Session 6:
Costs and savings

Objectives

At the conclusion of this session, participants will be able to:

- Describe the potential costs and savings related to converting to and maintaining Baby-friendly health facilities.
- Suggest several creative ways to minimize costs or use existing resources when implementing the Ten Steps.
- Describe how they would estimate costs and savings related to breastfeeding protection, promotion and support within their own health facilities.
- Discuss the costs and savings related to breastfeeding protection, promotion and support for the family, the larger health system, and the country (optional).

Duration

Costs and savings in health facilities (including in participants' own institutions): 50 minutes
Costs and savings for the family: 15-30 minutes (optional)
Costs and savings at the health system and national level: 15 minutes (optional)
Costs and savings related to breastfeeding promotion (discussion): 10 minutes

Total: 1 to 1¾ hours

Teaching methods

Presentation
Group work
Discussion

Preparation for session

- Review the slides/transparencies provided with the session plan. They present data on costs and savings in both non-industrialized and industrialized country settings. You may want to use only a selected set of the slides/transparencies in the session, emphasizing those with most relevance to your own situation.
- Prepare additional slides/transparencies presenting costs and savings data from your own country or region, if feasible. Using local and national data in this session will greatly enhance its relevance for the participants. If information is not readily available, the process of collecting it should begin several weeks before the course.

- A miniature version of the slide/transparency presentation has been included as a handout for participants. If a number of slides/transparencies are omitted from the presentation and/or other slides or transparencies are included, consider adjusting the handout as well.
- After reviewing the entire session, decide whether to include sections 4 and 5, which focus on costs and savings at the family, health system and national levels. Costs and savings at the health facility level (examined in sections 1-3) are especially relevant for health facility administrators. If your audience includes health care policy-makers responsible for decisions related to the larger health care system, sections 4 and 5 may be of particular interest to them. If there is a need to shorten the session, consider omitting some or all of the material in these last sections.
- If you plan to include the exercise described in section 4, decide whether to use Slide/transparency 6.15 or 6.16 and Handout 6.4a or 6.4b, depending on whether there are different average or minimum wages for urban and rural areas of the country, and gather the data needed for the exercise on costs of various brands of formula and average or minimum wages. Before the session begins adjust whichever handout you will use so it uses formula "tins" of a weight commonly found locally (for example 500g tins or 450g tins) and adjust the number needed so 20 Kg of formula will be provided in the first six months (for example 40 500g tins or about 44 450g tins). Then fill in the information concerning brands of formula and their costs, as well as average (or minimum) wages.

Training materials

Summaries

Available summaries of research studies presented in Session 6

Handouts

6.1 Presentation for session 6
6.2 Cost analysis of maintaining a newborn nursery at the Dr. Jose Fabella Memorial Hospital
6.3 Table 1: Potential costs and savings associated with breastfeeding promotion in health facilities (organized according to the Ten Steps)
6.4a: Exercise: The percentage of wages needed to feed formula to an infant for six months
6.4b: Exercise: The percentage of urban and rural wages needed to feed formula to an infant for six months.

Slides/transparencies

6.1 - 6.32

The website featuring this Course contains links to the slides and transparencies for this session in two Microsoft PowerPoint files. The slides (in colour) can be used with a laptop computer and LCD projector, if available. Alternatively, the transparencies (in black and white) can be printed out and copied on acetates and projected with an overhead projector. The transparencies are also reproduced as the first handout for this session, with 6 transparencies to a page.

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* References used in the Session Plan.

Outline

Content	Trainer's Notes
1. Costs and savings from breastfeeding promotion in health facilities	***Presentation and discussion: 10 minutes***
■ Brief examples of savings from breastfeeding promotion and rooming-in in health facilities:	Mention that a mini-version of the presentation is reproduced in Handout 6.1 and included in the participants' folder. Show slide/transparency 6.1, which provides the heading for this part of the session focusing on costs and savings for health facilities, and then show slides/transparencies with examples of savings from breastfeeding promotion in health facilities. If possible, use slides/transparencies showing data from your own country or region. If desired, use some or all of the slides/transparencies below which provide additional examples from a variety of countries:
▪ A reduced need for infant formula, bottles, glucose and oxytocin in the Maternal and Child Hospital in Tegucigalpa, Honduras *(Huffman et al.).*	Slide/transparency 6.2
▪ Reduced formula purchases and intravenous fluids used at Sanglah Hospital in Indonesia *(Soetjiningssih & Suraatmaja).*	Slide/transparency 6.3
▪ Reduced length of newborn hospitalization at Sanglah Hospital in Indonesia *(Soetjiningssih & Suraatmaja).*	Slide/transparency 6.4
▪ Decreased use of bottles in the newborn nursery in Hospital Santo Tomas in Panama City *(Levine et al.)*	Slide/transparency 6.5
▪ Decreased need for staff in the Clinical Hospital of the Catholic University in Chile *(Valdes et al.)*	Slide/transparency 6.6 Emphasize, if appropriate, that staff don't have to be laid off but can be reassigned to other important tasks.
■ Cost analysis of maintaining a newborn	Show slides/transparencies 6.7 - 6.11 and refer

