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| 33 | 26 | 1 | Contact point in international agency | Agency: United Nations Children's Fund (UNICEF)  Website: <https://www.unicef.org> |
| 33 | 26 | 2 | International agreed definition | Definition:  Under-five mortality is the probability of a child born in a specific year or period dying before reaching the age of 5 years, if subject to age specific mortality rates of that period, expressed per 1000 live births.  Rationale:  Mortality rates among young children are a key output indicator for child health and well-being, and, more broadly, for social and economic development. It is a closely watched public health indicator because it reflects the access of children and communities to basic health interventions such as vaccination, medical treatment of infectious diseases and adequate nutrition.  Concepts:  The under-five mortality rate as defined here is, strictly speaking, not a rate (i.e. the number of deaths divided by the number of population at risk during a certain period of time) but a probability of death derived from a life table and expressed as a rate per 1000 live births. |
| 33 | 26 | 3 | Method of computation | Computation Method:   The UN Inter-agency Group for Child Mortality Estimation (UN IGME) estimates are derived from national data from censuses, surveys or vital registration systems. The UN IGME does not use any covariates to derive its estimates. It only applies a curve fitting method to good-quality empirical data to derive trend estimates after data quality assessment. In most cases, the UN IGME estimates are close to the underlying data. The UN IGME aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates. The UN IGME applies the Bayesian B-splines bias-reduction model to empirical data to derive trend estimates of under-five mortality for all countries. See references for details.   For the underlying data mentioned above, the most frequently used methods are as follows:  Civil registration: The under-five mortality rate can be derived from a standard period abridged life table using the age-specific deaths and mid-year population counts from civil registration data to calculate death rates, which are then converted into age-specific probabilities of dying.  Census and surveys: An indirect method is used based on a summary birth history, a series of questions asked of each woman of reproductive age as to how many children she has ever given birth to and how many are still alive. The Brass method and model life tables are then used to obtain an estimate of under-five and infant mortality rates. Censuses often include questions on household deaths in the last 12 months, which can be used to calculate mortality estimates.  Surveys: A direct method is used based on a full birth history, a series of detailed questions on each child a woman has given birth to during her lifetime. Neonatal, post-neonatal, infant, child and under-five mortality estimates can be derived from full birth history module.  Disaggregation:  The disaggregation for mortality indicators includes disaggregation by sex, age (neonatal, infant, child). Disaggregated data are not always available. Disaggregation by geographic location is usually at regional level, or the minimum provincial level for survey or census data. Data from well-functioning vital registration systems can provide further geographical breakdowns. |
| 33 | 26 | 4 | Importance of the indicator in addressing gender issues and its limitation | In settings where there is no gender-based discrimination in the care and treatment of young children, under-five mortality rates are higher for boys than for girls due to biological factors that tend to favour girls, especially in early infancy. The degree of expected female advantage varies according to the overall level of mortality and the profile of causes of death. Thus, equal rates of under-five mortality for boys and girls would actually be considered an indication that girls are suffering disadvantage in survival. The effects of gender discrimination on child survival become more apparent after early infancy, because nutrition and medical interventions are more important determinants of survival among older infants and young children. Because of the relative weight of neonatal deaths in overall under-five mortality, girls’ advantage in the neonatal period may mask disadvantage in later ages when considering the under-five mortality rate. To better assess gender differences in mortality among children under-five, it is preferable to disaggregate mortality rates by age, considering separately mortality under age one (infant mortality) and at ages 1-4. |
| 33 | 26 | 5 | Sources of discrepancies between global and national figures | The UN IGME estimates are derived based on national data. Countries often use a single source as their official estimates or apply methods different from the UN IGME methods to derive estimates. The differences between the UN IGME estimates and national official estimates are usually not large if empirical data has good quality.  