

# Feeding of Infants and Young Children in South Asia

*Harriet Torlesse  
Dhushyanth Raju*



**WORLD BANK GROUP**

Social Protection and Jobs Global Practice

&

South Asia Region

November 2018

## Abstract

Poor breastfeeding and complementary feeding practices predict child stunting and wasting in South Asia, suggesting that initiatives to end undernutrition in the region should focus on improving the diets of young children. This review of the literature finds that South Asia has made relatively good progress in improving breastfeeding practices compared with other regions, but the lack of diversity in complementary foods and low frequency of feeding continue to be problems. Children who are most at risk of experiencing poor feeding include those who are born small, have younger mothers, and live in poorer households or in communities with less access to, or lower uptake of, primary

health services. Initiatives to improve feeding practices have not produced substantial improvement, particularly in complementary feeding, because such efforts have lacked the coverage, intensity, comprehensiveness, and continuity needed. Policy, legal, and program actions to protect, promote, and support recommended feeding practices should be informed by situation analyses and formative research on context-specific drivers of poor practices. The actions should involve multiple sectors and stakeholders, including governments, the private sector, communities, and households.

---

This paper is a product of the Social Protection and Jobs Global Practice and the Office of the Chief Economist, South Asia Region. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://www.worldbank.org/research>. The authors may be contacted at [hforlesse@unicef.org](mailto:hforlesse@unicef.org) and [draju2@worldbank.org](mailto:draju2@worldbank.org).

*The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.*

## Feeding of Infants and Young Children in South Asia

Harriet Torlesse  
Dhushyanth Raju



**JEL codes:** I10, I12, I15

**Keywords:** South Asia, breastfeeding, complementary feeding, undernutrition

---

Harriet Torlesse, United Nations Children’s Fund (UNICEF), Regional Office for South Asia, Kathmandu, Nepal, [htorlesse@unicef.org](mailto:htorlesse@unicef.org). Dhushyanth Raju, World Bank, Washington, DC, United States, [draju2@worldbank.org](mailto:draju2@worldbank.org). We thank Rasmi Avula, Aashima Garg, Ashi Kohli Kathuria, and Erika Marie Lutz for helpful comments. This study is a background paper for the South Asia regional report on undernutrition. It is funded by contributions from the United Kingdom Department for International Development and the European Commission, through the South Asia Food and Nutrition Security Initiative (grant number TF0A5366) administered by the World Bank, and from the Bill & Melinda Gates Foundation through the UNICEF-led Regional Initiatives for Sustained Improvements in Nutrition and Growth.

## **Introduction**

While child undernutrition has multiple causes, inadequate dietary intake by children is among the most immediate (UNICEF 2013). The survival, growth, and development of children are sensitive to what and how they are fed from birth to two years (UNICEF 2016). Global evidence suggests that breastfeeding protects against childhood infections and saves infant lives, improves cognitive function, and reduces the likelihood of overweight and diabetes in later life (Victora et al. 2016). Appropriate complementary foods and feeding promote child survival and protect against stunting, micronutrient deficiency, overweight, and obesity (Bhutta et al. 2013; Begin and Aguayo 2017; Michaelsen et al. 2017).

In terms of evidence from South Asia, poor infant and young child feeding (IYCF) practices underlie the high rate (prevalence) of undernutrition (Aguayo and Menon 2016). Children are more likely to be wasted if they are not breastfed immediately after birth, if they are fed prelacteal foods in the first few days of life, and if they are not exclusively breastfed (Harding et al. 2018). Stunting is more common among infants aged 6–8 months who are not fed any complementary foods, and among children aged 6–23 months whose complementary foods do not comprise enough food groups (Kim et al. 2017). In addition, low meal frequency is associated with a higher likelihood of severe wasting (Kim et al. 2017).

This study argues that the issue of suboptimal feeding of children under two years needs greater attention in South Asia, and considers options for increasing the rates of recommended feeding practices. Specifically, the study examines the current levels, recent trends, and determinants of the rates of recommended feeding practices in South Asia, based on published statistics and a review of the empirical literature. The study also reviews the literature that examines actions by governments, the private sector, communities, and households that promote or undermine recommended feeding practices in the region.

Published statistics on the rates for recommended feeding practices are obtained from statistical reports for the latest rounds of relevant national household sample surveys, such as Demographic and Health Surveys. Except Maldives, all countries in the region have statistics on recommended feeding practices from surveys administered in the last five years. The reviewed literature includes articles identified using a search of PubMed, as well as reports, briefs, and other literature sourced from organizational websites and experts.

## **State of child feeding**

The Global Strategy for Infant and Young Child Feeding (WHO and UNICEF 2003) and guiding principles on complementary feeding (PAHO/WHO 2003; WHO 2005) recommend that breastfeeding be initiated within the first hour of birth (known as “early initiation of breastfeeding”), that breastmilk be fed exclusively to an infant for the first six months of life (“exclusive breastfeeding”), and that breastfeeding be continued until the child’s second birthday or beyond (“continued breastfeeding”). The guidelines also recommend that complementary foods be introduced at six months of age (“timely introduction of complementary foods”), that they be fed frequently according to the child’s age (meeting “minimum meal frequency”), and that they include a sufficient number of diverse food groups (meeting “minimum dietary diversity”).

### *Early initiation of breastfeeding*

The early initiation of breastfeeding safeguards infants from death in the first month of life, when they are most susceptible to this risk. South Asia has made more progress since 2000 in improving the early initiation rate than any other region of the world. Between 2000 and 2016, the early initiation rate more than doubled, from 16 to 40 percent (UNICEF 2016; UNICEF 2018a). However, more than 20 million infants are still not being breastfed within the first hour of birth (UNICEF 2016). Progress is extremely uneven across the region. The two countries with the lowest rates, Pakistan at 18 percent and Afghanistan at 41 percent, have both experienced recent declines in the early initiation rate; they also rank among the top three countries globally for neonatal mortality (UNICEF 2018b). In contrast, nine out of 10 newborn children benefit from early initiation in Sri Lanka (figure 1a).

Caesarean delivery is a consistent determinant of delayed breastfeeding initiation in South Asia, as post-delivery practices often fail to support early initiation (Dibley et al. 2010; Sharma and Byrne 2016; Kavle et al. 2017; Benedict et al. 2018a). Other barriers to early initiation include maternal or infant, sociocultural, and health system factors (Dibley et al. 2010; Sharma and Byrne 2016; Kavle et al. 2017; Benedict et al. 2018). Delayed initiation is often more likely among women with no formal education, with low access to media, and with low decision-making autonomy (Dibley 2010; Sharma and Byrne 2016; Benedict et al. 2018a). In Pakistan, early initiation is less likely among overweight women (Benedict et al. 2018a)—a pattern that deserves greater attention given the rising prevalence of overnutrition among women in both Pakistan and across the region. Infants who are small at birth are less likely to breastfeed early, potentially reflecting suckling difficulties in premature or small-for-gestational age newborn children (Benedict et al. 2018a). Infants in wealthy households are less likely to be exclusively breastfed than other infants, presumably because these households can more easily afford breastmilk substitutes (Benedict et al. 2018a). Harmful traditional customs, including prelacteal feeding, interfere with early initiation (Sharma and Byrne 2016). Both Bangladesh and Nepal have made good progress in reducing the rate of prelacteal feeding since 2000, but the practice has become more common in recent years and is notably high in Pakistan, at 75 percent, and in Afghanistan, at 44 percent, mirroring the poor progress on early initiation of breastfeeding in these countries (Benedict et al. 2018a). Health system barriers include inadequate availability or utilization of skilled antenatal or delivery care (no or few antenatal care checkups, and lack of skilled support to initiate breastfeeding) (Dibley 2010; Sharma and Byrne 2016; Benedict et al. 2018a).

### *Exclusive breastfeeding*

Exclusive breastfeeding—that is, feeding infants only breastmilk for the first six months of life—is the safest and surest option for healthy growth in early life. The exclusive breastfeeding rate in South Asia increased by only five percentage points between 2000 and 2016, from 47 percent to 52 percent (UNICEF 2016; UNICEF 2018a). As with early initiation rates, countries in the region differ widely in terms of their exclusive breastfeeding rates, with the lowest rates in Pakistan (38 percent) and Afghanistan (43 percent), and the highest rate in Sri Lanka (82 percent) (figure 1b).

Barriers to exclusive breastfeeding are often identical to those for early initiation (Dibley et al. 2010; Kavle et al. 2017; Benedict et al. 2018a). They include harmful sociocultural customs (prelacteal feeding), infant factors (small birth size), and health system factors (low uptake of antenatal care, caesarean delivery, and home delivery). The Tajik and other smaller

ethnic groups in Afghanistan are less likely to exclusively breastfeed, whereas some low-caste groups in India are more likely to do so (Benedict et al. 2018a), suggesting that sociocultural practices may influence exclusive breastfeeding. In India, girls are less likely to be exclusively breastfed than boys (Benedict et al. 2018a).

### *Continued breastfeeding*

Continued breastfeeding from six months to two years and beyond is an important source of key nutrients for healthy growth (Victora et al. 2016) and is particularly important in settings where households have inadequate access to nutritious complementary food. Of all regions, South Asia has the highest rate of continued breastfeeding, at two years, but it has seen little progress between 2000 (68 percent) and 2016 (71 percent) (UNICEF 2016; UNICEF 2018a). Rates are lowest for Pakistan (56 percent) and Afghanistan (59 percent), and highest for Nepal (89 percent) and Sri Lanka (87 percent).

