

# BREASTFEEDING IN THE 21<sup>ST</sup> CENTURY

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*Every mother and child,  
no matter their location  
or circumstance,  
benefits from optimal  
breastfeeding practices.*

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- > Breastfeeding has substantial benefits for children and women in high- and low-income countries alike, and the evidence is now stronger than ever.
- > The health and economic benefits of breastfeeding are huge: increasing breastfeeding rates could save hundreds of thousands of lives and add hundreds of billions of dollars to the global economy each year.
- > Increasing the rates of breastfeeding worldwide is a fundamental driver in achieving the Sustainable Development Goals by 2030. Breastfeeding plays a significant role in improving nutrition, education, and maternal and child health and survival.
- > Rapid progress is possible, and we know what needs to be done—more countries need to invest in the policies and programs that support women's breastfeeding decisions.

In every country of the world, breastfeeding has a multitude of benefits for women and children: saving lives, improving child health and protecting mothers against ovarian and breast cancer deaths. While mothers have been breastfeeding for centuries, we have only recently begun to fully understand its vital role in health and development. With the release of new research in *The Lancet*, the evidence is now stronger than ever, demonstrating the substantial benefits of breastfeeding for children and women in high- and low-income countries alike.

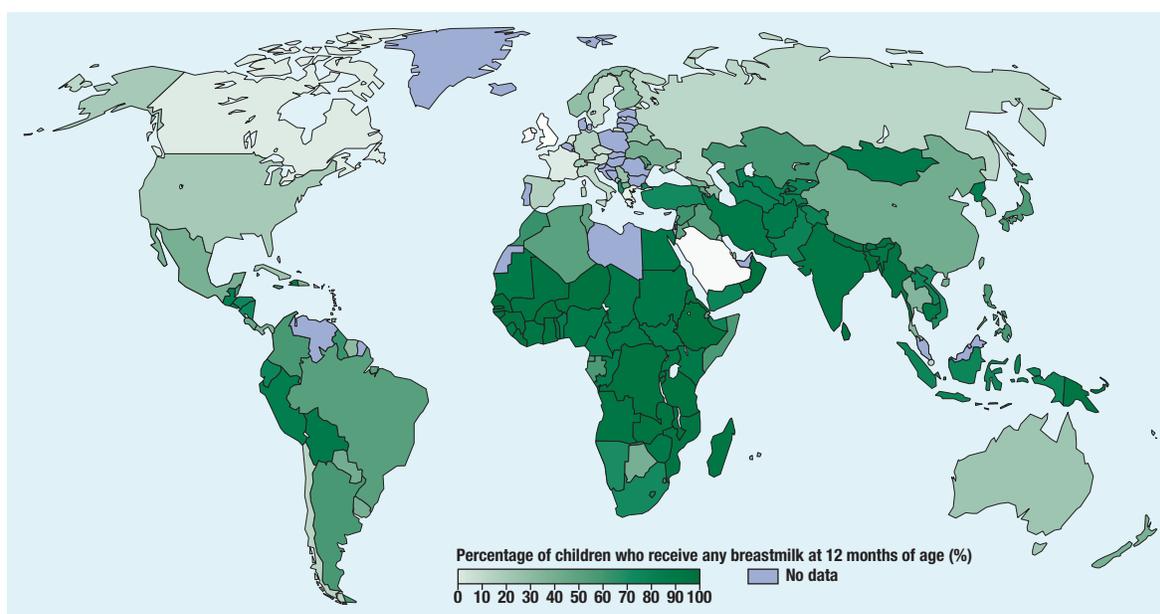
Yet despite this growing body of evidence, global rates of breastfeeding have not substantially increased in the past two decades. Exclusive breastfeeding rates among children under 6 months are well below 50 percent in most countries—the current World Health Assembly 2025 target. Most countries—rich and poor alike—are off track to meet the global target.

In the poorest countries, late initiation and low rates of exclusive breastfeeding are the main challenges, as less than 40 percent of children under 6 months are exclusively breastfed. Short overall duration of breastfeeding presents an additional challenge, particularly in middle- and high-income countries, where less than one in five children are breastfed for the first 12 months. Additionally, most high-income countries have uneven or limited breastfeeding data, which makes it difficult to track progress and trends.

