

Levels & Trends in
**Child
Mortality**

Report 2013

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



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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 12.6 (12.4, 12.9)¹ million in 1990 to 6.6 (6.3, 7.0) million in 2012. While that translates into around 17,000 fewer children dying every day in 2012 than in 1990, it still implies the deaths of nearly 18,000 children under age five every day in 2012.
- Since 1990 the global under-five mortality rate has dropped 47 percent—from 90 (89, 92) deaths per 1,000 live births in 1990 to 48 (46, 51) in 2012. All regions, except for Sub-Saharan Africa and Oceania, have reduced their under-five mortality rate by 50 percent or more.²
- The average annual rate of reduction in under-five mortality has accelerated—from 1.2 percent a year over 1990–1995 to 3.9 percent over 2005–2012—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, with an under-five mortality rate of 98 deaths per 1,000 live births—more than 15 times the average for developed regions.
- Under-five deaths are increasingly concentrated in Sub-Saharan Africa and Southern Asia, while the share in the rest of the world dropped from 32 percent in 1990 to 18 percent in 2012.
- Sub-Saharan Africa, however, has seen a faster decline in its under-five mortality rate over time, with the average annual rate of reduction increasing from 0.8 percent in 1990–1995 to 4.1 percent in 2005–2012.
- About half of under-five deaths occur in only five countries: India, Nigeria, Democratic Republic of the Congo, Pakistan and China. India (22 percent) and Nigeria (13 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 19 percent since 1990, from 37 percent to 44 percent, because declines in the neonatal mortality rate are slower than those in the mortality rate for older children.
- Around two-thirds of neonatal deaths occur in just 10 countries, with India accounting for more than a quarter and Nigeria for a tenth.
- Sub-Saharan Africa, with the highest risk of death in the first month of life, is among the regions showing the least progress in reducing the neonatal mortality rate.
- The leading causes of death among children under age five include pneumonia (17 percent of all under-five deaths), preterm birth complications (15 percent), intrapartum-related complications (complications during birth; 10 percent), diarrhoea (9 percent) and malaria (7 percent). Globally, about 45 percent of under-five deaths are attributable to undernutrition.

Introduction

Millennium Development Goal 4 (MDG 4) calls for reducing the under-five mortality rate by two-thirds between 1990 and 2015. The world has made substantial progress, reducing the under-five mortality rate 47 percent, from 90 (89, 92) deaths per 1,000 live births in 1990 to 48 (46, 51) in 2012. However, this progress has not been enough, and the target risks being missed at the global level. To achieve MDG 4 on time, the global annual rate of reduction in under-five mortality rate would need to rise to 15.6 percent for 2012–2015, much faster than the 3.9 percent achieved over 2005–2012. At the country level, historical trends show that progress for most countries has been too slow and that only 13 of the 61 countries with high under-five mortality rates (at least 40 deaths per 1,000 live births in 2012) are currently on track to achieve MDG 4—with an average annual rate of reduction of 4.4 percent or more.

Still, in 2012, 6.6 (6.3, 7.0) million children died before reaching their fifth birthday, mostly from preventable causes and treatable diseases, even though the knowledge and technologies for life-saving interventions are available. In addition, inequities in child mortality between high-income and low-income countries remain large. In 2012 the under-five mortality rate in low-income countries was 82 deaths per 1,000 live births—more than 13 times the average rate in high-income countries (6). Many countries still

have very high under-five mortality rates—particularly those in Sub-Saharan Africa, home to all 16 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.

In 2012 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. Partners emerged from the Call to Action with a revitalized commitment to child survival under the banner of A Promise Renewed. More than 170 governments have signed a pledge to redouble their efforts to end preventable child deaths so that more countries achieve MDG 4 and sustain momentum beyond 2015.

As global impetus 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 (UN IGME) updates child mortality estimates annually, and this report presents the UN IGME’s latest estimates of under-five, infant and neonatal mortality and assesses progress towards MDG 4 at the country, regional and global levels.



Estimating Child Mortality

The UN Inter-agency Group for Child Mortality Estimation

The UN 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 UN IGME includes UNICEF, the World Health Organization (WHO), the World Bank and the United Nations Population Division of the Department of Economic and Social Affairs as full members.

