Indicators for assessing infant and young child feeding practices

PART 1
DEFINITIONS

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Conclusions of a consensus meeting held 6–8 November 2007 in Washington, DC, USA

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Introduction

The document *Indicators for assessing breastfeeding practices* (*1*) published in 1991 provided a set of indicators that could be used to assess infant feeding within and across countries and evaluate the progress of breastfeeding promotion efforts. Since then, there have been important developments in infant and young child feeding recommendations and scientific knowledge about what constitutes optimal breastfeeding and complementary feeding practices, which have led to the need for revision and expansion of the set of indicators initially recommended. In 2001, for example, the World Health Organization (WHO) recommended exclusive breastfeeding for 6 months (*2*, *3*), which was a change from the previous recommendation to introduce complementary foods at 4–6 months. The indicator for exclusive breastfeeding under 4 months thus no longer provides data reflective of current guidelines.

In addition, the document published in 1991 included only one indicator of complementary feeding – the timely complementary feeding rate. This indicator provided information about whether complementary foods were consumed, but not about the quantity or quality of those foods. In response to concerns about the lack of adequate indicators of complementary feeding, in 2002, WHO began a process to review and develop indicators of complementary feeding practices. A conceptual framework for identifying potential indicators of complementary feeding practices was published (*4*). At the same time, the *Guiding Principles for Complementary Feeding of the Breastfed Child* were being developed, which addressed the multidimensionality of complementary feeding practices (*5*). A similar effort to develop guidance and rationale for feeding non-breastfed children 6–23 months of age was undertaken shortly thereafter, which resulted in a technical document (*6*) and a parallel set of Guiding Principles (*7*). Beginning in 2004, members of the Working Group on Infant and Young Child Feeding Indicators initiated a series of activities aimed towards definition and validation of indicators to reflect dietary quality and quantity, using existing data sets from 10 different sites in developing countries (members of the Working Group are listed in Annex 1a). In addition to using the references listed above as guidance, the Working Group was also guided by the recommendations and targets of the *Global Strategy for Infant and Young Child Feeding* (*8*). The results of the analyses conducted by the Working Group were summarized in a report in the summer of 2006 (*9*) and presented at a WHO consultation in October, 2006. Additional analyses to address the remaining questions and concerns were subsequently completed and described in a report submitted in the summer of 2007 (*10*).

Based on the above work, a revised set of indicators was developed and then discussed by participants at the WHO Global Consensus Meeting on Indicators of Infant and Young Child Feeding held from 6–8 November, 2007 on the premises of the WHO Regional Office for the Americas. The list of participants is provided in Annex 1b. This report summarizes the discussion and consensus reached on 8 core indicators and 7 optional indicators for assessing infant and young child feeding practices that are population-based and can be derived from household survey data.

A. Purpose of the indicators

Infant and young child feeding practices directly affect the nutritional status of children under two years of age and, ultimately, impact child survival. Improving infant and young child feeding practices in children 0–23 months of age is therefore critical to improved nutrition, health and development of children. However, until now, indicators that can be used in population-based surveys to measure infant and young child feeding practices have focused mostly on breastfeeding practices. The lack of evidence and consensus on simple indicators of appropriate feeding practices in children 6–23 months of age has hampered progress in measuring and improving feeding practices, thereby constraining improvements in infant and young child nutritional outcomes.

The indicators described in this document are the result of a 5-year effort to develop a set of simple, valid and reliable indicators to assess infant and young child feeding practices. They focus on selected food-related aspects of child feeding, amenable to population-level measurement. Other aspects of optimal feeding such as responsive feeding and adequate texture of food are more complex to assess, and work is still in progress to develop valid and reliable indicator definitions and measurement approaches for these.

Population-level indicators of infant and young child feeding practices are used primarily for: (1) *assessment*: to make national and sub-national comparisons and to describe trends over time; (2) *targeting*: to identify populations at risk, target interventions, and make policy decisions about resource allocation; and (3) *monitoring and evaluation*: to monitor progress in achieving goals and to evaluate the impact of interventions. The indicators described herein are mainly designed for use in large-scale surveys or national programs. Smaller local and regional programs may also find uses for these indicators, but this limited set of measures is not intended to meet all of the needs for program monitoring and evaluation at this level. Programs and projects should augment these with more specific indicators that reflect their own interventions, messages, and behaviour change objectives.