Breastfeeding is one of the few positive health behaviors that is more prevalent in poor than in rich countries; in addition, poor women breastfeed for longer than rich women in low- and middle-income countries (LMICs). These results suggest that breastfeeding patterns are currently contributing to reducing the health gaps between rich and poor children in LMICs, which would be even greater in the absence of breastfeeding. In contrast, the social patterning of breastfeeding in rich countries is in the opposite direction, with higher rates among wealthier and more educated women.

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Figure 1 shows the proportion of children around 12 months of age who are breastfed in 153 countries.



## THE BENEFITS OF BREASTFEEDING

### Breastfeeding and child health

Exclusively breastfed infants have only 12 percent of the risk of death in LMICs as those who were not breastfed—underscoring the strong protective effect of exclusive breastfeeding. On average, infants younger than six months who are not breastfed are 3-4 times more likely to die than those who received any breastmilk.

There is overwhelming evidence that breastfeeding protects against the two leading causes of death in children under 5 years—pneumonia and diarrhea. Nearly half of all diarrhea episodes and one-third of all respiratory infections would be prevented with breastfeeding. Protection against hospital admissions due to these diseases is even greater – 72 percent and 57 percent, respectively.

Breastfeeding provides major protection where infectious diseases are common causes of death, but even in high-income populations it lowers mortality. One meta-analysis showed that breastfeeding was associated with a 36 percent reduction in sudden infant deaths, while another showed a 58 percent decline in necrotizing enterocolitis, the most common and serious intestinal disease among premature babies. Breastfeeding also protects against infections in high-income countries, particularly diarrhea, respiratory infections and otitis media (ear infections).

Longer breastfeeding duration was associated with a 13 percent reduction in the likelihood of overweight and/or obesity prevalence and a 35 percent reduction in type-2 diabetes incidence.

### Breastfeeding and cognitive development

Breastfeeding helps prepare children for a prosperous future. Across all income levels, breastfeeding is consistently associated with higher performance in intelligence tests among children and adolescents, with a pooled increase of 3 IQ points on average, controlling for maternal IQ. Some studies show that increased intelligence as a result of breastfeeding translates to improved academic performance, increased long-term earnings and productivity.

### Breastfeeding and maternal health

There are health benefits for women that breastfeed, including the reduction of risks for both breast and ovarian cancers. Each year a mother breastfeeds, her risk of developing invasive breast cancer is reduced by 6 percent; longer breastfeeding is also associated with a reduction in ovarian cancer. Current rates of breastfeeding prevent almost 20,000 deaths from breast cancer each year, and another 20,000 deaths could be prevented by improving breastfeeding practices.

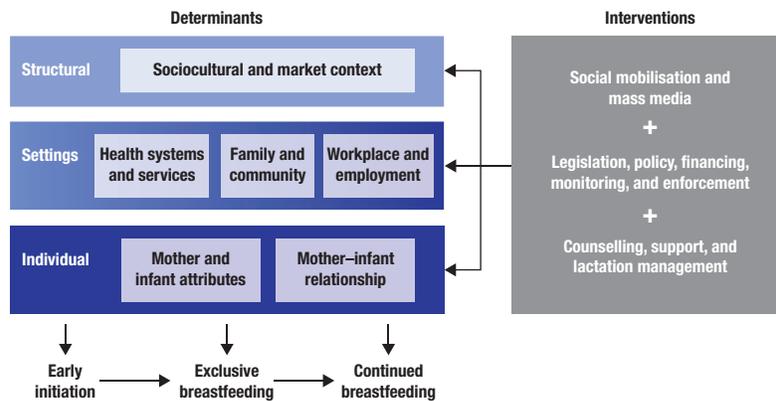
### Breastfeeding: a critical intervention in reducing under-5 child deaths

More than 820,000 lives (87 percent of them infants under 6 months of age) would be saved annually in 75 LMICs with increased breastfeeding. Breastfeeding is one of the top interventions for reducing under-5 mortality. To achieve its full impact, breastfeeding should continue up to the age of two years as its protective effect extends well into the second year of life. In children aged 6-23 months, any breastfeeding was associated with a 50 percent reduction in deaths.

