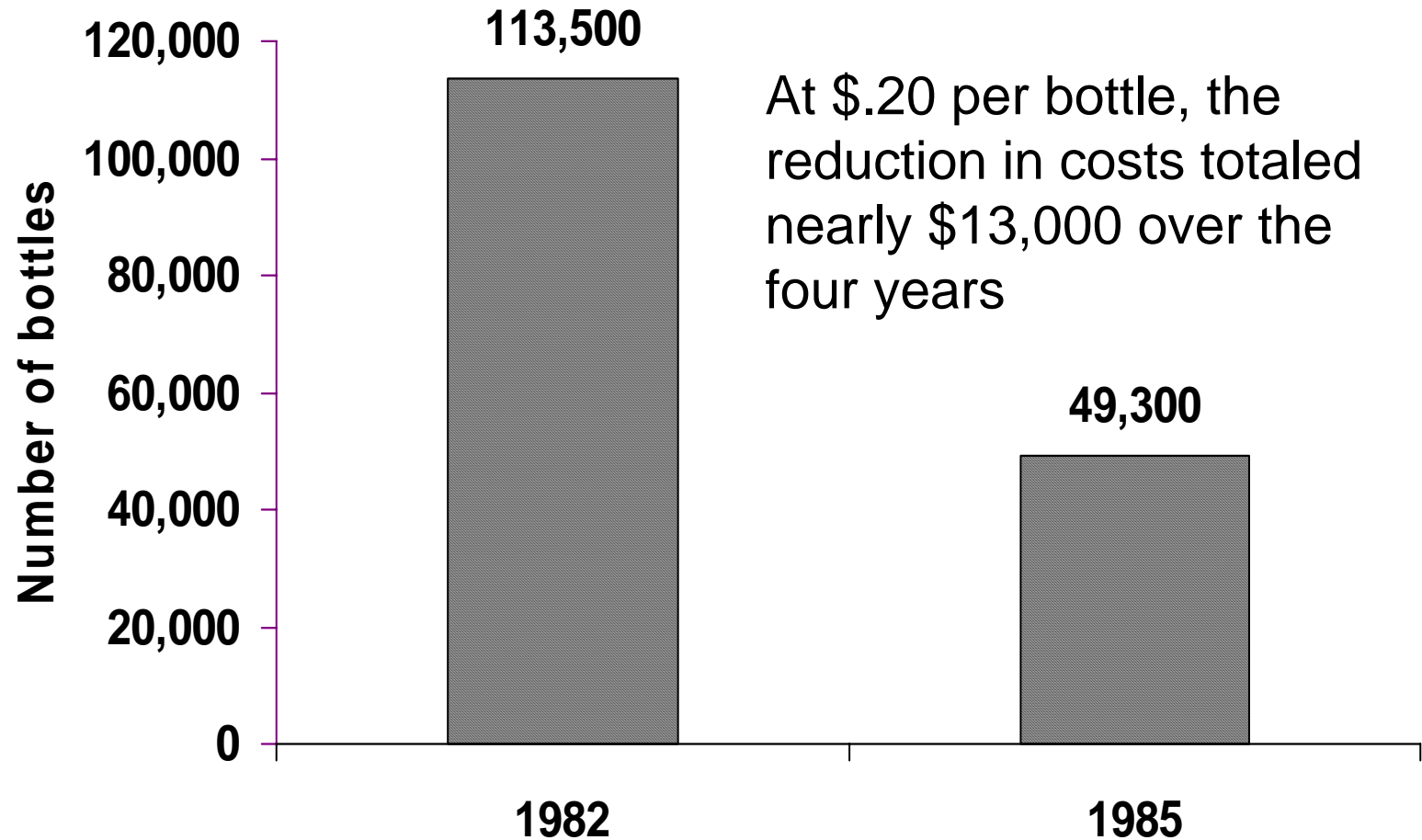
Adapted from: Soetjningsih and Sudaryat Suraatmaja. The advantages of rooming-in. *Paediatrica Indonesiana*, 1986, 26:229-35.