The UN 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 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. If registration coverage is complete and the systems function efficiently, the resulting child mortality estimates will be accurate and timely. However, many 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, have become the primary sources of data on child mortality in countries without functioning vital registration systems. These surveys ask women about the survival of their children, and they provide the basis of child mortality estimates for most of these countries.

The UN 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 UN IGME and then used to predict a trend line that is extrapolated to a common reference year, set at 2012 for the estimates in this report. Infant mortality rates are generated by either applying a statistical model or 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 from 1960 to the present.

Changes in the estimation process

The UN IGME continually seeks to improve its methods and may introduce changes from one year to the next. This year, a new estimation method is used for estimating and extrapolating the under-five mortality rate, referred to as the Bayesian B-splines bias-adjusted model or the B3 model. Compared with the Loess estimation approach that the UN IGME used in previous years, the B3 model better accounts for data errors, including biases and sampling and non-sampling errors in the data; it can better capture short-term fluctuations in the under-five mortality rate and its annual rate of reduction. Thus, it is better able to account for evidence of acceleration in the decline of under-five mortality from new surveys. Validation exercises show that the B3 model also performs better in projections. A more complete technical description of the B3 model is available elsewhere.³

In 2012 the UN IGME produced estimates of the under-five mortality rate for males and females separately for the first time. In many countries fewer sources have provided data by sex than

Why does the UN 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). The UN 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. To allow for added comparability, the UN 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 Multiple Indicator Cluster Survey or Demographic and Health Survey), which typically refers to a period before the survey year that is several years before the target year of UN IGME estimates. Thus, the UN IGME also extrapolates 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 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.
- Applying a consistent methodology also allows for comparisons between countries, despite the varied number and types of data sources. One objective of the UN IGME is to provide valid and comparable child mortality estimates for policymakers. To do so, the 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.
- To increase the transparency of the estimation process, the UN IGME has developed a global database. All data, estimates and details on the UN IGME methods are available on the CME Info website at www.childmortality.org.

Broad strategy of the UN IGME

The UN IGME follows a broad strategy to generate annual estimates of child mortality:

- Compile all available nationally representative data relevant to the estimation of child mortality, including data from vital registration systems, population censuses, household surveys and sample registration systems.
- Assess data quality, recalculate data and make adjustments if needed by applying standard methods.
- Fit a statistical model to the data observations to generate a trend curve.
- Extrapolate the model to a target year, in this case 2012.

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 derive the estimates of the under-five mortality rate from countries with sparse data (Democratic People's Republic of Korea and Djibouti),

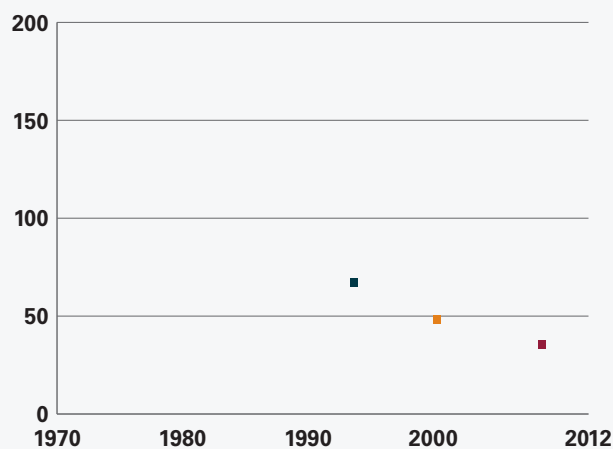
a country with abundant data but wide variations in the rates and trends between data sources (Nigeria) and a country with abundant data and small variations between data points (Senegal). The Senegal example also shows the trend line of the under-five mortality rate that results from the B3 curve-fitting (black line) with the corresponding 90 percent uncertainty range (red band). Detailed graphs showing all the underlying data and the UN IGME trend estimates are available for all countries at www.childmortality.org.