Content	Trainer's Notes
nursery at the Dr. Jose Fabella Memorial Hospital ■ Calculation of recurrent costs for maintenance of a nursery for normal newborns with formula feeding compared to the current system of rooming-in and intensified breastfeeding promotion *(Gonzales)*.	participants to Handout 6.2. Inform the participants that the Medical Director of Fabella Hospital made this estimation of savings resulting from conversion to rooming-in at the hospital by calculating what extra costs in current prices would be involved in maintaining a full system of nursery care and formula feeding as compared to rooming-in. Review the summary of costs for maintaining the nursery presented in the slides/transparencies and suggest that the participants look later at Handout 6.2 if they are interested in additional details on how the calculations were made. Mention that costs for converting to rooming-in (such as for training and physical changes) need to be calculated as well. Ask for questions or comments from the participants.
2. Creative ways to minimize costs or use existing resources when implementing the Ten Steps	***Presentation and discussion: 10 minutes***
■ Presentation of examples from a variety of countries of ways to minimize costs or use existing resources: ■ Reassign staff from the normal newborn nursery and/or 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 wards or ask a local mother-support organization to provide this service. (Provide training and written guidelines for the volunteers to insure quality.) ■ "Bed-in" babies with their mothers, if culturally acceptable, rather than providing them with cribs or bassinets ■ Use a simple refrigerator for breast milk storage and low-cost containers for cup-feeding ■ Counsel mothers, who are staying in	Show slides/transparencies 6.12 and 6.13 and describe the examples of creative ways to minimize costs or use existing resources when implementing the Ten Steps. Stress the fact that what is appropriate and feasible will vary from country to country and that these examples are presented simply to provide ideas on ways health facilities might cut costs as they implement the Ten Steps.

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the hospital so they can breastfeed their premature or sick babies, and, if possible, assist them in providing care	
■ Examples or suggestions from participants on other creative ways to cut costs or use existing resources more efficiently and economically	After the examples have been given, ask the participants for their own suggestions concerning creative ways to cut costs or use existing resources. (If participants do not have many examples to contribute, ask the trainers for ideas and/or contribute some further suggestions yourself.) List the suggestions on a blackboard or flip chart.
3. Estimating costs and saving in the participants' own institutions:	***Brief presentation, group work, and discussion: 30 minutes***
■ Review of the Table that lists the potential costs and savings associated with breastfeeding promotion related to each of the "10 steps" in health facilities.	Refer participants to Handout 6.3. Describe how the Table can be used to help identify the items to consider when calculating costs and savings. Ask participants sitting next to each other to work in groups of two or three to examine the Table for 10 minutes or so and circle items in the various categories that are likely to result in both substantial costs and substantial savings in health facilities like their own as changes are made to better promote breastfeeding and become Baby-friendly. Ask each group to report briefly on the costs and savings they have identified. List the items in a flipchart under two columns. Emphasize that it can be very useful to estimate the costs and savings at each of the participant's own health facilities. If the savings outweigh the costs, this is an added incentive for becoming Baby-friendly. If some health facilities will need to give up acceptance of free or low-cost supplies of breast-milk substitutes in order to be designated Baby-friendly, emphasize again that this is definitely required under the International Code and is better for mothers and babies.
■ Discussion of strategies participants can	Ask participants for ideas concerning how they

Content	Trainer's Notes
use to calculate the actual costs and savings associated with breastfeeding promotion in their own health facilities ▪ Participants can consider whether it would be useful and feasible to calculate the costs and savings related to implementing the Ten steps to successful breastfeeding in their own facilities and, if so, how they would go about it.	might calculate costs and savings in their own institutions. Issues could include: ■ Whether costs and savings data are important at their institution for making decisions concerning BFHI and breastfeeding and, if so, who would use the data ■ Whether they would rather choose to do simple estimates of key costs and savings or plan more detailed, complete studies ■ Whether the study would be retrospective (like the study at Fabella Hospital, which estimated added costs if a nursery were reinstated) or prospective (measuring costs and savings realized as BFHI is being implemented) ■ Depending on the type and complexity of the study, whether an economist would need to be involved
4. Estimating costs and savings for the family (optional)	***Presentations, group work, and discussion: 15-30 minutes***
	■ Decide whether to include these next two sections in the session, depending both on time available and whether family, health care system and national costs and savings are important to address, considering the types of participants in the course. If desired, an abbreviated version of this section can be presented using only selected slides/transparencies.
■ It is important to look briefly at costs and savings of breastfeeding promotion for the family, both because the effects of the Baby-friendly Hospital Initiative don't stop at the hospital door, and because it is useful to consider the impact of breastfeeding promotion from a broader perspective.	Show slide/transparency 6.14, which provides the heading for the part of the session that focuses on costs and savings for the family.

