

Methods for Estimating Child Mortality

General Methods

At country level, under-five mortality can be measured using a number of different methods, including registration of births and deaths through vital registration systems, national population censuses and/or data collected via household surveys. When vital registration systems are of good quality, the under-five mortality can be easily estimated. However, in the developing world most countries do not have well-functioning vital registration systems which can generate nationally representative estimates. Therefore, household surveys, such as the UNICEF-supported Multiple Indicator Cluster Surveys (MICS) and the USAID-supported Demographic and Health Surveys (DHS) have become the primary source of data on under-five and infant mortality in developing countries.

Data from different sources and calculation methods often yield widely different estimates of under-five and infant mortality for a given time and place. In order to reconcile these differences, the IGME developed a method to fit a smoothed trend to a set of observations and to extrapolate that trend to the present time.

The IGME compiles national level estimates, including data from vital registration systems, population censuses, and household surveys (e.g. DHS, MICS, LSMS, RHS, PAPFAM, etc.). A regression curve¹ is then fitted to these points and extrapolated to a common reference year. The method aims to provide a transparent and largely objective way of fitting a smoothed trend to a set of observations, and of extrapolating the trend to cover the period from 1960 to the present.

Due to the fact that the regression curve involves retro-fitting the entire time series, estimates may differ from previous years' estimates for the same reference year if there is any change among the available data observations (for example, addition of newly available data or addition of missing data for the past, and revised HIV/AIDS adjusted data points).

Infant mortality is often derived from under-five mortality by selecting an appropriate model life table, instead of derived from empirical data. The reason is that infant mortality can be more biased in empirical data due to sampling errors, reporting errors, etc. In order to keep consistency between under-five mortality and infant mortality, model life tables are used to derive infant mortality from under-five mortality.

¹ The IGME derives regression estimates using SPLINE or LOESS models. For a further description and analysis of these methodologies, please see http://www.childinfo.org/files/infant_child_mortality_2006.pdf