Examples of country data sources

Countries with sparse data

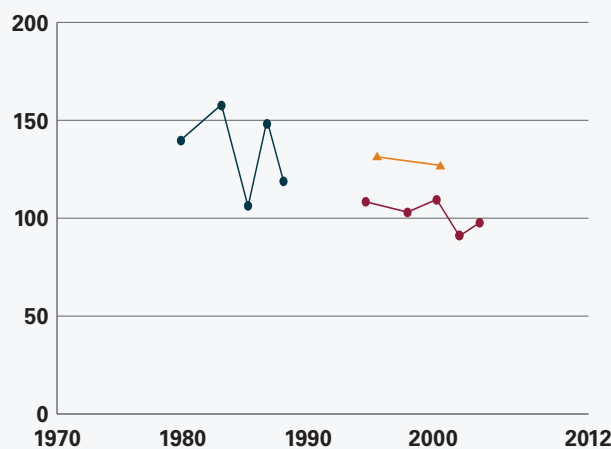
Democratic People's Republic of Korea

Under-five mortality rate (deaths per 1,000 live births)



Djibouti

Under-five mortality rate (deaths per 1,000 live births)

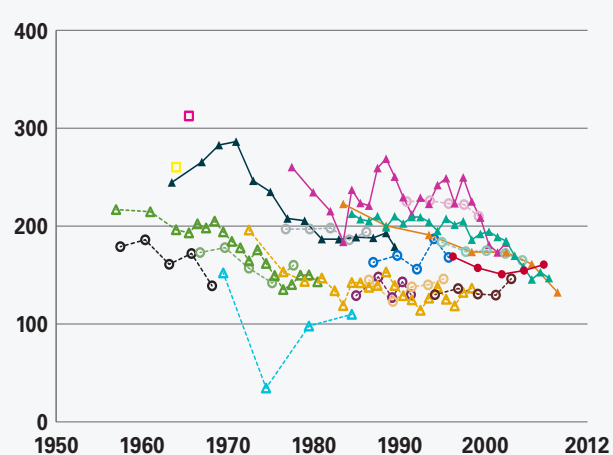


Countries with abundant data

Country with wide variations in mortality rates from different data sources

Nigeria

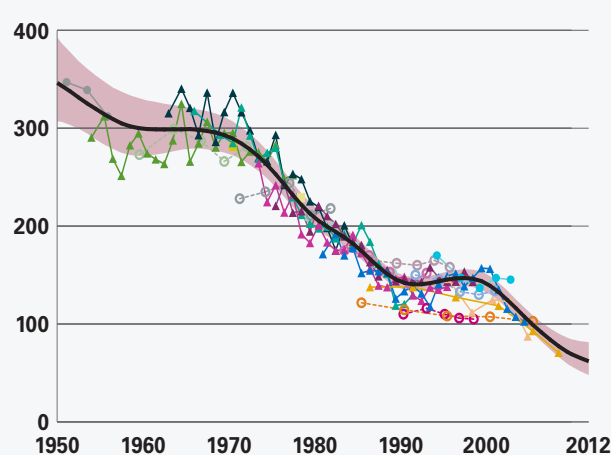
Under-five mortality rate (deaths per 1,000 live births)



Country with consistent trends

Senegal

Under-five mortality rate (deaths per 1,000 live births)



have provided data for both sexes combined. For this reason the UN IGME uses the available data by sex to estimate a time trend in the sex ratio (male : female) of child mortality, rather than estimate child mortality trends by sex directly from reported sex-specific mortality rates. This year, new Bayesian methods have been developed by the UN IGME for estimating sex ratios of child mortality, with a focus on identifying countries with outlying levels or trends.⁴

In addition to the changes in the methods, a substantial amount of newly available data have been incorporated: data from about 50 surveys and censuses conducted since 2009 for almost 50 countries, data from more than 30 surveys and censuses conducted before 2009 for more than 10 countries and new data from vital registration systems for about 90 countries.

The increased data availability has substantially changed the estimates for some countries from previous editions partly because the fitted trend line is based on the entire time series of data available for each country. In addition, changes from the Loess model to the B3 model may cause changes in the estimates, though results are more or less similar for most of the countries. The estimates presented in this report may differ from and are not necessarily comparable with previous sets of the UN IGME estimates or the most recent underlying country data.

