



## CHAPTER 3

# Off to the Best Start

## The Importance of Infant and Young Child Feeding

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IN RECENT YEARS, nutrition interventions have focused on the critical first 1,000 days of life (from pregnancy up to the child's second birthday), a period which has been identified as a window of opportunity for preventing child morbidity and mortality and ensuring adequate growth. During this time, children have higher nutritional needs to support rapid growth and development; if these are not met (and supported by adequate care and access to health services), loss in linear growth is largely irreversible and the potential for intervention to promote catch-up growth later on is minimal.<sup>1</sup> Optimum nutrition in the first 1,000 days is also important for preventing overweight. Evidence suggests that infants with growth faltering in early life, followed by rapid weight gain in later childhood, might be at increased risk of adult obesity and noncommunicable diseases (NCDs), such as cardiovascular disease and hypertension.<sup>2</sup> Strategies to improve infant and young child feeding (IYCF) are therefore a cornerstone for the child survival and development programs of many countries.

Evidence for recommended feeding practices and about barriers to appropriate feeding has grown steadily, as has knowledge about interventions that have effectively promoted improved IYCF. Best practices for IYCF focus on *breastfeeding* (initiating breastfeeding within one hour of birth, exclusive breastfeeding (EBF)—only giving an infant breast-milk and no other food or water—for the first six months of life, and continued breastfeeding up to the age of two and beyond); and *complementary feeding* (introducing safe, age-appropriate soft and solid food starting at six months of age).<sup>3</sup> The *Lancet* 2016 Breastfeeding series confirms that appropriate breastfeeding practices provide major protection against child morbidity from diarrhea and respiratory infections in countries affected by infectious diseases.<sup>4</sup> One study estimates that improved breastfeeding practices worldwide could annually prevent the deaths of 823,000 children under five and the deaths of 20,000 mothers from breast cancer.<sup>5</sup> Breastfeeding is further associated with increased intelligence in children, and thus with enhanced human capital in adulthood.<sup>6</sup> A

recent economic analysis estimates that present low global levels of breastfeeding at six months could account for a global loss of gross national income (GNI) amounting to US\$302 billion—about 0.5 percent of world GNI.<sup>7</sup> Poor complementary feeding practices have also been identified as a risk factor associated directly with stunting.<sup>8</sup> Moreover, for the increasing number of countries now facing a double burden of malnutrition (both under- and overnutrition), optimal IYCF and early intervention are even more critical to ensure that investments are targeting children under two years to reduce their risk of becoming both stunted and obese.<sup>9</sup>

## Developing a Global Strategy

For most of the past century, initiation and duration of breastfeeding have declined globally as a result of rapid social and economic change, including increased urbanization, increased women's employment, and marketing of breast-milk substitutes.<sup>10</sup> In the 1970s, a global coalition formed by civil society and other stakeholders campaigned against the unethical marketing strategies of infant formula companies that resulted in many infants' becoming malnourished or dying from contaminated or diluted breast-milk substitutes ([Box 3.1](#)).<sup>11</sup> Key developments include the following:

- 1981: *International Code of Marketing of Breast-milk Substitutes*<sup>12</sup> (hereafter “the Code”) and

subsequent relevant resolutions adopted by the World Health Assembly.

- 1990: *Innocenti Declaration on the Protection, Promotion, and Support of Breastfeeding*<sup>13</sup> (developed by WHO and UNICEF policy makers) recommended establishment of national breastfeeding committees, national legislation to protect the breastfeeding rights of employed women, and implementation of the Code.
- 1991: *Baby Friendly Hospital Initiative*<sup>14</sup> launched to scale up “10 Steps to Successful Breastfeeding.” Maternity facilities achieve baby-friendly status when they adopt a policy of not accepting free or low-cost breast-milk substitutes and have implemented the 10 steps. There are now more than 15,000 baby-friendly facilities in 134 countries.
- 2002: WHO/UNICEF *Global Strategy for Infant and Young Child Feeding*<sup>15</sup> galvanized world attention around the importance of IYCF for child survival, growth, and development. It also emphasized the need to strengthen breastfeeding support at the community level and addressed the needs of children living in difficult circumstances, such as infants of mothers living with HIV, low birth-weight infants, and infants in emergency situations.