Comparing the continued breastfeeding rates at one year and two years of age indicates a large decline in continued breastfeeding (exceeding 15 percentage points) in Afghanistan, Bhutan, and Pakistan during the second year of life (figures 1c and 1d). A shorter duration of breastfeeding has previously been observed among girls in India (Jayachandran and Kuziemko 2011); however, it is encouraging that 2015–16 statistics from India do not show a significant difference between girls and boys in continued breastfeeding at two years (Benedict et al. 2018a). Continued breastfeeding at two years of age is more likely among women with low body mass index in India, and among less-wealthy households in both India and Pakistan (Benedict et al. 2018a). Children whose mothers have low decision-making autonomy are less likely to be breastfed at two years in both Nepal and Pakistan (Benedict et al. 2018a), in contrast to findings from a multi-country study showing an association between higher autonomy and shorter duration of breastfeeding (Smith et al. 2003).

### *Timing, frequency, diversity, and adequacy of complementary foods*

The timing of an infant's first food is critical to his or her growth and development (PAHO/WHO 2001). Introducing food too early increases the likelihood of infection and a premature end to breastfeeding, while doing so too late makes undernutrition more likely. Fewer South Asian infants are waiting too long for their first food today than they were 15 years ago: the percentage of infants aged 6–8 months who are fed complementary foods increased from 37 percent in 2000 to 52 percent in 2016 (UNICEF 2018a), but the rate remains lower than those for all other regions with comparable data (UNICEF 2016). Four countries in the region (Bhutan, Maldives, Nepal, and Sri Lanka) have rates exceeding 80 percent (figure 2a). But several countries pull the regional rate down, including Afghanistan (56 percent), Bangladesh (65 percent), India (43 percent), and Pakistan (55 percent).

Children aged 6–23 months need frequent meals because their gastric capacity is small and their nutrient needs are greater than at any other time in life. Yet fewer than one-half of these children in South Asia (44 percent) are fed enough times per day to meet the recommended minimum level (UNICEF 2018a). The minimum meal frequency rate in South Asia is similar to that in Sub-Saharan Africa (45–47 percent) (UNICEF 2016), where the stunting rate is also high. The minimum meal frequency rate is particularly low in India, at 36 percent (figure 2b).

Complementary foods should come from different food groups to help ensure that children receive all the nutrients they need for healthy growth and development. In all South Asian

countries except Maldives, the rates of minimum dietary diversity are much lower than those for minimum meal frequency, indicating that diversity is a greater problem than frequency. Only one in five South Asian children (21 percent) is fed at least four food groups (UNICEF 2018a), which is similar to the rate in Sub-Saharan Africa (19–21 percent) (UNICEF 2016). In four South Asian countries (Afghanistan, Bhutan, India, and Pakistan), fewer than one in four children is fed a minimally diverse diet, while just two countries (Maldives and Sri Lanka) have minimum dietary diversity rates exceeding 70 percent (figure 2c).

Animal source foods are particularly effective at providing essential micronutrients and high-quality protein needed for optimal growth, development, and immune function in early life (PAHO/WHO 2003; WHO and UNICEF 2003). A strong association is found between the consumption of animal source foods and child growth in South Asia (Heady et al. 2017). However, the consumption of animal source foods is very low in the region: only one in two infants aged 6–11 months and two in three children aged 12–23 months receive animal-source foods (UNICEF 2016).

Most South Asian children are not fed both frequent and diverse meals, leaving them short of nutrients needed to reach their full potential. Only one in eight children (12 percent) has a minimally acceptable diet that has both the minimum dietary diversity and minimum meal frequency (UNICEF 2018a), marginally above the rate for Sub-Saharan Africa (9–10 percent) (UNICEF 2016). Three out of four children in Afghanistan, Bangladesh, Bhutan, India, and Pakistan are not fed a minimally acceptable diet (figure 2d). The minimally acceptable diet rate exceeds 50 percent in Maldives and Sri Lanka, indicating that countries in South Asia can be much better performers on complementary feeding.

Across South Asia, complementary feeding rates are least favorable among the youngest children. Alarming, fewer than one in five children aged 6–11 months has minimally diverse diets in Afghanistan, Bhutan, Bangladesh, India, and Pakistan. One in three infants aged 6–11 months receives only one or no food groups (UNICEF 2016). In general, complementary feeding rates are similar for boys and girls except that boys are more likely to benefit from the timely introduction of complementary foods than girls in both Bangladesh (68 percent versus 61 percent) and Pakistan (71 percent versus 62 percent). An even greater difference in rates existed between boys and girls in Nepal in 2014 (83 percent versus 65 percent), which has been attributed to mothers' belief that their breastmilk supply is insufficient for boys (Miller 1997); however, this gender gap has since narrowed (86 percent versus 83 percent in 2016).

Low maternal education, younger mothers, and firstborn children are associated with lower rates of complementary feeding practices in South Asia, and may reflect caregivers' lack of knowledge and experience in feeding (Na et al. 2017a; Na et al. 2017b; Na et al. 2018a; Na et al. 2018b). In Bangladesh, dietary diversity in children is associated with dietary diversity among mothers, suggesting that diverse diets should be promoted for both mother and child (Nguyen et al. 2013). In Nepal, the Dalit and minority ethnic and religious castes have lower rates of complementary feeding practices, which could indicate sociocultural barriers to optimal feeding (Na et al. 2017a). Children who are perceived to be small at birth are less likely to be fed diverse foods in Nepal and Pakistan, possibly due to sociocultural beliefs that a smaller and weaker child is unable to digest some types of foods (Na et al. 2017a; Na et al. 2017b). The number of antenatal care visits and local availability of primary health services are important determinants of dietary diversity and adequate diets in Afghanistan, Nepal, and

Pakistan, and may reflect access to advice on complementary feeding through the primary health system (Senarath et al. 2012; Na et al. 2017a; Na et al. 2017b; Na et al. 2018b).

Children in the least-wealthy households and more food-insecure households have the least diverse diets in South Asia (Senarath et al. 2012; Chandrasekhar et al. 2017; Na et al. 2017b; Na et al. 2018a; Na et al. 2018b). This suggests that efforts to improve the diets of young children will only succeed if households are able to produce, purchase, or otherwise acquire sufficient, nutritious food (Aguayo 2017). The association between household wealth and both the timely introduction and the frequency of feeding is weak, indicating that these practices are less dependent than dietary diversity on household resources (Na et al. 2017b; Na et al. 2018b).

### *Feeding practices during and after childhood illness*

A child's nutrition status can deteriorate rapidly during and after illness if food and feeding practices do not provide the additional nutrients that he or she needs to recover. Harmful feeding practices are common during childhood illnesses in South Asia. A review of literature from South Asia found that most children are breastfed when they become sick (up to 98 percent) but few (less than 20 percent) are breastfed more frequently than usual to satisfy additional fluid and nutrient needs (Paintal and Aguayo 2001). Up to 75 percent of caregivers withdraw or restrict the frequency, quantity, or quality of complementary foods because of their child's poor appetite (perceived or real), inadequate awareness of the feeding needs of sick children, traditional sociocultural beliefs and practices, and inadequate or poor counseling and support from health workers (Paintal and Aguayo 2016).

### **Action to improve feeding**

The actions of governments, the private sector, communities, and households can have a large bearing on what a child is fed, how much, how frequently, and how responsively. Understanding whether, to what degree, and how these actors are succeeding or failing to support feeding can help in shaping an appropriate course going forward.

#### *Government*

Across South Asia, governments have pursued an array of policy and legal measures as well as program actions in health and other sectors to protect, promote, and support the diets of young children, beginning at birth—albeit with variable success.

*Policy and legal:* Government leadership in enacting, financing, and implementing policies and legal measures is key to building an enabling environment in which women and other caregivers can receive the information and support they need to appropriately feed their children. A policy analysis in Bangladesh, India, Nepal, Pakistan, and Sri Lanka concluded that more than three decades of policy advocacy and international policy guidance have contributed to a robust policy landscape on breastfeeding in South Asia (Thow et al. 2017). Infant and young child feeding is a priority in national development plans across South Asia, and strong policy support exists for counseling as a best-practice intervention. However, the policy landscape for complementary feeding is weaker than for breastfeeding and lacks clarity in terms of interventions, approaches, and coordination among different sectors needed to improve complementary feeding (Thow et al. 2017).



WHO and UNICEF recommend that countries incorporate the International Code of Marketing of Breastmilk Substitutes and subsequent relevant World Health Assembly provisions (the “Code”) into national laws and policies to prevent the unethical promotion of breastmilk substitutes (WHO et al. 2016). The majority of South Asian countries (Afghanistan, India, Maldives, Nepal, Pakistan, Sri Lanka) have enacted laws covering all provisions of the code, while Bangladesh has laws covering many of them (table 1). The only exception is Bhutan, which is in the process of developing legal measures. However, large gaps exist in the implementation of these legal measures. Formal mechanisms to monitor and enforce national laws exist only in Afghanistan and India. But the mechanisms in these two countries lack important components and characteristics including sustainability (Afghanistan and India), health facility monitoring (India), a dedicated budget (India), and the publication of monitoring results (Afghanistan and India) (WHO et al. 2016). Countries must intensify efforts to monitor and enforce national legal measures through increasing (1) funding for monitoring and enforcement bodies and (2) the capacity of designated staff at all levels to engage in monitoring and enforcement.

