Documentation for

Infant Mortality Rate
(per 1 000 born)

for countries and territories

1. **Introduction**

This is the documentation for the Gapminder compilation of estimates for infant mortality rates. The ambition has been to include as many countries and territories as possible and the latest and most updated estimates known to us. A guiding principle has been to use the most transparent and well-documented source whenever possible, however, preference was also given to sources with as wide coverage of countries and territories as possible.

The main purpose of the data is to produce graphical presentations that display the magnitude of difference in infant mortality in the world over time. We have not been able to make sure that every single observation is based on the best estimates available. Hence we discourage the use of this data set for statistical analysis and advise those who require more exact data to investigate the available data more carefully and look for additional sources, when appropriate.

2. **Definition**

 Children dead during their first year of life, per 1000 live births

2. **Data sources used**

Below is a short description of each of the datasets used to compile the larger dataset for the Gapminder World graph. The next section will give details on what data has been used for specific countries and years.

a) **Unicef data on infant mortality rate**

The Unicef dataset on infant mortality rate is one of the main data sources used. The data is described in http://www.childinfo.org/areas/childmortality/infant_child_mortality_2006.pdf (summary) and in full detail in Hill et al (KH-98.1)
From 1960-1990, Unicef only have estimates every 10 years, 1990-2005 every five years. Unless otherwise stated, the trend for intervening years is interpolated in the graph.

The Unicef data for infant mortality rate can be downloaded from http://www.childinfo.org/areas/childmortality/infantdata.php .

b) **B.R. Mitchell's historical statistics**

B.R. Mitchell is the author of three volumes of historical statistics (Mitchell 1998a,b,c). The data is based on a number of different sources, mainly official national and international abstracts of statistics. The data for infant mortality in some cases goes back to the 18th century.

c)   Human Mortality database

The Human Mortality Database is a joint project by Department of Demography at the University of California, Berkeley, USA, and at the Max Planck Institute for Demographic Research in Rostock, Germany. The project is described in more detail at www.mortality.org,

The data in the Human Mortality Database which is the closest estimate of infant mortality rate is found in the *Life tables 1x1* (1 year of age – 1 calendar year time intervals) for each country, under the heading *q(X)* which means the probability of death between exact ages x and x+n. Thus, data under the column q(X) and the row Age:0 in a life table of 1-year intervals means probability of death between age 0 and age 0+1. (See the FAQ at www.mortality.org) By multiplying the 0q1 by 1000, an estimate of infant mortality rate per 1000 births is obtained.
Infant mortality rate could also be estimated by dividing total number of deaths before one year of age with total number of births during the same calendar year. The problem with this is that the deaths do not represent exactly the same cohort as the births, since some of the infants will have been born during the previous year.
After comparing these two ways of estimating infant mortality rate (the data obtained was very similar, in particular for later years), we decided to use the 0q1 data, which seems closest to the Unicef definition of infant mortality rate.

The data is available online at www.mortality.org . It is free of charge, however it is necessary to create a username to access it. A detailed description of methodology is also available at this site, as well as the raw data.

3.   Description of our data compilation

We used the data set from Unicef (described above) to obtain data on infant mortality rate from 1960-2006, for 193 countries of the world. From 1960-1990, Unicef only have estimates every 10 years, 1990-2005 every five years. Except where otherwise stated, the trend for intervening years is interpolated in the graph.

Mitchell (1998a, 1998b and 1998c) was used for data earlier than 1960 (as well as for a few occasions where Unicef did not have data, see below). For eight countries (Costa Rica, Egypt, El Salvador, Guatemala, Honduras, Mexico, Peru, Sri Lanka), the compatibility between estimates from Mitchell and estimates from Unicef was very low, and the Mitchell data was removed for the time being for these countries, pending harmonization of data sets or additional adequate source(s).
The Unicef dataset reports data corresponding to currently existing national borders. In order to complement the dataset, data from Mitchell (1998c) was used for East Germany and West Germany 1946-1989; Czechoslovakia until 1992; and USSR and Yugoslavia until 1990. Thus, in our dataset, for certain years these countries exist parallel to their modern counterparts: e.g. *Czechoslovakia* as well as *Czech Republic* and *Slovak Republic*.

In the Mitchell dataset, data for United States of America are only given as disaggregated for "whites" and "negroes". Unfortunately, inadequate data is given in other tables to construct a weighted average to estimate the aggregated infant mortality rate for USA. IMR data for the USA

1933-1959 was thus taken from the Human Mortality Database, using the Life table 1x1 for USA and the data for 0q1 (the probability of dying during the first year of life).

The Unicef dataset lacks data on Taiwan. Thus, Mitchell data was used for Taiwan 1950-1969, and data from Human Mortality Database, being more recent, from 1970-2005.

For Russian Federation there are currently in our dataset no data between 1911 and 1970. The trend for intervening years is interpolated in the graph. The same applies for Serbia between 1910 and 2000.

4. Links to the Gapminder dataset and other links

The Gapminder dataset for infant mortality rate can be accessed at
http://spreadsheets.google.com/pub?key=phAwcNAVuyj0NpF2PTov2Cw
The online dataset is color coded according to the source used. See "About"
(http://spreadsheets.google.com/pub?key=phAwcNAVuyj0NpF2PTov2Cw&gid=2) and "Footnotes"
for more details.

The graph for which the data is used can be accessed through:
http://www.gapminder.org/world/#$majorMode=chart$is;shi=t;ly=2003;lb=f;il=t;fs=11;al=30;stl=t;st
=t;nsl=t;se=t$wst;tts=C$ts;sp=6;ti=2005$zpv;v=1$inc_x;mmid=XCOORDS;iid=phAwcNAVuyj1jiMAkmq
1iMg;by=ind$inc_y;mmid=YCOORDS;iid=phAwcNAVuyj0NpF2PTov2Cw;by=ind$inc_s;uniValue=8.21;ii
d=phAwcNAVuyj0XOoBL%5Fn5tAQ;by=ind$inc_c;uniValue=255;gid=CATID0;by=grp$map_x;scale=log
;dataMin=199;dataMax=42642$map_y;scale=log;dataMin=2;dataMax=420$map_s;sma=49;smi=2.65
$cd;bd=0$inds=

Please learn more about Gapminder at www.gapminder.org

5. Updates

This dataset will be updated shortly.

References

Hill, Kenneth; Pande, Rohini; Mahy, Mary; (Johns Hopkins University) and Jones, Gareth (UNICEF) (KH-98.1) Trends in Child Mortality in the Developing World: 1960 to 1996
Can be downloaded from http://www.childinfo.org/areas/childmortality/methodology.php (bottom of page)

Human Mortality Database http://www.mortality.org/

Mitchell, BR (1998a) International Historical Statistics. Africa, Asia & Oceania 1750-1993. Third edition. Basingstoke: Macmillan.

Mitchell, BR (1998b) International Historical Statistics. The Americas 1750-1993. Fourth edition. Basingstoke: Macmillan.

Mitchell, BR (1998c) International Historical Statistics. Europe 1750-1993. Fourth edition. Basingstoke: Macmillan.

Levels and Trends of Child Mortality in 2006 [Working Paper] Estimates developed by
The Inter-agency Group for Child Mortality Estimation. Unicef, WHO, The World Bank, UNPD.
Available online at http://www.childinfo.org/areas/childmortality/infant_child_mortality_2006.pdf
[2008-02-20]

Unicef estimates of Infant Mortality rates, available online at
http://www.childinfo.org/areas/childmortality/infantdata.php [2008-02-20]