Country consultation

A joint WHO–UNICEF country consultation was undertaken in July 2013 to give each country's Ministry of Health and National Statistics Office the opportunity to review all data inputs and the draft estimates for its country. The objective was to identify relevant data not included in the UN IGME's database—Child Mortality Estimation Information (CME Info)—and allow countries to review and provide feedback on estimates; it was not, however, a country clearance process. In 2013, 99 of 195 countries showed interest and received the preliminary estimates; 47 of them provided comments or data; and estimates were revised for 28 countries using new data.

Capacity strengthening at the country level

Modelled estimates of child mortality can only be as good as the underlying data. UN IGME

members, including UNICEF, the WHO and other UN agencies, are actively involved in strengthening national capacity in data collection, estimation techniques and interpretation of results.

Population-based survey data are critical for developing reliable 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, with UNICEF providing support through workshops, technical consultations and peer-to-peer mentoring. More than 200 surveys have been conducted in some 100 countries. In addition to population-based surveys, the WHO, the World Bank 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 UN IGME strengthens capacity by working with countries to improve understanding of under-five mortality data and estimation. CME Info, a comprehensive data portal on child mortality funded and maintained by UNICEF, 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 few years UNICEF and the UN IGME have sent experts to some 15 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 and UNICEF also engage countries 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, 1990–2012

Under-five mortality

The latest estimates of under-five mortality from the UN IGME show that under-five mortality declined 47 percent, from 90 (89, 92) deaths per 1,000 live births in 1990 to 48 (46, 51) in 2012 (table 1). As a result, the total number of under-five deaths in the world has fallen from 12.6 million in 1990 to 6.6 million in 2012 (table 2)—thanks to more effective and affordable treatments, innovative ways of delivering critical interventions to the poor and excluded, and sustained political commitment.

The past two decades have witnessed an acceleration of progress in lowering mortality among children under age five, with the global annual rate of reduction increasing to 3.9 percent over 2005–2012 from 1.2 percent in 1990–1995, 2.3 percent in 1995–2000 and 3.7 percent in 2000–2005.

Regional trends are also encouraging. All regions have reduced the under-five mortality rate by more than half since 1990 except for Sub-Saharan Africa and Oceania (figure 1). Eastern Asia, with a reduction of 74 percent, and Northern Africa, 69 percent, have already reduced the under-five mortality rate by two-thirds since 1990—the required reduction to achieve MDG 4. Latin America and the Caribbean, with a reduction of 65 percent, and Western Asia, 62 percent, are also on track to meet the MDG 4 target.

Many countries have made and are still making tremendous progress in lowering under-five mortality. Of the 61 high-mortality countries with at least 40 deaths per 1,000 live births in 2012, 25 have reduced their under-five mortality rate by at least half between 1990 and 2012. Of them, Bangladesh (72 percent), Malawi (71 percent), Nepal (71 percent), Liberia (70 percent),

TABLE 1 Levels and trends in the under-five mortality rate, by Millennium Development Goal region, 1990–2012 (deaths per 1,000 live births, unless otherwise indicated)

Region	1990	1995	2000	2005	2010	2012	MDG target 2015	Decline (percent) 1990–2012	Annual rate of reduction (percent)		
									1990–2012	1990–2000	2000–2012
Developed regions	15	11	10	8	7	6	5	57	3.8	3.9	3.8
Developing regions	99	93	83	69	57	53	33	47	2.9	1.8	3.8
Northern Africa	73	57	43	31	24	22	24	69	5.4	5.3	5.5
Sub-Saharan Africa	177	170	155	130	106	98	59	45	2.7	1.4	3.8
Latin America and the Caribbean	54	43	32	25	23	19	18	65	4.7	5.1	4.4
Caucasus and Central Asia	73	73	62	49	39	36	24	50	3.2	1.6	4.5
Eastern Asia	53	46	37	24	16	14	18	74	6.1	3.7	8.0
Excluding China	27	33	31	20	17	15	9	45	2.7	–1.2	5.9
Southern Asia	126	109	92	76	63	58	42	54	3.5	3.1	3.9
Excluding India	125	109	93	78	66	61	42	51	3.3	3.0	3.5
South-eastern Asia	71	58	48	38	33	30	24	57	3.9	3.9	3.8
Western Asia	65	54	42	34	26	25	22	62	4.4	4.4	4.5
Oceania	74	70	67	64	58	55	25	26	1.4	1.0	1.7
World	90	85	75	63	52	48	30	47	2.9	1.7	3.8

Note: All calculations are based on unrounded numbers.