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■ Examples of lower costs for the family that can result from optimal breastfeeding:	
▪ Breastfeeding can greatly reduce family expenses, especially in situations where the cost of formula consumes a good portion of an average worker's wage *(WHO).*	Ask the participants to calculate and compare the cost for infant formula for six months with the average (or minimum) wage for that same period. Before the session starts, decide whether to use Slide/transparency 6.15 or 6.16 and Handout 6.4a or 6.4b, depending on whether there is one average (or minimum) wage for the country, or different wages for urban and rural areas. As mentioned under "Preparation for Session", before the session begins adjust whichever handout you will use so it uses formula "tins" of a weight commonly found locally (for example 500g tins or 450g tins) and adjust the number needed so 20 Kg of formula will be provided in the first six months (for example 40 500g tins or about 44 450g tins). Then fill in the information concerning brands of formula and their costs, as well as average (or minimum) wages. The exercise can be completed by the participants as a group for one brand of formula, with the trainer filling in the answers on the transparency. Alternatively, it can be done in several small groups, with each group making the calculations for a different brand of formula and reporting on their results. Discuss the results briefly, emphasizing the unnecessary financial burden formula feeding places on the family, since feeding a baby on formula costs a large part of an average (or minimum) wage, which many families cannot afford. Mention that there are other costs related to formula feeding, in addition to the costs for formula, such as costs for fuel and water, time spent in washing or sterilizing bottles and teats, etc. Stress the fact that promotion of formula to the public is not permitted under the International Code and that it is the responsibility of health services to ensure that they do not in any way promote or endorse the use of breast-milk substitutes.
▪ Here are a few country examples of	Show slide/transparency 6.17. Point out that

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costs for one month of breast-milk substitutes for a 3 month old baby, the minimum wage, and percentage of this wage that it would cost to purchase the formula (Gupta and Khanna).	these estimates don't include the time it takes to purchase, prepare, and administer the artificial feeds.
▪ Costs for supplementing breastfeeding mothers' diets are much lower than for purchasing breast-milk substitutes. (Examples from Côte d'Ivoire and France) (Nurture and Bitoun)	Show slides/transparencies 6.18 and/or 6.19. Emphasize the fact that the percentage of the average or minimum wage needed to supplement the breastfeeding mother's diet is much less than that needed for purchasing breast-milk substitutes.
▪ (Alternative to slides/transparencies 6.18 and/or 6.19:) The cost of breastfeeding to the household is substantially lower than the cost of artificial feeding, as shown by this example from Singapore *(Fok et al.).*	Show slides/transparencies 6.20 and 6.21. Discuss the fact that costs for the family for breastfeeding include both the cost of additional food for the lactating mother and the value of the mother's time in nursing her infant. For artificial feeding the costs include the costs for goods needed to feed artificially and the value of the time of each person participating in feeding. Numerous studies show that costs for infant formula and other supplies are higher than costs for feeding a lactating mother and that more time is needed for artificial feeding than breastfeeding, because of the preparation and clean up needed. Thus in Singapore and other settings around the world, breastfeeding is less expensive than feeding breast-milk substitutes.
5. Estimating costs and savings within the health care system and at the national level (optional)	***Presentations and discussion: 15 minutes*** Show slide/transparency 6.22 which provides the heading for this part of the session focusing on costs and savings within the health care system and at national levels
■ Breastfeeding helps minimize health care costs within health care systems and commercial enterprises:	
▪ Costs for health care in the first year of life are much less for breastfed babies (example from Health Maintenance Organization) *(Ball and Wright).*	Show slides/transparencies 6.23 and 6.24. This study compared the frequency of health care utilization for 3 illnesses (lower respiratory tract illnesses, otitis media, and gastrointestinal illness) in relation to duration of exclusive breastfeeding in studies in Tucson, Arizona, and Dundee Scotland. Children were classified as never breastfed, partially breastfed, or

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	exclusively breastfed for at least 3 months. Cost estimates were based on direct medical costs for office visits, hospitalization, and prescriptions in a large HMO in Tucson, Arizona. The additional health care needed for never breastfed babies cost the system between $331 and $475 per child during the first year. These costs are conservative, as they only include some of the costs for 3 illnesses.
▪ Breastfeeding support helps save employers money through reduction in infant illness rates and maternal absenteeism (example from two companies, USA) *(Cohen et al.)*	Show slide/transparency 6.25. The comparison of formula-fed and breastfed infants was made in two companies in California with lactation programmes (a utilities company and an aeronautics corporation). Results indicate that more illness was experienced among formula-fed infants (90% versus 58%). Show slide/transparency 6.26. In addition, the breastfeeding infants had fewer illness episodes resulting in maternal absence from work. The results indicate, for example, that in the breastfeeding group, only 11% of the illness episodes of babies resulted in their mothers being absent from work one day, while among the formula-fed group, 26% of the illnesses resulted in one-day absences ($p<.5$). The percentages of infant illnesses that led to 2 to 4 days absence and more than 4 days absence among the two groups (mothers breastfeeding and mothers formula-feeding) were just slightly higher for the formula-feeding group. Looking at all the illness episodes that resulted on one or *more* days of absences, the results show that: ▪ 43% of the illness episodes of formula-fed babies resulted in their mothers being absent one or more days from work. ▪ Only 25% of the illness episodes of breastfed babies resulted in one or more days of maternal absence. ▪ Fewer absences among mothers of breastfed babies can mean substantial savings for employers (Cohen et al. (1995), pp.152-153).