Average length of newborn hospitalization Sanglah Hospital, Indonesia



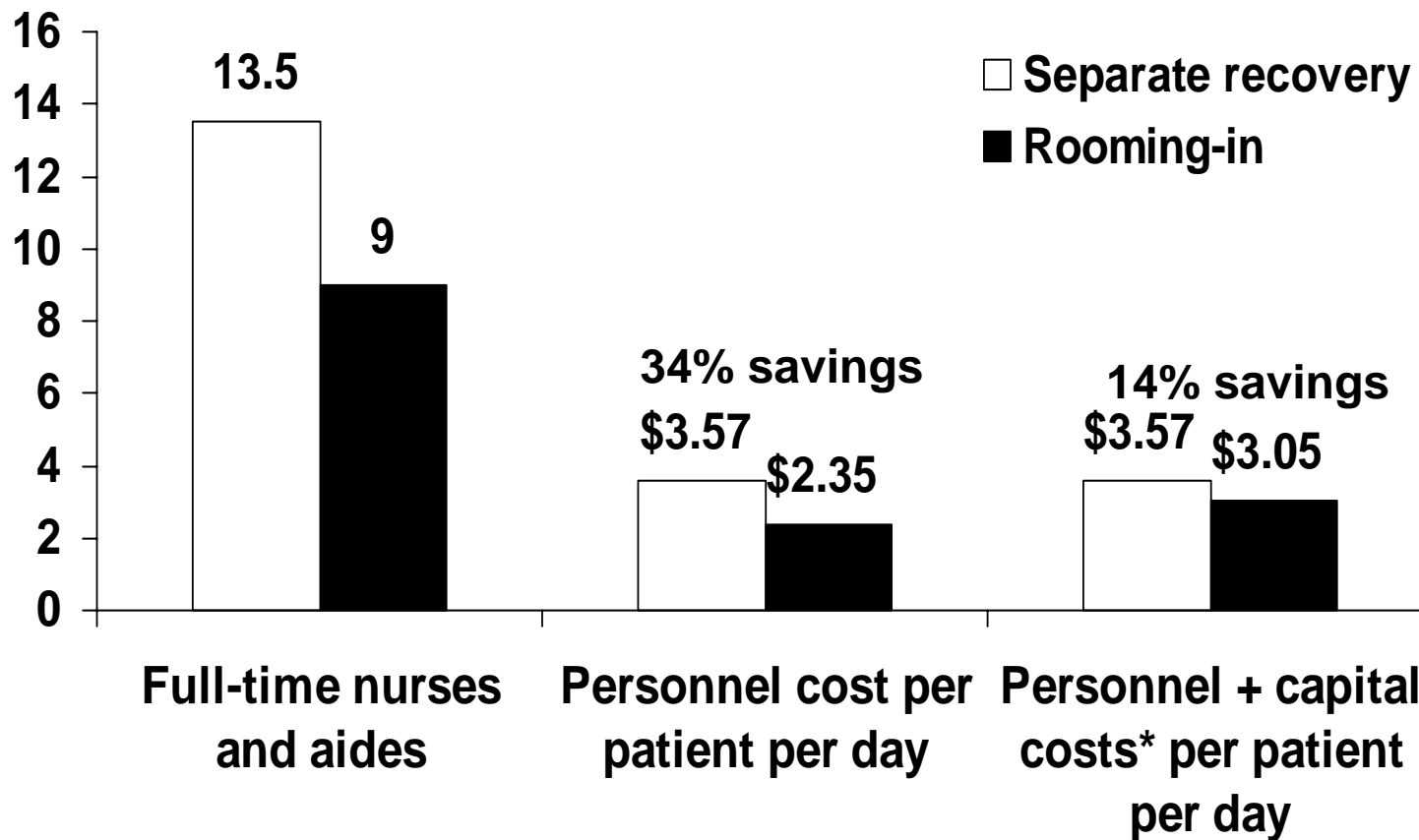
Adapted from: Soetjiningsih and Sudaryat Suraatmaja. The advantages of rooming-in. *Paediatrica Indonesiana*, 1986, 26:229-35.

Cost savings due to breastfeeding promotion activities at Hospital Santo Tomas in Panama City



Adapted from: Levine & Huffman. *The Economic Value of Breastfeeding, The National, Public Sector, Hospital, and Household Levels, A Review of the Literature*. Washington D.C., Nuture/Center to Prevent Childhood Malnutrition, 1990.

Cost savings of rooming-in compared to separate recovery rooms at the Clinical Hospital of the Catholic University of Chile



Adapted from Valdes et al. The impact of a hospital and clinic-based breastfeeding promotion programme in a middle class urban environment. *Journal of Tropical Pediatrics*. 1993, 39:142-151.

Cost analysis of maintaining a newborn nursery at the Dr. Jose Fabella Memorial Hospital

Hospital Statistics:

Average daily deliveries: 100 babies

Daily newborn census: 320 babies

Adapted from: Gonzales R. Cost Analysis of Maintaining a Newborn Nursery at Dr. Jose Fabella Memorial Hospital, Manila. (Transparencies presented in meeting in Manila, Philippines), 1990.

