1 Background

Breastfeeding practices of women in developing countries are critical determinants of child survival, maternal reproductive health, and population growth rates. Breastfeeding for the first two years of life and beyond protects the young child from infection, provides an ideal source of nutrients, is a cost-effective and safe form of feeding, fosters mother-child bonding, and lowers the risks of early childhood deaths. In children not breastfed at all, the risk of early death from diarrhea, respiratory disease, and other common childhood illnesses rises dramatically compared with children who are exclusively breastfed. Breastfeeding also benefits the mother by helping the uterus to retract, which can reduce postpartum blood loss, and delaying the return of menses, thereby preventing a subsequent closely spaced pregnancy. Indeed, the length and nature of breastfeeding directly affect fertility, with the period of amenorrhea being longer the longer a woman breastfeeds her child and the longer she waits before introducing other foods and liquids. Thus, for poor countries where the prevalence of contraceptive use is low, appropriately managed breastfeeding should be a key component of reproductive health programs.

The purpose of the present study is to report and compare breastfeeding and related young child feeding practices in developing countries around the world. The breastfeeding practices examined are those associated with international breastfeeding recommendations and indicators, and encompass the timing of initiation of breastfeeding, the practice of exclusive breastfeeding, the frequency and duration of breastfeeding, the age of introduction and types of complementary foods and liquids, and bottle feeding. Other outcomes examined, related to fertility control, include the duration of postpartum amenorrhea, abstinence from sexual relations, insusceptibility to pregnancy, and the proportion of women meeting the lactational amenorrhea method (LAM) criteria. The data are derived from surveys conducted by the Demographic and Health Surveys (DHS) program in 37 countries in sub-Saharan Africa, the Near East/North Africa, Asia, and Latin America/Caribbean from 1990 to 1996. For countries with two DHS surveys during that period, or with a prior DHS or WFS (World Fertility Survey) survey, trends in breastfeeding practices in those countries are also analyzed. Over a quarter of a million children under the age of five years are included in the analyses.

1.1 OPTIMAL INFANT AND CHILD FEEDING PRACTICES

Among the most important infant feeding practices as defined by WHO and UNICEF are initiation of breastfeeding within about 1 hour of birth; frequent, on-demand feeding (including night feeds); exclusive breastfeeding (defined as breast milk only and no other foods or liquids) for about the first 6 months of life; breastfeeding complemented with locally available and hygienically prepared, appropriate foods from the age of around 6 months; increased breastfeeding during illness and recovery; and continued breastfeeding for up to 2 years of age or beyond, while receiving nutritionally adequate and safe complementary foods (WHA, 1994; WHO/UNICEF, 1990).

Early initiation of breastfeeding is important because it fosters mother-infant bonding and takes advantage of the newborn's intense sucking reflex and alertness immediately postpartum, which permits the newborn to benefit within the first hour of life from the nutritional, antibacterial, and antiviral properties of colostrum (Righard and Alade, 1990). Early initiation of breastfeeding also stimulates breast milk production and causes the uterus to retract, which can reduce postpartum blood loss. Delayed initiation of breastfeeding may result in the newborn being provided with other sources of nourishment that can introduce infection and delay lactogenesis (milk arrival) (Perez-Escamilla et al., 1996).

Frequent, on-demand breastfeeding, including night feeds, is important to ensure both that an infant receives sufficient breast milk and that the supply of breast milk is maintained. Frequent feedings also can help to prevent problems of engorgement and sore nipples. On-demand feeding is important to ensure that newborns regain their birth weight (de Carvalho et al., 1983). Infants should be breastfed 8 to 10 times every 24 hours and even more frequently during the first month of life.

Exclusive breastfeeding, defined as breast milk as the only source of infant food or liquid, meets nutritional requirements (Cohen et al., 1994), satisfies fluid needs even in hot and humid climates (Sachdev et al., 1991), and protects against illness (Huffman and Combest, 1990) for about the first 6 months of life. Exclusively breastfed infants are 14 times less likely to die from diarrhea com-

pared with formula-fed infants and 4 times less likely to die compared with partially breastfed infants (Victora et al., 1987). Thus, exclusive breastfeeding is the infant feeding behavior most predictive of infant survival in conditions of poverty or poor sanitation.

At about 6 months of age, breast milk alone will no longer satisfy the energy, protein, and micronutrient requirements of most infants (IDECG, 1996). Local foods that are rich in energy, protein, and micronutrients, hygienically prepared, and soft to eat need to be provided. During the transitional period when complementary foods are being introduced, on-demand and frequent breastfeeding should continue to ensure that infants receive all the benefits of breastfeeding. The increased diarrheal morbidity that is often associated with the introduction of other foods and liquids can be prevented with proper hygiene.