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■ At the national level, breast milk can be considered an important "national resource".	
▪ The value of breast milk to the national economy has been calculated for many different countries. The case of India can be examined as one interesting example *(Gupta and Khanna).*	Show slide/transparency 6.27. Review the value of the national "production of breast milk" in India. Emphasize the fact that if breastfeeding declines, additional costly and unnecessary expenditures for breast-milk substitutes (BMS) will result.
■ Breastfeeding promotion can result in substantial savings at the national level, not only due to the lowered need to purchase BMS, but also to lower costs for medical treatment and less lost time at work.	
▪ One recent study in the US, for example, estimated that if exclusive breastfeeding were increased from the current levels (64% after delivery in the hospital, 29% at 6 months) to those recommended by the US Surgeon General (75% and 50%) the savings due to lowered costs for 3 childhood diseases would be a minimum of $3.6 billion *(Weimer).*	Show slide/transparency 6.28. Explain that the estimates of costs due to breastfeeding at current rates compared to recommended rates are for otitis media, gastroenteritis, and necrolizing enterocolitis (NEC). Costs calculated include those for surgical treatment, physician visits, lost wages, and, in the case of NEC, for premature death. These estimates are on the conservative side, as they only include estimates for 3 conditions and not all costs for each of the conditions are included.
▪ Savings from a reduction in a number of illnesses episodes can increase quickly with small (achievable) increases in exclusive breastfeeding (example from England and Wales) *(Dept. of Health).*	Show slide/transparency 6.29. Point out that even very realistic increases in levels of breastfeeding can generate substantial savings. The National Health Service in the United Kingdom, for example, reports that just a 1% increase in the breastfeeding rate at 13 weeks would result in a savings of £500,000 in the treatment of gastro-enteritis.

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▪ Increased investment in breastfeeding promotion would lead to substantial savings on health care costs, far outweighing the cost of promotion (example from El Salvador) *(Wong et al.)*	Show slides/transparencies 6.30 through 6.32. Describe the example of El Salvador, where a thorough study was made of the benefits to the public sector from the current levels of breastfeeding, the costs for current breastfeeding promotion activities, and the additional savings that could be realized through an intensified programme of breastfeeding promotion: ■ Annual benefits from current levels of breastfeeding are over 2,800,000 USD. (Slide/transparency 6.30) ■ The cost of current breastfeeding promotion activities is 32,000 USD. If an additional 90,000 USD were spent for intensified promotional activities, it is estimated that exclusive breastfeeding for infants under 6 months would increase from 15% to 30%. (Slide/transparency 6.31) ■ The net benefit from the current level of breastfeeding promotion is over 2,775,000 USD. The intensified activities would yield an additional 624,000 USD in savings. (Slide/transparency 6.32) Mention the fact that the study in El Salvador (and several other countries) was made using a *Workbook for Policymakers: Guide to Assessing the Economic Value of Breastfeeding*. This workbook, which is available from The LINKAGES Project (1825 Connecticut Ave. NW, Washington D.C. 20009), can be used to calculate the costs and savings of breastfeeding at a national level.

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6. Costs and savings related to breastfeeding promotion (discussion) ■ Discussion of issues related to costs and savings of breastfeeding promotion in the participants' own institutions and country	***Discussion: 10 minutes*** Ask the participants to raise any issues that come to mind related to the costs and savings of breastfeeding promotion. Issues that could be explored include: ▪ How important the cost and savings issue is (both within health facilities and the larger health system); ▪ How government and health facility officials and staff can be sensitized to the savings that can be realized through intensified breastfeeding promotion.

Summaries of research studies presented during Session 6

Slide/transparency:	*Study:*
6.6	Valdes V, Perez A, Labbok M, Pugin E, Zambrano I, Catalan S. The impact of a hospital and clinic-based breastfeeding promotion programme in a middle class urban environment. *J Trop Pediatr.* 1993 Jun;39(3):142-51.
6.20-6.21	Fok D, Mong TG, Chua D. The economics of breastfeeding in Singapore. *Breastfeed Rev.* 1998 Aug;6(2):5-9.
6.23-6.24	Ball TM, Wright AL. Health care costs of formula-feeding in the first year of life. *Pediatrics.* 1999 Apr;103(4 Pt 2):870-6.
6.25-6.26	Cohen R, Mrtek MB, Mrtek RG. Comparison of maternal absenteeism and infant illness rates among breastfeeding and formula-feeding women in two corporations. *Am J Health Promot.* 1995 Nov-Dec, 10(2):148-53.

The impact of a hospital and clinic-based breastfeeding promotion programme in a middle class urban environment

Refers to Slide/transparency 6.6

Reference: Valdes V, Perez A, Labbok M, Pugin E, Zambrano I, Catalan S. The impact of a hospital and clinic-based breastfeeding promotion programme in a middle class urban environment. *J Trop Pediatr.* 1993 Jun;39(3):142-51.

Background. Hospital interventions in support of breastfeeding have been highly successful in areas where the indigenous population has a well-established environment of breastfeeding. However, programmes designed to improve breastfeeding patterns in urban populations have met with mixed success.

Methods. This paper presents a prospective intervention study with a control group in which a health system-based breastfeeding promotion programme was initiated to support optimal breastfeeding for both child health and child spacing. Following collection of control data, a four-step intervention programme (Breastfeeding Promotion Program) was instituted.

Findings. This paper reports the process of the development of the intervention programme as well as the comparison of the control and study populations. Major findings include significant increases in duration of full breastfeeding from 31.6 per cent at 6 months in the control group to 66.8 per cent in the intervention group. The duration of lactational amenorrhea was similarly increased: 22 per cent of the control mothers and 56 per cent of the intervention group women were in amenorrhoea at 180 days.

