Global, India - UNICEF Child (Neonatal) Mortality Estimates, 1990-2013

UN Inter-agency Group for Child Mortality Estimation (IGME) - UNICEF

Report generated on: June 3, 2016

Overview

Identification

ID NUMBER
glob-cghr-nnmr-1990-2013-v01

Overview

ABSTRACT
Child mortality is a core indicator for child health and well-being. In 2000, world leaders agreed on the Millennium Development Goals (MDGs) and called for reducing the under-five mortality rate by two thirds between 1990 and 2015 - known as the MDG 4 target. In recent years, the Global Strategy for Women's and Children's Health launched by United Nations Secretary General Ban Ki-moon and the Every Woman Every Child movement boosted global momentum in improving newborn and child survival as well as maternal health. In June 2012, world leaders renewed their commitment during the global launch of Committing to Child Survival: A Promise Renewed, aiming for a continued post-2015 focus to end preventable child deaths. With the end of the MDG era, the international community is in the process of agreeing on a new framework - the Sustainable Development Goals (SDGs). The proposed SDG target for child mortality represents a renewed commitment to the world's children: By 2030, end preventable deaths of newborns and children under five years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 deaths per 1,000 live births and under-five mortality to at least as low as 25 deaths per 1,000 live births.

In the concluding year of the MDGs, it is time to take stock of what has been achieved so far, to consider whether the promises made to children worldwide have been fulfilled, and to share success stories or, conversely, learn lessons from failures. As the SDGs are endorsed in New York in September this year, the United Nations Secretary General will launch a renewed Global Strategy for Women's, Children's and Adolescents' Health. The strategy is a road map to achieving the ambitious SDG goal on health: “Ensure healthy lives and promote well-being for all at all ages,” including ending preventable deaths of newborns and children. It is time to look beyond, to the post-2015 SDGs, to identify potential challenges to ending preventable deaths of newborns and children under age five.

Evidence-based estimation of child mortality is a cornerstone for tracking progress towards child survival goals and for planning national and global health strategies, policies and interventions on child health and well-being.

Coverage

GEOGRAPHIC COVERAGE
International

Producers and Sponsors

PRIMARY INVESTIGATOR(S)

Name	Affiliation
UN Inter-agency Group for Child Mortality Estimation (IGME)	UNICEF

Metadata Production

METADATA PRODUCED BY

Name	Abbreviation	Affiliation	Role
Centre for Global Health Research	CGHR	St. Michael's Hospital; University of Toronto	Metadata Producer

DDI DOCUMENT VERSION
Version 1.0. This is the very first version of this DDI document

DDI DOCUMENT ID
glob-cghr-nnmr-1990-2013-v01

Sampling

No content available

Questionnaires

No content available

Data Collection

Data Collection Dates

Start	End	Cycle
1990	2013	N/A

Data Collection Mode

Face-to-face [f2f]

DATA COLLECTION NOTES

Nationally representative estimates of child mortality can be derived from a number of different sources, including civil registration and sample surveys. Demographic surveillance sites and hospital data are excluded, as they are rarely representative. The preferred source of data is a civil registration system, which records births and deaths on a continuous basis. If registration is complete and the system functions efficiently, the resulting estimates will be accurate and timely.

Most low- and middle-income countries, however, do not have well-functioning vital registration systems. In such cases, household surveys, such as the UNICEF-supported Multiple Indicator Estimating Child Mortality 11 Cluster Surveys (MICS), the United States Agency for International Development-supported Demographic and Health Surveys (DHS) and periodic population censuses have become the primary source of data on child mortality. These surveys, which ask women about the survival of their children, provide the basis of child mortality estimates for a majority of low- and middle-income countries. The data from such surveys, however, are often subject to sampling or/and non-sampling errors, which might be substantial.