The recommended duration of breastfeeding has recently received considerable attention because of several studies that show that children who are breastfed beyond the second year of life are more likely to suffer from malnutrition. A review of the studies, however, shows most to have serious methodological flaws (Grummer-Strawn, 1993). Both WHO and UNICEF recommend that because of its many nutritional and immunological benefits breastfeeding should continue into the second year of life and beyond. Breastfeeding beyond 6 months of age should be complemented with energy and other nutrient-dense weaning foods.

1.2 INTERNATIONAL BREASTFEEDING INDICATORS

The international community has identified a number of breastfeeding indicators that now form the basis for much of the current breastfeeding data collection and research effort. The formulation of indicators was in response to a growing need for comparability and coherence of breastfeeding data from around the world. Better comparability of data contributes to an assessment of the global breastfeeding situation and provides policy-makers and program managers a common set of measures to monitor and evaluate their progress.

The formulation of current breastfeeding indicators has evolved over nearly a decade, marked by a number of key events. They include initial efforts, in 1988, by the Interagency Group for Action on Breastfeeding (IGAB) to develop breastfeeding indicators; the Innocenti Declaration of 1990, which stressed the importance of exclusive breastfeeding for the first 4 to 6 months of life and urged the international community to draw up strategies for promoting breastfeeding and monitoring and evaluating their progress; a WHO informal consultation in 1993 to assess the state of trend monitoring through databases and information resource systems; the 1992 International Conference on Nutrition which, in the World Declaration and Plan of Action for Nutrition, called for the collection, analysis, and dissemination of updated and reliable information on infant and young child feeding, especially breastfeeding prevalence and duration; and the Forty-seventh World Health Assembly resolution WHA 47.5, of 1994, that requested WHO to support member states in monitoring infant and child feeding practices and trends in health facilities and households, in keeping with the new standard breastfeeding indicators (WHO, 1996).

In response to the increasing need and desire to monitor breastfeeding practices and trends, WHO now compiles a Global Data Bank on Breastfeeding, which includes indicator-based data collected from households and from health facilities. The household-level indicators as defined by WHO are presented in Table 1.1. Full definitions of the terms used in the indicators are presented in Appendix A.

1.3 SOURCE OF DATA

One of the most comprehensive sources of national household-level breastfeeding and infant feeding data is the Demographic and Health Surveys (DHS). The DHS program began in 1984 and continues to the present. The program has evolved through a series of five-year phases that are referred to in this report as DHS-I, DHS-II, and DHS-III. DHS-I includes surveys conducted from 1984 to 1989; DHS-II includes surveys conducted from 1988 to 1993; DHS-III includes surveys conducted from 1992 to 1997. A year of overlap exists between each 5-year phase because some surveys began late in one phase and overlapped into the subsequent phase. The current, or fourth, 5-year phase of the DHS program is called MEASURE/DHS+.

In this report, data are presented from 37 countries with DHS surveys conducted between 1990 and 1996 (i.e., surveys from DHS-II and DHS-III). The data were collected by trained interviewers using household and individual questionnaires. Data on socioeconomic and demographic characteristics of respondents' households come

from the household interview. The individual questionnaire, administered to women age 15 to 49 within the household, provides information on the specific characteristics of respondents, fertility, mortality, family planning, and child health and nutrition. Women who have given birth within five years preceding the interview are specifically asked about breastfeeding and complementary feeding practices, ante- and postnatal care, childhood illnesses and treatment patterns, immunization, and postpartum durations of amenorrhea and sexual abstinence. Those women and the children born within five years are weighed and measured for height (or length, for children less than two years old).

Table 1.1 WHO global data bank on breastfeeding. Breastfeeding indicators derived from households

Description	Definition
Ever-breastfed rate	Infants less than 12 months old who were ever breastfed
Mean duration of breastfeeding	Average duration of breastfeeding in months
Median duration of breastfeeding	Age in months when 50% of children are no longer breastfed
Exclusive breastfeeding rate at 1 month	Infants 1 month old who are exclusively breastfed
Exclusive breastfeeding rate at 2 months	Infants 2 months old who are exclusively breastfed
Exclusive breastfeeding rate at 3 months	Infants 3 months old who are exclusively breastfed
Exclusive breastfeeding rate at 4 months	Infants 4 months old who are exclusively breastfed
Exclusive breastfeeding rate at 5 months	Infants 5 months old who are exclusively breastfed
Exclusive breastfeeding rate at 6 months	Infants 6 months old who are exclusively breastfed
Exclusive breastfeeding rate < 4 months	Infants less than 4 months old who were exclusively breastfed in the last 24 hours
Predominant breastfeeding rate	Infants less than 4 months old who were predominantly breastfed in the last 24 hours
Timely complementary feeding rate	Infants 6-9 months old who received complementary foods in addition to breast milk in the last 24 hours
Continued breastfeeding rate (1 year)	Children 12-15 months old who were breastfed in the last 24 hours
Continued breastfeeding rate (2 years)	Children 20-23 months old who were breastfed in the last 24 hours
Bottle-feeding rate	Infants less than 12 months old who are receiving food or drink from a bottle

Source: WHO, 1996