Complementary feeding should be protected from commercial influence, in particular, the inappropriate marketing of unhealthy foods and beverages that are promoted as suitable, and often desirable, for young children (Rollins et al. 2016). In 2016, leaders at the World Health Assembly welcomed new “Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children” (WHO 2016). The Guidance calls for countries to enact legislation and adopt policies to prohibit the inappropriate promotion of all commercially produced foods or beverages that are specifically marketed as suitable for feeding children up to 36 months of age. All countries except Bhutan have legislation that covers the marketing of complementary foods. However, only Bangladesh has legislation that protects children up to at least 36 months (table 1).

Paid maternity leave and breastfeeding breaks at work ensure working mothers are supported to breastfeed before and after they return to work. The International Labour Organization’s Convention 183 states that every woman should be entitled to maternity leave of at least 14 weeks and to paid breastfeeding breaks once they return to work. All countries in South Asia have legal provisions for maternity leave that cover both the public and private sectors, but only Bangladesh, India, and Nepal have legislation that meets the minimum duration of 14 weeks, while Bhutan permits 6 months of maternity leave for public sector workers only and just 8 weeks for private sector workers (table 1). Mothers working in the informal sector are particularly vulnerable and need additional support from their families and communities to balance the demands of work while breastfeeding (UNICEF 2016). Across South Asia, fewer than one-third of female workers are entitled to maternity leave due to gaps in coverage, particularly in the informal sector (ILO 2014). Only India and Nepal finance maternity benefits through social security; elsewhere, employers are liable and they may be reluctant to hire women of childbearing age, which can hurt women’s employment opportunities and outcomes. Working mothers are entitled to paid breastfeeding breaks in all countries except Pakistan and Bangladesh.

*Health sector:* The health sector, specifically the public health system, plays a leading role in informing, educating, and counseling caregivers and other influential family and community members on infant and young child feeding. This support should begin in pregnancy to prepare a mother to practice early and exclusive breastfeeding, should be intensified at the time of birth to support the early initiation of breastfeeding and establishment of good breastfeeding techniques, and should be continued throughout the first two years of a child’s

life to support recommended feeding. In addition, the health sector should provide specialized support to address any feeding difficulties, such as breast pain, engorgement, cracked nipples, and mastitis, which are barriers to successful breastfeeding (Kavle et al. 2017), and to intervene with infants and young children who gain insufficient weight or become wasted.<sup>1</sup>

The Baby-Friendly Hospital Initiative (BFHI), launched by the World Health Organization and UNICEF in 1991, guides hospitals and maternity facilities on how to support recommended breastfeeding practices. Its “Ten Steps to Successful Breastfeeding” include baby-friendly hospital policies, capacity building of staff, and key practices such as supporting early initiation, encouraging breastfeeding on demand, and preventing any interference that may discourage breastfeeding. All South Asian countries have implemented the initiative, but programs are currently operational in only four countries (table 2). Countries have faced challenges in financing and sustaining implementation of the initiative’s programs, which have largely been vertical in nature and focused primarily on the initial designation of facilities as baby friendly (WHO 2017). Very few facilities were designated or reassessed as baby-friendly in the last five years (only 7 percent in Afghanistan and 2 percent in Bangladesh), and baby-friendly status has rarely been sustained (WHO 2017).<sup>2</sup> As a result, the global guidance on BFHI has been revised to encourage the integration and institutionalization of its principles into existing policies and facility certification processes, and to give greater focus to quality improvement at the facility level (WHO 2018). Some or all of the original 10 steps of the initiative have been integrated into national policies, strategies, or plans in all countries in the region, and into national quality standards in five countries (table 2).

Caesarean deliveries are associated with the delayed initiation of breastfeeding in South Asia (Dibley et al. 2010; Prior et al. 2012; Sharma and Byrne 2016; Kavle et al. 2017; Benedict et al. 2018a). A systematic review found that practices following a caesarean delivery, such as the separation of the mother and infant and a lack of skin-to-skin contact, combined with inadequate breastfeeding support, create barriers to early initiation (Kavle et al. 2017). As rates of caesarean deliveries rise in South Asia, there is need to prioritize strategies to mitigate the potential adverse effect on early initiation. Five such strategies have been identified based on the global literature: (1) adoption of health facility policies that support skin-to-skin contact, presence of supportive companions at delivery, administration of regional anesthesia, and post-surgery lactation support, encouragement, and information; (2) training of health staff to support breastfeeding after caesarean delivery; (3) removal of physical barriers in health facilities, such as the separation of the mother and infant, and allocation of additional nursing support; (4) education of both obstetric care providers and future parents on caesarean delivery and childbirth; and (5) reduction of caesarean deliveries that are not medically advised (Kuyper et al. 2014). While this global evaluative literature on effective strategies is growing, evidence is needed on what is possible in diverse settings in South Asia.

Evaluations have demonstrated that interventions to promote skin-to-skin contact and “kangaroo mother care” following delivery have a positive impact on early initiation and the

---

<sup>1</sup> Mastitis is an inflammation of breast tissue that is usually associated with breastfeeding and involves an infection.

<sup>2</sup> WHO/UNICEF guidance indicates that all Baby-Friendly Hospital Initiative (BFHI) facilities should be reassessed at least every three to five years, and only facilities that have been designated or reassessed within the last five years are considered “currently designated.”

avoidance of prelacteal feeding in South Asia, regardless of whether children are delivered at home or in a health facility (Ahmed et al. 2011; Kumar et al. 2008; Mahmood et al. 2011; Srivastava et al. 2014).<sup>3</sup>

A scoping review of evaluative evidence by Benedict et al. 2018b, conducted in Bangladesh, India, Nepal, and Pakistan, found that education and counseling delivered by health workers and community workers to pregnant and breastfeeding women in either one-on-one or group settings improve breastfeeding outcomes, including early and exclusive breastfeeding and the avoidance of prelacteal feeding.<sup>4</sup> Training of frontline workers, the use of interactive job aids by frontline workers to support counseling, and the engagement of family, peers, and community members in group counseling sessions improve the impacts of counseling on breastfeeding outcomes. Evaluations of counseling that do not find a positive impact on breastfeeding practices suggest that the intervention timing relative to gestational or child age, frequency and duration of health worker-client interactions, and targeting influence the impact of counseling. Education and counseling delivered in the home or to the family, in the community, and in a health facility all appear to be effective, demonstrating the suitability of these multiple service-delivery sites. Community mobilization and mass media interventions that expand program reach also appear to have a positive impact on breastfeeding outcomes when combined with education and counseling.

All countries in South Asia have programs at scale to provide services to inform and counsel caregivers on feeding, and four countries (Bangladesh, Bhutan, Nepal, and Sri Lanka) report that they offer counseling in every primary health facility in every district.<sup>5</sup> However, only three countries (Afghanistan, Bangladesh, and Pakistan) monitor the numbers of caregivers they reach through their routine health or nutrition information systems.

Across South Asia, complementary feeding receives much less attention than breastfeeding in health interventions. For example, fewer than one-half of infant and young child feeding programs in India promote age-appropriate quantity and diversity of complementary feeding (Avula et al. 2017). Only four countries in the region (Afghanistan, Bhutan, Nepal, and Pakistan) have a national behavior change communication strategy that includes complementary feeding (table 2).

The body of evidence on the impact of information, education, and counseling interventions on complementary feeding in South Asia is much more limited than for breastfeeding. A review of evidence suggests that primary health workers and community resource persons can improve the timeliness, frequency, diversity, and adequacy of complementary feeding, provided the personnel are adequately trained (Aguayo 2017). Most evaluated interventions have been small in scale and involve intensive frontline worker training and supervision that may prove difficult to reproduce at scale (Aguayo 2017). One exception is the Alive & Thrive project in Bangladesh, which demonstrated that intensive counseling by frontline workers, combined with a nationwide media campaign, had larger impacts on minimum dietary diversity, minimum meal frequency, and minimal acceptable diet compared with

---

<sup>3</sup> Kangaroo mother care is a technique of newborn care where an infant is kept skin-to-skin with a parent, typically his or her mother. It is most commonly used for low birthweight and preterm infants to support early breastfeeding and to prevent hypothermia.

<sup>4</sup> Afghanistan was included in the scoping review, but no eligible studies were found in the literature.

<sup>5</sup> Implementation at scale is defined as implementation at the national or subnational level, and excludes pilot interventions. Subnational level is defined as the largest administrative subdivision of a country (e.g., state, province, or region).

standard nutrition counseling and less-intensive mass media and community mobilization (Menon et al. 2016). The lessons learned from initiatives to improve the positive impact of information, education, and counseling interventions on complementary feeding practices in South Asia are presented in box 1.