The *indicator definitions should not be translated into caregiver messages* for improving feeding practices in young children. These should be derived from the Guiding Principles (*5, 7*) and adapted to the local situation. While indicator definitions may not correspond exactly to adapted messages, the indicators will nevertheless reflect population-level progress towards optimal feeding practices.

The indicators described in this document are meant to be considered together. The indicators for assessing feeding practices in children 6–23 months of age in particular should not be considered in isolation, because of the multi-dimensional aspects of appropriate feeding at this age. It is therefore recommended that in surveys, efforts be made to assess data on the full set of indicators for any given population.

Finally, inasmuch as the sample sizes used in monitoring and evaluation of smaller scale programs may be quite small, some of the recommended indicators may be too imprecise to be of use in assessment or in monitoring change for these programs. This is particularly likely for indicators with narrow age ranges in the numerator and the denominator.

B. Methodology for measuring indicators

The proposed indicators should be derived from interviews conducted at the household level using a household survey methodology. Age groups are described in intervals of months completed. For example, a child 6–23 months has completed 6 months but has an age less than 2 years. Although the age group used for each indicator will vary, most indicators can be generated using the data from living[1] children less than 24 months of age.[2] Once core and optional indicators are selected as described below, the survey should be designed to provide adequate sample sizes for all age sub-groups of interest. Except for the indicators "early initiation of breastfeeding" and "children ever breastfed", all indicators are based on current status data, i.e., the current age of the child and other information for the day preceding the survey, rather than on retrospective data. Mothers will not be asked when they stopped or started particular feeding practices, which are questions that tend to produce a heaping of data at certain ages. The previous-day recall period was selected because it has been widely used and found appropriate in surveys of dietary intake when the objective is to describe infant feeding practices in populations. Because practices vary widely from day to day, indicators derived from the previous day recall period should not be used to make assessments of dietary adequacy at the level of the individual.

Criteria that define infant feeding practices used in the document are shown in Table 1. A child can be classified as following a certain practice if criteria listed for that practice are met. Relative to the 1991 guidance, one modification was made with regard to the criteria for exclusive breastfeeding. Since ORS is a medicine, it was agreed to allow this under the definition of exclusive breastfeeding. Exclusive breastfeeding now means that the infant receives breast milk (including expressed breast milk or breast milk from a wet nurse) and allows the infant to receive ORS, drops, syrups (vitamins, minerals, medicines), but nothing else.

[1] Exceptions are the core indicator "early initiation of breastfeeding" and the optional indicator "children ever breastfed," which include living and deceased children.

[2] The exception is the optional indicator "median duration of breastfeeding," which requires a broader range of children, up to less than 36 months of age.

TABLE 1. CRITERIA THAT DEFINE SELECTED INFANT FEEDING PRACTICES

Feeding practice	Requires that the infant receive	Allows the infant to receive	Does not allow the infant to receive
Exclusive breastfeeding	Breast milk (including milk expressed or from a wet nurse)	ORS, drops, syrups (vitamins, minerals, medicines)	Anything else
Predominant breastfeeding	Breast milk (including milk expressed or from a wet nurse) as the predominant source of nourishment	Certain liquids (water and water-based drinks, fruit juice), ritual fluids and ORS, drops or syrups (vitamins, minerals, medicines)	Anything else (in particular, non-human milk, food-based fluids)
Complementary feeding[a]	Breast milk (including milk expressed or from a wetnurse) and solid or semi-solid foods	Anything else: any food or liquid including non-human milk and formula	NA
Breastfeeding	Breast milk (including milk expressed or from a wet nurse)	Anything else: any food or liquid including non-human milk and formula	NA
Bottle-feeding	Any liquid (including breast milk) or semi-solid food from a bottle with nipple/teat	Anything else: any food or liquid including non-human milk and formula	NA

[a] The term complementary feeding, reserved to describe appropriate feeding in breastfed children 6 months of age or beyond, is no longer used in the indicators to assess infant and young child feeding practices. The previously used indicator 'Timely complementary feeding rate' (*1*), which combined continued breastfeeding with consumption of solid, semi-solid and soft foods, was difficult to interpret. This indicator has therefore been replaced by the indicator 'Introduction of solid, semi-solid or soft foods' which is a measure of a single feeding practice. Nevertheless, the term complementary feeding is still very useful to describe appropriate feeding practices in breastfed children 6–23 months of age and will continue to be used in programmatic efforts to improve infant and young child feeding as guided by the *Global Strategy on Infant and Young Child Feeding* (*8*). The timely complementary feeding rate can also be calculated using the data generated for measuring the new and updated indicators.