Transparency 6.7

Summary of costs for maintaining a newborn nursery

<i>Feeding bottle sets/year</i>	
<i>124,800 x 20 P =</i>	<i>2,496,000 P</i>
<i>Milk formula cans/year</i>	
<i>17,521 x 36 P =</i>	<i>630,720 P</i>
<i>Salary of nursing staff/year</i>	
<i>900 x 3,000 P x 12 =</i>	<i>3,240,000 P</i>
<i>Salary of formula room staff/year</i>	
<i>6 x 2,000 P x 12 =</i>	<i>144,000 P</i>
<hr/>	
<i>Total</i>	<i>6,510,720 P</i> <i>(310,037 USD)</i>

Not included:

- *Cost of electricity*
- *Cost of water*
- *Cost of detergents*
- *Cost of diapers*
- *Cost of bassinets*
- *Cost of cleaning utensils*

How much is this of the hospital budget?

$$\begin{array}{l} \text{Cost} = \\ \text{Budget} = \end{array} \frac{6,510,720 \text{ P}}{73,000,000 \text{ P}} = \mathbf{8\%}$$

The savings of 8% of the hospital budget is now converted into:

- *Availability of drugs and medicines at all times*
- *Improved food and nourishment for patients*
- *Availability of blood in times of emergency*
- *Fresh linens and gowns for patients*
- *Additional nursing staff to attend to patients.*

Creative ways to minimize costs or use existing resources

Part 1

- Reassign staff from the normal newborn nursery and formula room to provide mother/baby care and education on the rooming-in wards.
- Organize a group of volunteers to provide breastfeeding counselling on the rooming-in wards or ask a local mother support organization to provide this service. (Provide training and written guidelines for the volunteers to insure quality.)

Creative ways to minimize costs or use existing resources

Part 2

- “Bed-in” babies with their mothers rather than providing them with cribs or bassinets if culturally acceptable.
- Use a simple refrigerator for breast milk storage and free or low cost containers for cup-feeding.
- Teach mothers, who are staying in the hospital so they can breastfeed their premature or sick babies, also how to help provide care for their babies.

Breastfeeding promotion:

**Costs and savings
for families**

Exercise: The percentage of wages needed to feed formula to an infant for six months

Calculation

Brand of formula:

Cost of one 500g tin of formula:

Cost of 40 x 500g tins of formula (amount needed for 6 months):

Average (or minimum) wage
1 month:

6 months:

Cost of 40 x 500g tins of formula X 100 =%

Average (or minimum) wage
for 6 months

Answer: To feed a baby on _____ formula costs:
_____ % of the average (or minimum) wage

Adapted from: WHO/UNICEF. *Breastfeeding Counselling: A Training Course, Trainer's Guide*. pages 420-421, Geneva, World Health Organization, 1993.

Exercise: The percentage of urban and rural wages needed to feed formula to an infant for six months

Calculation

Brand of formula:	
Cost of one 500g tin of formula:	x 40 tins =
Average (or minimum) wage	Agricultural	Urban
1 month:
6 months:
<u>Cost of 40 x 500g tins of formula</u>	<u>.....</u>	X 100 =%
Agricultural wage for 6 months	
<u>Cost of 40 x 500g tins of formula</u>	<u>.....</u>	X 100 =%
Urban wage for 6 months	