The first step in the process of arriving at estimates of levels and recent trends of the under five, infant and neonatal mortality rates involves compiling all newly available empirical data. The full set of empirical data used in this analysis is publicly available from the UN IGME web portal (http://childmortality.org/, under 'Underlying data'). The 2015 update to the UN IGME database included about 5,700 new or updated country-year data points on child mortality under age five from more than 130 data series. As of July 2015, the database contains 17,000 country-year data points from more than 1,500 data series across 195 countries from 1990 (or earlier) to 2015. The increased availability of empirical data has substantially changed the estimates generated by UN IGME for some countries from previous editions, partly because the fitted trend line is based on the entire time series of data available for each country. The estimates presented in this report may differ from and are not necessarily comparable with previous sets of UN IGME estimates or underlying country data.

Data from civil registration systems: Civil registration data are the preferred data source for under-five, infant and neonatal mortality estimation. The calculation of the under-five mortality rates (U5MR) and infant mortality rates (IMR) from civil registration data is derived from a standard period abridged life table. For civil registration data (with available data on the number of deaths and mid-year populations), annual observations were initially constructed for all observation years in a country. For country-years in which the coefficient of variation exceeded 10 percent, deaths and midyear populations were pooled over longer periods, starting from more recent years and combining those with adjacent previous years, to reduce spurious fluctuations in countries where small numbers of births and deaths were observed.

The coefficient of variation is defined to be the stochastic standard error of the 5q0 (5q0=U5MR/1,000) or 1q0 (1q0=IMR/1,000) observation divided by the value of the 5q0 or 1q0 observation. The stochastic standard error of the observation is calculated using a Poisson approximation using live birth numbers from the World Population Prospects, given by sqrt(5q0 /lb) (or similarly sqrt(1q0 /lb), where lb is the number of live births in the year of the observation.7 After this recalculation of the civil registration data is done, the standard errors are set to a minimum of 2.5 percent for input into the model.

Survey data: The majority of survey data comes in one of two forms: the full birth history, which asks women for the date of birth of each of their children, whether the children are still alive and, if not, the age at death; and the summary birth history, which asks women only about the number of children they have given birth to and the number that have died (or equivalently the number still alive).
Full birth history data, collected by all DHS surveys and increasingly also MICS surveys, allow the calculation of child mortality indicators for specific time periods in the past.8 This allows DHS and MICS to publish child mortality estimates for three 5-year periods before the survey, that is, 0 to 4, 5 to 9 and 10 to 14. UN IGME has recalculated estimates for calendar year periods, using single calendar years for periods shortly before the survey, and gradually increasing the number of years for periods further in the past to cover a 25-year period prior to the survey, whenever survey microdata are available. The cut-off points for a given survey for shifting from estimates for single calendar years to two years, or two years to three, etc., are based on the estimates' coefficients of variation (a measure of sampling uncertainty).9

In general, summary birth history data, collected by censuses and many household surveys, use the age of the woman as an indicator of the age of her children and their exposure time to the risk of dying, and employ models to estimate 12 mortality indicators for periods in the past for women ages 25-29 through ages 45-49. This method is well known, but has several shortcomings. In 2014, UN IGME changed the method of estimating summary birth histories to one based on classification of women by the time that has passed since their first birth.

The main benefits of this new method over the previous one are that: First, it generally has lower sampling errors. Second, it avoids the problematic assumption that the estimates derived for each age group adequately represent the mortality of the whole population, and thus is less susceptible to the selection effect of young women who give birth early, since all women who give birth necessarily must have a first birth and therefore are not selected for. Third, the method tends to show less fluctuation over time, in particular in countries with relatively low fertility and mortality.10 UN IGME considers the improvements in the estimates based on time since first birth worthwhile when compared with the estimates derived from the classification by age of mother. In cases where the information on time since first birth is available, UN IGME has reanalysed the data using the new method and only uses this version of estimates.

Moreover, following advice from UN IGME's Technical Advisory Group, child mortality estimates from a summary birth history were not included when estimates from a full birth history in the same survey were available.11

Data Processing

No content available

Data Appraisal

No content available