## WHY INVEST, AND WHAT IT WILL TAKE TO IMPROVE BREASTFEEDING PRACTICES?

Despite the multitude of benefits, women today do not have the support they need to breastfeed, and face daily barriers in doing so. Breastfeeding is influenced by a wide variety of factors, as demonstrated by the following conceptual model (Figure 2) from *The Lancet* Breastfeeding Series.

Figure 2: Enabling Conditions for Breastfeeding: A Conceptual Model



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## **Interventions to improve breastfeeding practices**

The Series examined the effects of interventions according to the settings identified in the conceptual model:

**Health systems and services:** In the health system, providers influence and support feeding decisions at key moments before and after birth and later when there are challenges to maintaining exclusive and continued breastfeeding. Substantial gaps in knowledge and skills to support breastfeeding are reported at all levels of healthcare staff. The Series meta-analyses considered the effects of a number of interventions included within the Baby Friendly Hospital Initiative (BFHI), such as individual counseling or group education, immediate breastfeeding support at delivery, and lactation management training for health staff, which were found to increase exclusive breastfeeding by 49 percent and any breastfeeding by 66 percent.

**Family and community:** Within families, the practices and experiences of other women affect breastfeeding. In many traditional societies, colostrum is thought to be harmful and may be discarded, while pre-lacteal feeds may delay breastfeeding initiation for several days. Home- and family-based interventions were effective at improving early initiation, as well as exclusive, continued and any breastfeeding. In addition, community-based interventions including group counseling or education and social mobilization were similarly effective, increasing timely breastfeeding initiation by 86 percent and exclusive breastfeeding by 20 percent.

**Maternity protection and the workplace:** Women's work is a leading reason for not breastfeeding or early weaning. The availability of breaks and on-site rooms for breastfeeding and the provision of maternity leave are important given the increasing numbers of women in the workforce. However, too few women have access to adequate maternity entitlements that enable breastfeeding, either because they are not provided or because they are working in the informal economy and therefore not eligible. Although virtually all countries have maternity protection legislation, only 42 (23 percent) meet or exceed the International Labor Organization's (ILO) recommendation of 18 week's paid leave. The Series also found:

- > Women planning to return to work after childbirth are less likely to initiate or continue breastfeeding. Short maternity leave (less than six weeks) increases the odds of not breastfeeding or stopping early by 400 percent.
- > Paid breaks guaranteed for at least six months were associated with an 8.9 percentage point increase in exclusive breastfeeding (results vary by country).
- > Reducing barriers to breastfeeding for working mothers by providing lactation rooms and nursing breaks is one low-cost intervention that may reduce absenteeism and improve workforce performance, commitment and retention. For example, a study in the U.S. reported that lactation rooms and break time to express milk were associated with a 25 percent increase in breastfeeding at six months.

## OTHER ENABLING POLICIES AND INTERVENTIONS

Enabling interventions remove structural and societal barriers that interfere with women's ability to breastfeed optimally. They include policies that restrict the marketing of breastmilk substitutes (BMS), health insurance or other financing mechanisms that cover the costs of lactation support and baby-friendly hospital certification.

Data on the impact of policies is rarely reported. However, in countries where breastfeeding is protected, promoted and supported through strong enabling policies and programs, mothers are more likely to exclusively breastfeed their children. The largest effects of interventions on breastfeeding outcomes seem to be achieved when multiple interventions are delivered together: Combined health systems and community interventions increase exclusive breastfeeding by 2.5 fold.

## THE INFLUENCE OF THE BMS INDUSTRY

Marketing by the infant feeding industry and the availability of formula, including through the distribution of free samples, result in increased bottle feeding. Formula advertisements portray it as good as or better than breastmilk or present it as a lifestyle choice rather than a decision with health and economic consequences. Mothers report that media, including magazines and television, is an important source of information; studies in several countries associate recollection of formula advertisements with decreased breastfeeding. A 2008 population-based US study found that 67 percent of mothers had received free milk formula samples, and that such gifts were associated with shorter breastfeeding duration.

