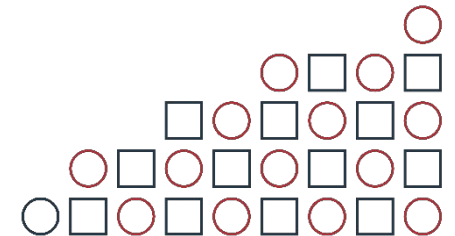


# Data Sources for MMS Cost-Benefit Tool

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Updated April 2021



This document lists the data sources that were used to generate the pre-loaded reports in the [MMS Cost-Benefit Tool](#). It also serves as a guideline on recommended data sources for each parameter in the tool's *custom interface*. Users are welcome to use the *custom interface* to input information from other preferred data sources. For more information, please contact: [MoMs@NutritionIntl.org](mailto:MoMs@NutritionIntl.org)

Parameter	Data Source
Population (of pregnant women)	The population of pregnant women in the intervention area is calculated by multiplying the (i) <i>Total Population</i> * (ii) the <i>Crude Birth Rate</i>
(i) Total Population (thousands)	United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.Rev.1. <i>Total population (both sexes combined) by region, subregion and country, annually for 1950-2100</i> . (2018 Estimate). Available from: <a href="https://population.un.org/wpp/Download/Standard/Population/">https://population.un.org/wpp/Download/Standard/Population/</a> [Accessed: 7 <sup>th</sup> February 2021].
(ii) Crude Birth Rate (births per 1,000 population)	United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.Rev.1. <i>Fertility: Crude Birth Rate by region, subregion and country, 1950-2100 (births per 1,000 population)</i> (Selection: 2020-2025). Available from: <a href="https://population.un.org/wpp/Download/Standard/Fertility/">https://population.un.org/wpp/Download/Standard/Fertility/</a> [Accessed: 7 <sup>th</sup> February 2021].
IFA supplement costs (current USD)	UNICEF. UNICEF Supply Catalogue. Available from: <a href="https://supply.unicef.org/all-materials/pharmaceuticals/minerals-vitamins.html">https://supply.unicef.org/all-materials/pharmaceuticals/minerals-vitamins.html</a> (IFA: Product No. S1550005) [Accessed: 26 <sup>th</sup> February 2021].
MMS supplement costs (current USD)	UNICEF. UNICEF Supply Catalogue. Available from: <a href="https://supply.unicef.org/all-materials/pharmaceuticals/minerals-vitamins.html">https://supply.unicef.org/all-materials/pharmaceuticals/minerals-vitamins.html</a> (MMS: Product No. S1580101) [Accessed: 26 <sup>th</sup> February 2021].
Source of health effects Keats et al. 2019 (Cochrane)	Keats EC, Haider BA, Tam E, Bhutta ZA. Multiple-micronutrient supplementation for women during pregnancy. Cochrane Database of Systematic Reviews. 2019: Issue 3. Art. No: CD004905. Available from: DOI:10.1002/14651858.CD004905.pub6. 2009.
Source of health effects Smith et al. 2017 (Lancet)	Smith, ER, Shankar AH, Wu LS-F, Said A, Seth A-A, Hasmot A, Rina A et al. Modifiers of the effect of maternal multiple micronutrient supplementation on stillbirth, birth outcomes, and infant mortality: a meta-analysis of individual patient data from 17 randomised trials in low-income and middle-income countries. <i>Lancet Glob. Health</i> . 2017; 5: e1090–e1100.
Cost effectiveness	Leech AA, Kim DD, Cohen JT, Neumann PJ. Use and Misuse of Cost-Effectiveness Analysis Thresholds in Low- and Middle-Income Countries: Trends in Cost-per-DALY Studies. Tufts Medical Center, 2018; Boston, MA, USA. Available from: <a href="https://doi.org/10.1016/j.ival.2017.12.016">doi.org/10.1016/j.ival.2017.12.016</a> .
Gross Domestic Product (GDP) per capita	The World Bank International Comparisons Database 2019. <i>GDP per capita, PPP (current International \$)</i> (Selected Year: 2019). Available from: <a href="https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?end=2018&amp;start=2018">https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD?end=2018&amp;start=2018</a> [Accessed: 7 <sup>th</sup> February 2021].