C. Definitions of indicators

The key indicators are defined and explained below. A summary list of the indicators is presented in Annex 2. For certain indicators, it is strongly recommended that figures (or area graphs) be created to depict the proportion of children receiving each of the relevant feeding practices by child age. Examples of such figures are given in Annex 3.

CORE INDICATORS

Breastfeeding initiation

1. **Early initiation of breastfeeding:** Proportion of children born in the last 24 months who were put to the breast within one hour of birth

$$\frac{\text{Children born in the last 24 months who were put to the breast within one hour of birth}}{\text{Children born in the last 24 months}}$$

Notes:

- This indicator is based on historic recall. The denominator and numerator include living children and deceased children who were born within the past 24 months.
- It is recommended that the indicator be further disaggregated and reported for (i) live births occurring in the last 12 months; and (ii) live births occurring between the last 12 and 24 months.

Exclusive breastfeeding

2. **Exclusive breastfeeding under 6 months:** Proportion of infants 0–5 months of age who are fed exclusively with breast milk

$$\frac{\text{Infants 0–5 months of age who received only breast milk during the previous day}}{\text{Infants 0–5 months of age}}$$

Notes:

- This indicator includes breastfeeding by a wet nurse and feeding expressed breast milk. It was, however, thought simpler to retain the term "exclusive breastfeeding" rather than the more precise but cumbersome term "fed exclusively on breast milk". (For the definition of "exclusive breastfeeding" see Table 1.)
- This is the first in the series of current status indicators based on recall of the previous day and includes living infants. All indicators that follow, except "children ever breastfed", are also based on recall of the previous day.
- Using the previous day recall period will cause the proportion of exclusively breastfed infants to be overestimated, as some infants who are given other liquids irregularly may not have received them in the day before the survey.
- As with other indicators that are based on current status, exclusive breastfeeding is based on a cross section of children in a given age range, in this case children from birth to just

under 6 months of age. It therefore does not represent the proportion of infants who are exclusively breastfed *until just under* 6 months of age and *should not* be interpreted as such. It is generally accepted that the proportion of children who are exclusively breastfed *until just under* 6 months of age is lower than the number derived from the indicator of current status. For example, if there is a linear rate of decline in the proportion exclusively breastfed from 100% at birth to 20% at 6 months, the indicator value for exclusive breastfeeding under 6 months would be 60% (as compared to 20% still exclusively breastfed at 6 months). However, the indicator recommended in this document represents the best option for estimating exclusive breastfeeding and is more sensitive to capturing changes. If there is interest in identifying differences in proportions of infants exclusively breastfed over smaller age ranges, creation of figures such as shown in Annex 3, and disaggregation as suggested in the bullet below may provide such information.

- It is recommended that the indicator be further disaggregated and reported for the following age-groups: 0–1 months, 2–3 months, 4–5 months and 0–3 months.

Continued breastfeeding

3. **Continued breastfeeding at 1 year:** Proportion of children 12–15 months of age who are fed breast milk

$$\frac{\text{Children 12–15 months of age who received breast milk during the previous day}}{\text{Children 12–15 months of age}}$$

Notes:

- This indicator includes breastfeeding by a wet nurse and feeding expressed breast milk.
- The title of this indicator on continued breastfeeding reflects an approximation of the age range covered. Because of the age interval, the indicator underestimates the proportion of children breastfed at one year.
- Because the indicator has a relatively narrow age range of 4 months, estimates from surveys with small sample sizes are likely to have wide confidence intervals.

Introduction of complementary foods

4. **Introduction of solid, semi-solid or soft foods:** Proportion of infants 6–8 months of age who receive solid, semi-solid or soft foods

$$\frac{\text{Infants 6–8 months of age who received solid, semi-solid or soft foods during the previous day}}{\text{Infants 6–8 months of age}}$$

Notes:

- This indicator is one of the two parts of the previous composite indicator for timely complementary feeding, which also included continued breastfeeding (*1*).
- The previous indicator included living infants 6–9 months in the numerator and denominator. A narrower age range has been chosen so as not to include infants first receiving foods as late as 9 months in the numerator.
- Because the indicator has a very narrow age range of 3 months, estimates from surveys with small sample sizes are likely to have wide confidence intervals.
- Figures of infant feeding practices by age, as shown in Annex 3, provide additional information and are a useful illustration of the pattern of introduction of solid, semi-solid or soft foods in the population.