The retail value of the baby milk formula industry is growing. Unlike other commodities, it also appears resilient to market downturns. In 2014, global sales of all baby milk formula were about US \$44.8 billion, and by 2019, the market value is projected to increase to US \$70.6 billion. The trajectories of retail sales indicate that marketing strategies are effective, highlighting the importance of comprehensive national laws and regulations to curb inappropriate marketing practices with adequate monitoring and meaningful penalties.

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## THE ECONOMIC ARGUMENT FOR INVESTING IN BREASTFEEDING

Breastfeeding's benefits to mothers and children translate into substantial economic savings for countries when calculating the long-term cost due to cognitive loss, which impacts the workforce's earning potential and contribution to productivity. Breastfeeding generates significant economic returns in countries where enabling policies and programs are implemented and enforced. *The Lancet* Breastfeeding Series quantifies the economic value of breastfeeding using new data from a series of systematic reviews. The cognitive losses associated with not breastfeeding amount to \$302 billion annually, or 0.49 percent of global Gross National Income (GNI). Low- and middle-income countries lose more than \$70 billion annually, or 0.39 percent of their GNI while high-income countries lose more than \$230 billion annually, or 0.53 percent of their GNI due to low rates of breastfeeding.

### Economic cost of childhood illness due to sub-optimal breastfeeding

Breastfeeding reduces child morbidity and mortality, decreasing healthcare costs and lessening the strain on countries' healthcare systems. Breastfeeding reduces episodes of diarrhea and respiratory infections, decreasing hospital admissions by 72 percent and 57 percent, respectively. A 10 percentage point increase in exclusive breastfeeding up to six months or continued breastfeeding up to one year or two years (depending on country and condition) would translate into at least \$312 million in healthcare savings in the US, \$48 million in the UK, \$30.3 million in urban China and \$6 million in Brazil.

Alternatively, improved breastfeeding from current levels to 90 percent for the US, China and Brazil, and to 45 percent for the UK (based on the definition of the original

study) would reduce treatment costs by at least \$2.45 billion in the US, \$29.5 million in the UK, \$223.6 million in urban China and \$6.0 million in Brazil (in US \$ of 2012).

Table 1: Estimated economic losses (as % of GNI) associated with cognitive deficits based on current infant feeding practices, as compared to all children breastfeeding for at least 6 months.

	Estimated percentage loss in gross national income	Estimated loss in 2012 US\$
Eastern and southern Africa	0.04%	\$0.1 billion
<b>West and central Africa</b>	<b>0.06%</b>	<b>\$0.3 billion</b>
Middle East and north Africa	0.97%	\$11.8 billion
<b>South Asia</b>	<b>0.05%</b>	<b>\$1.0 billion</b>
East Asia and Pacific	0.31%	\$28.1 billion
<b>Latin America and the Caribbean</b>	<b>0.39%</b>	<b>\$12.1 billion</b>
Eastern Europe and central Asia	0.75%	\$17.6 billion
<b>Subtotal (low-income and middle-income countries)</b>	<b>0.39%</b>	<b>\$70.9 billion</b>
High-income countries	0.53%	\$231.4 billion
<b>World</b>	<b>0.49%*</b>	<b>\$302.0 billion (total estimated loss)</b>

Estimates are based on data for 96 countries (of 197 countries in the UNICEF's 2014 database)<sup>91</sup>. For details about data and included countries, and country-level results, see appendix pp 115–16. \*Global average, weighted by gross national income.

### Breastfeeding and environmental sustainability

Breastmilk is a “natural, renewable food” that is environmentally sound and produced and delivered to the consumer without pollution, unnecessary packaging or waste. In contrast, BMS leave a large ecological footprint, requiring energy for manufacturing, materials for packaging, fuel for distribution and water and toxic cleaning agents for daily preparation. In the U.S. alone, 550 million cans, 86,000 tons of metal and 364,000 tons of paper annually used to package BMS end up in landfills. Breastmilk's contribution to more environmentally-responsible production and consumption patterns makes it an invaluable resource in reaching global sustainability and climate change goals.

