

FREQUENTLY ASKED QUESTIONS ABOUT...

The Cost of Not Breastfeeding Tool

NOT BREASTFEEDING LEADS TO MORE THAN HALF A MILLION CHILD DEATHS ANNUALLY AND COSTS THE WORLD'S ECONOMY UP TO US\$1 BILLION A DAY. In 2019, the Cost of Not Breastfeeding Tool was published in *Health Policy and Planning*, quantifying the impacts of not breastfeeding on human lives and the economies of 130 countries. Below are answers to some of the frequently asked questions about the tool.

Q What is the Cost of Not Breastfeeding Tool?

A The Cost of Not Breastfeeding Tool is actually two things. First, it is an analytical tool with a downloadable Excel workbook, which was presented in an [article](#) published in *Health Policy and Planning*. This version of the tool is intended for advanced technical users. It includes worksheets with open-access datasets and the calculations for indicators for approximately 130 countries.

Secondarily, the tool has been adapted into an interactive [online version](#) featuring a selection of countries (currently numbering 34). This version of the tool makes it easy for a layperson to explore the data and download corresponding advocacy briefs for the selected countries. Advocates can download and print these briefs to present and explain the costs of not breastfeeding to policymakers, legislators, the media, and other key stakeholders.

Q Who developed the tool?

A The Cost of Not Breastfeeding Tool was developed and authored by Dylan D. Walters, Linh T.H. Phan, and Roger Mathisen with support from Alive & Thrive. The online version of the tool was developed by Alive & Thrive.

Q Why was the tool developed?

A Both versions of the tool were developed to provide a clear picture of the costs—in terms of human lives lost and economic activity—attributable to suboptimal breastfeeding practices. The tool's creators hope that advocates will use this information to convince policymakers, legislators, and other stakeholders to do more to support breastfeeding.

See 7 Ways to Use the Tool in Advocacy [here](#).

Q What methodology was used to develop the tool?

A The Cost of Not Breastfeeding Tool calculates the following types of human and economic costs for mothers and babies not breastfed according to WHO recommendations for exclusive breastfeeding (0-5 months) and continued breastfeeding (up to 2 years of age):

- **Child morbidity and mortality:** The number of cases and mortality due to childhood diarrhea, pneumonia, and attributable cases of childhood obesity.
- **Maternal morbidity and mortality:** The number of cases and mortality related to breast and ovarian cancer and type II diabetes attributable to not breastfeeding according to recommendations.
- **Health system and household formula costs:** The direct medical costs for treatment of cases of childhood diarrhea and pneumonia and type II diabetes in women attributable to not breastfeeding, as well as the cost of households using formula as a breastmilk substitute.
- **The future economic cost of mortality and cognitive losses:** The potential loss of contribution to a country's economy through lost future earnings over a person's productive years due resulting from either premature mortality or cognitive losses in childhood due to not achieving gains in intelligence provided by being breastfed.

Q How were the indicators calculated?

A The tables below provide calculations for each indicator.

Child and maternal morbidity and mortality

Child morbidity and mortality	$[\% \text{ of households in each breastfeeding behavior category}] \times [\text{level of increased risk for diarrhea or pneumonia infections caused by not breastfeeding according to recommendations}] \times [\text{morbidity or mortality for each disease for infants and young children (age 0–23 months)}]$
Maternal morbidity and mortality from breast cancer and type II diabetes	$[\text{incidence of type II diabetes in women}] \times [\text{published relative risk of type II diabetes}] \times [\text{current level of breastfeeding in each country}]$ $[\text{incidence of mortality due to breast cancer in women}] \times [\text{published relative risk of breast cancer in women who have not breastfed}] \times [\text{current level of breastfeeding in each country}]$

Health system and household formula costs

Medical costs for treatment of cases of childhood diarrhea and pneumonia	$[\# \text{ of cases of childhood disease due to not breastfeeding}] \times [\% \text{ of children with disease taken to a health facility}] \times [\% \text{ of cases receiving either outpatient care services or inpatient care services}] \times [\% \text{ of patients that seek care at each level of care (from health center to tertiary hospital) in each country}] \times [\text{unit cost of treatment for children at each level of care}]$ = annual cost of treatment for diarrhea and pneumonia attributed to not breastfeeding at each level of care. The sum of costs at each level of care equals the annual total cost.
Health expenditure for type II diabetes	$[\# \text{ annual cases of type II diabetes attributed to not breastfeeding}] \times [\% \text{ of cases of type II diabetes that are diagnosed}] \times [\text{health expenditure per case of type II diabetes in each country}]$
Cost of feeding a child with formula for the first 2 years	$[\text{total estimated quantity of formula suggested by breastmilk substitute producers and manufacturers}] \times [\text{unit cost of formula}] / [\text{nominal wage or mean earnings of employees in each country}]$