---

**Box 1: Lessons Learned from Initiatives to Improve the Positive Impact of Information, Education, and Counseling Interventions on Complementary Feeding**

- Design
  - Ensure adequate investment in formative research to inform design
- Contact
  - Use multiple communication channels (interpersonal communication, community mobilization, and mass media) and multiple delivery platforms to reach caregivers and their influencers (including husbands) with messages and counseling
  - Ensure adequate number and duration of contacts, including home visits, between frontline workers and caregivers
- Content
  - Reflect the most critical issues that caregivers face at each stage of a child’s life in message content and counseling
  - Remember that the quality of counseling is at least as important as coverage
- Frontline workers and performance
  - Define the roles and responsibilities of different cadres
  - Provide quality training, incentives, and supportive supervision
- Monitoring
  - Institutionalize regular monitoring of both coverage and quality of counseling to inform program changes
- Additional interventions
  - Complement information and counseling with intervention by food and social protection systems, as needed, to increase access to affordable, nutritious food in food-insecure settings

*Sources:* Avula et al. 2013; Menon et al. 2016; Alive & Thrive 2018

---

There is increasing recognition that optimal infant feeding depends not only on what and how often a child is fed but also on how he or she is fed (PAHO/WHO 2003; WHO 2005). Feeding is “responsive” if the caregiver recognizes the child’s signals of hunger and satiety and responds promptly in a manner that is developmentally appropriate and supportive. All South Asian countries except Bangladesh and Pakistan have programs at scale that provide education or counseling on responsive feeding and early stimulation, but information on the coverage and quality of these services is absent. Rigorous evidence on the impact of interventions that aim to promote responsive feeding is scarce in South Asia. A community-based responsive feeding program in Bangladesh increased maternal responsiveness, self-feeding, and the number of mouthfuls eaten by children aged 8–20 months (Aboud et al. 2009; Aboud and Shafique 2011). On feeding during common childhood illnesses, evidence from India suggests that individual and group counseling organized through the primary health system can improve a caregiver’s knowledge and practices (Paintal and Aguayo 2016).

Micronutrient powders provide a means to fill shortfalls in the micronutrient intake of young children by supplementing their diets with vitamins and minerals. Four countries in South Asia (Bangladesh, Nepal, Pakistan, and Sri Lanka) have programs at scale that provide micronutrient powders to children aged 6–23 months. A limited but growing body of evidence from South Asia and other regions suggests that interventions that provide micronutrient powders can improve complementary feeding by increasing the awareness of recommended practices and increasing the frequency of contact between caregivers and providers for counseling and support (Siekmans et al. 2017). The promotion of micronutrient powders is associated with the timely introduction of complementary foods in Nepal (Mirkovic et al. 2016). Furthermore, children in Nepal who consumed 30–60 micronutrient powder sachets during a six-month period were twice as likely to meet minimum dietary diversity and minimum meal frequency (Mirkovic et al. 2016).

*Other sectors:* While access to information, education, and counseling has been found to improve feeding practices in South Asia, initiatives to improve the diets of young children will only succeed if nutritious food is available, affordable, desirable, and prepared in a safe and hygienic manner (Aguayo 2017). There is a lack of evidence from South Asia on the combination of sectors and strategies needed to meet these conditions in various settings, and so the understanding of the multisectoral pathways to improving access is largely theoretical. In most settings, the engagement of multiple sectors will likely be needed, including but not limited to agriculture, social protection, and water, sanitation, and hygiene.

The agriculture and allied sectors (for example, livestock and fisheries) play a central role in determining the availability and affordability of nutritious food in South Asia. Together with other food-system actors, these sectors can make it easier for families to make nutritious food choices for their young children. Evidence from South Asia suggests that the production of targeted nutritious crops, diversification towards fruits and vegetables, and home gardening can improve nutrient intake (Pandey et al. 2016). Initiatives to encourage the production of nutritious food are more likely to improve nutrient intake if they are accompanied by interventions to increase their consumption (Ruel et al. 2018). For example, homestead food production interventions that couple home gardening and small livestock rearing with behavior-change communication are found to increase the frequency and diversity of vegetable consumption and the frequency of egg consumption by young children in low-income households in program areas in Bangladesh (Talukder et al. 2010).

As many agricultural activities are time-intensive, a woman's work in agriculture may reduce the time she has available to feed and care for her child (Balagamwala and Gazdar 2013), but the evidence is not conclusive (Pandey et al. 2016). A study in Bangladesh found that housewives breastfeed their children more frequently and for longer durations than agricultural workers (tea pluckers) (Ghosh et al. 2006), while a study in India found that women employed in agriculture spend similar amounts of time or more time on childcare than women employed in other unskilled occupations (Headey et al. 2011).

Biofortification, food fortification, and other forms of post-farmgate food processing can also enhance the nutrient content of foods. Rice that is biofortified with zinc and pearl millet that is biofortified with iron and zinc are grown in Bangladesh and India, respectively (UNICEF 2018c). Oil is fortified with vitamin A in Afghanistan and Bangladesh; wheat flour is fortified with iron and other micronutrients in India, Nepal, and Pakistan; and table salt is iodized in all countries (UNICEF 2018c). However, only two countries, Nepal and Pakistan,

have programs at scale that promote increased access to fortified complementary foods (table 2).

Improving dietary quality is a challenge for poor households in South Asia because nutritious food, particularly animal source food, is often more expensive (Dewey 2016; Headey et al. 2017; Dizon and Herforth 2018). This suggests that in the poorest communities, counseling should be combined with interventions to overcome financial barriers to a diverse diet (Bhutta et al. 2013). The social protection sector can support complementary feeding by providing cash or in-kind transfers that enable poor families to receive or purchase nutritious food for their young children (UNICEF 2016). These approaches are likely to be most effective in settings where caregivers also receive information and counseling on complementary feeding (Bhutta et al. 2013), but evidence is scarce for South Asia.

Only two countries in the region, India and Nepal, are implementing programs at scale that provide social protection services for early childhood nutrition combining cash or in-kind transfers with nutrition counseling (table 2). In India, the Integrated Child Development Services program provides take-home rations, which are fortified supplementary food products for home use, to infants and young children. This program has the potential to improve nutrient intake on a national scale; however, recent studies have noted several areas of concern. First, the national guidelines on the composition and formulation of take-home rations do not conform with international guidelines; second, the composition and formulation of take-home rations vary between states and often do not conform with national guidelines; third, payment delays, and stock-outs, leakage and pilferage of take-home rations affect access by mothers and their children to the supplements; and fourth, the program suffers from inadequate quality testing of the supplements, insufficient program monitoring, and a lack of accountability for performance (Schwarz et al. 2018; Vaid et al. 2018). In Nepal, a child grant combined with social and behavior-change communication on child nutrition increased the percentage of households purchasing nutritious food such as meat products and pulses (Renzaho 2017).

By reducing environmental contamination from human and livestock feces and improving handwashing behavior, the water and sanitation sector, together with the health, agriculture and livestock sectors, can help ensure that complementary foods are prepared and fed to young children safely, so that children do not lose scarce nutrients to infection.

Although the specific pathways at play are not clear, the education sector is important because improved feeding is found to be associated with higher education attainment of mothers (Benedict et al. 2018a; Na et al. 2017a; Na et al. 2018a; Na et al. 2018b).

#### *Private sector*

The private sector can influence the availability, affordability, convenience, and desirability of foods that are given to young children. The private sector ranges from small-scale farmers to large food processors, distributors, and retailers, and the foods include locally available ingredients for complementary foods as well as processed, fortified, and ready-to-use complementary foods.

There is global acknowledgement of the benefits of engaging the private sector to improve access to fortified complementary foods and micronutrient supplements (Champion and Seidel 2015). However, challenges and barriers to forging collaborative public-private

partnerships exist. Inappropriate marketing of breastmilk substitutes and complementary foods by the private sector fuels mistrust (van Liere et al. 2017). This occurs in settings where national legal measures to protect children against inappropriate marketing are absent or weaker than those recommended by the World Health Assembly, or where systems to identify violations and take legal action are ineffective. In addition, conflicting motivations, priorities, and metrics of the public and private sectors undermine trust between them (Champion and Seidel 2015).

Another issue is the potential for processed complementary foods to undermine recommended feeding, including the use of traditional foods and feeding skills, and to contribute to child overweight and obesity (Champion and Seidel 2015). Ready-to-use complementary foods are widely available in the region and offer convenience to caregivers, but few affordable products meet the nutrition needs of infants and young children (Champion and Seidel 2015). Commercial influence on the consumption of unhealthy snack foods and beverages, which are high in salt and sugar and displace breastmilk and more nutritious food, is rising in the region. A recent study in Nepal finds that 84 percent of mothers had observed promotions of commercially produced snack food products since the birth of their child, and that 58 percent of infants aged 6–11 months and 83 percent of children aged 12–23 months had consumed a commercial snack food in the previous day (Pries et al. 2017).

These issues have the potential to deter governments from engaging with the private sector for fear they will be perceived as endorsing an enterprise or profiting from a relationship that could threaten recommended feeding (Champion and Seidel 2015). Meanwhile, some private enterprises hesitate to invest in products or partnerships that could jeopardize their relationship with the government, expose them to negative publicity, or risk the reputation of their brand (Champion and Seidel 2015). Other challenges to private investment include difficulties in increasing demand for products to the level where they are profitable, particularly in the absence of an institutional market (large buyers such as health facilities), and reaching low-income populations (Champion and Seidel 2015; van Liere et al. 2017).

Credible evidence is absent on the impact of private sector or public-private partnership initiatives on complementary foods and feeding, partly because such initiatives are relatively recent (van Liere et al. 2017). Nevertheless, emerging evidence suggests that private sector capabilities and proficiencies can be harnessed to improve the availability, accessibility, affordability, and adequate consumption of nutritious foods. A review of six countries, including Bangladesh and India, identified factors behind the success of market approaches to increasing access to complementary foods and micronutrient supplements for infants and young children (van Liere et al. 2017). These factors are summarized in box 2.