## BUILDING AN ENABLING ENVIRONMENT TO SCALE UP BREASTFEEDING

*The Lancet* Breastfeeding Series series shows that breastfeeding contributes to a world that is healthier, better educated, more equitable and more environmentally sustainable, yet the relevance of breastfeeding continues to be questioned across society. Women are drawn to substitutes for breastmilk and doubt their own ability to breastfeed. They, their families and health professionals are not fully convinced of the benefits of breastfeeding; breastfeeding in public can generate embarrassment and has even been prohibited, whereas bottle-feeding causes little reaction; the International Code of Marketing of Breastmilk Substitutes is not legislated, monitored and enforced in all countries while industry endeavors to circumvent the Code to protect sales. We must create a new normal where women are supported in their decisions to breastfeed – at home, work and in the community.

Rapid change is possible. Promoting lactation-friendly employment conditions as well as the availability of health services that support women and their families in breastfeeding are particularly important steps to take. The mix of interventions required and the investment needed to implement them will vary by setting; below are six proposed action points for policymakers and program managers to approach the challenge.

- > **Disseminate the evidence:** Promotion of breastfeeding starts with robust dissemination of evidence on its fundamental role, for both rich and poor societies. Scientists, policymakers, program managers, health workers and communities too often fail to recognize the value of breastfeeding as a powerful intervention for health and development, benefitting children and women alike.
- > **Foster positive societal attitudes towards breastfeeding:** Breastfeeding is generally considered an individual decision and the sole responsibility of a woman to succeed, ignoring the role of society in its support and protection. In an age of expert social marketing and communication innovations, redressing the misperceptions of breastfeeding is paramount.
- > **Demonstrate political will:** Politicians need to value the clear scientific evidence that breastfeeding saves lives and money. Breastfeeding should be mainstreamed into preventive programs for non-communicable diseases for both children and women, as well as for preventing morbidity and mortality from infections of early childhood. The economic gains provided by breastfeeding should be fully appreciated and evaluated when funding for the promotion and protection of breastfeeding is considered.
- > **Regulate the BMS industry:** Breastmilk substitutes are a multi-billion dollar industry, the marketing of which undermines breastfeeding as the optimal feeding practice in early life. No new interventions are needed; the Code is the effective tool for action. However, much greater political commitment and investment is needed to enact, monitor and enforce the relevant, comprehensive legislation to ensure implementation and accountability.
- > **Scale up and monitor breastfeeding promotion interventions:** It is possible to significantly improve breastfeeding practices using tested interventions. Interventions should be tailored in response to patterns of sub-optimal breastfeeding in each setting and delivered at scale to benefit all mothers and children, and feeding patterns monitored routinely to provide feedback to implementers.

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- > **Enabling interventions:** Legislation and accountability mechanisms should ensure that maternity protection and workplace interventions that support breastfeeding are implemented (though these will not reach women who are self-employed or in marginal employment) and that all maternity health services comply with the Code and BFHI.

## BREASTFEEDING AND THE *GLOBAL STRATEGY FOR WOMEN'S, CHILDREN'S AND ADOLESCENTS' HEALTH*

The health of women, children and adolescents is intrinsically linked to bringing about the transformative change needed to shape a more prosperous and sustainable future for all. Tremendous progress has been made in the last 15 years and continued progress in reproductive, maternal, newborn, child and adolescent health (RMNCAH) is critical to advancing the *Global Strategy for Women's, Children's and Adolescents' Health* and its objectives of Survive, Thrive and Transform which underpin the *Every Woman Every Child* movement. Commitment and investment by governments, donors and civil society in the promotion, protection and support of breastfeeding is urgently needed to ensure the health of women and children for generations to come.

For more information, please visit: [www.thelancet.com/series/breastfeeding](http://www.thelancet.com/series/breastfeeding)

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