

Levels & Trends in
**Child
Mortality**

Report 2012

Estimates Developed by the
UN Inter-agency Group for
Child Mortality Estimation



This report was prepared at UNICEF Headquarters by Danzhen You, Jin Rou New and Tessa Wardlaw on behalf of the United Nations Inter-agency Group for Child Mortality Estimation.

Organizations and individuals involved in generating country-specific estimates on child mortality

United Nations Children's Fund

Danzhen You, Jin Rou New, Tessa Wardlaw

World Health Organization

Mie Inoue, Colin Mathers, Ties Boerma

The World Bank

Emi Suzuki

United Nations, Department of Economic and Social Affairs, Population Division

Francois Pelletier, Gerhard Heilig, Kirill Andreev, Patrick Gerland, Danan Gu, Nan Li, Cheryl Sawyer, Thomas Spoorenberg

United Nations Economic Commission for Latin America and the Caribbean Population Division

Guiomar Bay, Tim Miller, Dirk Jaspers Fajjer

Special thanks to the Technical Advisory Group of the Inter-agency Group for Child Mortality Estimation for providing technical guidance on methods for child mortality estimation

Kenneth Hill (Chair), Harvard University

Leontine Alkema, National University of Singapore

Simon Cousens, London School of Hygiene and Tropical Medicine

Trevor Croft, Measure DHS, ICF Macro

Gareth Jones, Consultant

Michel Guillot, University of Pennsylvania

Jon Pedersen, Fafo

Neff Walker, Johns Hopkins University

John Wilmoth, University of California, Berkeley

Further thanks go to David Anthony, Ivana Bjelic, Liliana Carvajal, Yadigar Coskun, Archana Dwivedi, Attila Hancioglu, Priscilla Idele, Claes Johansson, Rolf Luyendijk, Colleen Murray, Holly Newby, Ian Pett, Tyler Porth, Turgay Unalan, Daniel Vadnais and Laxmisubha Venkatraman from UNICEF for their support as well as to Joy Lawn from Save the Children for her comments. And special thanks to Mengjia Liang from UNICEF for her assistance in preparing the report and to Khin Wityee Oo from UNICEF for proofreading.

Communications Development Incorporated provided overall design direction, editing and layout.

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United Nations Children's Fund
3 UN Plaza, New York, New York, 10017 USA

World Health Organization
Avenue Appia 20, 1211 Geneva 27, Switzerland

The World Bank
1818 H Street, NW, Washington, DC, 20433 USA

United Nations Population Division
2 UN Plaza, New York, New York, 10017 USA

PROGRESS TOWARDS MILLENNIUM DEVELOPMENT GOAL 4: KEY FACTS AND FIGURES

- Overall, substantial progress has been made towards achieving MDG 4. The number of under-five deaths worldwide has declined from nearly 12 (11.7, 12.2)¹ million in 1990 to 6.9 (6.8, 7.4) million in 2011. While that translates into 14,000 fewer children dying every day in 2011 than in 1990, it still implies the deaths of 19,000 children under age five every day in 2011.
- Since 1990 the global under-five mortality rate has dropped 41 percent—from 87 (85, 89) deaths per 1,000 live births in 1990 to 51 (51, 55) in 2011. Eastern Asia, Northern Africa, Latin America and the Caribbean, South-eastern Asia and Western Asia have reduced their under-five mortality rate by more than 50 percent.
- The annual rate of reduction in under-five mortality has accelerated—from 1.8 (1.7, 2.1) percent a year over 1990–2000 to 3.2 (2.5, 3.2) percent over 2000–2011—but remains insufficient to reach MDG 4, particularly in Oceania, Sub-Saharan Africa, Caucasus and Central Asia, and Southern Asia.
- The highest rates of child mortality are still in Sub-Saharan Africa—where 1 in 9 children dies before age five, more than 16 times the average for developed regions (1 in 152)—and Southern Asia (1 in 16). As under-five mortality rates have fallen more sharply elsewhere, the disparity between these two regions and the rest of the world has grown.
- Under-five deaths are increasingly concentrated in Sub-Saharan Africa and Southern Asia, while the share in the rest of the world dropped from 31 percent in 1990 to 17 percent in 2011.
- By 2050, 1 in 3 children will be born in Sub-Saharan Africa, and almost 1 in 3 will live there, so the global number of under-five deaths may stagnate or even increase without more progress in the region.
- However, Sub-Saharan Africa has seen a faster decline in its under-five mortality rate, with the annual rate of reduction doubling between 1990–2000 and 2000–2011.
- About half of under-five deaths occur in only five countries: India, Nigeria, Democratic Republic of the Congo, Pakistan and China. India (24 percent) and Nigeria (11 percent) together account for more than a third of all under-five deaths.
- The proportion of under-five deaths that occur within the first month of life (the neonatal period) has increased 17 percent since 1990, from 36 percent to about 43 percent, because declines in the neonatal mortality rate are slower than those in the mortality rate for older children.
- Almost 30 percent of neonatal deaths occur in India. Sub-Saharan Africa has the highest risk of death in the first month of life and is among the regions showing the least progress.
- The leading causes of death among children under age five are pneumonia (18% of all under-five deaths); preterm birth complications (14%); diarrhoea (11%); intrapartum-related complications (complications during birth; 9%); and malaria (7%). Globally, more than a third of under-five deaths are attributable to undernutrition.

1. Values in parentheses indicate 90 percent uncertainty intervals for the estimates.

Introduction

It has been 12 years since world leaders committed to Millennium Development Goal 4 (MDG 4), which sets out to reduce the under-five mortality rate by two-thirds between 1990 and 2015. Only three years remain before the 2015 deadline. The world has made substantial progress, reducing the under-five mortality rate 41 percent, from 87 (85, 89) deaths per 1,000 live births in 1990 to 51 (51, 55) in 2011. However, this progress has not been enough, and the target risks being missed at the global level. The global under-five mortality rate needs to be reduced to 29 deaths per 1,000 live births—which implies an annual rate of reduction of 14.2 percent for 2011–2015, much higher than the 2.5 percent achieved over 1990–2011.

Still, in 2011, 6.9 (6.8, 7.4) million children died before reaching their fifth birthday. Almost two-thirds of them—4.4 million—died of infectious diseases, nearly all of which were preventable. In addition, inequities in child mortality between developing and developed regions remain large. In 2011 the under-five mortality rate in developing regions was 57 deaths per 1,000 live births—more than 8 times the rate in developed regions (about 7). Many countries still have very high under-five mortality—particularly those in Sub-Saharan Africa and Southern Asia, home to all 24 countries with an under-five mortality rate above 100 deaths per 1,000 live births. Reducing these inequities across countries and saving

more children's lives by ending preventable child deaths are important priorities.

This year, the governments of Ethiopia, India and the United States, in close collaboration with UNICEF, convened the Child Survival Call to Action Forum to mobilize political leadership to end preventable child deaths. Historical trends show that for most countries progress has been too slow and that only 15 of the 66 countries with a high under-five mortality rate (at least 40 deaths per 1,000 live births) are on track to achieve MDG 4. Millions of children still die each year from preventable causes and treatable diseases even though the knowledge and technologies for life-saving interventions are available. More than half the world's governments have pledged support for A Promise Renewed, committing to a global movement to end preventable child deaths so that more countries will achieve MDG 4 and all countries will sustain momentum beyond 2015.

As global momentum and investment for accelerating child survival grow, monitoring progress at the global and country levels has become even more critical. The United Nations Inter-agency Group for Child Mortality Estimation (IGME) updates child mortality estimates annually, and this report presents the IGME's latest estimates of under-five, infant and neonatal mortality and assesses progress towards MDG 4 at the regional and global levels.





Estimating Child Mortality

The UN Inter-agency Group for Child Mortality Estimation

The IGME was formed in 2004 to share data on child mortality, harmonize estimates within the UN system, improve methods for child mortality estimation, report on progress towards the Millennium Development Goals and enhance country capacity to produce timely and properly assessed estimates of child mortality. The IGME, led by UNICEF and the World Health Organization (WHO), also includes the World Bank and the United Nations Population Division of the Department of Economic and Social Affairs as full members.

The IGME's Technical Advisory Group, comprising leading academic scholars and independent experts in demography and biostatistics, provides guidance on estimation methods, technical issues and strategies for data analysis and data quality assessment.

Data sources and methodology

Generating accurate estimates of child mortality is a considerable challenge because of the limited availability of high-quality data for many developing countries. Vital registration systems are the preferred source of data on child mortality because they collect information as events occur and they cover the entire population. However, many developing countries lack fully functioning vital registration systems that accurately record all births and deaths. Therefore, household surveys, such as the UNICEF-supported Multiple Indicator Cluster Surveys and the US Agency for International Development-supported Demographic and Health Surveys, are the primary sources of data on child mortality in developing countries.

The IGME seeks to compile all available national-level data on child mortality, including data from vital registration systems, population censuses, household surveys and sample registration systems. To estimate the under-five mortality trend

series for each country, a statistical model is fitted to data points that meet quality standards established by the IGME and then used to predict a trend line that is extrapolated to a common reference year, set at 2011 for the estimates in this report. Overall, infant mortality rates are generated by transforming under-five mortality rates based on model life tables. Neonatal mortality rates are produced using a statistical model that uses under-five mortality rates as an input. These methods provide a transparent and objective way of fitting a smoothed trend to a set of observations and of extrapolating the trend over 1960 to the present. Details on these methods can be found in the PLoS Med Collection on child mortality estimation methods published in August 2012 (www.ploscollections.org/childmortalityestimation).

Changes in the estimation process

The IGME continually seeks to improve its methods and may introduce changes from one year to the next. This year, the IGME produced sex-specific estimates, added uncertainty intervals for the estimates and implemented other changes. Details can be found in CME Info (at www.childmortality.org).

In addition, a substantial amount of newly available data has been incorporated: data from more than 20 of the most recent surveys and censuses conducted since 2009 for more than 20 countries, new data from vital registration systems for about 70 countries and data from more than 50 surveys and censuses conducted before 2009 for more than 20 countries.

The increased data availability has substantially changed the estimates for some countries from previous editions partly because the fitted under-five mortality rate trend line is based on the entire time series of data available for each country. Furthermore, model life tables and a statistical model are used to derive estimates of infant and neonatal mortality rates based on under-five

Why does the IGME generate estimates on child mortality based on national data from censuses, surveys or vital registration systems but not directly use these national data as its official estimates?

- Many developing countries lack a single source of high-quality data covering the last several decades.
- 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 nonsampling errors (such as misreporting of age and survivor selection bias; underreporting of child deaths is also common). IGME assesses the quality of underlying data sources and adjusts data when necessary. In the absence of error-free data, there will always be uncertainty around data and estimates, both national and interagency. To allow for added comparability, the IGME generates such estimates with uncertainty bounds.
- The latest data produced by countries often are not current estimates but refer to an earlier reference period. This is particularly the case for estimates from the most recent national survey (such as a Demographic and Health Survey or Multiple Indicator Cluster Survey), which typically refers to a period before the survey year that is often several years before the target year of IGME estimates. Thus, the IGME also projects estimates to a common reference year.
- A consistent and comparable trend line from 1990 is needed for monitoring progress towards MDG 4 for each country.
- The 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.
- Applying a consistent methodology also allows for comparisons between countries, despite the varied number and types of data sources. One objective of the IGME is to provide valid and comparable child mortality estimates for policymakers. To do so, the 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.
- All data, estimates and details on IGME methods are available on the Child Mortality Estimation Information (CME Info) website at www.childmortality.org.

mortality rates. Therefore, the estimates presented in this report may differ from and are not necessarily comparable with previous sets of IGME estimates or the most recent underlying country data.

Country consultation

A joint WHO–UNICEF country consultation was undertaken in August 2012 to give each country’s Ministry of Health and National Statistics Office the opportunity to review all data inputs and the draft estimates for their country. The objective was to identify relevant data not included in CME Info

and to allow countries to review and provide feedback on estimates; it was not, however, a country clearance process. In this round of country consultation process 95 of 195 countries showed interest and received the preliminary estimates; 61 of them provided comments or data; and estimates were revised for 30 countries using new data.