The future economic cost of mortality and cognitive losses

Potential future income lost due to child mortality	$[\# \text{ child deaths attributed to not breastfeeding}] \times [\text{each country's expected GNI per capita}] \times [\text{countries' labour share of income}] = 1 \text{ year potential future income lost}$ Total future income lost = discounted sum of above calculation for each year from the year the children turn 18 until 65 or country's age of life expectancy
Potential future income lost due to maternal mortality	$[\# \text{ maternal deaths attributed to not breastfeeding}] \times [\text{each country's expected GNI per capita}] \times [\text{countries' labour share of income}] = 1 \text{ year potential future income lost}$ Total future income lost = discounted sum of above calculation for each year from the mean age of women's cancer and diabetes-related mortality until 65 or country's age of life expectancy
Potential future income lost due to cognitive losses	$[\# \text{ children not breastfed}] \times [\text{GNI per capita}] \times [2.62 \text{ IQ point increase lost per child not breastfed}] \times [1.067\% \text{ increase in earnings lost for each IQ point lost}] \times [\text{countries' labour share of income}] = 1 \text{ year potential future income lost}$ Total future income lost = discounted sum of above calculation for each year from the year the children turn 18 until 65 or country's age of life expectancy

The total combined economic losses of not breastfeeding is equal to the sum of the health system cost, future economic cost of mortality, and future economic cost of cognitive losses for each country. For additional details on the methodology used, please refer to the manuscript.

Q What costs are not included in the tool?

A The tool does not account for

- unpaid caregiving time, largely the responsibility of women
- transportation costs
- household treatment fees
- several illnesses such as childhood diabetes and cancers which are preventable in part by breastfeeding

The lack of available data for these costs does create significant gaps. Future versions of the tool will use new datasets, to the extent possible, to address these gaps and provide a more complete estimate of the true costs of not breastfeeding.

Q What are the different data sources used for the tool?

A Breastfeeding data for each country was taken from the UNICEF Global IYCF Database (as of June 2017) where possible, which includes data from the most recent Demographic and Health Surveys (DHS) or Multiple Indicator Cluster Surveys (MICS).

Additional sources of data include:

- United Nations World Population Prospects
- The Lancet Series on Breastfeeding Supplementary Appendix
- The Global Burden of Disease Results Tool
- World Bank's World Development Indicators Database
- International Labour Office ILOSTAT Database

For more details on data sources and methods please see: <https://academic.oup.com/heapol/article/34/6/407/5522499>

Q The 2016 Lancet Breastfeeding Series modeled the health and economic impact of breastfeeding practices. Is the methodology you used the same as the Lancet's?

A The methodology and indicator definitions are the same as the Lancet Breastfeeding Series and the tool's calculations are based on the same variables (early initiation, exclusive, and continued BF at 1 and 2 years). The main difference is that the Lancet series analysis was conducted from a societal perspective with certain costs borne by households, ministries of health and the economy as a whole included, while the tool focuses on the key costs based on the available data for the majority of countries rather than the exhaustive inclusion of all type of costs. This tool also calculated the costs based on the assumption that 100% of children were breastfed exclusively for the first six months and continued breastfeeding appropriately for one or two years.

Q How were the estimates for maternal and child deaths in the Cost of Not Breastfeeding Tool calculated?

A The tool used the latest data available when it was developed in 2017-2018. The tool did not model data if country-level data were not available, nor did it extrapolate data from countries that do not have reliable and readily available data. Rather, it aggregated country-level results where estimates were possible to estimate regional or global results. For calculating estimates for maternal deaths, the tool included potential deaths from breast cancer, ovarian cancer, and Type II diabetes.

Q The tool demonstrates a significant cost of not breastfeeding. Has the tool included the tradeoff between these costs and the taxes governments receive from the Breastmilk Substitutes (BMS) industry?

A The tool does not account for the potential tax revenues from BMS companies or retailers. The tool demonstrates that the costs of BMS are high compared to the average wages in most low- and middle-income countries (LMICs). While governments may not want to limit the tax revenues they receive from the BMS industry, the tool can be used to demonstrate the short-term costs from increased disease and deaths and their associated health care costs, as well as the long-term cognitive and economic costs of not breastfeeding that could be prevented (and thus diminish some of incurred government costs) through breastfeeding. The current estimate of global economic losses due to not breastfeeding range between US \$257 billion and US \$341 billion. The tool can help to advocate with governments to allow them to see the actual tradeoff between lost tax revenue and the need for services those taxes support.

Q Will the tool data be updated as data become available?

A We are currently developing a plan to update the core datasets used in the tool to ensure that the estimates of health and economic impact results from not breastfeeding in each country are based on the most recent data available. We hope to update the data annually depending on availability of resources for the initiative.

Q Why is my country not listed on the tool?

A The published tool includes a spreadsheet with full data for more than 130 countries. Currently there are only a limited number of countries included in the online tool, but Alive & Thrive plans to continue to add new countries and regional profiles to the online tool on a rolling basis.