Dietary diversity

5. **Minimum dietary diversity:** Proportion of children 6–23 months of age who receive foods from 4 or more food groups

$$\frac{\text{Children 6–23 months of age who received foods from} \geq \text{4 food groups during the previous day}}{\text{Children 6–23 months of age}}$$

Notes:

- The 7 foods groups used for tabulation of this indicator are:
  - — grains, roots and tubers
  - — legumes and nuts
  - — dairy products (milk, yogurt, cheese)
  - — flesh foods (meat, fish, poultry and liver/organ meats)
  - — eggs
  - — vitamin-A rich fruits and vegetables
  - — other fruits and vegetables
- Consumption of any amount of food from each food group is sufficient to "count", i.e., there is no minimum quantity, except if an item is only used as a condiment.[1]
- The cut-off of at least 4 of the above 7 food groups above was selected because it is associated with better quality diets for both breastfed and non-breastfed children (*10*). Consumption of foods from at least 4 food groups on the previous day would mean that in most populations the child had a high likelihood of consuming at least one animal-source food and at least one fruit or vegetable that day, in addition to a staple food (grain, root or tuber).
- Results may be reported separately for breastfed and non-breastfed children. However, diversity scores for breastfed and non-breastfed children should not be directly compared, because breast milk is not 'counted' in any of the above food groups. Breast milk is not counted because the indicator is meant to reflect the quality of the complementary food diet. As a consequence, this indicator may show 'better' results for children who are not breastfed than those who are breastfed in populations where formula and/or milk are commonly given to non-breastfed children.
- For the same reason, this indicator should not be used to compare populations that differ in prevalence of continued breastfeeding. This caution applies both to comparisons between different sub-populations at one point in time (e.g. urban versus rural comparisons) and the same population at different points in time (e.g. if continued breastfeeding has declined). The composite indicator (# 7 below) captures several different dimensions of feeding and can be used for comparisons across time and between populations with different rates in continued breastfeeding.
- It is recommended that the indicator be further disaggregated and reported for the following age groups: 6–11 months, 12–17 months and 18–23 months.

[1] More guidance is provided in the operational guide that is a companion to this document.

Meal frequency

6. **Minimum meal frequency:** Proportion of breastfed and non-breastfed children 6–23 months of age who receive solid, semi-solid, or soft foods (but also including milk feeds for non-breastfed children) the minimum number of times or more.

   The indicator is calculated from the following two fractions:

$$\frac{\text{Breastfed children 6–23 months of age who received solid, semi-solid or soft foods the minimum number of times or more during the previous day}}{\text{Breastfed children 6–23 months of age}}$$

   and

$$\frac{\text{Non-breastfed children 6–23 months of age who received solid, semi-solid or soft foods or milk feeds the minimum number of times or more during the previous day}}{\text{Non-breastfed children 6–23 months of age}}$$

   Notes:

   - Minimum is defined as:
     - — 2 times for breastfed infants 6–8 months
     - — 3 times for breastfed children 9–23 months
     - — 4 times for non-breastfed children 6–23 months
     - — "Meals" include both meals and snacks (other than trivial amounts[1]), and frequency is based on caregiver report.
   - This indicator is intended as a proxy for energy intake from foods other than breast milk.[2] Feeding frequency for breastfed children includes only non-liquid feeds and reflects the Guiding Principles[3] (*5*). Feeding frequency for non-breastfed children includes both milk feeds and solid/semi-solid feeds, and also reflects the Guiding Principles for these children (*7*).
   - It is recommended that the indicator be further disaggregated and reported for the following age groups: 6–11 months, 12–17 months and 18–23 months of age. Results may also be reported separately for breastfed and non-breastfed children.

Summary infant and young child feeding indicator

7. **Minimum acceptable diet:** Proportion of children 6–23 months of age who receive a minimum acceptable diet (apart from breast milk).