Capacity strengthening at the country level

Modelled estimates of child mortality can only be as good as the underlying data. IGME members, including UNICEF, the WHO and other UN

Examples of country data

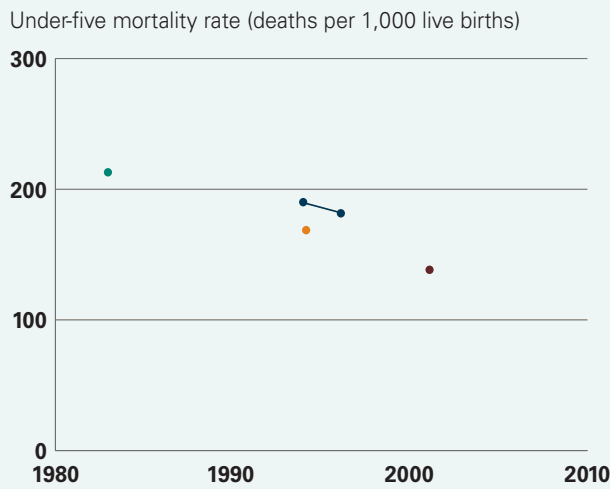
Under-five mortality estimation is challenging in the absence of complete vital registration systems, as is the case in many developing countries. Existing data sources often suffer from various data quality issues, including underreporting of deaths, misreporting of ages, selection bias and other sampling and nonsampling errors. Below are examples of the real underlying mortality data used to calculate the estimates of the under-five mortality rate from countries with sparse data (Equatorial Guinea and Angola), a

country with abundant data but wide variations in the rates and trends between data sources (Nigeria) and a country with abundant data and small variations between data points (Senegal). The Senegal example also shows the trend line of the under-five mortality rate that results from the curve-fitting (black line) with the corresponding 90 percent uncertainty range (red band). Detailed graphs showing all the underlying data and the IGME trend estimates are available for all countries at www.childmortality.org.

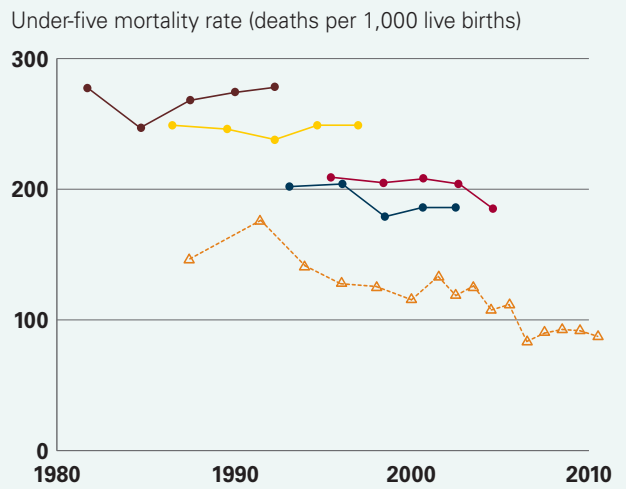
Examples of country data sources

Countries with sparse data

Equatorial Guinea



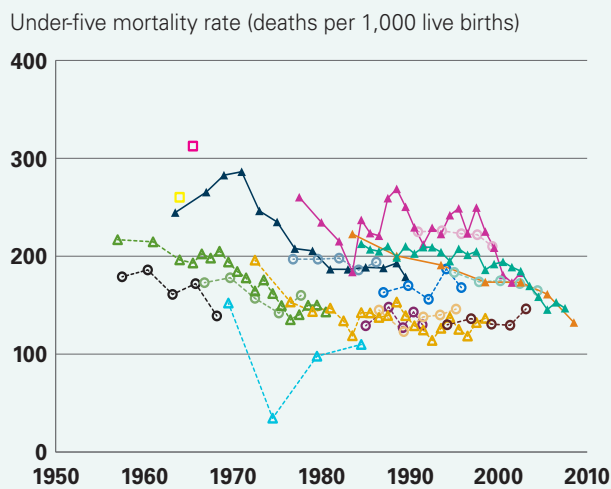
Angola



Countries with abundant data

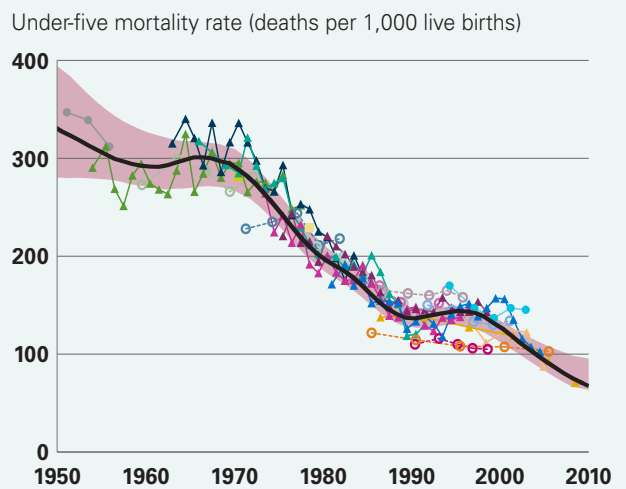
Country with wide variations in mortality rates from different data sources

Nigeria



Country with more consistent trends between different data sources

Senegal



agencies, are actively involved at the country level in strengthening national capacity in data collection, estimation techniques and interpretation of results.

Population-based survey data are critical for developing sound estimates for countries lacking functioning vital registration systems. The UNICEF-supported Multiple Indicator Cluster Surveys programme has been working since 1995 to build country-level capacity for survey implementation, data analysis and dissemination. The surveys are government owned and implemented, and UNICEF provides support through workshops, technical consultations and peer-to-peer mentoring. Some 230 surveys have been conducted in more than 100 countries. In addition to population-based surveys, the WHO and the UN Statistics Division work with countries to strengthen vital registration systems. UNICEF supports this work by promoting and monitoring progress in birth registration. The United Nations Population Fund provides technical assistance for population censuses, another important source of under-five mortality data.

The IGME strengthens capacity by working with countries to improve understanding of under-five mortality data and estimation. CME Info (www.childmortality.org), a comprehensive data portal on child mortality funded by UNICEF and

launched by the IGME, is a powerful platform for sharing underlying data and collaborating with national partners on child mortality estimates. Since 2008 a series of regional workshops has been held, training more than 250 participants from 94 countries in the use of CME Info as well as the demographic techniques and modelling methods underlying the estimates. In the last three years UNICEF and the IGME have sent experts to some 10 countries to conduct training on child mortality estimation. As part of the data review process, UNICEF's network of field offices provides opportunities to assess the plausibility of estimates by engaging in a dialogue about the estimates and the underlying data. WHO also engages its Member States in a country consultation process through which governments provide feedback on the estimates and their underlying data.

Guiding this capacity strengthening work is a fundamental principle: child mortality estimation is not simply an academic exercise but a fundamental part of effective policies and programming. UNICEF works with countries to ensure that child mortality estimates are used effectively at the country level, in conjunction with other data on child health, to improve child survival programmes and stimulate action through advocacy. This work involves partnering with other agencies, organizations, and initiatives such as the Countdown to 2015.





Levels and Trends in Child Mortality, 1990–2011

Under-five mortality has declined 41 percent since 1990

The latest estimates of under-five mortality from the IGME show a 41 percent decline in the global under-five mortality rate, from 87 (85, 89) deaths per 1,000 live births in 1990 to 51 (51, 55) in 2011 (table 1 and figure 1). Over the same period, the total number of under-five deaths in the world has declined from nearly 12 (11.7, 12.2) million in 1990 to 6.9 (6.8, 7.4) million in 2011 (table 2).

More than half the Millennium Development Goal regions have halved their under-five mortality rate since 1990

Five of nine developing regions show reductions in under-five mortality of more than 50 percent over 1990–2011 (figure 2). Eastern Asia, with a 70 percent reduction, and Northern Africa, with a 68 percent reduction, have achieved MDG 4, and Latin America and the Caribbean is close to

doing so with a 64 percent reduction. Sub-Saharan Africa, with a 39 percent reduction, and Oceania, with a 33 percent reduction, have further to go. However, Sub-Saharan Africa—also combating the HIV/AIDS scourge that has affected countries in the region more than elsewhere in the world—has doubled its annual rate of reduction from 1.5 percent over 1990–2000 to 3.1 percent over 2000–2011.

Under-five deaths are increasingly concentrated in Sub-Saharan Africa and Southern Asia

The share of under-five deaths that occur in Sub-Saharan Africa and Southern Asia is large and growing (83 percent in 2011). Of the 24 countries with an under-five mortality rate above 100 deaths per 1,000 live births in 2011, 23 are in Sub-Saharan Africa and the remaining one is in Southern Asia (map 1). Thus, substantial progress is

TABLE 1
1 Levels and trends in the under-five mortality rate, by Millennium Development Goal region, 1990–2011 (deaths per 1,000 live births)

Region	1990	1995	2000	2005	2010	2011	MDG target 2015	Decline (percent) 1990–2011	Annual rate of reduction (percent)			Progress towards Millennium Development Goal 4 target ^a 2011
									1990–2011	1990–2000	2000–2011	
Developed regions	15	11	10	8	7	7	5	55	3.8	4.2	3.5	On track
Developing regions	97	91	80	69	59	57	32	41	2.5	1.9	3.1	Insufficient progress
Northern Africa	77	59	45	34	26	25	26	68	5.5	5.4	5.5	On track
Sub-Saharan Africa	178	170	154	133	112	109	59	39	2.3	1.5	3.1	Insufficient progress
Latin America and the Caribbean	53	43	34	26	22	19	18	64	4.8	4.4	5.2	On track
Caucasus and Central Asia	76	70	61	52	44	42	25	44	2.8	2.2	3.3	Insufficient progress
Eastern Asia	48	45	35	24	16	15	16	70	5.7	3.3	7.8	On track
Excluding China	28	36	30	19	17	17	9	38	2.3	–0.7	5.0	On track
Southern Asia	116	102	88	74	63	61	39	47	3.1	2.8	3.3	Insufficient progress
Excluding India	119	103	87	72	62	60	40	50	3.3	3.2	3.4	Insufficient progress
South-eastern Asia	69	57	47	37	30	29	23	58	4.1	3.9	4.4	On track
Western Asia	63	52	42	37	31	30	21	52	3.5	4.1	3.0	On track
Oceania	74	67	61	56	51	50	25	33	1.9	1.8	1.9	Insufficient progress
World	87	82	73	63	53	51	29	41	2.5	1.8	3.2	Insufficient progress

Note: All calculations are based on unrounded numbers.

^a “On track” indicates that under-five mortality is less than 40 deaths per 1,000 live births in 2011 or that the annual rate of reduction is at least 4 percent over 1990–2011; “insufficient progress” indicates that under-five mortality is at least 40 deaths per 1,000 live births in 2011 and that the annual rate of reduction is at least 1 percent but less than 4 percent over 1990–2011. These standards may differ from those in other publications by Inter-agency Group for Child Mortality Estimation members.