TABLE 2 Levels and trends in the number of deaths of children under age five, by Millennium Development Goal region, 1990–2012 (thousands, unless otherwise indicated)

Region	1990	1995	2000	2005	2010	2012	Decline (percent) 1990–2012	Share of global under-five deaths (percent)	
								1990	2012
Developed regions	226	153	131	112	97	90	60	1.8	1.4
Developing regions	12,394	10,701	9,568	8,123	6,901	6,463	48	98.2	98.6
Northern Africa	268	188	137	101	91	88	67	2.1	1.3
Sub-Saharan Africa	3,772	3,998	4,084	3,791	3,391	3,245	14	29.9	49.5
Latin America and the Caribbean	627	500	383	286	249	206	67	5.0	3.1
Caucasus and Central Asia	146	122	86	72	69	64	56	1.2	1.0
Eastern Asia	1,675	862	659	426	304	272	84	13.3	4.2
Excluding China	28	42	30	17	15	14	51	0.2	0.2
Southern Asia	4,784	4,096	3,492	2,835	2,277	2,108	56	37.9	32.2
Excluding India	1,459	1,241	1,078	850	755	694	52	11.6	10.6
South-eastern Asia	843	692	521	446	380	346	59	6.7	5.3
Western Asia	265	229	189	150	125	120	55	2.1	1.8
Oceania	14	15	16	16	15	15	–3	0.1	0.2
World	12,621	10,854	9,699	8,234	6,998	6,553	48	100.0	100.0

Note: All calculations are based on unrounded numbers.

FIGURE 1 Under-five mortality declined in all regions between 1990 and 2012

Under-five mortality rate, by Millennium Development Goal region, 1990 and 2012 (deaths per 1,000 live births)