Answers: To feed a baby on _____ formula costs:
 _____% of the agricultural wage

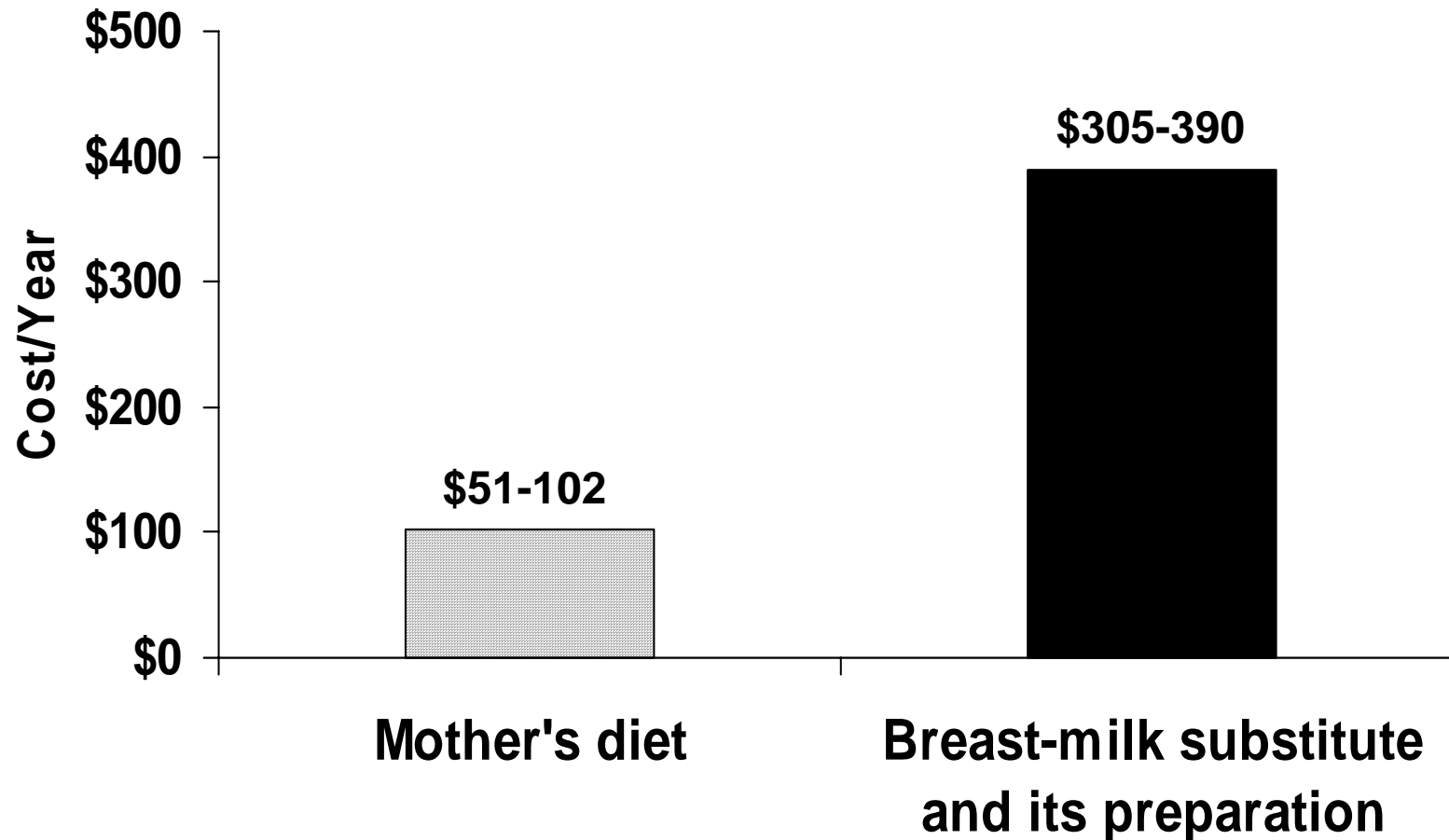
To feed a baby on _____ formula costs:
 _____% of the urban wage

Costs of breast-milk substitutes and comparisons with minimum wages

Country	Cost per kg (in US\$)	Cost per month (in US\$)	Minimum wage per month (in US\$)	% of wage per month
New Zealand	8.78	36.00	764	5
Germany	16.40	67.24	1149	6
Malaysia	7.42	30.42	143	21
Poland	24.51	100.49	394	26
Slovakia	8.33	34.15	79	43
Indonesia	6.73	27.60	55	50