Conclusions. The cost-effectiveness of the hospital changes is illustrated.

The economics of breastfeeding in Singapore

Refers to Slides/transparencies 6.20 and 6.21

Reference: Fok D, Mong TG, Chua D. The economics of breastfeeding in Singapore. *Breastfeed Rev.* 1998 Aug;6(2):5-9.

Background. A study of 340 mothers was conducted in Kandang Kerbau Hospital on September 1992 to determine if it were more economical for households to breastfeed or bottle-feed an infant for the first three months.

Methods. Two economic models, a low cost model and a high cost model, were adopted incorporating a mathematical expression from Almroth's work in 1979.

Findings. The savings in a mother's gross income for the period ranged from 3% to 9% for the low cost model and from 8% to 21% for the high cost model.

Conclusions. From the household perspective, two components contributed to the economic savings of breastfeeding over artificial feeding: the cost of goods consumed and the time taken to feed the baby. It was noted that the time taken to artificially feed is longer than the time taken to breastfeed an infant. The results of this study provided more concrete basis for policy makers and advocates of breastfeeding to promote breastfeeding in Singapore. The amount of savings from breastfeeding could be considered for the health care system from the public perspective.

Health care costs of formula-feeding in the first year of life

Refers to Slides/transparencies 6.23 and 6.24

Reference: Ball TM, Wright AL. Health care costs of formula-feeding in the first year of life. *Pediatrics.* 1999 Apr;103(4 Pt 2):870-6.

Objective: To determine the excess cost of health care services for three illnesses in formula-fed infants in the first year of life, after adjusting for potential confounders.

Methods: Frequency of health service utilization for three illnesses (lower respiratory tract illnesses, otitis media, and gastrointestinal illness) in the first year of life was assessed in relation to duration of exclusive breastfeeding in the Tucson Children's Respiratory Study (n = 944) and the Dundee Community Study (Scottish study, n = 644). Infants in both studies were healthy at birth and represented non-selected, population-based samples. Children were classified as never breastfed, partially breastfed, or exclusively breastfed, based on their feeding status during the first 3 months of life. Frequency of office visits and hospitalizations for the three illnesses was adjusted for maternal education and maternal smoking, using analysis of variance. Cost estimates, from the perspective of the health care provider/payer, were based on the direct medical costs during 1995 within a large managed care health care system.

Results: In the first year of life, after adjusting for confounders, there were 2033 excess office visits, 212 excess days of hospitalization, and 609 excess prescriptions for these three illnesses per 1000 never-breastfed infants compared with 1000 infants exclusively breastfed for at least 3 months. These additional health care services cost the managed care health system between $331 and $475 per never-breastfed infant during the first year of life.

Conclusions: In addition to having more illnesses, formula-fed infants cost the health care system money. Health care plans will likely realize substantial savings, as well as providing improved care, by supporting and promoting exclusive breastfeeding.

Comparison of maternal absenteeism and infant illness rates among breastfeeding and formula-feeding women in two corporations

Refers to Slides/transparencies 6.25 and 6.26

Reference: Cohen R, Mrtek MB, Mrtek RG. Comparison of maternal absenteeism and infant illness rates among breastfeeding and formula-feeding women in two corporations. *Am J Health Promot.* 1995 Nov-Dec, 10(2):148-53.

Purpose: A comparison was made between breastfeeding and formula-feeding among employed mothers. Absenteeism directly related to childcare was examined. DESIGN: This quasi-experimental study followed convenience samples of breastfeeding and formula-feeding mothers until their infants were weaned or reached 1 year of age.

Setting: Two corporations with established lactation programs were used. One had approximately 100 births annually among 2400 female employees, and the other had approximately 30 births annually among 1200 female employees.

Subjects: A sample of 101 participants, 59 feeding breast milk and 42 using commercial formula, was composed of employees returning from maternity leave for a medically uncomplicated birth.

Intervention: The programs provided counselling by a lactation professional for all participants and facilities to collect and store breast milk.

Measures: Confidential participant diaries provided descriptive data on infant illnesses and related absenteeism that the lactation consultant verified with health care providers and through employer attendance records.

Analysis: Attribute counts of illnesses and absenteeism were reported as percentages. Single degree of freedom chi square tests were used to compare rates between nutrition groups.

Findings: Approximately 28% of the infants in the study had no illnesses; 86% of these were breastfed and 14% were formula-fed. When illnesses occurred, 25% of all 1-day maternal absences were among breastfed babies and 75% were among the formula-fed group.

Conclusions: In this study fewer and less severe infant illnesses and less maternal absenteeism was found in the breastfeeding group. This was not an experimental study. Participants were self-selected, and a comparison group was used rather than a true control group. Corroboration of these findings from larger experimental studies is needed to generalize beyond these groups.

Handout 6.1

Presentation for session 6

Breastfeeding promotion:

Costs and savings for health facilities

Transparency 6.1

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:

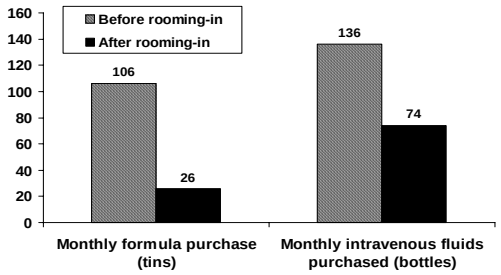
- Formula: $8,500
- Bottles: $7,500
- Glucose Solution: $1,500
- Oxytocin (Methergine): $1,000

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.