---

**Box 2: Market-Based Approaches to Increase Access to Complementary Foods: Determinants of Success**

- The private sector and governments can benefit from technical assistance on international and national normative guidance on food standards and promotion of complementary foods and supplements.
- Local small- and medium-sized food enterprises can benefit from technical assistance to de-risk their investments in producing and marketing complementary foods and supplements, and complying with mandatory regulations and product standards.

- Profitability requires access to institutional markets to complement the initial low demand through retail or sales channels.
- Complementary foods should be delivered through channels that are close to the target population to facilitate purchase.
- Relevant consumer benefits, including those that are not nutrition- or health-related, can be used as aspirational drivers to create demand.
- In addition to raising awareness and encouraging use of complementary foods and supplements, it is important to promote *effective* (i.e. regular) use.
- Effective use or coverage of complementary foods and supplements should be monitored regularly.

*Source:* Adapted from van Liere et al. 2017.

---

### *Households and communities*

A range of factors influence whether policy, legal, and program interventions by the government, combined with actions by other actors, translate into improved feeding.

First, a mix of interventions needs to reach households to address the context-specific barriers at the level of the household, the community, the workplace, or the health facility that would otherwise prevent caregivers from adopting recommended feeding practices. For example, in low-income households, caregivers may be unable to act upon the information or counseling on complementary feeding that they receive from health workers unless the household also receives support to produce, purchase, or otherwise acquire nutritious food. Conversely, children in high-income households, which are able to afford nutritious food, may have a poor-quality diet if their caregivers are not informed or counseled on how best to feed their children.

Second, interventions must reach caregivers at the right time and with the necessary frequency, intensity, and quality (Menon et al. 2016; Benedict et al. 2018b). Information and counseling should be delivered at age-appropriate points during pregnancy and the first years of life; maternity leave needs to be of adequate duration for working mothers; and actions aimed at improving the availability and affordability of food must ensure that the food is nutritious and safe.

Third, households and communities play a crucial role in supporting caregivers to adopt recommended feeding practices. A study in Bangladesh reported that the adoption of such practices was determined by the mother's workload and time, family perceptions of child feeding and what is good for the child's health, and family support (Avula et al. 2013). Breastfeeding and complementary feeding require a substantial commitment of time, and family support to relieve mothers of domestic chores during such periods can make this commitment easier (UNICEF 2016). Social and behavior-change communication interventions need to be based on an understanding of sociocultural factors that influence feeding practices in a specific context. They should target not only caregivers, but also other influential family members, peers, and community members.



## **Monitoring, research, and evaluation**

National data on breastfeeding and complementary feeding are needed to help governments assess progress in improving feeding practices. All South Asian countries except Maldives have recent data on feeding practices and should continue to collect data about every three to five years.

Only three countries (Afghanistan, Bangladesh, and Pakistan) have health systems that routinely monitor the number of caregivers who receive information and counseling on breastfeeding and complementary feeding. The data gap in other countries makes it challenging for administrators to hold themselves and others to account for delivering these services and ensuring that children in greatest need are reached. Data on the quality of services are also lacking. All countries in the region should examine how to integrate indicators on the coverage of counseling services into health information systems, and ensure that the quality of services is monitored as part of supervision.

Evidence is lacking on the impact of large-scale programs to improve complementary feeding in South Asia (Bhutta et al. 2013; Aguayo 2017), particularly programs employing a mix of sectors, strategies, and interventions to address both demand- and supply-side barriers. One exception is the Alive & Thrive project in Bangladesh, which had the explicit aim of learning how to strengthen delivery systems to programmatically achieve behavior change at scale (Piwoz et al. 2013).

Well-designed operational research is needed to understand the program-impact pathways to success—or failure—in improving feeding practices (Frongillo 2017). Evidence is also needed on how to effectively engage the private sector in improving complementary feeding (van Liere et al. 2017).

Notable evidence gaps exist on what works, and through what pathways, to improve breastfeeding practices for certain countries (Afghanistan, Nepal, and Pakistan), on continued breastfeeding, and on policies and workplace interventions for working mothers (Benedict et al. 2018b). Addressing these gaps will provide additional evidence on how to protect, promote, and support recommended breastfeeding practices in South Asia.

## **Conclusion**

The poor quality of young children’s diets in South Asia is holding back efforts to improve the growth, development, and well-being of children. While relatively good progress has been made in improving rates of early and exclusive breastfeeding in all countries except Afghanistan and Pakistan, continued breastfeeding rates have only marginally increased, while dietary diversity and other aspects of complementary feeding require improvement. Children most at risk include those who are born small, with younger mothers, in poorer households, and in communities with lower access to, or uptake of, health services.

Countries in the region have implemented a range of approaches aimed at improving breastfeeding and complementary feeding practices. These include policies and legal measures to protect feeding practices, education and counseling to influence behaviors, and agriculture and social protection interventions to improve access to nutritious and affordable food. However, these efforts have been unevenly applied across the region, and have often

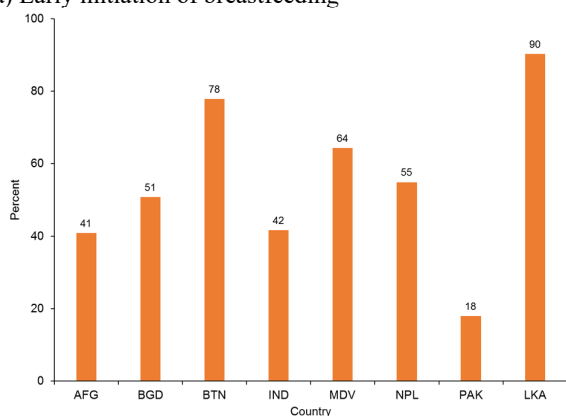
been insufficient in coverage, intensity, comprehensiveness, and continuity to bring about substantial improvements, particularly in complementary feeding.

Caregivers face complex economic and sociocultural barriers to appropriately feed their infants and young children, and need the commitment of the government, the private sector, family members, and communities. Policy, legal, and program actions should be based on situation analyses and formative research that provide a contextual understanding of the drivers of poor practices. There is also a need to identify effective ways to benefit from the capabilities, market presence, and influence of the private sector and identify innovative solutions that improve children's access to nutritious and affordable food. In addition, greater investment in information systems, operational research, and evaluations is necessary to generate the data and evidence to inform policy and program decisions.

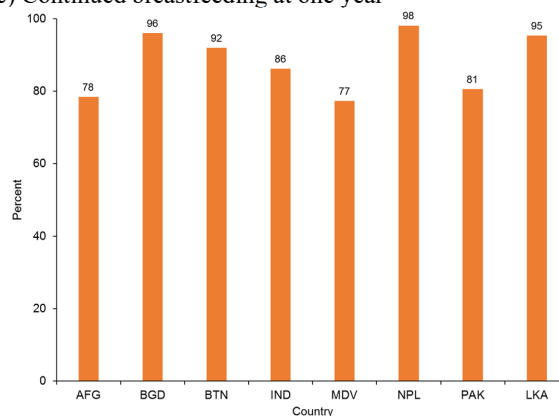
Government leadership can create a regulatory environment that ends the inappropriate marketing of breastmilk substitutes and complementary foods. Governments should also be more rigorous in implementing programs that have been proven to be effective for improving complementary feeding. Such programs should involve multiple sectors and stakeholder groups and be implemented at large scale and on a sustained basis.