FIGURE 1 Under-five mortality declined in all regions between 1990 and 2011

Under-five mortality rate, by Millennium Development Goal region, 1990 and 2011 (deaths per 1,000 live births)

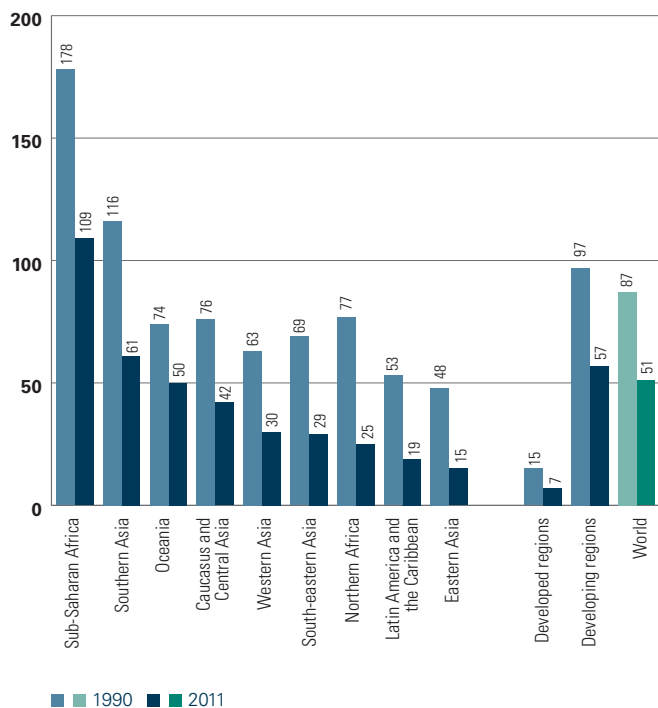


FIGURE 2 Many regions reduced the under-five mortality rate by at least 50 percent between 1990 and 2011

Decline in under-five mortality rate, by Millennium Development Goal region, 1990–2011 (percent)

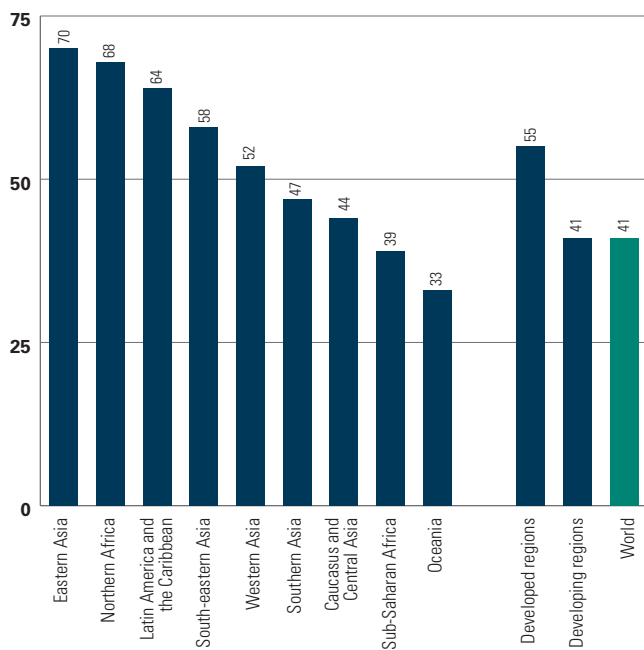


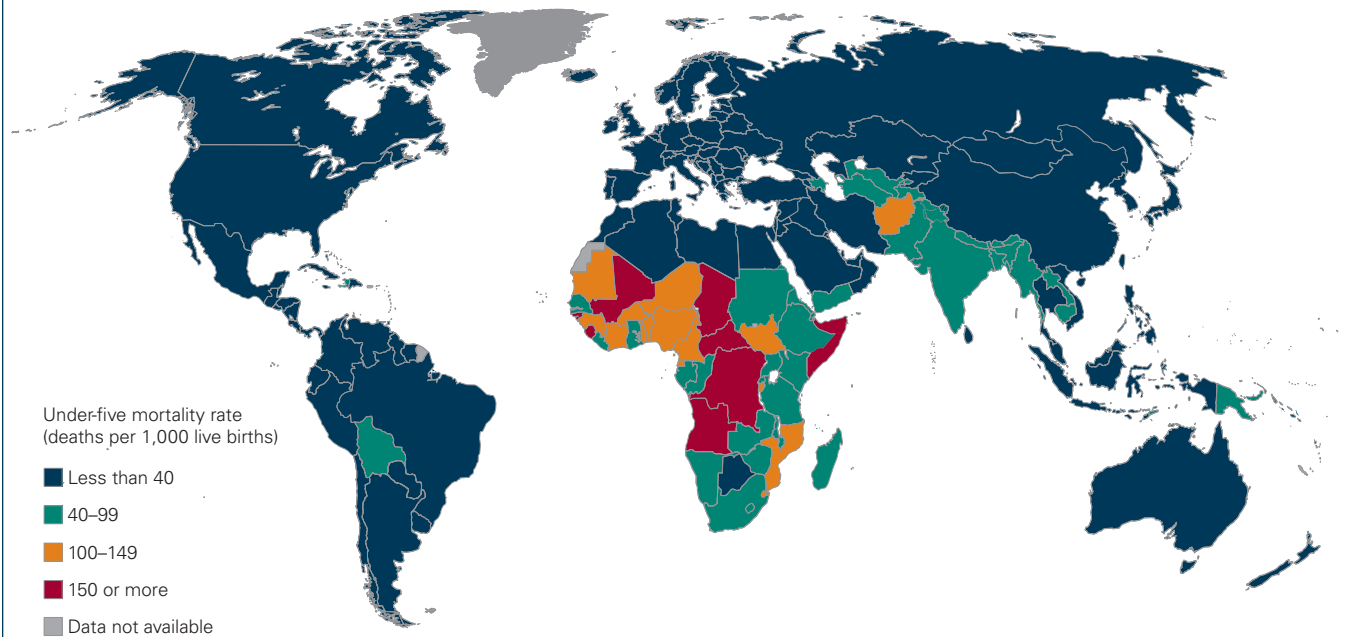
TABLE 2 Levels and trends in the number of deaths of children under age five, by Millennium Development Goal region, 1990–2011 (thousands)

Region	1990	1995	2000	2005	2010	2011	Decline (percent) 1990–2011	Share of global under-five deaths (percent)	
								1990	2011
Developed regions	228	149	127	111	99	96	58	1.9	1.4
Developing regions	11,740	10,621	9,435	8,086	7,049	6,818	42	98.1	98.6
Northern Africa	284	198	146	117	92	87	69	2.4	1.3
Sub-Saharan Africa	3,821	4,034	3,988	3,793	3,435	3,370	12	31.9	48.7
Latin America and the Caribbean	610	502	390	295	238	203	67	5.1	2.9
Caucasus and Central Asia	152	117	85	78	75	72	52	1.3	1.0
Eastern Asia	1,325	905	746	406	288	265	80	11.1	3.8
Excluding China	29	46	30	16	17	17	42	0.2	0.2
Southern Asia	4,454	3,942	3,366	2,786	2,422	2,341	47	37.2	33.9
Excluding India	1,393	1,190	1,010	792	706	686	51	11.6	9.9
South-eastern Asia	826	681	514	433	328	312	62	6.9	4.5
Western Asia	255	227	187	165	158	155	39	2.1	2.2
Oceania	14	15	15	14	13	13	7	0.1	0.2
World	11,968	10,770	9,562	8,198	7,148	6,914	42	100.0	100.0

Note: All calculations are based on unrounded numbers.

MAP
1

Children in Sub-Saharan Africa and Southern Asia face a higher risk of dying before their fifth birthday



Note: This map is stylized and not to scale. It does not reflect a position by UN IGME agencies on the legal status of any country or territory or the delimitation of any frontiers.

needed in both regions to achieve MDG 4. In the coming years the number of under-five deaths in the world may stagnate or even increase without greater progress in Sub-Saharan Africa, because its number of live births and population of children under age five are set to grow rapidly. By 2050, 1 in 3 children will be born in Sub-Saharan Africa, and almost 1 in 3 will live there.

Half of under-five deaths occur in only five countries

Some 80 percent of the world’s under-five deaths in 2011 occurred in only 25 countries, and about half in only five countries: India, Nigeria, Democratic Republic of the Congo, Pakistan and China. India (24 percent) and Nigeria (11 percent) together account for more than a third of under-five deaths worldwide.

Substantial progress has been made, but it is still insufficient to achieve MDG 4

Overall, substantial progress has been made towards achieving MDG 4. About 14,000 fewer children died every day in 2011 than in 1990, the baseline year for measuring progress. Improvement in child survival is evident in all regions. The number of countries with under-five mortality rates of 100 deaths per 1,000 live births or

higher has been more than halved from 53 in 1990 to 24 in 2011. In addition, no country had an under-five mortality rate above 200 deaths per 1,000 live births in 2011, compared with 13 in 1990. The annual rate of reduction has accelerated from 1.8 (1.7, 2.1) percent over 1990–2000 to 3.2 (2.5, 3.2) percent over 2000–2011. In Sub-Saharan Africa, the region with the greatest burden of under-five deaths, the annual rate of reduction has more than doubled. But these rates are still insufficient to achieve MDG 4 by 2015: only 6 of 10 regions are on track, and of the 66 countries with at least 40 deaths per 1,000 live births in 2011, only 15 are.

Moreover, disparity is growing between Sub-Saharan Africa and Southern Asia and the other regions

As under-five mortality rates have fallen more sharply in richer developing regions, the disparity between Sub-Saharan Africa and other regions has grown. In 1990 a child born in Sub-Saharan Africa faced a probability of dying before age five that was 1.5 times higher than in Southern Asia, 3.4 times higher than in Latin America and the Caribbean, 3.7 times higher than in Eastern Asia and 12.1 times higher than in developed regions. By 2011 that probability

was 1.8 times higher than in Southern Asia, 5.7 times higher than in Latin America and the Caribbean, 7.4 times higher than in Eastern Asia and 16.5 times higher than in developed regions. The disparity between Southern Asia and richer regions has also grown, though not as much.

The proportion of neonatal deaths is increasing as under-five mortality declines

Neonatal mortality, covering deaths in the first month after birth, is of interest because the health interventions needed to address the major causes of neonatal deaths generally differ from those needed to address other under-five deaths. Neonatal mortality is increasingly important because the proportion of under-five deaths that occur during the neonatal period is increasing as under-five mortality declines. Because declines in the neonatal mortality rate are slower than those in the mortality rate for older children, worldwide, the share of neonatal deaths among under-five deaths increased from about 36 percent in 1990 to about 43 percent in 2011, and the trend is expected to continue. While the relative increase is modest (17 percent) at the global level, there are differences across regions. The largest increases have been in Northern Africa

(42 percent) and Eastern Asia (33 percent); the smallest in Oceania (9 percent; table 3).

All regions are experiencing slower declines in neonatal mortality than in under-five mortality

Over the last 22 years all regions have seen slower reductions in neonatal mortality than in under-five mortality. Globally, neonatal mortality has declined 32 percent, from 32 deaths per 1,000 live births in 1990 to 22 in 2011—an average of 1.8 percent a year, much slower than for under-five mortality (2.5 percent per year). The fastest reduction was in Eastern Asia (61 percent), followed by Latin America and the Caribbean and Northern Africa (both 55 percent); the slowest in Oceania (23 percent), followed by Sub-Saharan Africa (24 percent; see table 3).

More than half the under-five deaths in Eastern Asia, Latin America and the Caribbean, and Southern Asia are neonatal deaths

In Eastern Asia, the region with the largest reduction in under-five mortality, neonatal deaths accounted for 57% of under-five deaths in 2011. In Latin America and the Caribbean neonatal deaths accounted for 53% of under-five deaths

TABLE 3 Neonatal mortality rate, number of neonatal deaths and neonatal deaths as a share of under-five deaths, by Millennium Development Goal region, 1990 and 2011

Region	Neonatal mortality rate (deaths per 1,000 live births)			Number of neonatal deaths (thousands)		Neonatal deaths as a share of under-five deaths (percent)		Relative increase (percent) 1990–2011
	1990	2011	Decline (percent) 1990–2011	1990	2011	1990	2011	
Developed regions	7	4	48	108	53	47	55	15
Developing regions	35	24	32	4,254	2,902	36	43	17
Northern Africa	25	11	55	93	40	33	47	42
Sub-Saharan Africa	45	34	24	1,018	1,122	27	33	25
Latin America and the Caribbean	22	10	55	256	107	42	53	26
Caucasus and Central Asia	25	17	33	49	28	32	39	20
Eastern Asia	22	9	61	569	151	43	57	33
Excluding China	11	9	23	13	8	46	47	3
Southern Asia	47	32	32	1,832	1,216	41	52	26
Excluding India	46	29	35	544	340	39	50	27
South-eastern Asia	26	14	46	321	155	39	50	28
Western Asia	26	15	42	111	77	44	49	13
Oceania	26	20	23	5	5	37	40	9
World	32	22	32	4,362	2,955	36	43	17

Note: All calculations are based on unrounded numbers.

in 2011. Both regions will have to scale up health interventions that tackle neonatal mortality in order to continue their success in reducing under-five mortality. Southern Asia also needs to address neonatal mortality: neonatal deaths account for more than half of under-five deaths, and almost 30 percent of global neonatal deaths occurred in India. Sub-Saharan Africa, which accounts for 38 percent of global neonatal deaths, has the highest neonatal mortality rate (34 deaths per 1,000 live births in 2011) and is among the regions that have shown the least progress in reducing that rate over the last two decades. Neonatal deaths there account for about a third of under-five deaths (1.1 million neonatal deaths), and greater emphasis should be on reducing both these deaths and other important causes of under-five deaths.