   This composite indicator will be calculated from the following two fractions:

$$\frac{\text{Breastfed children 6–23 months of age who had at least the minimum dietary diversity and the minimum meal frequency during the previous day}}{\text{Breastfed children 6–23 months of age}}$$

   and

$$\frac{\text{Non-breastfed children 6–23 months of age who received at least 2 milk feedings and had at least the minimum dietary diversity not including milk feeds and the minimum meal frequency during the previous day}}{\text{Non-breastfed children 6–23 months of age}}$$

[1] More guidance is provided in the operational guide that is a companion to this document.
[2] True energy intake is impossible to capture in simple surveys.
[3] Milk feeds are not included for breastfed children because the minimum meal frequencies in this indicator assume average breast milk intake, and if a substantial amount of energy from other milk is consumed, breast milk intake is likely to be considerably lower than average. Nevertheless, the actual intake of breastfed children who also receive milk feeds may be more than what is captured by this indicator.

Notes:

- For breastfed children, see indicators 5 and 6 above for "Minimum dietary diversity" and "Minimum meal frequency" definitions.
- For non-breastfed children, see indicator 6 above for definition of "Minimum meal frequency". The definition of "Minimum dietary diversity" is similar to the definition for indicator 5, but milk feeds are excluded from the diversity score for non-breastfed children when calculating "Minimum acceptable diet". This is because milk feeds are considered as a separate and required element for non-breastfed children in this multi-dimensional indicator. Exclusion of milk feeds from the diversity score here avoids "double-counting" of this food group and allows use of this indicator in comparisons – across space and time – between populations with different rates of continued breastfeeding.
- See indicator 15 below for the rationale for at least 2 milk feedings for non-breastfed children.
- It is recommended that the indicator be further disaggregated and reported for the following age groups: 6–11 months, 12–17 months and 18–23 months of age.

Consumption of iron-rich or iron-fortified foods

8. **Consumption of iron-rich or iron-fortified foods:** Proportion of children 6–23 months of age who receive an iron-rich food or iron-fortified food that is specially designed for infants and young children, or that is fortified in the home.

$$\frac{\text{Children 6–23 months of age who received an iron-rich food or a food that was specially designed for infants and young children and was fortified with iron, or a food that was fortified in the home with a product that included iron during the previous day}}{\text{Children 6–23 months of age}}$$

Notes:

- Suitable iron-rich or iron-fortified foods include flesh foods, commercially fortified foods specially designed for infants and young children that contain iron, or foods fortified in the home with a micronutrient powder containing iron or a lipid-based nutrient supplement containing iron.
- While this indicator assesses a critical aspect of nutrient adequacy of food intake, guidance on how best to operationalize the data collection is difficult to standardize. Further work is being undertaken to develop the questions to allow for its tabulation.
- It is recommended that the indicator be further disaggregated and reported for the proportion of children receiving flesh foods only and the proportion of children who consume some fortified food specially designed for infants and young children that contains iron (with or without flesh foods).
- It is also recommended that the indicator be further disaggregated and reported for the following age groups: 6–11 months, 12–17 months and 18–23 months of age.

OPTIONAL INDICATORS

Considering the need to limit the number of indicators and quantity of data to be collected to a minimum, it is proposed that the indicators described above are the most critical for population-based assessment and programme evaluation. However, to ensure continuity in monitoring of previously used indicators and recognizing that some programmes may wish to measure additional indicators, the following optional indicators are recommended:

Breastfeeding

9. **Children ever breastfed:** Proportion of children born in the last 24 months who were ever breastfed

$$\frac{\text{Children born in the last 24 months who were ever breastfed}}{\text{Children born in the last 24 months}}$$

Notes:

- This indicator is based on historic recall. The denominator and numerator include living and deceased children who were born within the past 24 months.
- It is recommended that the indicator be further disaggregated and reported for (i) live births occurring in the last 12 months; and (ii) live births occurring between the last 12 and 24 months.

10. **Continued breastfeeding at 2 years:** Proportion of children 20–23 months of age who are fed breast milk

$$\frac{\text{Children 20–23 months of age who received breast milk during the previous day}}{\text{Children 20–23 months of age}}$$

Notes:

- The title of this indicator on continued breastfeeding reflects an approximation of the age range covered.
- Because the indicator has a relatively narrow age range of 4 months, estimates from surveys with small sample sizes are likely to have wide confidence intervals.