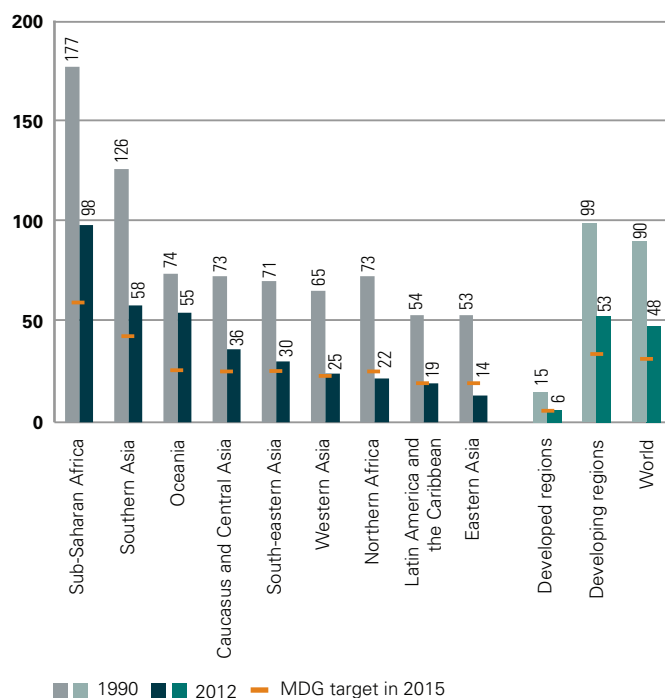
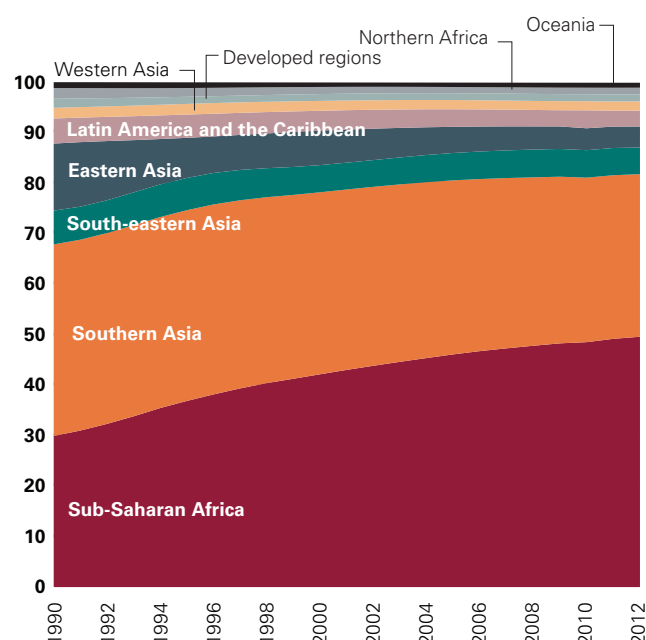
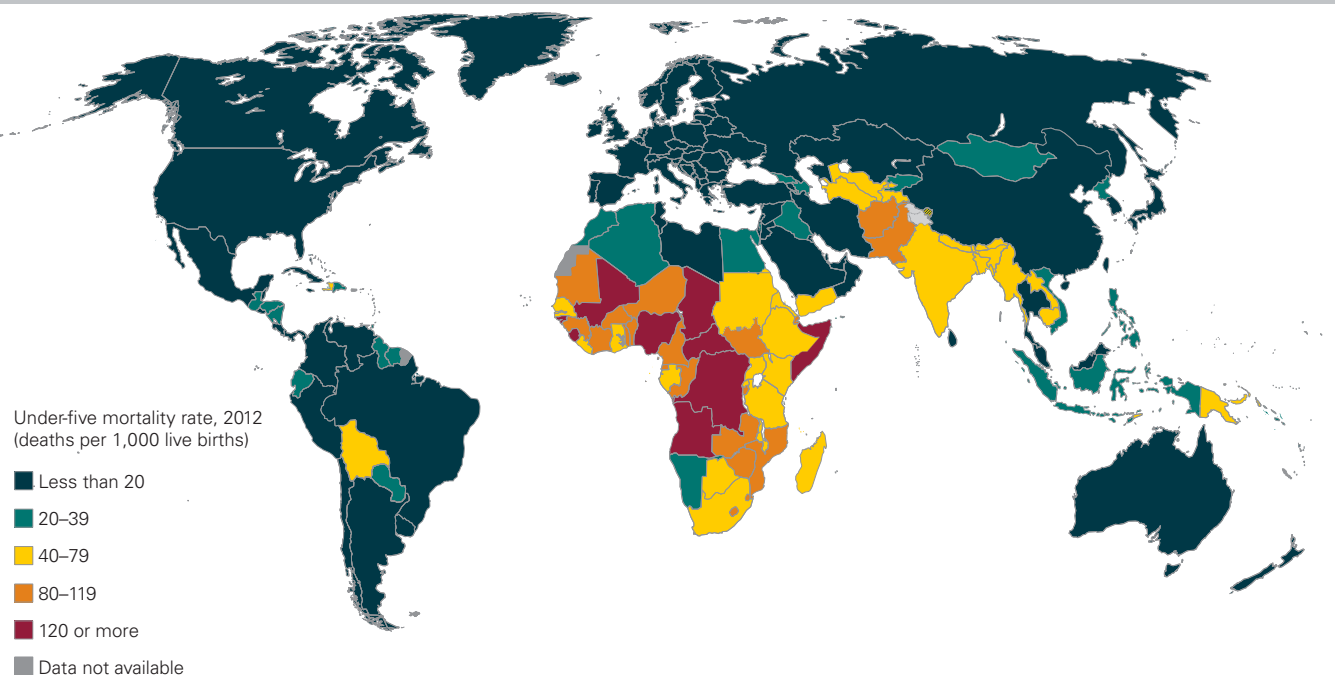


FIGURE 2 Nearly half the world's under-five deaths were concentrated in Sub-Saharan Africa in 2012

Share of global under-five deaths by Millennium Development Goal region, 1990–2012 (percent)



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.

Tanzania (68 percent), Timor-Leste (67 percent), and Ethiopia (67 percent) have already reduced the under-five mortality rate by two-thirds. In absolute terms 15 countries made reductions surpassing 100 deaths per 1,000 live births since 1990.