Systemic action is required to reduce neonatal mortality

With the proportion of under-five deaths during the neonatal period increasing in every region and almost all countries, systematic action is required by governments and partners to reach women and babies with effective care. Highly cost-effective interventions are feasible even at the community level, and most can be linked with preventive and curative initiatives for mothers and for babies. For example, early postnatal home visits are effective in promoting healthy behaviours such as breastfeeding and clean cord care as well as in reaching new mothers. Case management

of neonatal infections can be provided alongside treatment of childhood pneumonia, diarrhoea and malaria. Care at birth brings a triple return on investment, saving mothers, newborns and unborn children. Scaling up low cost solutions to address preterm birth could reduce these deaths by three-quarters, notably with antenatal steroid injections to women in preterm labour, and kangaroo mother care, where the preterm babies are held skin to skin with their mothers.¹

Coverage of effective interventions needs to be expanded

Accelerating the reduction in under-five mortality is possible by expanding effective preventive and curative interventions that target the main causes of post-neonatal deaths (pneumonia, diarrhoea, malaria and undernutrition) and the most vulnerable newborn babies and children. Empowering women, removing financial and social barriers to accessing basic services, developing innovations that make the supply of critical services more available to the poor and increasing local accountability of health systems are policy interventions that have allowed health systems to improve equity and reduce mortality. Countries in Sub-Saharan Africa and Southern Asia, in particular, need to place high priority on reducing child mortality.

Reference

1. March of Dimes, Partnership for Maternal, Newborn and Child Health, Save the Children, and World Health Organization, 2012, *Born Too Soon: The Global Action Report on Preterm Birth*, eds C.P. Howson, M.V. Kinney, J.E. Lawn, Geneva: World Health Organization.



Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Under-five mortality rate (U5MR) (deaths per 1,000 live births)										Annual rate of reduction (ARR) (percent) 1990–2011				
	1990			2000			2011			Millennium Development Goal target for 2015	ARR	Lower bound		Upper bound	
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound			Lower bound	Upper bound		
Afghanistan	192	160	210	136	125	151	101	84	126	64	3.1	1.6	3.9		
Albania	41	36	48	26	23	31	14	11	22	14	5.0	2.8	6.7		
Algeria	66	60	73	46	41	54	30	22	47	22	3.8	1.5	5.3		
Andorra	8	8	9	5	5	5	3	3	4	3	4.4	4.0	4.7		
Angola	243	219	285	199	180	241	158	124	231	81	2.1	0.1	3.6		
Antigua and Barbuda	27	21	34	15	14	16	8	6	10	9	6.0	4.0	7.9		
Argentina	28	26	30	20	19	22	14	12	16	9	3.2	2.5	4.0		
Armenia	47	42	51	30	26	34	18	13	24	16	4.7	3.1	6.0		
Australia	9	8	10	6	5	7	5	4	6	3	3.4	1.9	4.7		
Austria	9	9	10	6	5	6	4	4	5	3	3.8	3.0	4.7		
Azerbaijan ^a	95	84	105	69	62	80	45	38	65	32	3.6	1.7	4.3		
Bahamas	22	20	24	17	16	19	16	12	19	7	1.4	0.3	3.1		
Bahrain	21	18	22	12	12	14	10	8	12	7	3.4	2.3	4.6		
Bangladesh	139	130	143	84	80	89	46	41	51	46	5.3	4.6	5.7		
Barbados	18	17	21	17	16	19	20	15	22	6	-0.5	-1.0	1.2		
Belarus	17	16	19	14	13	14	6	5	7	6	5.3	4.4	6.2		
Belgium	10	9	11	6	6	6	4	4	5	3	4.0	3.2	4.8		
Belize	44	40	50	26	25	29	17	14	19	15	4.5	3.8	5.8		
Benin	177	165	185	140	128	151	106	94	124	59	2.4	1.7	2.9		
Bhutan	138	122	152	89	80	103	54	47	73	46	4.5	2.9	5.2		
Bolivia (Plurinational State of)	120	113	125	81	74	86	51	43	58	40	4.1	3.4	4.9		
Bosnia and Herzegovina	19	17	20	10	9	11	8	7	9	6	4.3	3.4	4.9		
Botswana	53	50	60	81	74	90	26	20	29	18	3.4	3.0	4.8		
Brazil	58	54	64	36	34	40	16	14	18	19	6.3	5.5	7.0		
Brunei Darussalam	12	11	14	10	9	11	7	6	9	4	2.6	1.5	3.6		
Bulgaria	22	21	24	21	19	22	12	10	14	7	2.9	2.2	3.7		
Burkina Faso	208	194	220	182	168	199	146	133	183	70	1.7	0.5	2.2		
Burundi	183	169	205	165	147	196	139	116	199	61	1.3	-0.3	2.3		
Cambodia	117	110	126	102	92	108	43	36	61	39	4.8	3.1	5.7		
Cameroon	145	137	155	140	127	148	127	107	135	48	0.6	0.4	1.4		
Canada	8	8	9	6	6	7	6	5	7	3	1.9	0.9	2.7		
Cape Verde	58	50	66	39	34	42	21	18	25	19	4.8	3.6	5.8		
Central African Republic	169	157	194	172	153	202	164	131	213	56	0.2	-1.0	1.4		
Chad	208	193	225	189	173	211	169	146	206	69	1.0	0.1	1.7		
Chile	19	18	19	11	11	11	9	8	9	6	3.6	3.2	4.1		
China	49	44	54	35	32	37	15	13	17	16	5.8	5.0	6.4		
Colombia	34	32	36	25	23	27	18	15	21	11	3.2	2.4	4.0		
Comoros	122	104	146	100	78	123	79	51	117	41	2.0	0.2	4.3		
Congo	119	111	129	109	99	116	99	84	107	40	0.9	0.6	1.7		
Cook Islands	19	16	24	17	13	20	10	6	17	6	3.3	0.6	6.1		
Costa Rica	17	16	19	13	12	14	10	9	11	6	2.5	1.9	3.5		
Côte d'Ivoire	151	142	161	139	126	145	115	97	122	51	1.3	1.0	2.1		
Croatia	13	12	14	8	8	9	5	5	6	4	4.4	3.8	5.2		
Cuba	13	13	15	9	8	9	6	5	7	4	4.0	3.3	4.9		

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)				Neonatal mortality rate (deaths per 1,000 live births)			
	1990			2011			1990		2011		1990		2011		1990		2011	
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female	1990	2011	1990	2011	1990	2011	1990	2011
Afghanistan	117	95	129	128	105	162	196	188	103	99	129	73	80	94	51	36	38	51
Albania	3	3	4	1	0	1	43	39	15	14	36	13	3	1	17	7	1	0
Algeria	52	47	58	21	16	33	70	62	32	28	54	26	42	18	29	17	23	12
Andorra	0	0	0	0	0	0	9	8	4	3	7	3	0	0	3	1	0	0
Angola	123	109	149	120	92	185	254	232	165	150	144	96	74	72	53	43	29	35
Antigua and Barbuda	0	0	0	0	0	0	30	23	9	7	23	6	0	0	13	4	0	0
Argentina	20	19	22	10	9	11	31	25	16	13	24	13	18	9	16	8	11	5
Armenia	4	3	4	1	1	1	51	43	19	15	40	16	3	1	23	11	2	1
Australia	2	2	3	1	1	2	10	8	5	4	8	4	2	1	5	3	1	1
Austria	1	1	1	0	0	0	11	8	5	4	8	4	1	0	4	3	0	0
Azerbaijan^a	19	17	22	8	7	12	100	88	47	43	75	39	16	7	31	19	6	4
Bahamas	0	0	0	0	0	0	23	20	17	15	18	14	0	0	9	7	0	0
Bahrain	0	0	0	0	0	0	21	20	10	10	18	9	0	0	7	4	0	0
Bangladesh	509	475	527	134	120	150	140	138	48	44	97	37	351	105	52	26	195	80
Barbados	0	0	0	0	0	0	20	16	22	18	16	18	0	0	9	10	0	0
Belarus	3	3	3	1	1	1	20	15	6	5	14	4	2	0	8	3	1	0
Belgium	1	1	1	1	0	1	11	9	5	4	9	4	1	0	5	2	1	0
Belize	0	0	0	0	0	0	49	39	19	15	35	15	0	0	18	8	0	0
Benin	37	34	39	36	32	43	183	171	109	103	107	68	23	24	40	31	9	11
Bhutan	3	3	3	1	1	1	147	130	57	50	96	42	2	1	44	25	1	0
Bolivia (Plurinational State of)	28	26	29	13	11	15	127	112	54	48	83	39	19	10	37	22	9	6
Bosnia and Herzegovina	1	1	1	0	0	0	21	16	9	7	17	7	1	0	12	5	1	0
Botswana	2	2	3	1	1	1	57	49	28	24	41	20	2	1	21	11	1	1
Brazil	205	191	226	44	39	52	64	52	17	14	49	14	170	39	27	10	97	29
Brunei Darussalam	0	0	0	0	0	0	14	11	8	7	9	6	0	0	7	4	0	0
Bulgaria	3	2	3	1	1	1	25	20	13	11	19	11	2	1	12	7	1	0
Burkina Faso	87	80	92	101	91	130	215	202	151	142	105	82	44	57	41	34	18	25
Burundi	45	41	51	39	32	57	190	175	145	133	110	86	27	24	50	43	13	12
Cambodia	37	34	40	13	11	19	125	108	47	37	85	36	23	11	37	19	15	6
Cameroon	71	66	76	88	73	93	154	137	135	120	90	79	44	55	36	33	19	24
Canada	3	3	3	2	2	3	9	7	6	5	7	5	3	2	4	4	2	1
Cape Verde	1	1	1	0	0	0	62	54	23	20	45	18	1	0	21	10	0	0
Central African Republic	20	18	23	25	19	33	175	163	170	157	112	108	13	16	46	46	6	7
Chad	55	50	60	79	68	99	219	198	177	160	113	97	30	46	47	42	13	22
Chile	6	5	6	2	2	2	21	17	10	8	16	8	5	2	9	5	3	1
China	1,296	1,173	1,448	249	227	281	50	48	15	14	39	13	1,036	215	23	9	555	143
Colombia	31	28	32	16	14	19	38	31	20	16	28	15	25	14	19	11	17	10
Comoros	2	2	2	2	1	3	130	113	85	74	86	59	1	2	41	32	1	1
Congo	10	10	11	14	12	15	124	113	103	94	75	64	7	9	35	32	3	5
Cook Islands	0	0	0	0	0	0	22	17	11	8	16	8	0	0	9	5	0	0
Costa Rica	1	1	2	1	1	1	19	15	11	9	15	9	1	1	10	6	1	0
Côte d'Ivoire	76	71	81	75	63	80	164	138	125	105	104	81	52	53	47	41	25	28
Croatia	1	1	1	0	0	0	14	11	6	5	11	4	1	0	9	3	0	0
Cuba	2	2	3	1	1	1	15	12	6	5	11	5	2	0	7	3	1	0