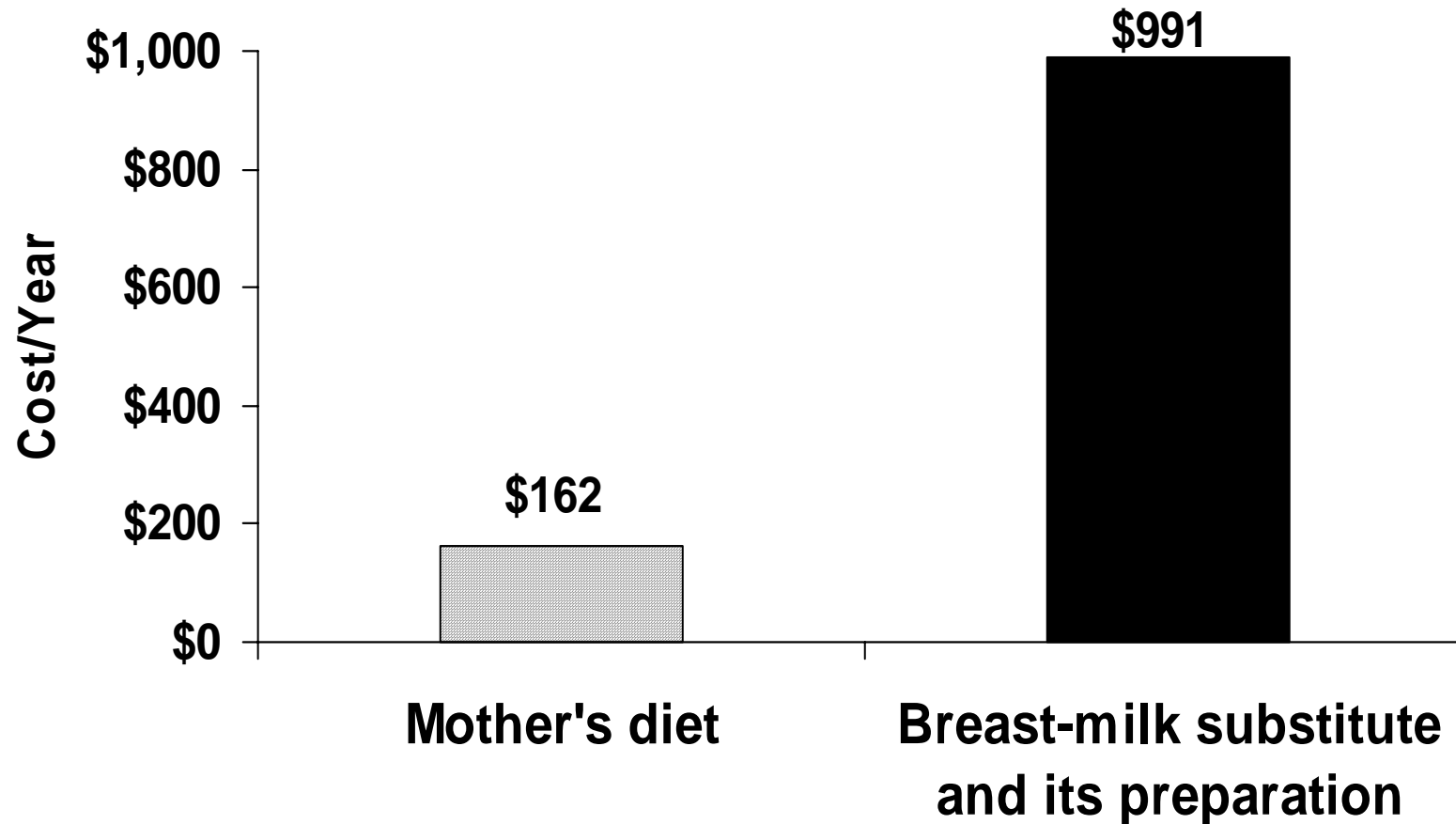
Adapted from: Gupta and Khanna. Economic value of breastfeeding in India. *The National Medical Journal of India*, 1999, May-June 12(3):123-7.

Cost for feeding breastfeeding mother versus feeding baby breast-milk substitutes Côte d'Ivoire



Adapted from: Nurture, The Economic Value of Breastfeeding: Four Perspectives for Policymakers. *Center to Prevent Childhood Malnutrition Policy Series*, 1990, 1(1):1-16, September.

Cost for feeding breastfeeding mother versus feeding baby breast-milk substitutes France



Adapted from: Bitoun. The Economic Value of Breastfeeding in France. *Les Dossiers de l'Obstetrique*, 1994, 216:10-13.

Household savings from breastfeeding in Singapore

- Cost of breastfeeding =
 - Costs of additional food for lactating mother *plus*
 - Value of mother's time for breastfeeding

- Cost of artificial feeding =
 - Cost of goods needed to feed artificially (milk, bottles, fuel, utensils) *plus*
 - Value of time of each person participating in feeding

Adapted from: Fok et al. The economics of breastfeeding in Singapore. *Breastfeeding Review: Professional Publication of the Nursing Mothers' Association of Australia*, 1998, 6(2):5-9.

Household savings for the first 3 months of life if breastfeeding, for 15,410 babies born in Kendang Kerbau Hospital in Singapore:

- **Low cost model*:** \$4,078,102
(\$264 per infant)
- **High cost model*:** \$7,453,817
(\$483 per infant)

* The low cost model used low or average costs for formula, feeding supplies, sterilization, and wages. The high cost model used higher costs for the same items.

Adapted from: Fok et al. The economics of breastfeeding in Singapore. *Breastfeeding Review: Professional Publication of the Nursing Mothers' Association of Australia*, 1998, 6(2):5-9.

Breastfeeding promotion:

**Costs and savings
at the health care system
and the national level**

Comparative health care costs of treating breastfed and formula-fed babies in the first year of life in a health maintenance organization (HMO)

When comparing health statistics for 1000 never breastfed infants with 1000 infants exclusively breastfed for at least 3 months, the never breastfed infants had:

- 60 more lower respiratory tract illnesses
- 580 more episodes of otitis media, and
- 1053 more episodes of gastrointestinal illnesses

Adapted from: Ball and Wright. Health care costs of formula-feeding in the first year of life. *Pediatrics*, 1999, April, 103(4 Pt 2):870-6.

