

Part III.G Breastfeeding

- Timely initiation of breastfeeding: percent of infants 0 - < 12 months who were put to the breast within one hour of delivery
- Exclusive breastfeeding rate (EBR): percent of infants 0 - < 6 months of age who are exclusively breastfed
- Timely complementary feeding rate: percent of infants 6 - < 10 months given breastmilk and solid and/or semi-solid foods
- Lactational amenorrhea method acceptor rate (LAR): percent of eligible women who use LAM as their method of family planning
- Lactational amenorrhea method user rate (LUR): percent of women of reproductive age who use LAM as their method of family planning

In recent years, scientific knowledge has greatly advanced on the benefits of breastfeeding, the physiologic mechanisms underlying these benefits, and the optimal practice of breastfeeding. Epidemiologic research has clearly demonstrated that breastfeeding provides advantages to infants with regard to general health, growth, and development, while significantly decreasing the risk for a large number of acute and chronic diseases. Exclusively breastfed infants are at a much lower risk of infection from diarrhea and acute respiratory infections – two leading causes of infant death – than are infants who receive foods in addition to breastmilk during their first months of life. Breastmilk stimulates their immune systems and response to vaccinations, and it contains hundreds of health-enhancing antibodies and enzymes. Breastfeeding is the ideal method of feeding and nurturing infants. A final benefit of exclusive breastfeeding is that it protects the mother from pregnancy up to six months after delivery, if she does not resume menstruation.

Although the benefits of breastfeeding in terms of child survival are well known, changes in child mortality are difficult to measure and cannot easily be attributed to specific program interventions. Attitudes towards breastfeeding, awareness of the importance of exclusive breastfeeding, and support to enable mothers to breastfeed are important outcomes of promotional activities in health programs, but they may also be difficult to measure and/or interpret, and may not reflect actual practice. By contrast, indicators of **current** breastfeeding practices are relatively easy to measure and are sensitive to changes resulting from program activities.

Exclusive Breastfeeding from 0- $<$ 6 Months Followed by Complementary Feeding

Appropriate infant feeding practices are of fundamental importance for the survival, growth, development, health, and nutrition of infants and children everywhere. As such, the optimal duration of exclusive breastfeeding is a public health issue. Whereas consensus exists on

the need for exclusive breastfeeding, debate continues on its optimal duration.

Early in 2000, WHO commissioned a systematic review of the published scientific literature on the optimal duration of exclusive breastfeeding; more than 3000 references were identified for independent review and evaluation. The process consisted of a global peer review, followed by a technical review by a group of breastfeeding experts held in Geneva (May 28-30, 2001). The results of this review were reported to the Fifty-fourth World Health Assembly in May 2001. The Assembly recommended support for exclusive breastfeeding for six months, followed by the introduction of complementary foods and the continuation of breastfeeding.

In developing countries, the most important advantage of exclusive breastfeeding for six months – as compared with exclusive breastfeeding for four months followed by partial breastfeeding to six months – relates to infectious disease morbidity and mortality, especially that due to gastrointestinal infection (diarrheal disease). The high incidence of, and mortality from, gastrointestinal infection suggests that exclusive breastfeeding for six months has a strong protective effect against diarrheal morbidity and mortality.

USAID, UNICEF, and WHO have all endorsed the recommendation for the introduction of nutritionally adequate, safe, and appropriate complementary foods, in conjunction with continued breastfeeding, at about six months of age. Breastmilk continues to be an important source of energy and protein, and other nutrients such as vitamin A, once complementary foods are introduced into the infants' diet, and breastmilk continues to protect the infant against disease during the second year of life.

Complementary feeding (CF) is a highly complex issue and includes factors such as density, quantity, quality, frequency, timeliness, food hygiene, as well as feeding during/after illness and care/active feeding. Inappropri-

ate complementary feeding practices, compounded by nutritionally inadequate and frequently contaminated foods often introduced too early or too late, remain a major cause of malnutrition.

Methodological Challenges of Evaluating Infant Feeding Programs

- **The use of 24-hour recall data tends to overestimate the percentage of infants who have been exclusively breastfed since birth.**

A 24-hour recall measure reflects current breastfeeding status and may cause the proportion of exclusively breast-fed infants to be slightly overestimated, since some infants who consume other liquids irregularly may not have received them in the 24 hours before the survey.