### BOX 3.1 Marketing of infant formula

Since its inception in 1981, enforcement of the International Code of Marketing of Breast-milk Substitutes has been undermined by the active and aggressive marketing of substitutes by their manufacturers and distributors.<sup>16</sup> Clear evidence of negative impact on breastfeeding is found when breast-milk substitutes are provided for free in health facilities and promoted by health workers and in the media—practices in direct contravention of the Code.<sup>17</sup> Less than a quarter of 199 countries have a robust implementation and monitoring system in place.<sup>18</sup> Brazil's breastfeeding success is due in part to its rigorous monitoring of compliance.<sup>19</sup> Despite its progress, Brazil is the 10th-largest market for infant formula, a market expected to reach US\$951 million by 2019.<sup>20</sup>

- 2003: Pan American Health Organization/WHO *Guiding Principles for Complementary Feeding of the Breastfed Child*<sup>21</sup> proposes 10 guiding principles for complementary feeding, which cover areas such as meal frequency, energy density, and feeding during and after illness. Similar guiding principles are available for feeding of non-breastfed children.<sup>22</sup>

Breastfeeding initiatives have been the most successful aspect of IYCF programs at scale to date. Stories of intervention effectiveness in improving complementary feeding come mainly from small-scale programs. In Madagascar, a project to improve maternal nutrition and IYCF in a target population of 6 million implemented a combination of health-worker training, community mobilization, and mass media to great effect. Results showed an increase in EBF in infants under six months from 42 to 70 percent between 2000 and 2006.<sup>23</sup> More widely, evidence indicates that countries with policies and programs most closely aligned to recommendations from the WHO/UNICEF global strategy—a multipronged approach with both cross-cutting and targeted strategies at community, health system, and national levels ([Box 3.2](#))—achieve the greatest impact.<sup>24</sup>

## Breastfeeding—Best Progress in Developing Countries

Findings from the *Lancet* 2016 Breastfeeding series confirm that breastfeeding is one of the few positive health behaviors that is more prevalent in poor countries than in rich ones.<sup>25</sup> Moreover, poor women breastfeed for longer than rich women in low- and middle-income countries. The reverse is true in high-income countries, suggesting that in low- and middle-income countries, breastfeeding contributes to reducing health inequalities between rich and poor children.<sup>26</sup> Yet global progress has

### BOX 3.2 Key components and interventions of IYCF strategy

#### Legislation

- » Marketing of breast-milk substitutes
- » Maternity protection

#### Skilled support by the health system

- » Curriculum development for IYCF
- » IYCF counseling and other support services
- » Capacity development for health providers
- » Institutionalization of the Baby-Friendly Hospital Initiative

#### Community-based counseling and support

- » Established community-based integrated IYCF counseling services
- » Mother support groups

#### Communication

- » Community for behavior and social change

#### Additional complementary feeding options

- » Improving the quality of complementary foods through locally available ingredients
- » Increasing agricultural production
- » Provision of nutrition supplements and foods
- » Social protection schemes

#### IYCF in difficult circumstances

- » HIV and infant feeding
- » IYCF in emergencies

**Source:** Adapted from UNICEF, *Programming Guide: Infant and Young Child Feeding* (New York, 2011).

still been slow to date. In 2000, 37 percent of infants under six months were exclusively breastfed—by 2012 this had increased to just 41 percent.<sup>27</sup> However, 25 countries increased their rates of EBF by 20 percentage points or more after 1995; this puts these countries on track to achieve the World Health Assembly global nutrition target of increasing the rate of EBF to at least 50 percent in the first six months by 2025.<sup>28</sup> Although less than half of all infants worldwide (44 percent) were put to the



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*Exclusive breastfeeding—giving an infant only breast milk and no other food and water—for the first 6 months is linked with lower mortality of children and mothers.*

breast within the first hour after birth (first milk, or colostrum, is rich in antibodies and important for the baby's immune system), 68 percent of infants were still being breastfed at 12–15 months.<sup>29</sup>

Key to success are national plans that create an enabling environment through elements such as the adoption of legislation on the marketing of breast-milk substitutes ([Box 3.1](#)), baby-friendly maternity facilities, and skilled support by health providers and community workers. Education interventions increased EBF by 43 percent at day one, by 30 percent at one month, and by 90 percent from one to five months, with a combination of individual and group counseling found to be more effective than either intervention on its own.<sup>30</sup> However, more progress needs to be made in addressing the barriers presented by work environments. Nearly all countries have maternity protection legislation,

but only half (98 out of 185 countries) provide the recommended 14 weeks of maternity leave.<sup>31</sup> Moreover, hundreds of millions of working women in informal work sectors, mostly in Africa and Asia, have either no maternity protection or inadequate protection.<sup>32</sup>

## Success Stories in Boosting Breastfeeding

Brazil made impressive strides in improving breastfeeding practices beginning in the mid-1970s.<sup>33</sup> Between 1974/1975 and 2006/2007, the median duration of breastfeeding increased from about 2.5 months to 14 months.<sup>34</sup> There was also a steep rise in EBF rates from a low of about 4 percent in 1986 to 48 percent by 2006/2007.<sup>35</sup> Brazil launched its National Program for the Promotion of Breastfeeding in 1981 through a mass media campaign to sensitize decision makers and the public about the urgent need to improve breastfeeding rates.<sup>36</sup> Targeted communication strategies were developed, using multiple channels and messages tailored to the local context and to the specific barriers to breastfeeding, such as the belief that women do not produce enough milk for EBF.<sup>37</sup>