**Figure 1: Breastfeeding Practices in South Asia**

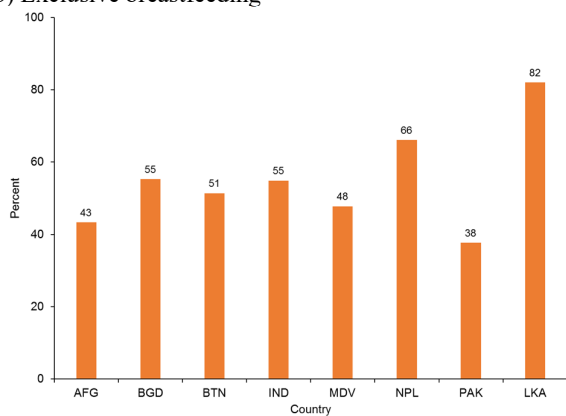
a) Early initiation of breastfeeding



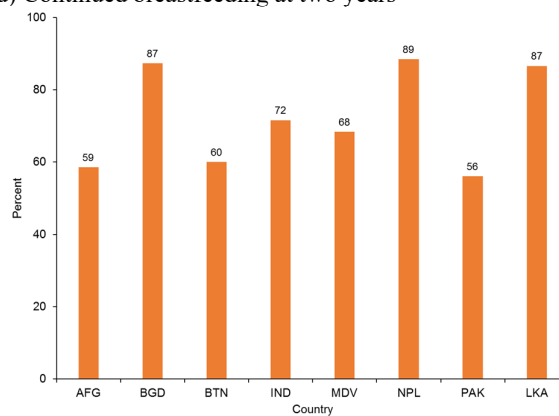
c) Continued breastfeeding at one year



b) Exclusive breastfeeding



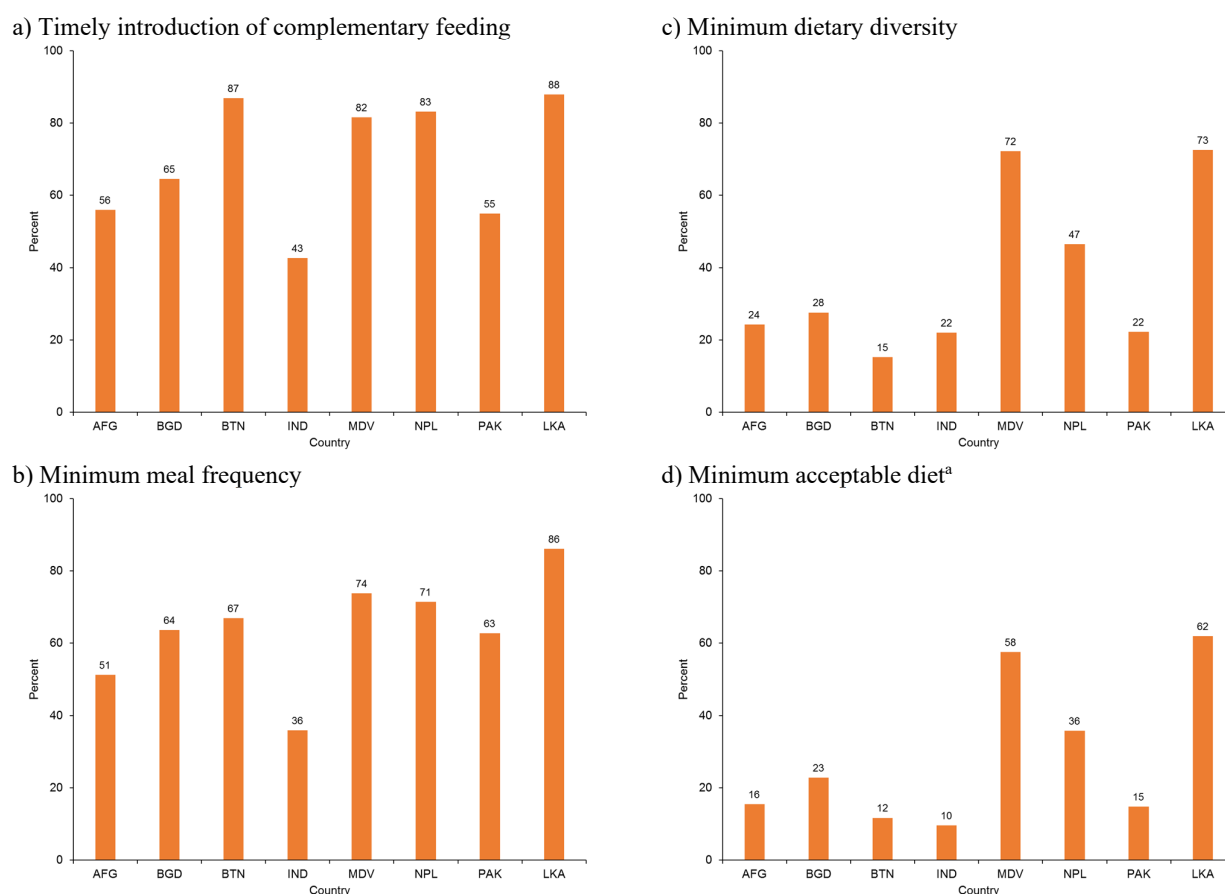
d) Continued breastfeeding at two years



*Sources:* Afghanistan Demographic and Health Survey (DHS) 2015; Bangladesh DHS 2014; Bhutan National Nutrition Survey 2015; India National Family Health Survey 2015–16; Maldives DHS 2009; Nepal DHS 2016; Pakistan DHS 2012–13; Sri Lanka DHS 2016.

*Note:* AFG = Afghanistan; BDG = Bangladesh; BTN = Bhutan; IND = India; MDV = Maldives; NPL = Nepal; PAK = Pakistan; LKA = Sri Lanka.

**Figure 2: Complementary Feeding Practices in South Asia**



*Sources:* Afghanistan Demographic and Health Survey (DHS) 2015; Bangladesh DHS 2014; Bhutan National Nutrition Survey 2015; India National Family Health Survey 2015–16; Maldives DHS 2009; Nepal DHS 2016; Pakistan DHS 2012–13; Sri Lanka DHS 2016.

*Note:* AFG = Afghanistan; BGD = Bangladesh; BTN = Bhutan; IND = India; MDV = Maldives; NPL = Nepal; PAK = Pakistan; LKA = Sri Lanka.

a. The statistic for Bhutan comprises breastfed children only.

**Table 1: National Legal Protections for Breastfeeding and Complementary Feeding in South Asia**

Protection	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
International Code of Marketing of Breastmilk Substitutes and subsequent relevant World Health Assembly provisions	Full provisions	Many provisions	No legal measures	Full provisions	Full provisions	Full provisions	Full provisions	Full provisions
Regulations governing marketing of complementary foods (up to age in months)	Yes (30 months)	Yes (60 months)	No legal measures	Yes (24 months)	Yes (12 months)	Yes (12 months)	Yes (12 months)	Yes (12 months)
Maternity protection								
• Duration of maternal leave	13 weeks	16 weeks	6 months for public sector; 8 weeks for private sector	26 weeks	60 days <sup>a</sup>	14 weeks (98 days) <sup>b</sup>	12 weeks	12 weeks
• % of previous earnings for maternity benefit	100%	100%	100%	100%	100%	100%	100%	86–100%
• Source of maternity benefit	Employer	Employer	Employer	Social security funds and employer	Employer	Social security funds	Employer	Employer
• Entitlement to breastfeeding breaks at work	Paid	No entitlement	Paid	Paid	Paid	Paid	No entitlement	Paid up to 12 months

Sources: WHO et al. 2016; ILO 2014; country laws and regulations accessed by UNICEF.

a. Law does not specify whether 60 working days or calendar days. It is interpreted by the public sector as 60 working days, and by the private sector as 60 calendar days.

b. Up to 60 days is paid, and the remainder is covered through accumulated leave or unpaid leave. The total leave days can be extended by a further month as unpaid leave upon recommendation from a certified medical practitioner.

**Table 2: Programs to Improve Breastfeeding and Complementary Feeding Rates in South Asia**

	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
<b>BFHI implementation</b>								
• Implementation status	Current	Current	Current	Previously	Previously	Previously	Previously	Current
• Facilities ever designated	68%	3%	<1%	0%	5%	No information	65%	0% <sup>a</sup>
• Facilities designated in last 5 years	7%	2%	0%	0%	0%	No information	No information	0% <sup>a</sup>
• Births in baby-friendly hospital and maternity centers	0.1%	0.6%	No information	0.6%	0.6%	No information	31.3%	100% <sup>a</sup>
• “10 steps” integrated into national policies, strategies, and plans	All steps	All steps	All steps	All steps	All steps	All steps	Some steps	All steps
• “10 steps” integrated into national quality standards	No steps	No steps	No steps	All steps	Some steps	Some steps	All steps	All steps
<b>Access to IYCF counseling</b>								
• Primary health facilities offering individual IYCF counseling	49%	100%	100%	No information	No information	100%	22%	100%
• District implementing IYCF counseling at community level	No information	100%	100%	No information	No information	100%	55%	100%
• Indicator on number or proportion of caregivers who receive IYCF counseling in routine health and nutrition information system	Yes	Yes	No	No	No	No	Yes	No
<b>Programs at scale to improve complementary feeding<sup>b</sup></b>								
• Counseling on complementary feeding	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
• National behavior-change communication strategy	Yes	No	Yes	No	No	Yes	Yes	No
• Counseling and education to promote responsive parenting, responsive feeding, and stimulation	Yes	No	Yes	Yes	Yes	Yes	No	Yes

**Table 2: Programs to Improve Breastfeeding and Complementary Feeding Rates in South Asia**

	Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pakistan	Sri Lanka
• Promotion of, and increased access to, micronutrient powders for home fortification	No	Yes	No	No	No	Yes	Yes	Yes
• Initiatives to increase access to, and promote use of, diverse, local nutritious food at household level	Yes	Yes	No	No	No	Yes	Yes	Yes
• Promotion of, and increased access to, fortified complementary foods	No	No	No	No	No	Yes	Yes	No
• Social protection services for improved early childhood nutrition (cash or in-kind transfers combined with nutrition counseling)	No	No	No	Yes	No	Yes	No	No
• Strengthened research and monitoring activities on the quality of children's diets	Yes	No	No	Yes	Yes	Yes	Yes	No

*Sources:* WHO 2017; UNICEF unpublished data; The Breastfeeding Collective Country Scorecards; Al-Jawaldeh and Abul-Fadl 2018.

*Note:* BFHI = Baby-Friendly Hospital Initiative; IYCF = Infant and Young Child Feeding.

a. Formal designation has not been conducted in Sri Lanka. However, since 2017, the assessment is incorporated into quality assurance processes and tools.

b. Implementation at scale is defined as implementation at the national level or the subnational level (largest administrative subdivision of a country, e.g., state, province, or region), and excludes pilots.