WHO's *Indicators for Assessing Breast-feeding Practices*, Wellstart International's *Tool Kit for Monitoring and Evaluating Breastfeeding Practices and Programs*, and the DHS reports all calculate the exclusive breastfeeding rate (EBR) using the 24-hour recall method. Using cross-sectional surveys, one can obtain the best estimates of exclusive breastfeeding from current status data that include all births within a specified time period. The advantage of this approach is that it is not subject to recall error. Evaluators should then interpret the measure as the percentage of infants who "are currently being exclusively breastfed" rather than the percentage that have been exclusively breastfed since birth.

- **Evaluators need large sample sizes to detect change in breastfeeding practices, but infants represent a small proportion of the population.**

Any assessment of behavioral change in infant feeding requires attention to the size of the comparison groups. The sample size depends on both the magnitude of the change and on the prevalence of the condition or practice. The detection of relatively small changes (e.g., five to ten percentage points) over time in breastfeeding and other infant feeding behaviors requires large sample sizes.

By contrast, simple monitoring of infant feeding practices does not require a specific sample size and can be very useful in tracking ongoing project outreach. However, monitoring neither allows for a rigorous evalua-

tion of change, nor measures actual prevalence of this behavior because of the small, nonrepresentative samples.

- **Infant feeding behavior data relies upon accurate age data of the infant.**

Although evaluators may track many health interventions with only a general reference to the child's age (e.g., less than one year), tracking breastfeeding practices requires accurate assessment of the infant's age. Interviewers can ascertain the age by first asking the mother for the infant's birthdate and then by confirming the birthdate with a child health card or other official registry of the child's birthdate.

- **Breastfeeding questions typically require more than a "yes" or "no" response.**

Multiple factors define whether breastfeeding is optimal, including the exact liquids and foods, if any, given in the preceding 24-hours. Ideally this list of liquids and foods will be comparable to the DHS with additional items that reflect local food preferences and food availability.

The data needed to calculate infant feeding behaviors related to exclusive breastfeeding 0-<6 months of age and timely complementary feeding 6-<10 months of age require that the interviewers ask the respondent about a series of foods given within the previous 24-hours. This line of questioning requires more than a "yes" or "no" response, thus reducing interviewer or respondent error. Interviewers should undergo intensive training on this set of items.

- **The accepted, standard complementary feeding indicator reflects general dietary intake of solid and semi-solid foods during a specified time period only.**

Complementary feeding, a highly complex issue, involves factors such as the quantity and quality of food, frequency and timeliness of feeding, food hygiene, and feeding during/after illness. Program personnel at the country level must consider these many factors when they try to address the problems of infant and young child feeding in the local context.

The standard CF indicator fails to account for program-specific or context-specific feeding recommendations

regarding the frequency, quality, or quantity of foods given during the proceeding 24 hours.

Two Age-groups for Optimal Infant Feeding

Two main types of indicators relate to optimal infant feeding: (1) those concerning breastfeeding behaviors during the first six months of life, and (2) those referring to the introduction of complementary foods while maintaining breastfeeding beginning at six months. These age groups reflect expert consensus as to the optimal time period for exclusive breastfeeding, as well as for the introduction of complementary foods to an infant's diet.

In population-based surveys, measuring these infant-feeding indicators requires sampling of infants 0-<6 months of age and infants 6-<12 months of age. Together, these groups represent the continuum of infant nutrition care in the first year of life. Used together, these data sets reflect the prevalence of optimal infant-feeding behaviors during the first year of life in a given population.

The main purpose of a common set of breastfeeding indicators is to standardize the assessment and evaluation of breastfeeding behaviors across programs implemented and funded by different organizations. The set of indicators in this section are limited in number, fairly easy to measure and interpret, and operationally useful. Moreover, they have been field-tested, are consistent with worldwide breastfeeding goals, and can be obtained from available DHS data.

Evaluators can use the indicators in this section as the outcome variables in measuring behavior change due to program interventions in the context of an experimental or quasi-experimental design. Evaluators can also calculate these indicators from program statistics for the purpose of tracking breastfeeding behavior among clients, but not for establishing the impact of a specific program or intervention on behavior of women with infants in the population in question.

Indicator

TIMELY INITIATION OF BREASTFEEDING: PERCENT OF INFANTS 0 - < 12 MONTHS WHO WERE PUT TO THE BREAST WITHIN ONE HOUR OF DELIVERY

Definition

Timely initiation of breastfeeding is calculated as:

$$\frac{\text{\# of infants 0 < 12 months put to the breast within 1 hour of delivery}}{\text{Total \# of infants 0 < 12 months}} \times 100$$

Data Requirements

Recall data from mothers with infants less than 12 months old

Data Source(s)

Population-based surveys employing representative samples. The DHS reports the initiation of breastfeeding within one hour for those countries in which the breastfeeding/infant-feeding module is included in the DHS.