However, improving child survival remains unfinished, and wide disparities exist among regions and countries (map 1). Globally, the under-five mortality rate has dropped 47 percent since 1990—far from the required two-thirds reduction. The rate of decline in under-five mortality has accelerated but remains insufficient to reach MDG 4, particularly in Sub-Saharan Africa, Oceania, Caucasus and Central Asia, and Southern Asia. If current trends continue, only four MDG regions (Eastern Asia, Northern Africa, Latin America and the Caribbean, and Western Asia) are expected to achieve MDG 4 by 2015.

Sub-Saharan Africa continues to confront significant challenges, as the region with the highest mortality rates in the world—98 deaths per 1,000 live births in 2012. All 16 countries with an under-five mortality rate above 100 deaths per 1,000 live births are in Sub-Saharan Africa. With

a reduction of only 45 percent since 1990 in this region, progress has been slower than any other region except Oceania. As the rest of the world reduces child mortality, under-five deaths are becoming ever-more concentrated in Sub-Saharan Africa—3.2 million deaths (nearly half the global under-five deaths) occurred in this region in 2012 (figure 2). It is the only region in which the numbers of live births and child population are expected to rise substantially over the next two decades.

By 2050 close to 40 percent of all live births will take place in Sub-Saharan Africa and 37 percent of the world's children under age five will live in the region. Therefore, the number of under-five deaths may stagnate or even increase without more progress in the region. Despite Sub-Saharan Africa's relatively high rates of under-five mortality, there are signs of progress in the region. The rate of decline in under-five mortality has accelerated over time—from 0.8 percent a year over 1990–1995 to 4.1 percent a year over 2000–2012. Higher annual rates of reduction, particularly in eastern and southern Africa, show that rapid decline in low-income countries is possible.

Southern Asia also continues to have both a high rate of under-five mortality (58 deaths per 1,000 live births) and a large number of total deaths, at 2.1 million. India has the highest number of under-five deaths in the world, with 1.4 million under-five deaths in 2012.

Globally, an estimated 6.6 million children died (12 deaths every minute) in 2012, mostly from preventable diseases. Pneumonia, diarrhoea and malaria together killed roughly 2.2 million children under age five in 2012, accounting for a third of all under-five deaths.

Evidence shows that violence and political fragility (weakened capacity to sustain core state functions) contribute to higher rates of under-five mortality. Of the 20 countries with the world's highest under-five mortality rates, 13 are either affected markedly by conflict or violence, or are in fragile situations.⁵ Of these 20, 9 are also among the list of top 20 countries with the lowest annual rate of reduction since 1990 (excluding countries with population less than half a million), indicating that there is little progress in the countries where progress is most needed.

Moreover, emerging evidence has shown alarming disparities in under-five mortality at the sub-national level in many countries. Children are at greater risk of dying before age five if they are born in rural areas, poor households, or to a mother denied basic education.

In summary, much has already been achieved in child survival but much remains to be done. There is still time, however, to make a difference. 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. A revitalized commitment to child survival towards the ultimate aim of ending preventable child deaths is essential. A Promise Renewed—the call to action spearheaded by UNICEF and the US Agency for International Development to end all preventable child deaths by 2035—is such a commitment and more than 170 countries have signed on to it. Countries, the United Nations and its agencies, civil society and private sector organizations must commit to redouble their efforts to reduce child mortality and include this commitment in the post-2015 agenda.

Neonatal mortality

The first 28 days of life—the neonatal period—represent the most vulnerable time for a child's survival. In 2012 roughly 44 percent of under-five deaths occur during this period. Reducing neonatal mortality is increasingly important not only because the proportions of under-five deaths that occur during the neonatal period is increasing as under-five mortality declines, but also because the health interventions needed to address the major causes of neonatal deaths



generally differ from those needed to address other under-five deaths.

The good news is that neonatal mortality is on the decline globally. The world's neonatal mortality rate fell from 33 deaths per 1,000 live births in 1990 to 21 in 2012. The global number of neonatal deaths declined from 4.6 million in 1990 to 2.9 million in 2012 (table 3).

While under-five mortality reduction has been significant, progress in reducing neonatal mortality has been slower. For the world as a whole, the neonatal mortality rate declined 37 percent—less than the 47 percent decline in the under-five mortality rate (figure 3). There is a consistent pattern of faster decline in the under-five mortality rate compared with the neonatal mortality rate across all MDG regions.