Many countries lack a single source of high-quality data covering the last several decades. Data from different sources require different calculation methods and may suffer from different errors, for example random errors in sample surveys or systematic errors due to misreporting. As a result, different surveys often yield widely different estimates of under-five mortality for a given time period and available data collected by countries are often inconsistent across sources. It is important to analyse, reconcile and evaluate all data sources simultaneously for each country. Each new survey or data point must be examined in the context of all other sources, including previous data. Data suffer from sampling or non-sampling errors (such as misreporting of age and survivor selection bias; underreporting of child deaths is also common). UN IGME assesses the quality of underlying data sources and adjusts data when necessary. Furthermore, the latest data produced by countries often are not current estimates but refer to an earlier reference period. Thus, the UN IGME also projects estimates to a common reference year. In order to reconcile these differences and take better account of the systematic biases associated with the various types of data inputs, the UN IGME has developed an estimation method to fit a smoothed trend curve to a set of observations and to extrapolate that trend to a defined time point. The UN IGME aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates of child mortality. In the absence of error-free data, there will always be uncertainty around data and estimates. To allow for added comparability, the UN IGME generates such estimates with uncertainty bounds. Applying a consistent methodology also allows for comparisons between countries, despite the varied number and types of data sources. UN IGME applies a common methodology across countries and uses original empirical data from each country but does not report figures produced by individual countries using other methods, which would not be comparable to other country estimates. |
| 33 | 26 | 6 | Process of obtaining data | 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 that 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. However, many countries do not have well-functioning vital registration systems. In such cases, household surveys, such as the UNICEF-supported Multiple Indicator Cluster Surveys (MICS), the USAID-supported Demographic and Health Surveys (DHS) and periodic population censuses have become the primary sources of data on under-five mortality. These surveys ask women about the survival of their children, and it is these reports that provide the basis of child mortality estimates for a majority of low- and middle- income countries. These data, however, are often subject to sampling or/and non-sampling errors, which might be substantial.   * Collection process:   For under-five mortality, UNICEF and the UN IGME compile data from all available data sources, including household surveys, censuses, vital registration data etc. UNICEF and the UN IGME compile these data whenever they are available publicly and then conduct data quality assessment. UNICEF also collects data through UNICEF country offices by reaching national counterpart(s). The UN IGME also collects vital registration data reported by Ministries of Health or other relevant agencies to WHO.   Adjustments of empirical data are made in high prevalence HIV settings to adjust for under reporting of under-five mortality due to missing mothers in survey data. UNIGME than applies a curve fitting method to these empirical data to derive the UN IGME trend estimates of the under-five mortality rates. Because deaths by crisis are difficult to capture in household survey or census data, UN IGME adjusts the estimates for crisis mortality.  Then the UN IGME conducts an annual country consultation by sending the UN IGME estimates, empirical data used to derive the UN IGME estimates, and notes on methodology to National Statistical Offices and to Ministries of Health or relevant agencies for feedback on the UN IGME estimates and the empirical data. National Statistical Offices, Ministries of Health or relevant agencies review the UN IGME estimates and empirical data, send feedback or comments, and sometimes supply additional empirical data.  To increase the transparency of the estimation process, the UN IGME has developed a child mortality web portal: CME Info (www.childmortality.org). It includes all available data and shows estimates for each country. Once the new estimates are finalized, CME Info will be updated to reflect all available data and the new estimates. |
| 33 | 26 | 7 | Treatment of missing values | * At country level:   UN IGME estimates are based on underlying empirical data. If the empirical data refer to an earlier reference period than the end year of the period the estimates are reported, UN IGME extrapolates the estimates to the common end year. UN IGME does not use any covariates to derive the estimates.   * At regional and global levels:   To construct aggregate estimates of under-five mortality before 1990, regional averages of mortality rates were used for country-years with missing information and weighted by the respective population in the country-year. |
| 33 | 26 | 8 | Data availability and assessment of countries’ capacity | Description:  Indicator is available for all countries from 1990 (or earlier) to 2018, depending on availability of empirical data for each country before 1990. |
| 33 | 26 | 9 | Expected time of release | Data collection:  The UN IGME underlying database is continuously updated whenever new empirical data become available.   Data release:  A new round of estimates of the UN IGME will be released in 2020; usually, the release date is in the month of September. |
| 33 | 26 | 10 | Data source | Data extracted from SDG database, <https://unstats.un.org/sdgs/indicators/database/>  (on 28 May 2021)  Metadata extracted from SDG database, https://unstats.un.org/sdgs/metadata/files/Metadata-03-02-01.pdf (on 8 June 2021). |