Transparency 6.2

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

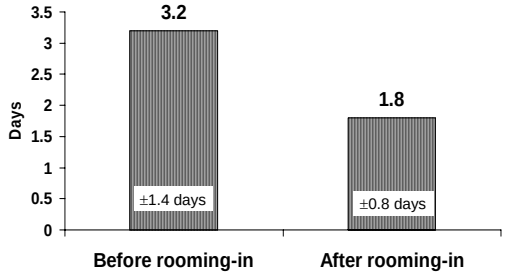


*Annual deliveries 3,000-3,500

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

Transparency 6.3

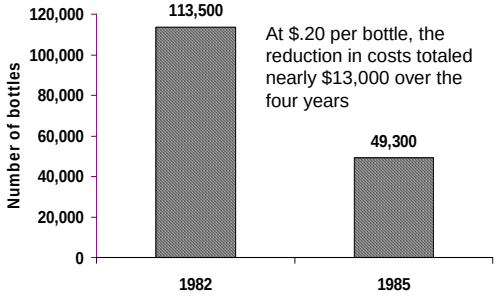
Average length of newborn hospitalization Sanglah Hospital, Indonesia



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

Transparency 6.4

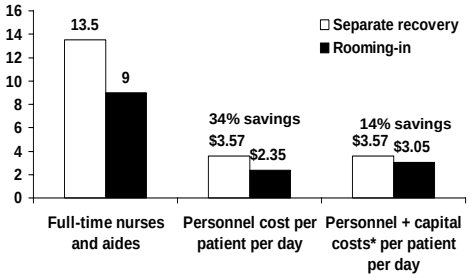
Cost savings due to breastfeeding promotion activities at Hospital Santo Tomas in Panama City



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.

Transparency 6.5

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.

Transparency 6.6

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

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

Transparency 6.8

Not included:

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

Transparency 6.9

How much is this of the hospital budget?

$$\text{Cost} = \frac{6{,}510{,}720\ P}{\text{Budget} = 73{,}000{,}000\ P} = 8\%$$

Transparency 6.10

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.*

Transparency 6.11

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.)

Transparency 6.12

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.

Transparency 6.13

Breastfeeding promotion:

Costs and savings for families

Transparency 6.14

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 / Average (or minimum) wage for 6 months: …… X 100 = …….%

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.

Transparency 6.15

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:	……	……
Cost of 40 x 500g tins of formula / Agricultural wage for 6 months	…… / ……	X 100 = ……..%
Cost of 40 x 500g tins of formula / Urban wage for 6 months	…… / ……	X 100 = ……..%

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

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

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

Transparency 6.16

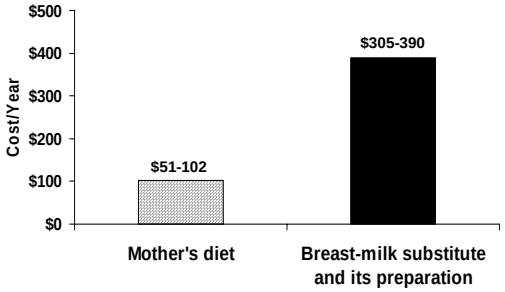
Costs of breast-milk substitutes and comparisons with minimum wages

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.

Transparency 6.17

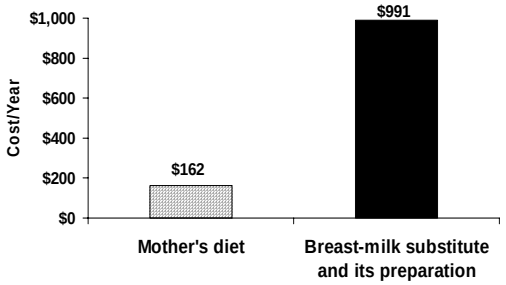
Cost for feeding breastfeeding mother versus feeding baby breast-milk substitutes Côte d'Ivoire



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.

Transparency 6.18

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.

Transparency 6.19

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.

Transparency 6.20

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.

Transparency 6.21

Breastfeeding promotion:

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

Transparency 6.22

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

Transparency 6.23

In addition, the 1000 never-breastfed infants had:

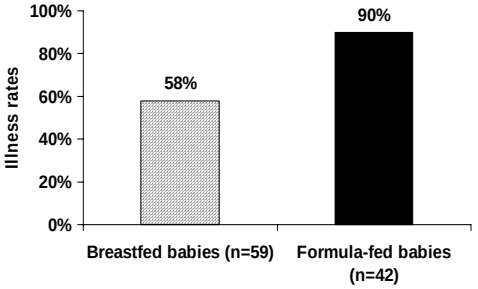
- 2033 excess office visits
- 212 excess hospitalizations
- 609 excess prescriptions

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

Transparency 6.24

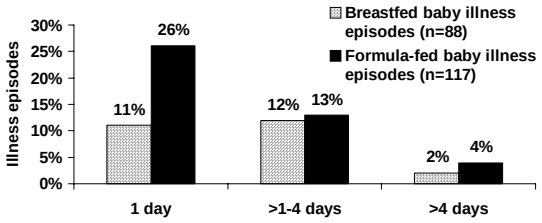
Illness rates among breastfeeding & formula-feeding infants of mothers working in two corporations in the U.S.