11. **Age-appropriate breastfeeding:** Proportion of children 0–23 months of age who are appropriately breastfed

The indicator is calculated from the following two fractions:

$$\frac{\text{Infants 0–5 months of age who received only breast milk during the previous day}}{\text{Infants 0–5 months of age}}$$

and

$$\frac{\text{Children 6–23 months of age who received breast milk, as well as solid, semi-solid or soft foods, during the previous day}}{\text{Children 6–23 months of age}}$$

12. **Predominant breastfeeding under 6 months:** Proportion of infants 0–5 months of age who are predominantly breastfed

$$\frac{\text{Infants 0–5 months of age who received breast milk as the predominant source of nourishment during the previous day}}{\text{Infants 0–5 months of age}}$$

Notes:

- As the proportion of infants aged *just less than* 6 months who are exclusively breastfed may be quite low in some populations, the intent of this indicator is to identify infants whose predominant source of nourishment is breast milk, but who also receive other fluids. These include liquids, such as water-based drinks, fruit juice and ritual fluids. Non-human milk and food-based fluids are not allowed. Table 1 describes in detail the criteria of predominant breastfeeding
- An area graph as illustrated in Annex 3 provides the clearest illustration of various infant feeding practices and when used, can replace this indicator.

Duration of breastfeeding

13. **Duration of breastfeeding:** Median duration of breastfeeding among children less than 36 months of age

The age in months when 50% of children 0–35 months did not receive breast milk during the previous day

Note: The population median duration of breastfeeding is the only indicator that requires collection of data on feeding practices in children above 23 months of age and is calculated using current status data among all children less than 36 months of age.

Bottle feeding of infants

14. **Bottle feeding:** Proportion of children 0–23 months of age who are fed with a bottle.

$$\frac{\text{Children 0–23 months of age who were fed with a bottle during the previous day}}{\text{Children 0–23 months of age}}$$

Notes:

- Information on bottle feeding is useful because of the potential interference of bottle feeding with optimal breastfeeding practices and the association between bottle feeding and increased diarrhoeal disease morbidity and mortality. Bottles with a nipple are particularly prone to contamination. Included in the numerator of this indicator are children less than 24 months of age who received any food or drink from a bottle with a nipple/teat during the previous day (including breast milk), regardless of whether or not the infant was breastfed.
- It is recommended that this indicator be further disaggregated and reported for each of 3 age groups: 0–5 months, 6–11 months and 12–23 months.

Milk feeding frequency for non-breastfed children

15. **Milk feeding frequency for non-breastfed children:** Proportion of non-breastfed children 6–23 months of age who receive at least 2 milk feedings

$$\frac{\text{Non-breastfed children 6–23 months of age who received at least 2 milk feedings during the previous day}}{\text{Non-breastfed children 6–23 months of age}}$$

Notes:

- Milk feedings include liquid milk products such as infant formula, cow milk or other animal milk. The specific products to be included need to be defined for each target population, to take into account local milk products that are commonly fed to young children in substantial quantities (e.g. fermented dairy products).
- The minimum of 2 milk feedings was selected based on the following: Average energy intake from breast milk in developing countries is approximately 400 kcal/day between 6 and 11 months and 350 kcal/day between 12 and 23 months (*5*). For non-breastfed children, the dietary analysis results (*10*) indicated that 3 milk feedings per day would generally allow for an average intake of milk that is similar to this range (300–400 kcal from milk). Most children will probably not consume more than 180–240 mL of milk per feed, which would be equivalent to ~100–150 kcal/feed if consumed as liquid whole cow milk. Taking the upper end of this range (150 kcal/feed) and a slightly lower "target" for energy intake from milk than is consumed by breastfed children (300 kcal/day), a minimum of 2 milk feedings per day would be needed.
- It is recommended that the indicator be further disaggregated and reported for the following age groups: 6–11 months, 12–17 months and 18–23 months.

D. Operationalizing the indicators

Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS) and Knowledge, Practice and Coverage (KPC) Surveys are important sources of information on infant and young child feeding practices for many countries. Based on a comparison of the proposed indicators and comparable indicators that are currently (up to November 2007) used in these surveys, participants identified and discussed a number of methodological differences in measurement between the various surveys. While secondary analyses of selected differences indicated that this might not lead to significantly different results, it was nevertheless considered critical to work towards further harmonization of methodologies for measuring the indicators. It was thus agreed to constitute a working group of measurement experts to develop an operational guide to complement this document. The guide will include questions to elicit information and address methodological issues related to sampling. The operational guide will be available as a published document from the partner agencies that have contributed to this publication.