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Cyprus	11	10	12	7	6	7	3	3	4	4	6.0	5.1	6.7
Czech Republic	14	13	15	7	6	7	4	3	4	5	6.2	5.4	6.8
Democratic People's Republic of Korea	45	36	57	58	46	73	33	26	42	15	1.4	—	—
Democratic Republic of the Congo	181	172	208	181	160	213	168	139	235	61	0.4	−1.0	1.5
Denmark	9	8	9	6	5	6	4	3	4	3	4.1	3.1	4.7
Djibouti	122	111	138	106	91	127	90	68	123	41	1.5	0.1	2.8
Dominica	17	15	19	15	13	17	12	9	15	6	1.8	0.3	3.2
Dominican Republic	58	53	60	39	33	41	25	19	28	19	4.1	3.3	5.1
Ecuador ^b	52	48	59	34	30	40	23	17	30	18	4.0	2.5	5.7
Egypt	86	81	88	44	42	46	21	19	23	29	6.7	6.1	7.1
El Salvador	60	53	65	34	29	38	15	13	22	20	6.6	4.6	7.5
Equatorial Guinea	190	156	252	152	117	211	118	63	235	63	2.3	−1.3	6.0
Eritrea	138	125	145	98	89	110	68	60	82	46	3.4	2.5	3.7
Estonia	20	19	21	11	10	12	4	3	4	7	8.1	7.3	8.6
Ethiopia	198	179	209	139	124	145	77	65	93	66	4.5	3.4	5.2
Fiji	30	27	33	22	20	25	16	14	19	10	2.8	2.5	3.3
Finland	7	6	7	4	4	5	3	3	3	2	4.0	3.1	4.5
France	9	8	9	5	5	6	4	4	5	3	3.6	2.9	4.4
Gabon	94	84	105	82	70	94	66	50	81	32	1.7	0.9	2.8
Gambia	165	154	189	130	118	158	101	82	139	55	2.3	1.0	3.5
Georgia ^c	47	39	58	33	28	39	21	15	33	16	3.9	1.2	5.9
Germany	9	8	9	5	5	6	4	4	5	3	3.6	2.8	4.4
Ghana	121	114	127	99	91	107	78	66	95	40	2.1	1.1	2.9
Greece	13	12	14	8	7	8	4	4	5	4	5.0	4.4	6.0
Grenada	21	18	24	16	15	17	13	11	15	7	2.4	1.3	3.5
Guatemala	78	72	81	48	42	53	30	21	38	26	4.5	3.3	6.2
Guinea	228	212	241	175	161	194	126	112	160	76	2.8	1.7	3.3
Guinea-Bissau	210	183	238	186	164	222	161	132	216	70	1.3	0.2	2.2
Guyana	63	56	68	49	45	57	36	31	50	21	2.7	1.0	3.4
Haiti	143	130	148	102	91	112	70	59	84	48	3.4	2.5	4.0
Holy See	—	—	—	—	—	—	—	—	—	—	—	—	—
Honduras	55	50	60	35	30	38	21	16	25	18	4.5	3.7	5.9
Hungary	19	17	20	11	10	12	6	6	7	6	5.2	4.5	5.8
Iceland	6	6	7	4	4	4	3	2	3	2	4.4	3.9	5.1
India	114	107	120	88	83	91	61	56	68	38	3.0	2.3	3.4
Indonesia	82	77	85	53	51	57	32	28	40	27	4.5	3.3	5.1
Iran (Islamic Republic of) ^d	61	54	70	44	37	50	25	21	33	20	4.3	2.7	5.4
Iraq	46	41	54	43	38	50	38	30	53	15	0.9	−0.5	2.1
Ireland	9	8	10	7	6	7	4	3	5	3	3.9	3.2	4.8
Israel	12	11	12	7	6	7	4	4	5	4	4.7	4.0	5.3
Italy	10	9	10	6	5	6	4	3	4	3	4.6	3.7	5.4
Jamaica	35	31	40	26	22	31	18	14	24	12	3.0	2.3	3.8

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)				Neonatal mortality rate (deaths per 1,000 live births)			
	1990			2011			1990		2011		1990		2011		1990		2011	
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female	1990	2011	1990	2011	1990	2011	1990	2011
Cyprus	0	0	0	0	0	0	12	10	3	3	10	3	0	0	5	1	0	0
Czech Republic	2	2	2	0	0	1	16	12	4	4	13	3	2	0	10	2	1	0
Democratic People's Republic of Korea	16	13	21	12	9	15	47	43	35	32	23	26	10	9	22	18	9	6
Democratic Republic of the Congo	312	293	365	465	378	681	192	171	178	158	117	111	206	307	49	47	91	137
Denmark	1	1	1	0	0	0	10	8	4	3	7	3	0	0	4	2	0	0
Djibouti	3	2	3	2	2	3	129	114	95	84	94	72	2	2	39	33	1	1
Dominica	0	0	0	0	0	0	19	16	13	11	14	11	0	0	12	8	0	0
Dominican Republic	12	11	12	5	4	6	62	54	27	23	45	21	9	4	26	14	6	3
Ecuador ^b	15	14	17	7	5	9	56	49	25	21	41	20	12	6	19	10	6	3
Egypt	158	149	163	40	36	43	86	86	22	20	63	18	117	34	20	7	36	14
El Salvador	10	9	11	2	2	3	65	55	17	14	47	13	8	2	18	6	3	1
Equatorial Guinea	3	3	4	3	2	6	199	180	124	112	118	80	2	2	47	37	1	1
Eritrea	17	16	18	13	11	16	151	125	74	61	86	46	11	9	32	22	4	4
Estonia	0	0	1	0	0	0	23	17	4	3	16	3	0	0	12	2	0	0
Ethiopia	433	385	461	194	163	235	212	184	82	72	118	52	264	129	52	31	122	82
Fiji	1	1	1	0	0	0	32	27	18	15	25	14	0	0	13	8	0	0
Finland	0	0	0	0	0	0	7	6	3	3	6	2	0	0	4	2	0	0
France	6	6	7	3	3	4	10	8	5	4	7	3	5	3	3	2	3	2
Gabon	3	3	4	3	2	3	103	86	72	59	69	49	2	2	32	25	1	1
Gambia	7	6	8	6	5	9	175	154	107	94	78	58	3	4	44	34	2	2
Georgia ^c	4	4	5	1	1	2	52	42	23	18	40	18	4	1	27	15	2	1
Germany	7	7	8	3	3	3	10	7	4	4	7	3	6	2	4	2	3	2
Ghana	67	63	71	60	50	74	128	114	83	72	76	52	43	40	38	30	22	23
Greece	1	1	1	1	0	1	14	12	5	4	12	4	1	0	9	3	1	0
Grenada	0	0	0	0	0	0	22	20	13	12	17	10	0	0	10	7	0	0
Guatemala	26	24	27	14	9	17	82	74	33	28	56	24	18	11	28	15	10	7
Guinea	58	53	62	48	42	62	232	224	128	123	135	79	35	30	53	39	15	15
Guinea-Bissau	9	8	10	9	7	12	227	193	174	147	125	98	5	5	50	44	2	3
Guyana	1	1	1	0	0	1	70	55	40	32	48	29	1	0	29	20	1	0
Haiti	36	32	37	19	16	22	152	134	74	66	99	53	24	14	37	25	10	7
Holy See	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Honduras	10	9	11	4	3	5	58	52	23	20	43	18	8	4	22	11	4	2
Hungary	3	2	3	1	1	1	21	17	7	6	17	5	2	1	13	4	2	0
Iceland	0	0	0	0	0	0	7	6	3	2	5	2	0	0	3	1	0	0
India	3,061	2,856	3,221	1,655	1,519	1,855	110	119	59	64	81	47	2,174	1,273	47	32	1,288	876
Indonesia	386	362	403	134	119	169	88	75	34	29	54	25	251	104	29	15	140	66
Iran (Islamic Republic of) ^d	115	101	133	33	27	43	62	60	25	25	47	21	87	28	27	14	48	17
Iraq	30	27	36	42	33	59	50	42	41	35	37	31	24	35	23	20	15	23
Ireland	0	0	1	0	0	0	10	8	4	4	8	3	0	0	5	2	0	0
Israel	1	1	1	1	1	1	12	11	5	4	10	4	1	1	6	2	1	0
Italy	5	5	6	2	2	3	11	9	4	3	8	3	5	2	6	2	3	1
Jamaica	2	2	2	1	1	1	39	29	21	16	28	16	2	1	19	11	1	1

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Japan	6	6	7	5	4	5	3	3	4	2	3.0	2.3	3.8
Jordan	37	35	40	28	25	30	21	17	24	12	2.7	2.0	3.9
Kazakhstan ^e	57	52	61	42	38	51	28	26	43	19	3.3	1.4	3.7
Kenya	98	91	105	113	100	120	73	64	98	33	1.4	-0.1	2.1
Kiribati	88	78	103	65	53	84	47	34	70	29	2.9	1.5	4.2
Kuwait	17	17	19	13	12	14	11	10	12	6	2.1	1.7	2.9
Kyrgyzstan	70	63	78	47	41	59	31	25	44	23	4.0	2.4	4.8
Lao People's Democratic Republic	148	128	159	81	68	95	42	29	59	49	6.0	4.0	7.7
Latvia	21	20	23	17	16	18	8	7	10	7	4.3	3.6	5.2
Lebanon	33	28	35	19	17	23	9	8	16	11	6.0	3.2	6.4
Lesotho	88	84	99	117	109	126	86	71	95	29	0.1	-0.3	1.3
Liberia	241	209	256	164	140	172	78	63	102	80	5.4	3.8	6.3
Libya	44	41	49	27	25	29	16	14	17	15	4.8	4.5	5.6
Liechtenstein	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania	17	16	19	12	11	13	6	5	7	6	5.3	4.4	6.0
Luxembourg	8	8	9	5	5	5	3	3	4	3	4.6	3.8	5.4
Madagascar	161	145	165	104	97	119	62	57	86	54	4.6	2.8	4.7
Malawi	227	209	235	164	151	172	83	73	97	76	4.8	3.9	5.4
Malaysia	17	16	20	11	10	12	7	6	7	6	4.6	3.9	6.0
Maldives	105	98	116	53	45	55	11	9	13	35	10.9	9.9	11.7
Mali	257	240	270	214	195	231	176	153	197	86	1.8	1.4	2.3
Malta	11	11	12	8	8	8	6	5	7	4	3.1	2.5	3.8
Marshall Islands	52	46	59	38	33	44	26	21	33	17	3.3	2.3	4.2
Mauritania	125	116	137	118	103	134	112	87	143	42	0.5	-0.6	1.7
Mauritius	24	21	27	19	16	21	15	12	19	8	2.2	1.1	3.4
Mexico	49	44	54	29	27	33	16	14	18	16	5.4	4.6	6.2
Micronesia (Federated States of)	56	50	66	49	37	69	42	25	77	19	1.5	-1.2	3.7
Monaco	8	7	8	5	5	6	4	3	4	3	3.3	2.6	4.0
Mongolia	107	97	117	63	59	73	31	25	46	36	5.9	3.9	7.0
Montenegro	18	16	20	13	11	13	7	6	9	6	4.3	3.1	5.1
Morocco	81	74	85	53	47	57	33	27	39	27	4.3	3.3	5.2
Mozambique	226	203	241	172	155	182	103	88	121	75	3.7	2.7	4.5
Myanmar	107	92	115	84	67	97	62	45	84	36	2.6	1.2	3.9
Namibia	73	65	77	74	66	82	42	36	51	24	2.7	1.6	3.2
Nauru	40	34	45	40	35	44	40	33	47	13	0.0	-1.1	1.1
Nepal	135	121	136	83	77	89	48	45	57	45	4.9	3.9	5.1
Netherlands	8	8	9	6	6	6	4	4	5	3	3.5	2.9	3.9
New Zealand	11	10	12	7	7	8	6	5	7	4	3.0	2.3	3.8
Nicaragua	66	61	70	42	38	47	26	22	32	22	4.5	3.3	5.3
Niger	314	290	329	216	192	231	125	99	156	105	4.4	3.2	5.5
Nigeria	214	196	227	188	170	196	124	111	147	71	2.6	1.7	3.1
Niue	14	11	16	29	21	32	21	18	47	5	-1.9	-6.3	-1.1
Norway	8	8	9	5	5	5	3	3	4	3	4.7	3.9	5.4