## References

- Aboud, F. E., and S. Akhter. 2011. "A Cluster-Randomized Evaluation of a Responsive Stimulation and Feeding Intervention in Bangladesh." *Pediatrics* 127 (5): e1191–7.
- Aboud, F. E., S. Shafique, and S. Akhter. 2009. "A Responsive Feeding Intervention Increases Children's Self-Feeding and Maternal Responsiveness But Not Weight Gain." *Journal of Nutrition* 139 (9): 1738–43.
- Aguayo, V. M. 2017. "Complementary Feeding Practices for Infants and Young Children in South Asia. A Review of Evidence for Action Post-2015." *Maternal & Child Nutrition* 13 (Suppl 2): e12439.
- Aguayo, V. M., and P. Menon. 2016. "Stop Stunting: Improving Child Feeding, Women's Nutrition and Household Sanitation in South Asia." *Maternal & Child Nutrition* 12 (Suppl 1): 3–11.
- Ahmed, S., S. N. Mitra, A. M. Chowdhury, L. L. Camacho, B. Winikoff, and N. L. Sloan. 2011. "Community Kangaroo Mother Care: Implementation and Potential for Neonatal Survival and Health in Very Low-Income Settings." *Journal of Perinatology* 31 (5): 361–7.
- Al-Jawaldeh, A., and A. Abul-Fadl. 2018. "Assessment of the Baby Friendly Hospital Initiative Implementation in the Eastern Mediterranean Region." *Children* 5: 41.
- Alive & Thrive. 2018. "What Works in Infant and Young Child Feeding: Strengthening Operational Programme Elements to Deliver IYCF Services at Scale in India." Washington, DC. <https://www.aliveandthrive.org/wp-content/uploads/2018/06/IYCFBriefMay2018-1.pdf>.
- Avula, R., P. Menon, K. K. Saha, M. I. Bhuiyan, A. S. Chowdhury, S. Siraj, R. Haque, C. S. Jalal, K. Afsana, and E. A. Frongillo. 2013. "A Program Impact Pathway Analysis Identifies Critical Steps in the Implementation and Utilization of a Behavior Change Communication Intervention Promoting Infant and Child Feeding Practices in Bangladesh." *Journal of Nutrition* 43 (12): 2029–37.
- Avula, R., V. M. Ododo, S. Kadiyala, and P. Menon. 2017. "Scaling-up Interventions to Improve Infant and Young Child Feeding in India: What Will It Take?" *Maternal & Child Nutrition* 13 (Suppl 2): e12414.
- Balagamwala, M., and H. Gazdar. 2013. "Agriculture and Nutrition in Pakistan: Pathways and Disconnects." *IDS Bulletin* 4 (3): 66–74.
- Begin, F., and V. M. Aguayo. 2017. "First Foods: Why Improving Young Children's Diets Matter." *Maternal & Child Nutrition* 13 (Suppl 2): e12528.
- Benedict, R. K., H. C. Craig, H. Torlesse, and R. J. Stolzhus. 2018a. "Trends and Predictors of Optimal Breastfeeding Among Children 0–23 Months, South Asia: Analysis of National Survey Data." *Maternal & Child Nutrition* 14 (Suppl 4): e12698.
- . 2018b. "Effectiveness of Programmes and Interventions to Support Optimal Breastfeeding Among Children 0-23 Months, South Asia: A Scoping Review." *Maternal & Child Nutrition* 14 (Suppl 4): e12697.
- Bhutta, Z. A., J. K. Das, A. Rizvi, M. F. Gaffey, N. Walker, S. Horton, P. Webb, A. Lartey, and R. E. Black. 2013. "Evidence-Based Interventions for Improvement of Maternal and Child Nutrition: What Can Be Done and At What Cost?" *Lancet* 382 (9890): 452–77.
- Champion, C., and R. Seidel. 2015. *Engaging the Private Sector to Improve Access to Fortified Complementary Foods: Moving from the "If" to the "How."* Washington, DC: Alive & Thrive.



- Chandrasekhar, S., V. M. Aguayo, V. Krishna, and R. Nair. 2017. "Household Food Insecurity and Children's Dietary Diversity and Nutrition in India. Evidence from the Comprehensive Nutrition Survey in Maharashtra." *Maternal & Child Nutrition* 13 (Suppl 2): e12447.
- Dewey, K. G. 2016. "Reducing Stunting by Improving Maternal, Infant and Young Child Nutrition in Regions Such as South Asia: Evidence, Challenges and Opportunities." *Maternal & Child Nutrition* 12 (Suppl 1): 27–38.
- Dibley, M. J., S. K. Roy, U. Senarath, A. Patel, K. Tiwari, K. E. Agho, and S. Mirhshai. 2010. "Across-Country Comparisons of Selected Infant and Young Child Feeding Indicators and Associated Factors in Four South Asian Countries." *Food and Nutrition Bulletin* 31 (2): 366–75.
- Dizon, F., and A. Herforth. 2018. "The Cost of Nutritious Food in South Asia." Policy Research Working Paper 8557, World Bank, Washington D.C.
- Frongillo, E. A. 2017. "Evaluation of Programs to Improve Complementary Feeding in Infants and Young Children." *Maternal & Child Nutrition* 13 (Suppl 2): e12436.
- Ghosh, R., N. Mascie-Taylor, and L. Rosetta. 2006. "Longitudinal Study of the Frequency and Duration of Breastfeeding in Rural Bangladeshi Women." *American Journal of Human Biology* 18 (5): 630–38.
- Harding, K., V. M. Aguayo, and P. Webb. 2018. "Birth Weight and Feeding Practices are Associated with Child Growth Outcomes in South Asia." *Maternal & Child Nutrition* 14 (Suppl 4): e12650.
- Headey, D., A. Chiu, and S. Kadiyala. 2011. "Agriculture's Role in the Indian Enigma: Help or Hindrance to the Undernutrition Crisis?" Discussion Paper 01085, International Food Policy Research Institute, Washington, DC.
- Headey, D., K. Kirvonen, and J. Hoddinott. 2017. *Animal Sourced Foods and Child Stunting*. IFPRI Discussion Paper 01695, International Food Policy Research Institute, Washington, DC.
- ILO (International Labour Organization). 2014. *Maternity and Paternity at Work. Law and Practice Across the World*. Geneva: International Labour Organization.
- Jayachandran, S., and I. Kuziemko. 2011. "Why do Mothers Breastfeed Girls Less than Boys? Evidence and Implications for Child Health in India." *Quarterly Journal of Economics* 126 (3): 1485-538.
- Kavle, J, A., E. LaCroiz, S. Dau, and C. Engmann. 2017. "Addressing Barriers to Exclusive Breast-Feeding in Low- and Middle-Income Countries: A Systematic Review and Programmatic Implications." *Public Health Nutrition* 20 (17): 3120–34.
- Kim, R., I. Mejia-Guevara, D. J. Corsi, V. B. Aguayo, and S. V. Subramanian. 2017. "Relative Importance of 13 Correlates of Child Stunting in South Asia: Insights from Nationally Representative Data from Afghanistan, Bangladesh, India, Nepal, and Pakistan." *Science & Medicine* 187: 144–54.
- Kumar, V., S. Mohanty, A. Kumar, R. P. Misra, M. Santosham, A. Awasthi, A. H. Baqui, P. Singh, V. Singh, R. C. Ahuja, J. V. Singh, G. K. Malik, S. Ahmed, R. E. Black, M. Bhandari, and G. L. Darmstadt. 2008. "Effect of Community-Based Behavior Change Management on Neonatal Mortality in Shivgarh, Uttar Pradesh, India: A Cluster-Randomised Controlled Trial." *Lancet* 372 (9644): 1151–62.
- Kuyper, E., B. Vitta, and K. Dewey. 2014. "Implications of Caesarean Delivery for Breastfeeding Outcomes and Strategies to Support Breastfeeding." *Alive & Thrive Technical Brief, Issue 8*.  
<http://aliveandthrive.org/wp-content/uploads/2014/11/Insight-Issue-8-Cesarean-Delivery-English.pdf>.