Brazil's success was not instant. There was a time lag of approximately six years before significant increases in breastfeeding duration began to be detected. Analysis of the program identifies a number of threats to breastfeeding, including free formula distribution, unethical advertising by infant formula companies, and medical education biases. For the first three to four years of the program, these negative influences were much stronger than breastfeeding promotion and advocacy efforts. But barriers declined over time as Brazil's institutional capacity increased and the country reduced its reliance on foreign aid to sustain the program.<sup>38</sup> Brazil's achievements in improved breastfeeding do not exist in isolation—they are part of a broader

expansion in access to maternal and child health and nutrition services and pro-poor policies such as targeted cash transfer programs.<sup>39</sup> The Brazilian government has also shown regional leadership through its support of human-milk banks in neonatal intensive care units in nearly all countries in Latin America, which not only provide human milk for critically ill newborns but also foster a culture of breastfeeding in the hospital.<sup>40</sup>

Bangladesh was motivated to re-evaluate its breastfeeding promotion efforts when EBF rates remained static. From 1994 to 2007 the EBF rate hovered between 42 and 46 percent.<sup>41</sup> The Bangladeshi program included successful implementation of the Code, the introduction of maternity leave legislation, and promotion of major investment in Baby Friendly Hospital Initiative efforts, but it had failed to engage a key target audience, namely women who still had little contact with health sector maternity services.<sup>42</sup> Lessons learned led to the piloting of innovative community-based breastfeeding promotion approaches, such as community nutrition promoters and mother-to-mother support groups. Subsequent scale-up of these new IYCF practices through Alive & Thrive's program (2010–2014) paid huge dividends—an increase in EBF from 48 percent to 88 percent in intervention areas.

In contrast, Sri Lanka is a country where 95 percent of women attend prenatal care and give birth in healthcare facilities. Between 1995 and 2007, the average rate of EBF among infants up to six months of age increased from 17 percent to 76 percent, an annual increase of roughly 6 percentage points a year.<sup>43</sup> The country's breastfeeding program was characterized by extensive training in lactation support both for the vast majority of health workers based in hospitals and field clinics and for public health midwives making home visits within the first 10 days after delivery.<sup>44</sup> The Sri Lankan experience underlines the need to engage

women at both health-facility and community levels, with outreach to extend breastfeeding into the community.<sup>45</sup>

## Complementary Feeding

Feeding with appropriate, adequate, and safe complementary foods from six months onward contributes to better health and growth outcomes, although breast milk remains an important source of nutrients until children reach two years of age.<sup>46</sup> Complementary feeding is the period of transition from breast milk (or breast-milk substitutes) to the gradual introduction of new foods until a baby is eating the same foods as the rest of the family.<sup>47</sup> The timing of complementary feeding, usually between 6 and 23 months of age, is the most nutritionally vulnerable period for young children. And in developing countries, this period coincides with a rapid acceleration in the incidence of stunting, particularly among children age 6 to 12 months.<sup>48</sup> Inappropriate complementary feeding (such as poor-quality food, inadequate practices, and poor hygiene and food safety) has been strongly linked with undernutrition, growth faltering, diarrhea, increased rate of infections, vitamin-mineral deficiency, poor cognitive development, and increased mortality among children.<sup>49</sup>

Most examples of successful complementary feeding programs are at the community level rather than at scale (one exception is Alive & Thrive's multiple-country intervention).<sup>50</sup> This may be due to the fact that although complementary feeding is practiced worldwide, it is a complex set of behaviors, comprising food choices and preparation, active feeding or responsiveness to infant cues, and so on, and practices vary greatly across cultures, individuals, and socioeconomic classes.<sup>51</sup> Moreover, indicators for measuring complementary feeding ([Box 3.3](#)) were not in place until 2008.<sup>52</sup> In the Indian state of Maharashtra, one study suggests



### BOX 3.3 Indicators for measuring complementary feeding

In 2008 the WHO issued the following indicators for measuring complementary feeding<sup>53</sup>:

- » **Dietary diversity:** Proportion of children 6–23 months of age who receive foods from four or more food groups daily (out of the following seven food groups: (1) grains, roots, and tubers; (2) legumes and nuts; (3) dairy products (milk, yoghurt, cheese); (4) flesh foods (meat, fish, poultry, and liver/organ meats); (5) eggs; (6) vitamin A-rich fruits and vegetables; and (7) other fruits and vegetables).
- » **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 per day: 2 for 6–8 months, 3 for 9–23 months, 4 for 6–23 months (if not breastfed).
- » **Minimum acceptable diet (composite indicator):** Proportion of children 6–23 months of age who meet both minimum meal frequency and dietary diversity criteria (in both breastfed and non-breastfed children).
- » **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 especially designed for infants and young children or that is fortified in the home.