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2011			1990		2011		1990	2011	1990	2011	1990	2011	1990	2011
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Japan	8	7	8	4	3	4	7	6	4	3	5	2	5	3	3	1	3	1
Jordan	5	4	5	3	3	4	37	36	22	19	31	18	4	3	19	12	2	2
Kazakhstan ^e	23	21	25	11	10	16	64	50	32	24	48	25	19	9	24	14	9	5
Kenya	95	88	102	107	93	145	104	92	78	67	64	48	62	72	33	27	32	42
Kiribati	0	0	0	0	0	0	92	83	50	45	64	38	0	0	28	19	0	0
Kuwait	1	1	1	1	1	1	18	15	12	10	14	9	1	1	10	5	0	0
Kyrgyzstan	10	9	11	4	3	6	77	63	34	28	58	27	8	4	28	16	4	2
Lao People's Democratic Republic	25	21	27	6	4	8	156	139	44	39	102	34	17	5	38	18	7	2
Latvia	1	1	1	0	0	0	23	18	9	8	17	7	1	0	13	5	0	0
Lebanon	2	2	3	1	1	1	34	32	10	9	27	8	2	1	16	5	1	0
Lesotho	5	5	6	5	4	6	95	80	93	79	71	63	4	4	45	39	3	2
Liberia	22	19	24	12	10	16	255	227	83	74	161	58	15	9	49	27	5	4
Libya	5	4	5	2	2	2	46	42	17	16	33	13	3	2	21	10	2	1
Liechtenstein	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania	1	1	1	0	0	0	19	15	6	5	14	5	1	0	10	3	1	0
Luxembourg	0	0	0	0	0	0	9	7	3	3	7	2	0	0	4	2	0	0
Madagascar	79	71	81	45	41	63	171	152	65	58	98	43	51	31	40	23	20	17
Malawi	94	86	98	52	45	61	235	219	87	79	134	53	56	34	48	27	21	18
Malaysia	9	8	10	4	3	4	19	16	7	6	15	6	7	3	9	3	4	2
Maldives	1	1	1	0	0	0	110	101	12	10	76	9	1	0	36	7	0	0
Mali	103	95	109	121	104	138	267	248	182	169	132	98	53	68	58	49	25	36
Malta	0	0	0	0	0	0	13	10	7	5	10	5	0	0	7	4	0	0
Marshall Islands	0	0	0	0	0	0	57	46	29	23	41	22	0	0	19	12	0	0
Mauritania	10	9	11	13	10	17	134	115	120	104	81	76	6	9	43	40	3	5
Mauritius	1	1	1	0	0	0	27	21	16	14	21	13	1	0	16	9	0	0
Mexico	116	104	127	34	30	38	53	44	17	14	38	13	91	29	17	7	41	15
Micronesia (Federated States of)	0	0	0	0	0	0	64	48	47	36	44	34	0	0	22	17	0	0
Monaco	0	0	0	0	0	0	9	7	4	3	6	3	0	0	4	2	0	0
Mongolia	8	7	9	2	2	3	121	91	35	26	76	26	6	2	27	12	2	1
Montenegro	0	0	0	0	0	0	19	16	8	7	16	7	0	0	11	5	0	0
Morocco	57	51	60	21	17	25	86	77	35	30	64	28	44	18	35	19	25	12
Mozambique	128	113	138	86	73	102	233	218	107	99	151	72	84	59	53	34	32	30
Myanmar	115	98	124	53	37	72	119	96	69	56	77	48	82	40	42	30	44	25
Namibia	4	3	4	2	2	3	78	67	45	38	49	30	3	2	29	18	2	1
Nauru	0	0	0	0	0	0	56	24	56	24	32	32	0	0	22	22	0	0
Nepal	94	84	96	34	31	40	137	133	49	47	94	39	66	27	51	27	37	20
Netherlands	2	1	2	1	1	1	9	7	4	4	7	3	1	1	5	3	1	0
New Zealand	1	1	1	0	0	0	12	10	7	5	9	5	1	0	4	3	0	0
Nicaragua	10	9	10	4	3	5	72	60	29	22	50	22	7	3	25	13	4	2
Niger	125	114	132	89	69	114	320	307	127	122	133	66	53	49	49	32	21	25
Nigeria	876	796	939	756	668	908	222	205	129	119	127	78	519	480	51	39	220	254
Niue	0	0	0	0	0	0	14	14	21	21	12	18	0	0	7	10	0	0
Norway	0	0	1	0	0	0	9	7	3	3	7	3	0	0	4	2	0	0

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Occupied Palestinian Territory	43	39	47	30	26	33	22	15	27	14	3.2	2.2	5.0
Oman	48	43	51	22	19	25	9	7	12	16	8.1	6.3	9.3
Pakistan	122	112	129	95	86	103	72	58	86	41	2.5	1.5	3.5
Palau	32	26	41	25	21	30	19	12	30	11	2.6	-0.1	5.5
Panama	33	30	38	26	22	31	20	15	26	11	2.5	1.4	3.8
Papua New Guinea	88	82	97	72	62	80	58	45	65	29	2.0	1.7	3.0
Paraguay	53	46	57	35	30	41	22	18	30	18	4.1	2.5	5.0
Peru	75	70	78	39	36	40	18	16	19	25	6.8	6.3	7.4
Philippines	57	53	59	39	36	42	25	22	30	19	3.8	3.0	4.3
Poland	17	16	19	10	9	11	6	5	7	6	5.2	4.4	6.0
Portugal	15	14	16	7	7	8	3	3	4	5	6.9	6.2	7.8
Qatar	20	18	22	13	12	13	8	7	8	7	4.6	4.0	5.2
Republic of Korea	8	7	9	6	5	6	5	4	6	3	2.1	1.2	3.5
Republic of Moldova	35	31	39	24	19	29	16	11	22	12	3.7	2.4	5.2
Romania	37	36	38	27	26	28	13	12	14	13	5.2	4.7	5.4
Russian Federation	27	26	29	21	19	22	12	11	14	9	4.0	3.2	4.3
Rwanda	156	151	170	183	164	187	54	47	67	52	5.1	4.2	5.9
Saint Kitts and Nevis	28	25	33	16	14	19	7	6	12	9	6.4	4.0	7.8
Saint Lucia	23	21	25	18	17	20	16	12	19	8	1.7	0.7	3.2
Saint Vincent and the Grenadines	27	25	33	22	20	26	21	16	27	9	1.1	0.0	3.2
Samoa	30	27	34	23	19	27	19	11	26	10	2.2	0.6	4.9
San Marino	12	10	13	5	5	6	2	1	3	4	9.0	6.9	10.2
Sao Tome and Principe	96	86	111	93	80	117	89	71	129	32	0.4	-1.0	1.4
Saudi Arabia	43	36	50	21	17	24	9	7	12	14	7.3	6.4	8.2
Senegal	136	130	146	130	118	136	65	59	91	45	3.5	1.9	4.0
Serbia	29	24	34	13	11	15	7	5	10	10	6.6	4.9	8.4
Seychelles	17	16	19	14	13	16	14	12	16	6	0.9	0.2	2.1
Sierra Leone	267	244	309	241	216	281	185	130	310	89	1.7	-0.7	3.7
Singapore	8	7	8	4	4	4	3	2	3	3	5.0	4.8	5.7
Slovakia	18	17	18	12	11	12	8	7	8	6	3.9	3.7	4.2
Slovenia	10	10	11	5	5	6	3	3	3	4	6.2	5.5	6.7
Solomon Islands	42	38	49	31	24	34	22	14	24	14	3.1	2.9	4.9
Somalia	180	155	205	180	147	216	180	126	252	60	0.0	-1.6	1.7
South Africa	62	57	75	74	61	87	47	32	60	21	1.4	0.4	3.4
South Sudan	217	189	256	165	143	201	121	93	171	72	2.8	1.0	4.3
Spain	11	11	11	7	7	7	4	4	5	4	4.5	4.1	4.7
Sri Lanka	29	27	31	19	17	21	12	10	13	10	4.1	3.8	5.0
Sudan	123	114	136	104	92	121	86	66	117	41	1.7	0.3	3.1
Suriname	52	46	61	40	34	51	30	22	47	17	2.7	0.4	4.5
Swaziland	83	79	99	114	103	126	104	73	113	28	-1.0	-1.4	1.1
Sweden	7	6	7	4	4	4	3	3	3	2	4.2	3.5	4.5
Switzerland	8	7	9	6	5	6	4	4	5	3	2.9	1.8	3.9
Syrian Arab Republic	36	33	40	23	21	26	15	12	19	12	4.1	3.0	5.4
Tajikistan ^f	114	99	128	95	81	130	63	40	164	38	2.8	-1.8	5.0

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)				Neonatal mortality rate (deaths per 1,000 live births)			
	1990			2011			1990		2011		1990		2011		1990		2011	
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female	1990	2011	1990	2011	1990	2011	1990	2011
Occupied Palestinian Territory	4	3	4	3	2	4	46	41	23	21	36	20	3	3	22	13	2	2
Oman	3	3	4	0	0	1	49	46	9	8	36	7	3	0	21	5	2	0
Pakistan	544	495	578	352	280	425	126	118	76	68	95	59	426	293	49	36	218	169
Palau	0	0	0	0	0	0	40	24	23	14	27	14	0	0	14	9	0	0
Panama	2	2	2	1	1	2	36	31	21	18	26	17	2	1	14	9	1	1
Papua New Guinea	12	11	13	12	9	14	92	84	60	55	64	45	9	9	29	23	4	5
Paraguay	7	6	8	3	3	5	57	48	25	20	41	19	6	3	24	13	3	2
Peru	49	45	51	11	9	11	79	71	20	17	54	14	35	8	26	9	17	5
Philippines	115	106	119	57	50	69	63	51	29	22	40	20	82	45	22	12	45	29
Poland	9	8	10	2	2	3	19	15	6	5	15	5	8	2	11	4	6	1
Portugal	2	2	2	0	0	0	16	13	4	3	11	3	1	0	7	2	1	0
Qatar	0	0	0	0	0	0	22	19	8	7	17	6	0	0	10	4	0	0
Republic of Korea	4	4	5	3	2	3	8	7	5	4	6	4	4	2	3	2	2	1
Republic of Moldova	3	3	3	1	1	1	39	30	17	15	29	14	2	1	15	8	1	0
Romania	15	15	16	3	3	3	41	33	14	11	31	11	13	2	17	8	5	2
Russian Federation	62	58	66	20	19	23	31	23	13	10	23	10	51	17	13	7	26	11
Rwanda	50	48	55	23	20	29	165	148	57	51	95	38	31	17	39	21	12	9
Saint Kitts and Nevis	0	0	0	0	0	0	32	25	8	6	22	6	0	0	17	5	0	0
Saint Lucia	0	0	0	0	0	0	25	20	17	14	18	14	0	0	13	9	0	0
Saint Vincent and the Grenadines	0	0	0	0	0	0	29	24	23	19	21	20	0	0	16	13	0	0
Samoa	0	0	0	0	0	0	33	26	21	16	25	16	0	0	11	8	0	0
San Marino	0	0	0	0	0	0	12	12	2	2	11	2	0	0	5	1	0	0
Sao Tome and Principe	0	0	0	0	0	1	99	93	92	86	62	58	0	0	31	29	0	0
Saudi Arabia	23	20	28	6	5	8	46	39	10	8	34	8	19	5	20	5	11	3
Senegal	41	39	44	30	27	42	143	129	69	60	69	47	21	22	40	26	13	12
Serbia	4	3	5	1	1	1	30	27	8	6	25	6	3	1	15	4	2	0
Seychelles	0	0	0	0	0	0	18	15	15	13	14	12	0	0	10	9	0	0
Sierra Leone	43	39	51	42	28	77	280	253	194	176	158	119	25	27	58	49	10	11
Singapore	0	0	0	0	0	0	8	7	3	2	6	2	0	0	4	1	0	0
Slovakia	1	1	2	0	0	0	20	15	9	7	16	7	1	0	12	4	1	0
Slovenia	0	0	0	0	0	0	12	9	3	3	9	2	0	0	5	2	0	0
Solomon Islands	0	0	1	0	0	0	41	43	21	22	34	18	0	0	17	11	0	0
Somalia	52	44	60	71	48	105	190	170	190	170	108	108	33	43	50	50	15	21
South Africa	67	61	81	47	32	61	66	58	50	44	48	35	51	35	26	19	28	20
South Sudan	54	46	66	43	33	64	220	215	122	119	129	76	32	28	51	38	13	13
Spain	4	4	5	2	2	2	12	10	5	4	9	4	4	2	7	3	3	1
Sri Lanka	10	9	11	5	4	5	31	27	13	11	24	11	8	4	16	8	6	3
Sudan	96	89	107	95	72	132	129	116	91	81	77	57	61	63	38	31	32	35
Suriname	0	0	1	0	0	0	57	46	33	26	44	26	0	0	24	16	0	0
Swaziland	3	3	4	4	2	4	91	76	113	94	61	69	2	2	32	35	1	1
Sweden	1	1	1	0	0	0	7	6	3	3	6	2	1	0	3	2	0	0
Switzerland	1	1	1	0	0	0	9	7	5	4	7	4	0	0	4	3	0	0
Syrian Arab Republic	16	14	17	7	6	9	39	33	16	14	30	13	13	6	18	9	8	4
Tajikistan ^f	25	21	28	12	7	33	122	106	70	56	89	53	19	10	35	25	7	5