- Maestre, M., and N. Poole. 2018. "Value Chains for Nutrition in South Asia: Who Delivers, How and to Whom?" *IDS Bulletin* 49 (1): 1–20.
- Mahmood, I., M. Jamal, and N. Khan. 2011. "Effect of Mother-Infant Early Skin-to-Skin Contact on Breastfeeding Status: A Randomized Controlled Trial." *Journal of the College of Physicians and Surgeons Pakistan* 21 (10): 601–5.
- Menon, P., P. H. Nguyen, K. K. Saha, A. Khaled, T. Sanghvi, J. Baker, K. Afsana, R. Haque, E. A. Frongillo, M. T. Ruel, and R. Rawat. 2016. "Combining Intensive Counseling by Frontline Workers with a Nationwide Mass Media Campaign Has Large Differential Impacts on Complementary Feeding Practices But Not on Child Growth: Results of a Cluster-Randomized Program Evaluation in Bangladesh." *Journal of Nutrition* 146 (10): 2075–84.
- Michaelsen, K. F., L. Grummer-Strawn, and F. Bégin. 2017. "Emerging Issues in Complementary Feeding: Global Aspects." *Maternal & Child Nutrition* 13 (Suppl 2): e12444.
- Miller, B. D. 1997. "Social Class, Gender and Intrahousehold Food Allocations to Children in South Asia." *Social Science & Medicine* 44: 1685–95.
- Mirkovic, K. R., C. G. Perrine, G. R. Subet, S. Mebrahtu, P. Dahal, and M. E. Jefferds. 2016. "Micronutrient Powder Use and Infant and Young Child Feeding Practices in an Integrated Program." *Asia Pacific Journal of Clinical Nutrition* 25: 350–55.
- Na, M., V. M. Aguayo, M. Arimond, P. Dahal, B. Lamichhane, R. Pokharel, S. Chitekwe, and C. P. Stewart. 2017a. "Trends and Predictors of Appropriate Complementary Feeding Practices in Nepal: An Analysis of National Household Survey Data Collected Between 2001 and 2004." *Maternal & Child Nutrition*: e12564.
- Na, M., V. M. Aguayo, M. Arimond, P. Mustaphi, and C. P. Stewart. 2017b. "Risk Factors of Poor Complementary Feeding Practices in Pakistani Children Aged 6–23 Months: A Multilevel Analysis of the Demographic and Health Survey 2012–2013." *Maternal & Child Nutrition* 13 (Suppl 2): e12463.
- Na, M., V. M. Aguayo, M. Arimond, A. Narayan, and C. P. Stewart. 2018a. "Stagnating Trends in Complementary Feeding Practices in Bangladesh: An Analysis of National Surveys from 2004–2014." *Maternal & Child Nutrition*: e12624.
- Na, M., V. M. Aguayo, M. Arimond, and C. P. Stewart. 2018b. "Predictors of Complementary Feeding Practices in Afghanistan Using Data from the National Demographic and Health Survey 2015." In press. *Maternal & Child Nutrition*.
- Nguyen, P. H., R. Avula, M. T. Ruel, K. K. Saha, D. Ali, L. M. Tran, E. A. Frongillo, P. Menon, and R. Rawat. 2013. "Maternal and Child Dietary Diversity Are Associated in Bangladesh, Vietnam, and Ethiopia." *Journal of Nutrition* 143 (7): 1176–83.
- Pandey, V. L., S. M. Dev, and U. Jayachandran. 2016. "Impact of Agricultural Interventions on Nutritional Status in South Asia: A Review." *Food Policy* 62: 28–40.
- PAHO/WHO (Pan American Health Organization/World Health Organization). 2003. *Guiding Principles for the Complementary Feeding of Breastfed Children*. Washington, DC: Pan American Health Organization, World Health Organization.
- Paintal, K., and V. M. Aguayo. 2016. "Feeding Practices for Infants and Young Children During and After Common Illness. Evidence from South Asia." *Maternal & Child Nutrition* 12 (Suppl 1): 39–71.
- Piwoz, E., J. Baker, and E. A. Frongillo. 2013. "Documenting Large-Scale Programs to Improve Infant and Young Child Feeding is Key to Facilitating Progress in Child Nutrition." *Food and Nutrition Bulletin* 34: S143–5.
- Pries, A. M., S. L. Huffman, M. Champeny, I. Adhikary, M. Benjamin, A. N. Coly, E. H. I. Diop, K. Mengkheang, N. Y. Sy, S. Dhungel, A. Feeley, B. Vitta, and E. Zehner. 2017. "Consumption of Commercially Produced Snack Foods and Sugar-Sweetened

- Beverages during the Complementary Feeding Period in Four African and Asian Urban Contexts.” *Maternal & Child Nutrition* 13 (Suppl 2): e12412.
- Prior, E., S. Santhakumaran, C. Gale, L. H. Philipps, N. Modi, and M. J. Hyde. 2012. “Breastfeeding after Cesarean Delivery: A Systematic Review and Meta-Analysis of World Literature.” *American Journal of Clinical Nutrition* 95 (5): 1113–35.
- Renzaho, Andre M. N. 2017. *Child Grant Programme and the Health and Nutritional Well-Being of Under-Five Children in the Karnali Zone of Nepal: Assessing the Impact of Integrated Social Protection Services and Trend Analysis in Five Districts—Re-analysis of Secondary Data*. Kathmandu, Nepal: UNICEF.
- Rollins, N. C., N. Bhandari, N. Hajeebhoy, S. Horton, C. K. Lutter, J. C. Martines, E. G. Piwoz, L. M. Richter, and C. G. Victora. 2016. “Why Invest, and What It Will Take to Improve Breastfeeding Practices?” *Lancet* 387 (10017): 491–504.
- Ruel, M. T., A. R. Quisumbing, and M. Balagamwala. 2018. “Nutrition-Sensitive Agriculture: What Have We Learned So Far?” *Global Food Security* 17: 128–53.
- Schwarz, R. K., K. F. Flanagan, S. Soe-Lin, and R. M. Hecht. 2018. “Opportunities & Challenges in the Integrated Child Development Services’ Take-Home Rations Program Overview.” *Policy Brief 1*. Pharos Global Health Advisors.
- Senarath, U., K. E. Agho, D. E. Akram, S. S. Godakandage, T. Hazir, H. Jayawickrama, N. Joshi, I. Kabir, M. Khanam, A. Patel, Y. Pusdekar, S. K. Roy, I. Siriwardena, K. Tiwari, and M. J. Dibley. 2012. “Comparisons of Complementary Feeding Indicators and Associated Factors in Children Aged 6–23 Months Across Five South Asian Countries.” *Maternal & Child Nutrition* 8 (Suppl 1): 9–106.
- Sharma, I. K., and A. Byrne. 2016. “Early Initiation of Breastfeeding: A Systematic Literature Review of Factors and Barriers in South Asia.” *International Breastfeeding Journal* 11 (17).
- Siekmans, K., F. Begin, R. Situma, and R. Kupka. 2017. “The Potential Role of Micronutrient Powders to Improve Complementary Feeding Practices.” *Maternal & Child Nutrition* 13 (Suppl 2): e12464.
- Smith, L., U. Ramakrishnan, A. Ndiaye, L. Haddad, and R. Martorell. 2003. *The Importance of Women's Status for Child Nutrition in Developing Countries*. Washington, DC: International Food Policy Research Institute.
- Srivastava, S., A. Gupta, A. Bhatnagar, and S. Dutta. 2014. “Effect of Very Early Skin to Skin Contact on Success at Breastfeeding and Preventing Early Hypothermia in Neonates.” *Indian Journal of Public Health* 58 (1): 22–6.
- Talukder, A., N. J. Haselow, A. K. Osei, E. Villate, D. Reario, H. Kroeun, L. SokHoing, A. Uddin, S. Dhunge, and V. Quinn. 2010. “Homestead Food Production Model Contributes to Improved Household Food Security and Nutrition Status of Young Children and Women in Poor Populations. Lessons Learned from Scaling-up Programs in Asia (Bangladesh, Cambodia, Nepal, and Philippines).” *Field Actions Science Reports. The Journal of Field Actions. Special Issue 1*.
- Thow, A. M., S. Karn, M. D. Devkota, S. Rahseed, S. K. Roy, Y. Suleman T. Hazir, A. Patel, A. Gaidhane, S. Puri, S. Godakandage, U. Senarath, and M. J. Dibley. 2017. “Opportunities for Strengthening Infant and Young Child Feeding Policies in South Asia: Insights from the SAIFRN Policy Analysis Project.” *BMC Public Health* 17 (Suppl 2): 404.
- UNICEF. 2013. *Improving Child Nutrition. The Achievable Imperative for Global Progress*. New York: UNICEF.
- . 2016. *From the First Hour of Life: Making the Case for Improved Infant and Young Child Feeding Everywhere*. UNICEF: New York.

- . 2018a. *Global UNICEF Databases: Infant and Young Child Feeding*. New York: UNICEF.
- . 2018b. *Every Child Alive. The Urgent Need to End Newborn Deaths*. New York: UNICEF.
- . 2018c. *Child Stunting, Hidden Hunger and Human Capital in South Asia: Implications for Sustainable Development Post 2015*. Kathmandu, Nepal: UNICEF.
- Vaid, A., R. Avula, N. R. George, A. John, P. Menon, and P. Mathews. 2018. “Review of the Integrated Child Development Services’ Supplementary Nutrition Program: Take Home Ration for Children.” *POSHAN Research Note 7*. New Delhi, India: International Food Policy Research Institute.
- Van Liere, M. J., D. Tarlton, R. Menon, M. Yellamanda, and I. Reerink. 2017. “Harnessing the Private Sector Expertise to Improve Complementary Feeding Within a Regulatory Framework: Where Is the Evidence?” *Maternal & Child Nutrition* 13 (S2): e12429.
- Victora, C. G., R. Bahl, A. J. Barros, G. B. A. Franca, S. Horton, J. Krasevec, S. Murch, M. J. Sankar, N. Walker, and N. C. Rollins. 2016. “Breastfeeding in the 21st Century: Epidemiology, Mechanisms, and Lifelong Effect.” *Lancet* 387 (10017): 475–90.
- WHO (World Health Organization). 2005. *Guiding Principles for Feeding Non-Breastfed Children 6–24 Months of Age*. Geneva: World Health Organization.
- . 2016. *Maternal, Infant and Young Child Nutrition: Guidance on Ending the Inappropriate Promotion of Foods for Infants and Young Children*. [http://apps.who.int/gb/ebwha/pdf\\_files/WHA69/A69\\_7Add1-en.pdf](http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_7Add1-en.pdf).
- . 2017. *National Implementation of the Baby Friendly Hospital Initiative*. Geneva: World Health Organization.
- . 2018. *Implementation Guidance: Protecting, Promoting and Supporting Breastfeeding in Facilities Providing Maternity and Newborn Services—The Revised Baby-Friendly Hospital Initiative*. Geneva: World Health Organization.
- WHO (World Health Organization), and UNICEF. 2003. *Global Strategy for Infant and Young Child Feeding*. Geneva: World Health Organization and United Nations Children's Fund.
- WHO (World Health Organization), UNICEF, and IBFAN (International Baby Food Action Network). 2016. *Marketing of Breast-Milk Substitutes: National Implementation of the International Code. Status Report 2016*. Geneva: World Health Organization.