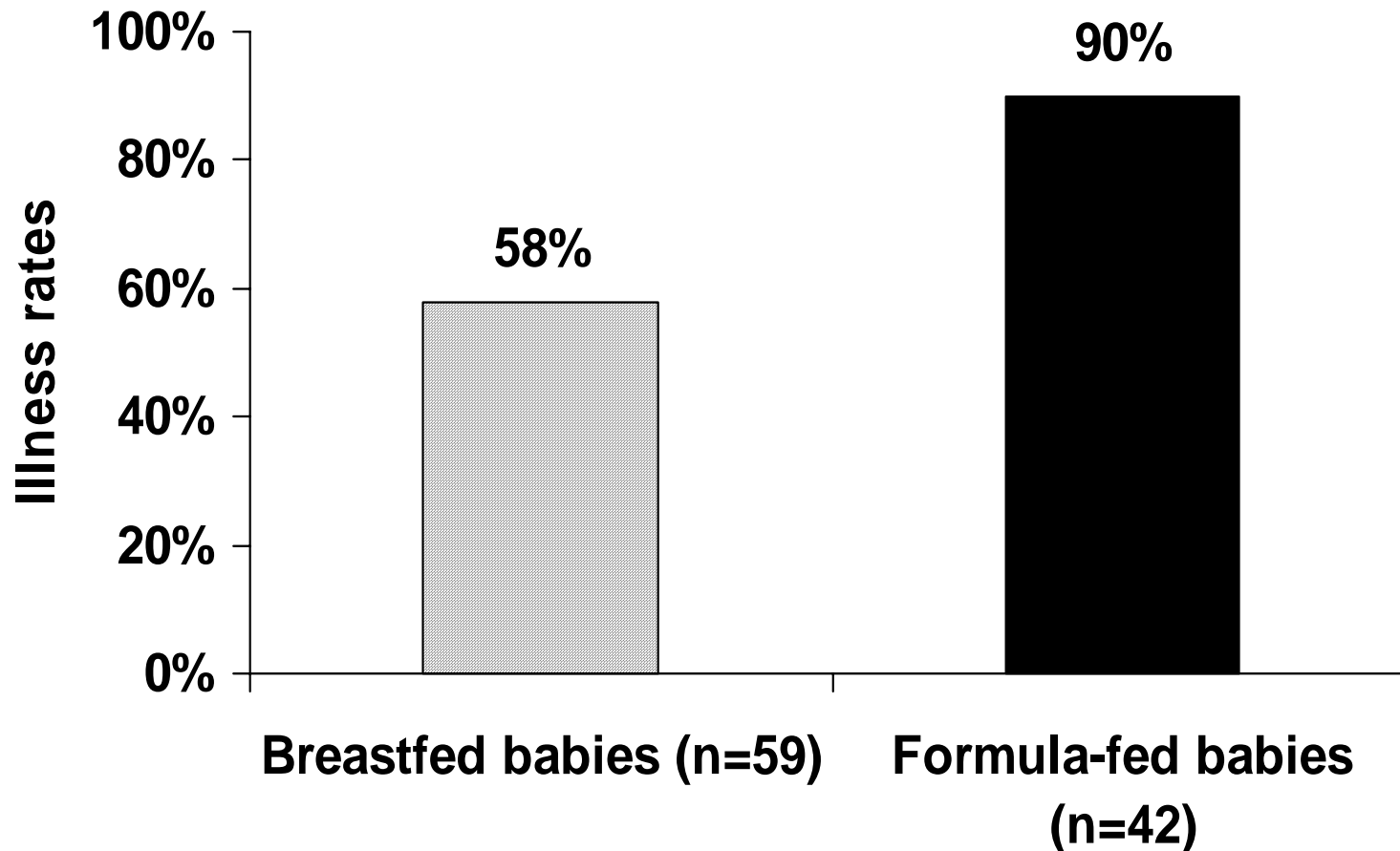
In addition, the 1000 never-breastfed infants had:

- 2033 excess office visits
- 212 excess hospitalizations
- 609 excess prescriptions

These additional health care services cost the managed care system between \$331 and \$475 per never-breastfed infant during the first year of life.