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Thailand	35	32	39	19	17	22	12	8	17	12	5.0	3.3	7.0
The former Yugoslav Republic of Macedonia	38	34	40	16	16	18	10	8	12	13	6.5	5.4	7.1
Timor-Leste	180	164	199	109	100	121	54	46	72	60	5.7	4.2	6.7
Togo	147	138	161	128	116	147	110	92	139	49	1.4	0.4	2.1
Tonga	25	22	29	20	16	25	15	11	22	8	2.2	1.1	3.8
Trinidad and Tobago	37	33	44	32	27	41	28	21	39	12	1.4	0.4	2.3
Tunisia	51	42	57	30	25	34	16	13	20	17	5.5	4.5	6.4
Turkey^a	72	66	76	35	31	39	15	12	20	24	7.4	5.9	8.6
Turkmenistan	94	86	103	71	62	86	53	41	74	31	2.8	1.3	3.8
Tuvalu	58	51	64	43	38	48	30	24	40	19	3.1	1.4	4.4
Uganda	178	168	188	141	129	146	90	84	105	59	3.3	2.4	3.6
Ukraine	19	18	22	19	17	20	10	9	12	7	3.1	2.2	4.2
United Arab Emirates	22	21	25	12	12	13	7	6	7	7	5.8	5.5	6.8
United Kingdom	9	9	10	7	6	7	5	5	6	3	2.8	2.3	3.1
United Republic of Tanzania	158	148	164	126	115	129	68	62	81	53	4.0	3.1	4.4
United States	11	11	12	9	8	9	8	7	8	4	2.0	1.6	2.3
Uruguay	23	22	25	17	16	18	10	9	12	8	3.8	3.3	4.4
Uzbekistan	75	70	85	61	54	73	49	38	66	25	2.1	0.7	3.5
Vanuatu	39	34	45	23	20	29	13	10	18	13	5.1	3.9	6.0
Venezuela (Bolivarian Republic of)	31	29	34	22	21	24	15	14	16	10	3.4	2.9	4.0
Viet Nam	50	44	55	34	31	37	22	20	24	17	4.0	3.2	4.7
Yemen	126	116	136	99	85	110	77	58	92	42	2.4	1.5	3.6
Zambia	193	175	195	154	142	167	83	76	110	64	4.0	2.4	4.3
Zimbabwe	79	75	86	106	97	115	67	53	74	26	0.8	0.3	2.1

Estimates of under-five, infant and neonatal mortality by Millennium Development Goal region^{h,i}

Developed regions	15	14	15	10	9	10	7	7	7	5	3.8	3.5	4.0
Developing regions	97	94	98	80	78	81	57	56	61	32	2.5	2.1	2.6
Northern Africa	77	73	78	45	43	46	25	22	28	26	5.5	4.7	5.8
Sub-Saharan Africa	178	173	181	154	148	156	109	107	120	59	2.3	1.8	2.4
Latin America & Caribbean	53	51	55	34	33	35	19	18	20	18	4.8	4.5	5.1
Caucasus & Central Asia	76	73	80	61	59	69	42	40	59	25	2.8	1.2	3.1
Eastern Asia	48	44	54	35	32	37	15	14	17	16	5.7	4.9	6.3
Excluding China	28	25	32	30	25	36	17	15	21	9	2.3	1.9	2.6
Southern Asia	116	110	119	88	84	90	61	57	66	39	3.1	2.5	3.4
Excluding India	119	113	122	87	83	91	60	54	67	40	3.3	2.6	3.8
South-eastern Asia	69	66	71	47	45	49	29	27	33	23	4.1	3.4	4.4
Western Asia	63	60	65	42	39	44	30	26	35	21	3.5	2.8	4.1
Oceania	74	69	80	61	54	67	50	40	55	25	1.9	1.6	2.8
World	87	85	89	73	71	73	51	51	55	29	2.5	2.1	2.6

Country, regional and global estimates of under-five, infant and neonatal mortality

Country or territory	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2011			1990		2011		1990	2011	1990	2011	1990	2011	1990	2011
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Thailand	38	34	43	10	7	14	39	31	13	11	29	11	31	9	18	8	20	6
The former Yugoslav Republic of Macedonia	1	1	1	0	0	0	39	36	11	9	34	9	1	0	17	6	1	0
Timor-Leste	5	4	5	2	2	3	190	169	57	51	135	46	4	2	48	24	2	1
Togo	22	20	24	21	17	27	158	136	118	102	85	73	13	14	42	36	6	7
Tonga	0	0	0	0	0	0	28	21	18	13	21	13	0	0	12	8	0	0
Trinidad and Tobago	1	1	1	1	0	1	41	33	31	24	32	25	1	0	23	18	1	0
Tunisia	12	10	13	3	2	4	55	47	18	15	40	14	9	3	23	10	5	2
Turkey^d	96	88	101	20	16	27	76	68	16	14	60	12	78	15	29	9	41	12
Turkmenistan	12	11	14	5	4	8	103	86	57	48	75	45	10	5	31	22	4	2
Tuvalu	0	0	0	0	0	0	63	52	33	27	45	25	0	0	22	14	0	0
Uganda	146	137	155	131	122	154	192	164	97	83	106	58	89	86	39	28	35	43
Ukraine	14	13	16	5	4	6	22	17	11	9	17	9	12	5	9	5	6	2
United Arab Emirates	1	1	1	1	1	1	24	20	7	6	19	6	1	1	12	4	1	0
United Kingdom	7	7	7	4	4	5	10	8	6	5	8	4	6	4	5	3	4	2
United Republic of Tanzania	169	157	176	122	111	146	163	152	70	65	97	45	105	83	41	25	47	48
United States	44	42	45	32	30	34	13	10	8	7	9	6	37	27	6	4	22	18
Uruguay	1	1	1	1	0	1	26	21	11	9	20	9	1	0	11	5	1	0
Uzbekistan	55	50	62	30	23	41	82	68	55	42	62	42	45	25	20	15	14	9
Vanuatu	0	0	0	0	0	0	41	36	14	12	31	11	0	0	16	7	0	0
Venezuela (Bolivarian Republic of)	18	16	20	9	8	10	34	28	17	13	26	13	15	8	15	8	9	5
Viet Nam	96	85	106	32	28	35	57	43	25	19	36	17	69	25	22	12	45	17
Yemen	73	67	79	70	52	85	131	121	80	73	89	57	52	53	43	32	27	30
Zambia	64	57	65	46	42	63	200	186	86	80	114	53	38	30	43	27	15	17
Zimbabwe	30	28	32	24	19	27	86	72	73	61	53	43	20	16	32	30	12	11

Estimates of under-five, infant and neonatal mortality by Millennium Development Goal region^{h,i} (continued)

Developed regions	228	223	233	96	94	101	16	13	7	6	12	6	190	81	7	4	108	53
Developing regions	11,740	11,423	11,934	6,818	6,748	7,339	98	95	58	56	67	41	8,164	4,908	35	24	4,254	2,902
Northern Africa	284	269	289	87	79	100	79	75	26	23	59	21	215	74	25	11	93	40
Sub-Saharan Africa	3,821	3,716	3,911	3,370	3,313	3,746	186	168	114	103	107	69	2,318	2,170	45	34	1,018	1,122
Latin America & Caribbean	610	588	632	203	192	213	57	48	21	17	42	16	481	170	22	10	256	107
Caucasus & Central Asia	152	146	161	72	68	102	83	69	47	38	62	36	124	62	25	17	49	28
Eastern Asia	1,325	1,202	1,478	265	244	298	49	47	15	15	38	13	1,053	229	22	9	569	151
Excluding China	29	25	34	17	14	20	29	26	18	16	17	14	17	13	11	9	13	8
Southern Asia	4,454	4,220	4,595	2,341	2,190	2,564	113	119	60	62	83	47	3,196	1,824	47	32	1,832	1,216
Excluding India	1,393	1,312	1,422	686	613	775	122	117	63	57	88	48	1,022	551	46	29	544	340
South-eastern Asia	826	786	843	312	292	357	76	63	32	26	48	23	568	245	26	14	321	155
Western Asia	255	243	265	155	135	179	67	59	32	28	50	24	200	123	26	15	111	77
Oceania	14	13	15	13	10	15	77	70	52	47	54	39	10	10	26	20	5	5
World	11,968	11,652	12,163	6,914	6,845	7,436	89	85	53	50	61	37	8,354	4,989	32	22	4,362	2,955

Country, regional and global estimates of under-five, infant and neonatal mortality

Estimates of under-five, infant and neonatal mortality by UNICEF regionⁱ

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Africa	163	159	166	141	137	144	100	99	110	54	2.3	1.8	2.4
Sub-Saharan Africa	178	173	181	154	148	156	109	107	120	59	2.3	1.8	2.4
Eastern and Southern Africa	162	156	165	135	130	138	84	83	94	54	3.1	2.5	3.2
West and Central Africa	197	191	205	175	166	180	132	126	149	66	1.9	1.3	2.1
Middle East and North Africa	72	70	75	52	49	54	36	33	41	24	3.3	2.7	3.7
Asia	85	82	87	65	63	67	44	42	47	28	3.2	2.7	3.4
South Asia	119	113	122	89	85	92	62	58	68	40	3.1	2.5	3.4
East Asia and Pacific	55	52	58	39	37	40	20	20	22	18	4.7	4.1	5.0
Latin America and Caribbean	53	51	55	34	33	35	19	18	20	18	4.8	4.5	5.1
Central and Eastern Europe/Commonwealth of Independent States	48	47	49	35	33	37	21	20	26	16	3.9	2.8	4.1
World	87	85	89	73	71	73	51	51	55	29	2.5	2.1	2.6

Estimates of under-five, infant and neonatal mortality by World Health Organization regionⁱ

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Africa	175	170	179	153	147	155	107	105	118	58	2.4	1.9	2.4
Americas	42	40	43	27	27	28	16	15	16	14	4.7	4.4	5.0
Eastern Mediterranean	99	94	101	77	73	80	58	53	64	33	2.5	2.0	2.9
Europe	32	31	33	21	20	22	13	13	16	11	4.3	3.3	4.4
South-East Asia	109	104	113	81	77	83	55	51	60	36	3.3	2.7	3.6
Western Pacific	48	44	52	34	31	35	16	15	17	16	5.2	4.6	5.7
World	87	85	89	73	71	73	51	51	55	29	2.5	2.1	2.6

Country, regional and global estimates of under-five, infant and neonatal mortality

Estimates of under-five, infant and neonatal mortality by UNICEF regionⁱ (continued)

Region	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2011			1990		2011		1990	2011	1990	2011	1990	2011	1990	2011
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Africa	4,104	3,995	4,189	3,457	3,403	3,835	171	155	105	95	100	65	2,533	2,245	42	32	1,111	1,163
Sub-Saharan Africa	3,821	3,716	3,911	3,370	3,313	3,746	186	168	114	103	107	69	2,318	2,170	45	34	1,018	1,122
Eastern and Southern Africa	1,664	1,601	1,702	1,177	1,156	1,321	171	153	89	79	100	55	1,041	779	43	29	456	429
West and Central Africa	2,058	1,980	2,146	2,096	2,001	2,397	206	188	138	126	116	83	1,214	1,327	48	39	530	658
Middle East and North Africa	656	634	678	351	322	399	75	70	38	34	54	28	486	274	27	16	244	158
Asia	6,504	6,227	6,687	2,899	2,762	3,140	85	85	43	44	62	34	4,739	2,280	36	23	2,679	1,511
South Asia	4,340	4,104	4,480	2,309	2,156	2,531	116	122	61	63	85	48	3,109	1,796	48	32	1,784	1,199
East Asia and Pacific	2,164	2,029	2,307	590	563	650	57	52	21	19	41	17	1,631	484	24	11	895	312
Latin America and Caribbean	610	588	632	203	192	213	57	48	21	17	42	16	481	170	22	10	256	107
Central and Eastern Europe/Commonwealth of Independent States	358	347	369	125	121	157	52	43	23	19	40	18	295	105	19	10	136	57
World	11,968	11,652	12,163	6,914	6,845	7,436	89	85	53	50	61	37	8,354	4,989	32	22	4,362	2,955

Estimates of under-five, infant and neonatal mortality by World Health Organization regionⁱ (continued)