Evaluators may use program records to track trends in breastfeeding initiation among clients, but not to measure the impact of program interventions on women with infants in the population of the catchment area.

Purpose and Issues

Mothers are more likely to successfully initiate lactation, to encounter fewer problems breastfeeding, and to maintain optimal breastfeeding behaviors if they initiate breastfeeding shortly after birth.

Breastfeeding should begin no later than one hour after the delivery of the infant. Colostrum, the thick yellowish milk produced in the first few days after birth, is nutritious and helps to protect the infant against common infections. Thus, breastmilk is the infant's first "immunization" against common illnesses.

A mother may have difficulty correctly recalling (months after the event) when she initiated breastfeeding for her youngest infant; thus, this indicator is subject to potential recall bias. This bias is likely to be even greater in populations unaccustomed to remembering and conceptualizing time. However, because this particular type of bias (toward a longer or shorter period than actually occurred) is assumed to be randomly distributed across a population, the potential bias should not skew the data to misrepresent the population's general behavior related to breastfeeding initiation.

Indicator

EXCLUSIVE BREASTFEEDING RATE (EBR): PERCENT OF INFANTS 0 - < 6 MONTHS OF AGE WHO ARE EXCLUSIVELY BREASTFED

Definition

Exclusive breastfeeding is the practice of giving only breastmilk to the infant, with no other solids or liquids, including water

Infants, are, however, allowed to have drops of vitamins/minerals/medicines.¹

This indicator is calculated as:

$$\frac{\text{\# of infants 0 - < 6 months exclusively breastfed}}{\text{Total \# of infants 0 - < 6 months}} \times 100$$

Data Requirements

A 24-hour recall of food consumption of infants less than six months of age

Data Source(s)

Population-based surveys employing representative samples (e.g., the DHS) and program records of EBR (to track trends but not impact)

The DHS country reports and Nutrition Reports both present the EBR for infants 0-<4 months of age. However, evaluators can calculate the EBR for infants 0-<6 months using DHS data.

Purpose and Issues

Even in hot, dry climates, breastmilk contains sufficient water for an infant's needs. Additional water or sugary drinks are unnecessary to quench the infant's thirst, and they can also be harmful. If the infant is also given water, or drinks made with water, then the risk of diarrhea and other illnesses increases.

Although the benefits of breastfeeding in terms of child survival are well known, the effects of breastfeeding on child mortality are difficult to measure. Indicators of **current** breastfeeding practices, however, can be relatively easily measured and are sensitive to changes resulting from program activities.

Using a 24-hour recall period to measure current status may slightly overestimate the proportion of exclusively breast-fed infants because some infants who are given other liquids irregularly may not have received them in the 24 hours before the survey. WHO's *Indicators for Assessing Breast-feeding Practices*, Wellstart International's *Tool Kit for Monitoring and Evaluating Breastfeeding Practices and Programs*, and the DHS reports all calculate EBR using the 24-hour recall method.

Evaluators can obtain the best estimates of exclusive breastfeeding from current status data in cross-section surveys. The advantage of this approach is that it avoids subject recall error. Evaluators should interpret the measure as the percentage of infants who "are currently being exclusively breastfed," rather than the percentage exclusively breastfed since birth.

Gender Implications of this Indicator

The rate of exclusive breastfeeding, if disaggregated by sex, can be an indication of whether gender bias exists in the country. In India, women more often discontinue breastfeeding of daughters in the first six months as compared to sons. A nutritional study of weight for age among boys and girls demonstrates how "broad nutritional symmetry (at birth) between boys and girls turns into a situation of significant female disadvantage" (Sen, 2001). Discontinuation of exclusive breastfeeding is one of several factors ultimately contributing to a lower female/male sex ratio in India as compared to countries where son preference is not evident.

¹ This is the WHO definition of exclusive breastfeeding, 1991c, adopted thereafter by international agencies, including USAID.

Indicator

TIMELY COMPLEMENTARY FEEDING RATE: PERCENT OF INFANTS 6 - < 10 MONTHS GIVEN BREASTMILK AND SOLID AND/OR SEMI-SOLID FOODS

Definition

Complementary foods are defined as solid or semi-solid/mushy foods; complementary foods do **not** include fluids.