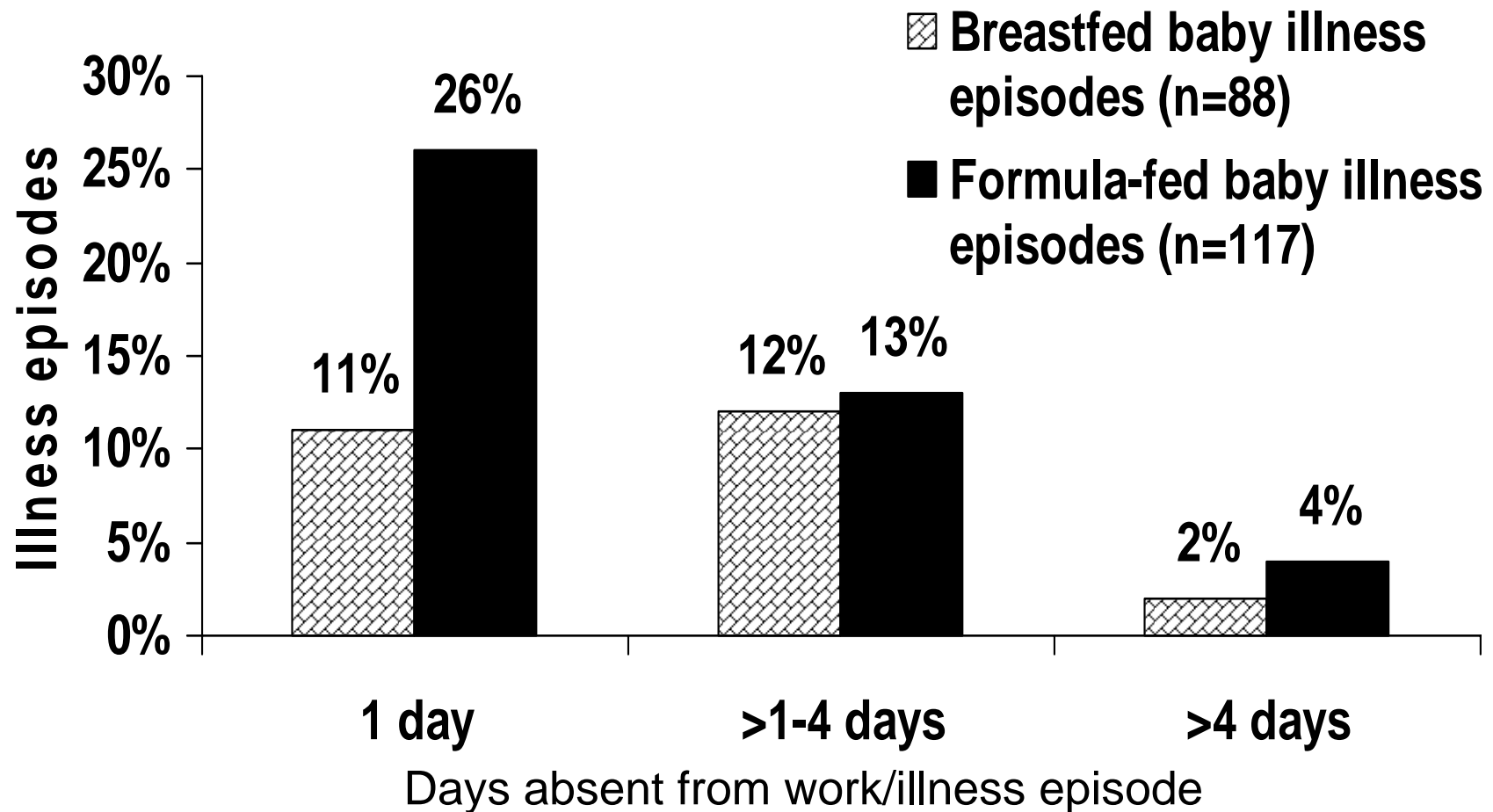
Adapted from: Ball and Wright. Health care costs of formula-feeding in the first year of life. *Pediatrics*, 1999, April, 103(4 Pt 2):870-6.

Illness rates among breastfeeding & formula-feeding infants of mothers working in two corporations in the U.S.



Adapted from: Cohen et al. Comparison of maternal absenteeism and illness rates among breastfeeding and formula-feeding women in two corporations. *AJHP*, 1995, 10(2):148-153.

Distribution of illness episodes and maternal absenteeism by nutritional groups



Adapted from: Cohen et al. Comparison of maternal absenteeism and illness rates among breastfeeding and formula-feeding women in two corporations. *AJHP*, 1995, 10(2):148-153.

The value of breast milk to the national economy in India

- National production of breast milk by all mothers in India for the children they were breastfeeding at the time of the estimate was about 3944 million liters over 2 yrs.
- If the breast milk produced were replaced by tinned milk, it would cost 118 billion Rupees.
- If imported, the breast-milk substitutes would cost 4.7 million USD.
- If breastfeeding practices were optimal, breast milk production would be twice the current amount, doubling the savings by fully utilizing this “national resource”.