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.

Transparency 6.25

Distribution of illness episodes and maternal absenteeism by feeding practice



Days absent from work/illness episode

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.

Transparency 6.26

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.

Transparency 6.27

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.

Transparency 6.28

Savings from potential increases in exclusive breastfeeding 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.

Adapted from: Dept. of Health. *Breastfeeding: Good practice guidance to the NHS.* London, United Kingdom of Great Britain, 1995.

Transparency 6.29

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.

Transparency 6.30

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

Transparency 6.31

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

Transparency 6.32

Handout 6.2

Cost analysis of maintaining a newborn nursery at the Dr. Jose Fabella Memorial Hospital[1]

Hospital statistics

- Average daily deliveries - 100 babies
- Daily newborn census - 320 babies

Physical facilities

- Nursery space for 300 bassinets
- Formula room for 2400 formulas a day

Manpower needs

- Coverage: 24 hour basis
- Ratio: 1 nursing staff to 10 newborns (1:10)
- Total nursing staff: 90 in 24 hours (30 in three shifts)
- Formula room staff: 6 in 24 hours (2 in three shifts)

Materials and supplies

- Feeding bottles sets: 124,800 sets/year

300	babies
x 8	feeds/day (every three hours in 24 hours)
2,400	feeding bottle sets/day
x 52	weeks/year (one set lasts for one week of re-use)
124,800	feeding bottle sets/year

- Milk formula: 17,520 one-pound cans/year

2,400	scoops of formula/feed
÷ 50	scoops for every one-pound can
48	cans per day
x 365	days
17,520	cans /year

[1] Developed by Dr. Ricardo Gonzales, Medical Director, Dr. Jose Fabella Memorial Hospital, Manila, Philippines, 1990

Other costs

- Electricity
- Water
- Detergents
- Cleaning brushes
- Babies diapers
- Bassinets

Summary of costs for maintaining a newborn nursery

Feeding bottle sets/year (124,800 x 20 P) =	2,496,000 P
Milk formula cans/year (17,521 x 36 P) =	630,720 P
Salary of nursing staff/year (90 x 3,000 P x 12) =	3,240,000 P
Salary of formula room staff /year (6 x 2,000 P) =	144,000 P
Total	6,510,720 P*
	(310,034 USD)

* Costs not included: electricity, cleaning utensils, water, diapers, detergents, and bassinets.

How much of the national budget is this?

$$\text{Cost: } \frac{6{,}510{,}720 \text{ P}}{\text{Budget: } 73{,}000{,}000 \text{ P}} = 8\%$$

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

- Handout 6.3

Table 1:
Potential costs and savings associated with breastfeeding promotion in health facilities

(Organized according to the BFHI "Ten steps to successful breastfeeding")

	Costs or use of existing resources	Savings
Step 1: Have a written breastfeeding policy	Lobbying or promotional activities *[Staff time, materials]* Selecting coordinator and BF committee, developing policy *[Staff time]*	More mothers choose facility due to improved image as "Baby-friendly" *[higher patient census and thus more patient fees]*
Step 2: Train all health care staff	Initial training of staff *[Educational materials, supplies, trainer fees, if any, staff time off]* Refresher training and training of new staff *[Educational materials, supplies, trainer fees, if any, staff time off]*	
Step 3: Inform all pregnant women about the benefits & management of breastfeeding	Education & counselling on breastfeeding during antenatal care *[Staff time, educational materials]* Loss of donations of promotional materials from companies promoting breast-milk substitutes *[Any promotional materials that were provided free of charge]*	No group education & counselling on feeding breast-milk substitutes (BMS) *[Less staff time and educational material. Individual counselling on BMS may still be needed for HIV+ mothers who decide to replacement feed.]*
Step 4: Help mothers initiate breastfeeding within a half-hour of birth	Staff assistance with breastfeeding after delivery *[Change of tasks, no extra staff needed]*	Less anesthesia and shift to local rather than general anesthesia during delivery (so mother/baby pair will be awake for breastfeeding) *[Less anesthesia, cotton, & syringes, less costly anesthesia]*

	Costs or use of existing resources	Savings
Step 4: Help mothers initiate breastfeeding within a half-hour of birth (continued)		Less oxytocic drugs (since with breastfeeding the body's natural release of oxytocin helps to contract the uterus) *[Less oxytocic drugs, supplies (syringes, cotton), and staff time]* Less hypothermia with skin-to-skin whole body contact and thus less use of warmers or incubators *[Less staff time]*
Step 5: Show mothers how to breastfeed and how to maintain lactation even if separated	Education & counselling on breastfeeding on wards *[Nursery staff redeployed for mother/baby support on wards X no extra cost]* Breast milk expression and storage *[Breast milk expression supplies and equipment, refrigerator space – don't need breast pumps or milk bank]*	Use of volunteer breastfeeding counselors, if allowed *[Less staff time for counselling and care]* No group education & counselling on feeding breast-milk substitutes *[Less staff time and educational materials. Individual counselling on* *BMS may still be needed for HIV+ mothers who decide to replacement feed.]* Use of expressed breast milk rather than breast-milk substitutes whenever possible *[Less purchase and preparation of breast-milk substitutes]*
Step 6: Give newborn infants no food or drink other than breast milk, unless medically indicated	No free or low-cost supplies of breast-milk substitutes *[Purchase of any supplies of BMS for at least 80% of fair market value]* Loss of general benefits provided by companies selling breast-milk substitutes *[Equipment, supplies, educational benefits, etc., that had been provided free of charge]*	Less or no breast-milk substitutes No glucose water preparation and use for normal newborns *[No staff time for preparation and feeding of breast-milk substitutes. Less or no expenditure on bottles and teats, breast-milk substitutes & glucose water, electricity, water,* *equipment and supplies for washing and sterilizing bottles, mixing breast-milk substitutes, etc. Some equipment and supplies may be necessary to counsel HIV+ mothers who decide to replacement feed.]*