Parameter	Data Source
Value of statistical life (current USD)	W. Kip Viscusi, Clayton J. Masterman, Journal of Benefit Cost Analysis, Value of a Statistical Life <a href="https://www.cambridge.org/core/journals/journal-of-benefit-cost-analysis/article/income-elasticities-and-global-values-of-a-statistical-life/5AE299883F668DCC265C41A377E1E063/core-reader#">https://www.cambridge.org/core/journals/journal-of-benefit-cost-analysis/article/income-elasticities-and-global-values-of-a-statistical-life/5AE299883F668DCC265C41A377E1E063/core-reader#</a> [Accessed: 7 <sup>th</sup> February 2021]
Life expectancy at birth	United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. <i>Life Expectancy at birth, both sexes</i> . (Selection: 2020-2025). Available from: <a href="https://population.un.org/wpp/Download/Standard/Mortality/">https://population.un.org/wpp/Download/Standard/Mortality/</a> [Accessed: 7 <sup>th</sup> February 2021].
Life Expectancy at median age of first pregnancy	Requires the (i) median age of first pregnancy for the country of interest, use this estimate as the Age Group for the (ii) Life Tables, Expectation of life at age X (Select: Female, Year: most recent year available).
(i) Median age of first pregnancy	Demographic Health Surveys (DHS) <i>The DHS Program STATcompiler</i> . (Median age at first birth for women). Available from: <a href="https://statcompiler.com/en/">https://statcompiler.com/en/</a> [Accessed: 7 <sup>th</sup> February 2021].
(ii) Expectation of life at age X	World Health Organization (WHO). <i>Global Health Observatory data repository, Life Tables by Country</i> (Updated: 2019). Available from: <a href="http://apps.who.int/gho/data/view.main.60550?lang=en">http://apps.who.int/gho/data/view.main.60550?lang=en</a> [Accessed: 7 <sup>th</sup> February 2021].
Sex ratio at birth	United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition.Rev.1. <i>Fertility: Sex ratio at birth by region, subregion and country, 1950-2100 (male births per female births)</i> (Selection: 2020-2025). Available from: <a href="https://population.un.org/wpp/Download/Standard/Fertility/">https://population.un.org/wpp/Download/Standard/Fertility/</a> [Accessed: 7 <sup>th</sup> February 2021].
Stillbirth per 1,000 births	World Health Organization. Global Health Observatory repository (2019) Stillbirth rate by country. Updated (2020-10-12) <a href="https://apps.who.int/gho/data/view.main.GSWCAH06v">https://apps.who.int/gho/data/view.main.GSWCAH06v</a> [Accessed: 7 <sup>th</sup> February 2021]
Neonatal mortality (female) per 1,000 live female births	<p>Ideally, the true neonatal mortality (female) would have been used. However, for most countries the available indicator data was outdated preventing it from being used reliably. Instead, the neonatal mortality (female) was computed using the following method.</p> $Neonatal\ mortality_{female} = \frac{Birth\ rate_{female} * Neonatal\ mortality_{total}}{Crude\ birth\ rate}$ <p>The calculation of the <math>Birth\ rate_{female}</math> indicator is discussed in the countries data sheet, <math>Neonatal\ mortality_{total}</math> is outlined below whereas the <math>Crude\ birth\ rate</math> is the third indicator in this list. [Reviewed: April 5<sup>th</sup> 2021]</p>