Adapted from: Gupta and Khanna. Economic value of breastfeeding in India. *The National Medical Journal of India*, 1999, May-June 12(3):123-7.

Savings from 3 childhood illnesses if exclusive breastfeeding rates were increased to levels recommended by the Surgeon General in the U.S.*

Condition	Costs included	Savings in \$
Otitis media	Surgical & nonsurgical treatment and lost time and wages.	\$ 365,077,440
Gastroenteritis	Physician visits, lost wages, childcare, and hospitalization	\$ 9,941,253
Necrotizing Enterocolitis (NEC)	Surgical treatment, lost wages, and value of premature death	\$3,279,146,528
TOTAL:		Over \$3.6 billion

* Current levels of EBF were 64% after delivery and 29% at 6 months. Recommended levels are 75% after delivery and 50% at six months.

Adapted from: Weimer. *The economic benefits of breastfeeding: A review and analysis*, Food Assistance & Nutrition Research Report No. 13. Wash.D.C., USDA, 2001.

Savings from potential increases in exclusive breastfeeding in England and Australia

- In England and Wales it has been estimated that the National Health Service spends £35 million per year in treating gastroenteritis in bottle-fed infants.
- For each 1% increase in breastfeeding at 13 weeks, a savings of £500,000 in treatment of gastroenteritis would be achieved.
- In Australia, in just one territory, hospital costs attributable to early weaning for five illnesses have been estimated to be about \$1-2 million a year.

Adapted from: Dept. of Health. *Breastfeeding: Good practice guidance to the NHS*. London, United Kingdom of Great Britain, 1995, and Smith et al., Hospital system costs of artificial feeding: Estimates for the Australian Capital Territory, *Aust N Z J Public Health*, 2002 26(6):543-51.

**A full case study of costs and savings from
breastfeeding and promotional activities in El Salvador:
Total annual benefits to the public sector from current
levels of breastfeeding**

Source of benefit	Total annual amount
Infant diarrhoea cases prevented	\$456,130
Infant ARI cases prevented	\$839,583
Births averted (delivery costs)	\$1,224,328
Breastmilk substitutes use averted	\$288,337
TOTAL	\$2,808,378

Adapted from: Wong et al. *An Analysis of the Economic Value of Breastfeeding in El Salvador, Policy & Technical Monographs*. Washington D.C., Wellstart Intl. and Nuture, 1994.

Annual costs and benefits for current and intensified activities to promote breastfeeding (El Salvador)

Current activities:

- Advocacy/monitoring
- Hospital-based promotion
- PHC facility & community promotion
- Information, education & communication

Current cost: **\$32,000**

Additional cost for intensified activities: **\$90,188**

Estimated benefit of intensified activities:

- Increase in exclusive breastfeeding among infants under 6 months from **15% to 30%**

Adapted from: Wong et al. *An Analysis of the Economic Value of Breastfeeding in El Salvador, Policy & Technical Monographs*. Washington D.C., Wellstart Intl. and Nuture, 1994

Net benefits from breastfeeding promotion: Comparison of the current and an intensified programme (El Salvador)

	Current	Additional under alternative
Benefits	\$2,808,378	\$714,328
Costs	\$32,830	\$90,188
Net benefits	\$2,775,558	\$624,140

Adapted from: Wong et al. *An Analysis of the Economic Value of Breastfeeding in El Salvador, Policy & Technical Monographs*. Washington D.C., Wellstart International and Nuture, 1994

Session 8:

Developing action plans

Action Plan

Action	Timing	Responsibility

Action Plan

Action	Timing	Responsibility
<p>Step 1: Policy Appoint a committee with reps from prenatal care, L&D, post-partum wards and neo-natal intensive care to improve hospital BF/IF policy. (Include HIV guidelines.)</p>	<p>2 months after return from course</p>	<p>Hospital administrator to appoint committee</p>
<p>Hold annual sessions for all maternity staff to orient them to new BF/IF policy</p>	<p>Each January</p>	<p>Chief nursing officer from maternity services</p>
<p>Include review of BF/IF policy in orientation for all new staff</p>	<p>As needed</p>	<p>Staff providing orientation</p>

Action Plan (continued)

Action	Timing	Responsibility
Post new policy in all relevant units	After policy finalized	Chief nursing officer
Prepare policy summary for mothers, including pictorial version for non-literate clients	Same	TBD
Distribute policy to all women during first counselling session	On-going	Staff counsellors