This rate can be calculated as follows:

$$\frac{\text{\# of infants 6 - < 10 months who have received solid and/or semi-solid foods}}{\text{Total \# of infants 6 - < 10 months}} \times 100$$

Data Requirements

A 24-hour recall of food consumption of infants 6 - <10 months of age

Data Source(s)

Population-based surveys employing representative samples (e.g., the DHS). Evaluators may use program records to track trends in complementary feeding but not to measure impact. DHS reports present data for this indicator for those countries in which the breastfeeding/infant-feeding module was included.

Purpose and Issues

This basic calculation of complementary feeding uses 24-hour recall. Evaluators may supplement these data by an additional indicator(s) reflecting program messages relating to quantity, density, and/or quality of complementary foods. By the age of six months, almost all infants should receive complementary foods in addition to breastmilk.

This indicator has several limitations. First, it reflects only the consumption of complementary feeding, not the appropriateness of those foods. Second, it provides minimal information on the extent to which infants are fed according to prescribed guidelines.

If researchers or evaluators opt to collect additional information on complementary feeding (e.g., for the purpose of evaluating a specific program intervention), we recommend retaining this “basic” indicator as well, for comparisons with other populations.

Indicator

LACTATIONAL AMENORRHEA METHOD ACCEPTOR RATE (LAR): PERCENT OF ELIGIBLE WOMEN WHO USE LAM AS THEIR METHOD OF FAMILY PLANNING

Definition

The percent of women giving birth in a reference period who consciously and deliberately accept LAM as a modern contraceptive method

This indicator is calculated as:

$$\frac{\text{\# of women using LAM as an FP method}}{\text{Total \# of women with infants < 6 months}} \times 100$$

Data Requirements

Total number of women with infants less than 6 months old, and of those, the number who choose to use LAM as a method of family planning

Data Source(s)

Population-based surveys employing representative samples (e.g., DHS), or family planning service statistics (if data are systematically obtained on the age of the youngest child)

Purpose and Issues

The Lactational Amenorrhea Method (LAM) is a natural family planning method that protects a woman from pregnancy by suppressing ovulation during the first six months after delivery, provided that she meets three criteria:

1. The woman has not resumed her menstrual period; **and**
2. The infant is fully or nearly fully breastfed;² **and**
3. The infant is less than six months old.

When any one of these three criteria is no longer met, another family planning method must be introduced quickly to ensure birth spacing. Evaluators can capture this follow-up method in both the family planning registry as well as in subsequent population-based surveys.

One shortcoming of this indicator is that it is often based on self-report, without verification that the respondent actually fulfills the three criteria listed above. A more precise measure will include questions that confirm that the respondent knows the three criteria and that she meets them.

² Full or nearly full breastfeeding significantly impacts fertility. This category includes exclusive, almost exclusive and high (partial) breastfeeding. Thus, the infant can receive only breastmilk or mostly breastmilk with some addition of liquids such as juice or ritualistic foods given infrequently.

Indicator

LACTATIONAL AMENORRHEA METHOD USER RATE (LUR): PERCENT OF WOMEN OF REPRODUCTIVE AGE WHO USE LAM AS THEIR METHOD OF FAMILY PLANNING

Definition

The percent of women of reproductive age using the lactational amenorrhea method (LAM) as a modern contraceptive method, at a given point in time (e.g., at the time of the survey)

This indicator is calculated as:

$$\frac{\text{\# of married women of reproductive age using LAM as an FP method}}{\text{Total \# of married women of reproductive age}} \times 100$$

Data Requirements

The total number of married women of reproductive age, and of these, the number who choose LAM as their method of family planning

Data Source(s)

Population-based surveys employing representative samples (e.g., the DHS); or family planning service statistics

Purpose and Issues

This indicator measures the percentage of married women of reproductive age in a given population using the LAM method. As such, it reflects the use of LAM relative to other family planning methods. In fact, the comparison is somewhat misleading, in that LAM can only be practiced by women with a child less than six months, whereas other methods are potentially available for use to all women of reproductive age (medical contraindications being the exception). Ideally, evaluators will measure the LUR from a population-based representative survey. Service statistics also constitute a source for calculating LUR, but the findings will not be generalizable to the larger population.

The LUR (based on all married women of reproductive age) will be lower than the LAR (based on women with an infant less than six months). Both are useful, but for different purposes. The LUR measures the use of LAM in relation to other contraceptive methods. The LAR reflects the extent of use among **potential** users (i.e., women with a child less than six months old).