Parameter	Data Source
Neonatal mortality (male) per 1,000 live male births	<p>Ideally, the true neonatal mortality (male) would have been used. However, for most countries the available indicator data was outdated preventing it from being used reliably. Instead, the neonatal mortality (male) was computed using the following method.</p> $\text{Neonatal mortality}_{\text{male}} = \frac{\text{Birth rate}_{\text{male}} * \text{Neonatal mortality}_{\text{total}}}{\text{Crude birth rate}}$ <p>The calculation of the <i>Birth rate<sub>male</sub></i> indicator is discussed in the countries data sheet, <i>Neonatal mortality<sub>total</sub></i> is outlined below whereas the <i>Crude birth rate</i> is the third indicator in this list. [Reviewed: April 5<sup>th</sup> 2021]</p>
Neonatal mortality (total) per 1,000 live births	<p>UNICEF Neonatal Mortality Rate (Reference 2019) Last updated 2020  <a href="https://data.unicef.org/resources/data_explorer/unicef_f/?ag=UNICEF&amp;df=GLOBAL_DATAFLOW&amp;ver=1.0&amp;dq=CME_MRM0.&amp;startPeriod=2016&amp;endPeriod=2019">https://data.unicef.org/resources/data_explorer/unicef_f/?ag=UNICEF&amp;df=GLOBAL_DATAFLOW&amp;ver=1.0&amp;dq=CME_MRM0.&amp;startPeriod=2016&amp;endPeriod=2019</a> [Accessed: 7<sup>th</sup> February 2021].</p>
Infant mortality (total) per 1,000 live births	<p>UNICEF Infant Mortality Rate (IGME) (Reference 2019) Last updated 2020  <a href="https://data.unicef.org/resources/data_explorer/unicef_f/?ag=UNICEF&amp;df=GLOBAL_DATAFLOW&amp;ver=1.0&amp;dq=CME_MRY0.&amp;startPeriod=2016&amp;endPeriod=2019">https://data.unicef.org/resources/data_explorer/unicef_f/?ag=UNICEF&amp;df=GLOBAL_DATAFLOW&amp;ver=1.0&amp;dq=CME_MRY0.&amp;startPeriod=2016&amp;endPeriod=2019</a> [Accessed: 7<sup>th</sup> February 2021].</p>
Maternal mortality (maternal deaths per 100,000 live births)	<p>World Health Organization, UNICEF, UNFPA, World Bank Group and UNPD (MMEIG) (2019). <i>Trends in estimates of Maternal Mortality 2000-2017</i>. (Reference year: 2017, Last updated 2019-10-18). Available from: <a href="https://data.unicef.org/resources/trends-maternal-mortality-2000-2017/">https://data.unicef.org/resources/trends-maternal-mortality-2000-2017/</a> [Accessed: 7<sup>th</sup> February 2021].</p>
Low birth weight (LBW)	<p>UNICEF and World Health Organization (WHO). <i>UNICEF/WHO Low birthweight (LBW) Estimates (2019). Low birthweight data 2000-2015</i>. (Reference year: 2015). Available from: <a href="https://data.unicef.org/topic/nutrition/low-birthweight/">https://data.unicef.org/topic/nutrition/low-birthweight/</a>. [Accessed: 7<sup>th</sup> February 2021].</p>
Small for gestational age (SGA)	<p>Lee A CC, Katz J, Blencowe H, Cousens S, Kozuki N, Vogel JP et al. National and regional estimates of term and preterm babies born small for gestational age in 138 low-income and middle-income countries in 2010. <i>Lancet Glob. Health</i>. 2013;1:26-36. Available from: <a href="https://www.thelancet.com/pdfs/journals/langlo/PIIS2214-109X(13)70006-8.pdf">https://www.thelancet.com/pdfs/journals/langlo/PIIS2214-109X(13)70006-8.pdf</a> [Accessed: 7<sup>th</sup> February 2021]</p>
Preterm birth	<p>Chawanpaiboon S, Vogel JP, Moller AB, Lumbiganon P, Petzold M, Hogan D et al. Global, regional, and national estimates of levels of preterm birth in 2014: a systematic review and modelling analysis. <i>Lancet Glob. Health</i>. 2019;7:e37-46. Available from: <a href="https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30451-0/fulltext">https://www.thelancet.com/journals/langlo/article/PIIS2214-109X(18)30451-0/fulltext</a>. [Accessed: 7<sup>th</sup> February 2021].</p>
Maternal anaemia (pregnant women)	<p>World Health Organization (WHO). <i>Global Health Observatory data repository, Prevalence of anaemia in pregnant women. Estimates by Country</i> (Updated: 2017-08-30). (Reference year: 2016). Available from: <a href="http://apps.who.int/gho/data/view.main.ANAEMIAWOMENPWv?lang=en">http://apps.who.int/gho/data/view.main.ANAEMIAWOMENPWv?lang=en</a>. [Accessed: 7<sup>th</sup> February 2021].</p>