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ANNEX 1A

Members of the Working Group on Infant and Young Child Feeding Indicators

The Working Group on Infant and Young Child Feeding Indicators was constituted in December 2002, following an informal meeting organized by WHO and hosted at the WHO Regional Office of the Americas. The Working Group had a permanent Steering Team and a large number of contributors who participated in various tasks. Principal investigators were responsible for data analysis from 10 sites that generated the evidence base for formulation of new indicators for children 6–23 months of age. Additional analysis was conducted at the International Food Policy Research Institute (*9*, *10*).

Members of the Steering Team were:

Mary Arimond and Marie Ruel, Food Consumption and Nutrition Division, International Food Policy Research Institute, Washington, DC, USA

Kathryn Dewey, Program in International and Community Nutrition, University of California, Davis, USA

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Principal investigators involved in the 10-site analysis were:

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Mourad Moursi, Institute of Research for Development, Montpellier, France

Helena Pachon, International Center for Tropical Agriculture, Cali, Colombia

An informal working group to update breastfeeding indicators was constituted in June 2007 and led by Chessa Lutter (Pan American Health Organization, World Health Organization). Other members of the informal working group were: Mary Arimond at IFPRI; Kathryn Dewey at UC Davis; Megan Deitchler at FANTA; Rae Galloway at the Infant and Young Child Nutrition (IYCN) Project; Monica Kothari at Macro International, PATH; Moazzem Hossein, Attila Hancioglu, Julia Krasevec, Nuné Mangasaryan and Tessa Wardlaw at UNICEF; André Briend, Bernadette Daelmans, Chika Hayashi, Peggy Henderson, Randa Saadeh, and Constanza Vallenas at WHO.

ANNEX 1B

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6–8 November, 2007, Washington, DC

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ANNEX 2

Summary list of indicators

Core indicators

1. Early initiation of breastfeeding
2. Exclusive breastfeeding under 6 months
3. Continued breastfeeding at 1 year
4. Introduction of solid, semi-solid or soft foods
5. Minimum dietary diversity
6. Minimum meal frequency
7. Minimum acceptable diet
8. Consumption of iron-rich or iron-fortified foods

Optional indicators

9. Children ever breastfed
10. Continued breastfeeding at 2 years
11. Age-appropriate breastfeeding
12. Predominant breastfeeding under 6 months
13. Duration of breastfeeding
14. Bottle-feeding
15. Milk feeding frequency for non-breastfed children

Top priorities for reporting among the core indicators

Since it may not always be feasible to report on all core indicators, the following four indicators are recommended in order of priority for two critical age groups, based on evidence of their positive association with child survival and/or nutrient intakes.

To assess breastfeeding practices in infants:

1. Exclusive breastfeeding under 6 months
2. Early initiation of breastfeeding

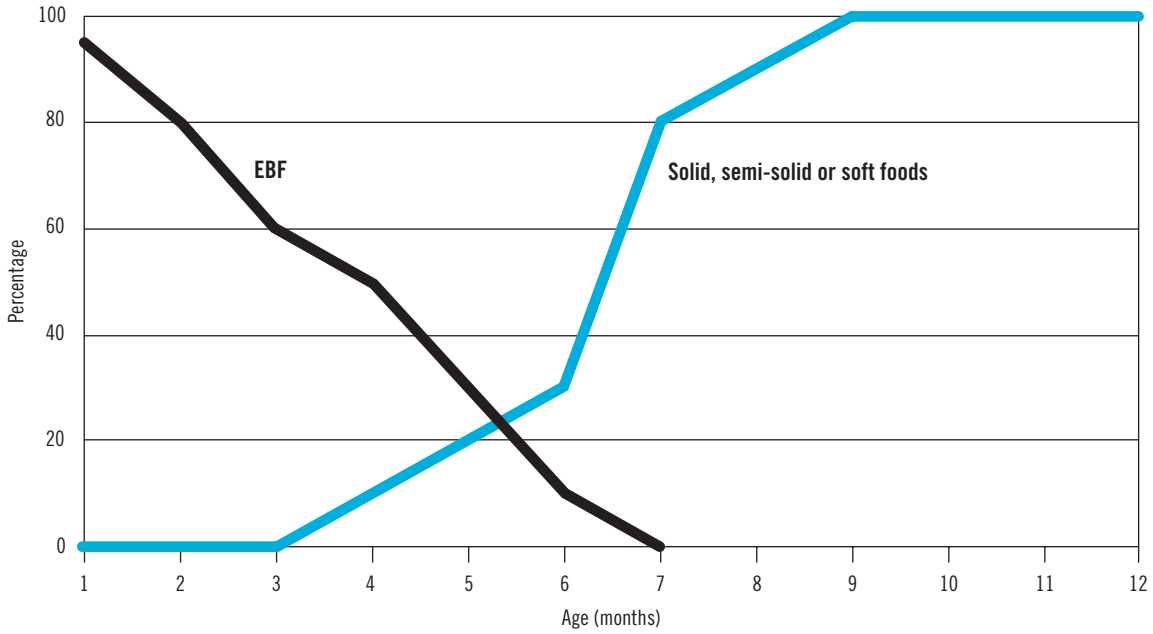
To assess feeding practices in children 6–23 months of age:

1. Minimum acceptable diet
2. Consumption of iron-rich or iron-fortified foods

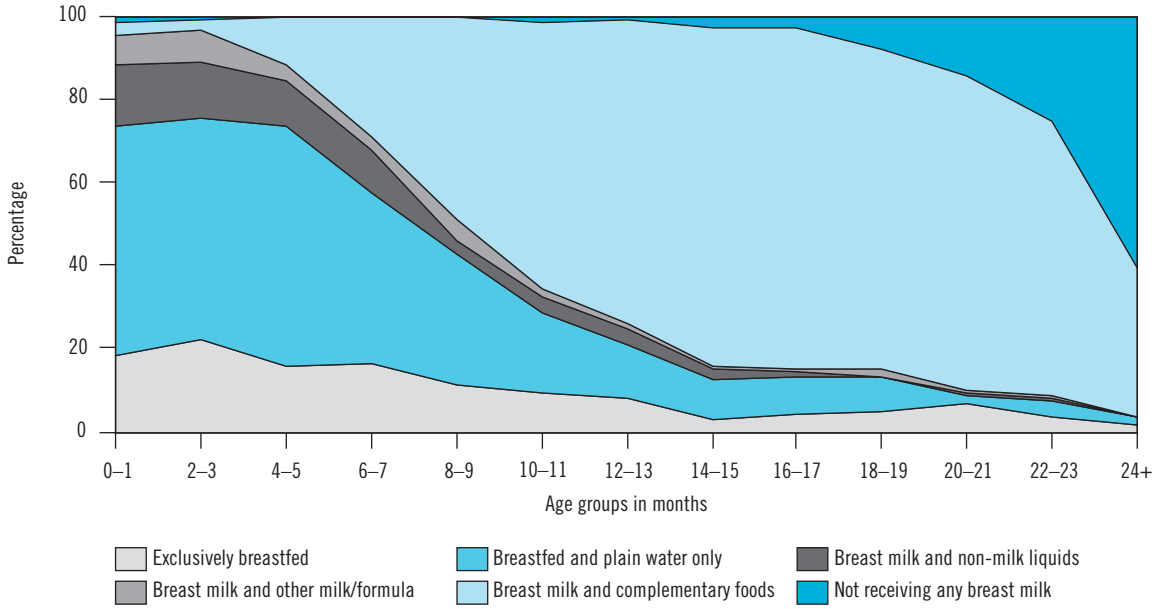
ANNEX 3

Examples of figures illustrating infant feeding practices by age group

Percentage of infants exclusively breastfed (EBF) and percentage receiving solid, semi-solid or soft foods



Infant feeding practices by age



This document summarizes new and updated indicators to assess infant and young child feeding. The analytic work providing the evidence for these indicators was supported through a partnership of the International Food Policy Research Institute (IFPRI), the Food and Nutrition Technical Assistance project (FANTA), Macro International, the University of California at Davis, the United States Agency for International Development (USAID), UNICEF and WHO. The document is the first in a series of three documents issued by WHO that also include an operational guide on measurement issues and an update on the indicator values for 54 countries using data from Demographic and Health Surveys. It is hoped that the indicators will be widely used in large-scale population-based surveys in countries to assess progress in the implementation of the Global Strategy for Infant and Young Child Feeding and to measure the coverage of effective nutrition interventions in young children.

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