Region	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2011			1990		2011		1990	2011	1990	2011	1990	2011	1990	2011
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Africa	3,667	3,562	3,752	3,179	3,120	3,550	184	166	112	101	106	68	2,231	2,053	45	34	981	1,065
Americas	657	635	679	237	226	247	45	38	17	14	33	13	520	200	18	8	280	127
Eastern Mediterranean	1,368	1,302	1,406	923	841	1,031	102	95	61	55	73	44	1,013	710	36	25	502	398
Europe	418	407	428	149	145	182	35	29	14	12	27	11	346	125	14	6	169	70
South-East Asia	4,239	4,010	4,374	2,039	1,907	2,255	108	111	54	56	77	42	2,978	1,574	44	29	1,742	1,083
Western Pacific	1,614	1,486	1,764	384	363	421	49	46	17	15	37	13	1,263	324	21	9	686	209
World	11,968	11,652	12,163	6,914	6,845	7,436	89	85	53	50	61	37	8,354	4,989	32	22	4,362	2,955

Country, regional and global estimates of under-five, infant and neonatal mortality

Estimates of under-five, infant and neonatal mortality by World Bank regionⁱ

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Low income	164	159	166	133	129	136	95	93	107	55	2.6	2.0	2.6
Middle income	82	80	84	67	64	68	46	45	50	27	2.7	2.4	2.9
Lower middle income	110	106	112	88	84	89	62	60	67	37	2.7	2.3	2.9
Upper middle income	51	48	54	37	35	38	20	19	22	17	4.5	3.9	4.8
Low and middle income	95	93	97	79	77	80	56	56	60	32	2.5	2.1	2.5
East Asia & Pacific	56	52	59	40	38	41	21	20	23	19	4.7	4.1	5.0
Europe & Central Asia	48	46	49	35	33	37	21	20	26	16	3.9	2.8	4.1
Latin America & Caribbean	53	51	55	34	33	35	19	18	20	18	4.9	4.6	5.1
Middle East & North Africa	70	68	73	48	45	49	32	30	36	23	3.8	3.2	4.1
South Asia	119	113	122	89	85	92	62	58	68	40	3.1	2.5	3.4
Sub-Saharan Africa	178	173	181	154	148	156	109	107	120	59	2.3	1.8	2.4
High income	12	12	13	8	8	8	6	6	6	4	3.5	3.1	3.6
World	87	85	89	73	71	73	51	51	55	29	2.5	2.1	2.6

Estimates of under-five, infant and neonatal mortality by United Nations Population Division regionⁱ

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2011		
	1990			2000			2011				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
More developed regions	15	15	15	10	9	10	7	7	7	5	3.8	3.5	4.0
Less developed regions	97	94	98	80	77	81	57	56	61	32	2.5	2.1	2.6
Least developed countries	171	167	173	136	132	139	98	96	109	57	2.7	2.1	2.7
Excluding least developed countries	82	79	83	65	63	66	45	43	48	27	2.8	2.5	3.0
Excluding China	110	107	111	89	87	90	64	63	68	37	2.6	2.2	2.6
Sub-Saharan Africa	180	175	183	156	150	158	109	108	121	60	2.4	1.9	2.4
Africa	163	159	166	141	137	144	100	99	110	54	2.3	1.8	2.4
Asia	82	79	84	63	60	64	42	40	45	27	3.2	2.8	3.4
Europe	18	17	18	11	11	12	7	7	7	6	4.6	4.2	4.7
Latin America & Caribbean	53	51	55	34	33	35	19	18	20	18	4.8	4.5	5.1
Northern America	11	11	11	8	8	9	7	7	8	4	2.0	1.5	2.3
Oceania	34	32	37	31	28	34	23	19	26	11	1.8	1.5	2.6
World	87	85	89	73	71	73	51	51	55	29	2.5	2.1	2.6

Definitions

Under-five mortality rate: Probability of dying between birth and exactly five years of age, expressed per 1,000 live births.

Infant mortality rate: Probability of dying between birth and exactly one year of age, expressed per 1,000 live births.

Neonatal mortality rate: Probability of dying in the first month of life, expressed per 1,000 live births.

Note: Upper and lower bounds refer to the 90 percent uncertainty intervals for the estimates. Estimates are generated by the United Nations Inter-agency Group for Child Mortality Estimation to ensure comparability; they are not necessarily the official statistics of UN Member States, which may use alternative rigorous methods.

— not available.

a Estimates for Azerbaijan for recent years are based on projections from the 2006 Demographic and Health Survey and earlier surveys. Data from a more recent (2011) Ministry of Health survey are not yet available. Steps are being taken to improve death registration and to implement the international standard definition for live births. The most recent official infant mortality rate from the State Statistical Committee is 11 deaths per 1,000 live births for 2011, compared with the IGME estimate of 39.

b Estimates for Ecuador for recent years are based on projections from surveys and censuses. The most recent official national statistics are based on vital registration data and thus differ from the estimates shown here.

Country, regional and global estimates of under-five, infant and neonatal mortality

Estimates of under-five, infant and neonatal mortality by World Bank regionⁱ (continued)

Region	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2011			1990		2011		1990	2011	1990	2011	1990	2011	1990	2011
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Low income	3,209	3,108	3,247	2,383	2,341	2,695	171	156	100	90	103	63	2,019	1,584	46	32	950	849
Middle income	8,604	8,333	8,822	4,453	4,310	4,780	83	81	47	46	59	35	6,209	3,340	32	22	3,332	2,063
Lower middle income	6,148	5,898	6,297	3,740	3,584	4,032	110	109	63	62	76	46	4,266	2,765	41	28	2,298	1,702
Upper middle income	2,456	2,335	2,625	713	683	803	53	48	21	19	40	16	1,943	574	23	10	1,035	361
Low and middle income	11,813	11,498	12,008	6,836	6,765	7,358	97	93	58	55	66	40	8,228	4,923	35	24	4,283	2,912
East Asia & Pacific	2,160	2,024	2,302	587	560	647	58	53	22	20	42	17	1,627	481	24	11	893	310
Europe & Central Asia	359	348	370	125	121	158	52	43	23	19	40	18	296	105	19	10	137	57
Latin America & Caribbean	609	587	631	202	191	212	57	48	21	17	42	16	480	170	22	10	255	106
Middle East & North Africa	531	509	549	249	229	278	72	68	34	30	54	26	402	204	26	15	198	119
South Asia	4,340	4,104	4,480	2,309	2,156	2,531	116	122	61	63	85	48	3,109	1,796	48	32	1,784	1,199
Sub-Saharan Africa	3,815	3,710	3,905	3,365	3,308	3,740	186	169	114	103	107	69	2,314	2,166	45	34	1,016	1,120
High income	155	150	159	78	75	83	13	11	6	5	10	5	127	66	6	3	79	42
World	11,968	11,652	12,163	6,914	6,845	7,436	89	85	53	50	61	37	8,354	4,989	32	22	4,362	2,955

Estimates of under-five, infant and neonatal mortality by United Nations Population Division regionⁱ (continued)

Region	Number of under-five deaths (thousands)						Sex-specific under-five mortality rate (deaths per 1,000 live births)				Infant mortality rate (deaths per 1,000 live births)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2011			1990		2011		1990	2011	1990	2011	1990	2011	1990	2011
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
More developed regions	227	222	231	96	93	101	17	13	7	6	12	6	189	81	7	4	107	52
Less developed regions	11,741	11,424	11,935	6,819	6,749	7,339	98	95	58	55	67	41	8,166	4,909	35	24	4,255	2,902
Least developed countries	3,530	3,430	3,577	2,649	2,612	2,983	178	164	102	93	107	65	2,212	1,757	47	33	1,027	933
Excluding least developed countries	8,211	7,935	8,422	4,170	4,026	4,475	82	80	46	44	59	34	5,953	3,152	32	21	3,227	1,969
Excluding China	10,445	10,157	10,590	6,570	6,497	7,082	112	107	66	62	75	45	7,130	4,693	38	26	3,699	2,759
Sub-Saharan Africa	3,725	3,619	3,812	3,275	3,215	3,646	189	170	115	104	108	70	2,257	2,108	45	35	986	1,088
Africa	4,104	3,995	4,189	3,457	3,403	3,835	171	155	105	95	100	65	2,533	2,245	42	32	1,111	1,163
Asia	7,020	6,745	7,204	3,150	3,020	3,404	82	82	42	42	60	33	5,147	2,486	34	22	2,885	1,629
Europe	169	164	174	56	55	60	20	15	8	6	15	6	142	47	9	4	79	30
Latin America & Caribbean	610	588	632	203	192	213	57	48	21	17	42	16	481	170	22	10	256	107
Northern America	47	45	48	34	32	37	12	10	8	7	9	6	39	29	6	4	24	20
Oceania	17	16	18	15	12	17	36	32	25	22	26	18	13	12	13	10	7	6
World	11,968	11,652	12,163	6,914	6,845	7,436	89	85	53	50	61	37	8,354	4,989	32	22	4,362	2,955

^c The results of the 2011 Georgia Reproductive Health Survey are not reflected in the estimates, pending further evaluation. The reported under-five mortality rate according to preliminary survey results is 16.4 per 1,000 live births for 2005–2010, compared with the IGME estimate of 24.

^d The results of the 2010–2011 Iran Multiple Indicator Demographic and Health Survey are not reflected in the estimates, pending further evaluation. The reported under-five and infant mortality rates according to preliminary survey results both show further improvement compared with IGME estimates for 2011.

^e Estimates for Kazakhstan for recent years are based on projections from surveys and censuses. The most recent official infant mortality rate, based on vital registration data, is 15 deaths per 1,000 live births for 2009, compared with the IGME estimate of 25.

^f Estimates for Tajikistan for recent years are based on projections from surveys and censuses. The most recent official infant and under-five mortality rates, based on vital registration data, are 12 and 14.8 deaths per 1,000 live births respectively for 2009, compared with the IGME estimates of 56 and 68.

^g The results of the 2012 Turkey Infant and Child Mortality Survey are not yet included in the estimates, pending further evaluation. The reported infant and under-five mortality rates according to preliminary survey results are 7.7 and 11.25 deaths per 1,000 live births respectively for 2007–2011, compared with the IGME estimates of 12 and 15 for 2011.

^h See next page for country classifications by region.

ⁱ The sum of the number of deaths by region may differ from the world total because of rounding.

Regional Classifications

The regional classifications that are referred to in the report and for which aggregate data are provided in the statistical table are Millennium Development Goal regions (see below). Aggregates presented for member organizations of the Inter-agency Group for Child Mortality Estimation may differ. Regions with the same names in different agencies may include different countries.

Developed regions

Albania, Andorra, Australia, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Canada, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Monaco, Montenegro, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Moldova, Romania, Russian Federation, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The former Yugoslav Republic of Macedonia, Ukraine, United Kingdom, United States

Developing regions

Caucasus and Central Asia

Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan

Eastern Asia

China, Democratic People's Republic of Korea, Mongolia, Republic of Korea

Latin America and the Caribbean

Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela (Bolivarian Republic of)

Northern Africa

Algeria, Egypt, Libya, Morocco, Tunisia

Oceania

Cook Islands, Fiji, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu

South-eastern Asia

Brunei Darussalam, Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Timor-Leste, Viet Nam

Southern Asia

Afghanistan, Bangladesh, Bhutan, India, Iran (Islamic Republic of), Maldives, Nepal, Pakistan, Sri Lanka

Sub-Saharan Africa

Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Togo, Uganda, United Republic of Tanzania, Zambia, Zimbabwe

Western Asia

Bahrain, Iraq, Jordan, Kuwait, Lebanon, Occupied Palestinian Territory, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

On the cover: A girl stands in her community's makeshift camp in the city of Hyderabad, Sindh Province, Pakistan. The community has been displaced by rising flood waters.

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The UN Inter-agency Group for Child Mortality Estimation

The Inter-agency Group for Child Mortality Estimation (IGME) was formed in 2004 to share data on child mortality, harmonize estimates within the UN system, improve methods for child mortality estimation, report on progress towards the Millennium Development Goals and enhance country capacity to produce timely and properly assessed estimates of child mortality. The IGME, led by the United Nations Children’s Fund and the World Health Organization, also includes the World Bank and the United Nations Population Division of the Department of Economic and Social Affairs as full members.

The IGME’s independent Technical Advisory Group, comprising eminent scholars and independent experts in demography, provides technical guidance on estimation methods, technical issues and strategies for data analysis and data quality assessment.

The IGME updates its child mortality estimates annually after reviewing newly available data and assessing data quality. This report contains the latest IGME estimates of child mortality at the country, regional and global levels. Country-specific estimates and the data used to derive them are available at www.childmortality.org.