	Costs or use of existing resources	Savings
Step 7: Practice rooming-in	**On the wards:** One-time alteration of physical facilities, if necessary, to allow rooming-in *[Any costs for physical alterations]*	**On the wards:** Nursery space available for other purposes *Space available for alternative use; expenses for nursery equipment, supplies, upkeep reduced or eliminated]* Less or no care of infants in nursery and transporting of newborns from nursery to postpartum wards *[Less staff time]* Fewer or no bassinets or baby cots *[Expense for bassinets reduced or eliminated]* More mother-to-baby care & feeding and fewer fussy babies *[Less staff time for baby care & feeding- staff freed for other duties]* More mother-to-mother care & assistance *[Less staff time for mother care - staff freed for other duties]* Reduced morbidity and mortality due to diarrhoeal disease, respiratory illness, sepsis, meningitis, jaundice *[Less staff time and other costs for longer hospitalization such as medical equipment, bed occupancy, feeding and care of sick infants, intravenous fluids, etc.]*
Step 7: Practice rooming-in (Breastfeeding mothers of babies in newborn special care unit encour-aged to remain in hospital)	**In the neonatal intensive care unit:** Breastfeeding mothers of babies in newborn special care unit stay in hospital *[Space for mothers=beds, food]*	**In the neonatal intensive care unit:** Mothers of babies in special care unit taught to care for own infants *[Less staff time required for infant care in Special Care Unit]* Shorter stay of babies in special care unit due to breastfeeding, more care of infants by mothers, with mothers learning how to care for infants at home

	Costs or use of existing resources	Savings
		as well *[Less staff time, space, use of equipment and supplies]* Reduced morbidity and mortality due to neonatal infection *[Less staff time and other costs for longer hospitalization]* Lower abandoned babies *[Less feeding costs, less staff time for care and placement of babies]*
Step 8: Encourage breastfeeding on demand		Fewer fussy babies *[Less staff time]*
Step 9: Give no artificial teats or pacifiers to breastfeeding infants	Cup-feeding of expressed breast milk *[Cups and spoons]*	No pacifiers or bottles and teats (nipples) for breastfeeding infants *[No pacifiers or bottles and teats supplied by hospital]*
Step 10: Foster the establishment of breastfeeding support groups and refer mothers to them on discharge	Follow-up support for breastfeeding mothers, such as breastfeeding support during postnatal visits, lactation clinics, home visits, telephone calls and/or though mother support groups *[Costs depend on types of support provided]*	Less illness and fewer visits to outpatient department and paediatric unit due to less breast-milk substitutes and bottle-feeding, less diarrhoeal disease, respiratory illness, allergy, malnutrition due to diluted breastmilk substitutes, etc. *[Less staff time, less medicine, and fewer other costs for patient care]*

Handout 6.4a

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: .....

$$\frac{\text{Cost of 40 x 500g tins formula}}{\text{Average (or minimum) wage for 6 months}} = \frac{\text{.....}}{\text{.....}} \times 100 = \text{..... \%}$$

Answer:

To feed a baby on ..... formula costs:

..... % of the average (or minimum) wage

* A mother/family needs about 20 Kg of formula to feed her baby for six months. Adapt the calculations, if necessary. For example, if locally formula is sold in 450 g tins, 44 tins would be needed for six months.

Adapted from: *Breastfeeding Counselling: A Training Course, Trainer's Guide*, WHO/UNICEF, 1993, pp. 420-421.

Handout 6.4b

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: .....

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

Average (or minimum) wage	Agricultural	Urban
1 month:	.....	.....
6 months:	.....	.....

$$\frac{\text{Cost of 40 x 500g tins formula}}{\text{Agricultural wage for 6 months}} = \frac{.....}{.....} \times 100 = ... \%$$

$$\frac{\text{Cost of 40 x 500g tins formula}}{\text{Urban wage for 6 months}} = \frac{.....}{.....} \times 100 = ... \%$$

Answers:

To feed a baby on ..... formula costs ..... % of the agricultural wage

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

* A mother/family needs about 20 Kg of formula to feed her baby for six months. Adapt the calculations, if necessary. For example, if locally formula is sold in 450 g tins, 44 tins would be needed for six months.

Adapted from: *Breastfeeding Counselling: A Training Course, Trainer's Guide*, WHO/UNICEF, 1993, pp. 420-421.