that improvement in child-feeding practices was one of the key determinants in reducing stunting, which declined from 36.5 percent to 24 percent between 2005/2006 and 2012.<sup>54</sup> Between these two surveys, the percentage of children 6 to 23 months old who were fed a required minimum number of times per day increased from 34 to 77 percent, although less than 7 percent received a minimum acceptable diet in 2012.<sup>55</sup>

High-quality counseling of mothers or caregivers and appropriate behavior change communication are essential for improving complementary feeding practices. In addition, provision of complementary foods offering extra energy (with or without added micronutrients) and fortification of complementary foods may be needed to fill nutrient gaps when locally available foods alone cannot satisfy nutritional requirements.<sup>56</sup>

Approaches to improve complementary feeding in different contexts may also encompass various social protection measures, such as cash transfers, and nutrition-sensitive measures in the agriculture sector. The Enhanced Homestead Food Production

(E-HFP) model in Burkina Faso used an agricultural platform to improve nutrition during the first 1,000 days, combining home gardening and small animal production with behavior change communication over two years (see Chapter 6 for more on this intervention). An impact evaluation found that program beneficiaries showed a marginally statistically significant increase in dietary diversity and intake of nutrient-rich foods, with improvements in IYCF knowledge. Children (aged 3–12 months) showed statistically significant reductions in anemia (14.6 percent) and diarrhea (15.9 percent) and a marginally statistically significant reduction in wasting (8.8 percent) between 2010 and 2012.<sup>57</sup>

### Alive & Thrive

The Alive & Thrive multistakeholder program (2009–2014) aimed to improve IYCF practices at scale in three very different contexts: Bangladesh, Ethiopia, and Vietnam. The initiative sought to address the dearth of field-tested, documented examples of large, multicomponent IYCF programs.<sup>58</sup>



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*A health education mural in Mozambique reads, "Mother's milk is best for baby."*

Preliminary findings from the 2015 endline survey report impressive results in changing feeding behavior and diets (although no results were reported on stunting and wasting). This suggests that effective interventions can be delivered at scale to improve infant and young child nutrition. In Bangladesh, Alive & Thrive's program of advocacy, community mobilization, and mass media is reported to have led to rapid improvements in breastfeeding and complementary feeding behaviors. From 2010 to 2014, the percentage of infants under six months who were exclusively breastfed increased from 49 percent to 86 percent in places that received the comprehensive intervention package. Additionally, the proportion of children who consumed a diverse diet increased by 30 percentage points. In Vietnam, EBF prevalence (initially lower than 20 percent) nearly tripled in areas where Alive & Thrive initiated high-quality interpersonal counseling services in health facilities in addition to a mass media campaign. The Vietnam program introduced an innovative social franchise model for delivering infant and young child nutrition counseling services, which was successfully integrated into the health system. In the two countries (Bangladesh and Vietnam), Alive & Thrive conducted an estimated 3.3 million counseling sessions

with mothers of children under two years of age, making it the first project of its kind to implement IYCF interventions at scale. National mass media campaigns allowed both countries to reach millions more mothers in a relatively short period of time.

Preliminary results from Alive & Thrive's Phase 1 (2009–2014) in Ethiopia suggest that it is possible to effect change in complementary feeding practices. The proportion of children who met minimum dietary diversity and minimum adequate diet, while still extremely low, doubled in the program evaluation areas. In addition, minimum meal frequency increased by more than 20 percentage points (from 46 to 70 percent).<sup>59</sup> These gains were all achieved against a backdrop of high levels of food insecurity in Alive & Thrive's intervention areas.

In response to the continuing complementary feeding challenges in Ethiopia, Alive & Thrive's Phase 2 (2014–2017) is building on its learning from Phase 1. Data identified gaps between health-education workers trained by the program and community volunteers and mothers, highlighting the need for more frequent and better quality interactions with mothers and family members. To support and sustain behavior change at the household level, the new phase is emphasizing frequent interpersonal contacts between caregivers and frontline workers at critical points during a child's first two years, providing age-specific messages and counseling.<sup>60</sup>

## Conclusion

IYCF interventions have a crucial role to play in successful nutrition programming, particularly in the critical first 1,000 days. Breastfeeding promotion has shown the most promise at scale to date in improving nutrition, but recent multi-component initiatives such as Alive & Thrive are breaking new barriers in addressing complementary feeding practices for millions of infants and young children.