Because declines in the neonatal mortality rate are slower than those in the mortality rate for older children, the share of neonatal deaths among under-five deaths has increased from about 37 percent in 1990 to 44 percent in 2012.

FIGURE 3 Decline in the neonatal mortality rate is slower than the decline in under-five mortality rate in all regions

Decline in under-five mortality rate and neonatal mortality rate, by Millennium Development Goal region, 1990–2012 (percent)

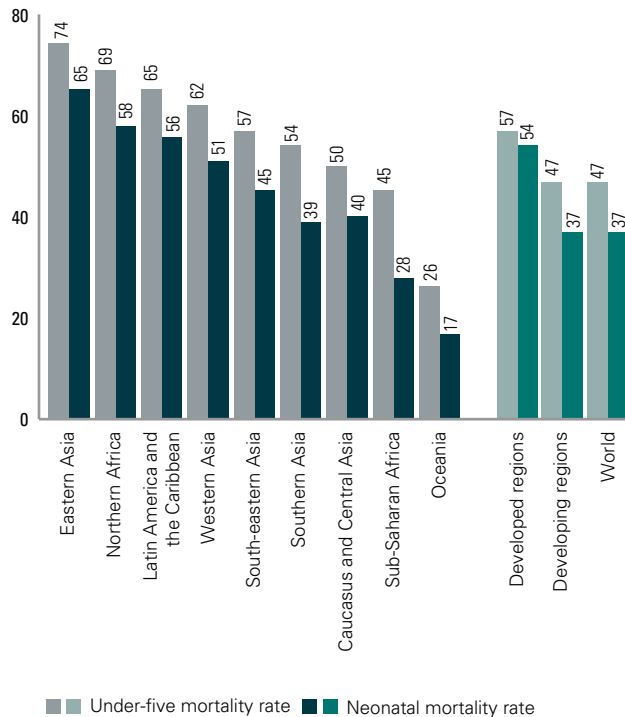


TABLE 3 Neonatal mortality rate, number of neonatal deaths and neonatal deaths as a share of under-five deaths, by Millennium Development Goal region, 1990 and 2012

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)		
	1990	2012	Decline (percent) 1990–2012	1990	2012	1990	2012	Relative increase (percent) 1990–2012
Developed regions	8	4	54	117	50	52	56	8
Developing regions	36	23	37	4,507	2,802	36	43	19
Northern Africa	30	13	58	109	51	41	58	42
Sub-Saharan Africa	45	32	28	968	1,090	26	34	31
Latin America and the Caribbean	22	10	56	255	106	41	51	26
Caucasus and Central Asia	25	15	40	50	27	34	41	22
Eastern Asia	24	8	65	771	164	46	60	31
Excluding China	11	7	33	11	7	39	50	28
Southern Asia	50	31	39	1,925	1,127	40	53	33
Excluding India	49	31	38	571	348	39	50	28
South-eastern Asia	27	15	45	315	168	37	48	30
Western Asia	27	13	51	109	63	41	53	29
Oceania	26	22	17	5	6	35	39	13
World	33	21	37	4,625	2,852	37	44	19

Note: All calculations are based on unrounded numbers.

This trend is expected to continue as under-five mortality declines.

In five developing regions more than half of under-five deaths took place in the neonatal period in 2012. Eastern Asia, for instance, has moved so quickly in cutting under-five mortality rates overall, that neonatal deaths constituted a 60 percent share in 2012. The other four regions are Northern Africa, Southern Asia, Western Asia and Latin America and the Caribbean.

Sub-Saharan Africa—where about a third of under-five deaths occurred during the neonatal period—has the highest neonatal mortality rate (32 deaths per 1,000 live births in 2012) and accounts for 38 percent of global neonatal deaths. Together with Oceania, the region has recorded the least improvement over the last two decades.

Among countries, the variation in neonatal mortality is substantial, ranging from less than 1 death per 1,000 live births in Andorra and Luxembourg to 50 in Sierra Leone. Around two-thirds of neonatal deaths occur in just 10 countries, with India accounting for more than a quarter and Nigeria for a tenth.

Although neonatal deaths are often more difficult to prevent, there are countries that have had great success in reducing neonatal mortality. In 1990 Estonia had a neonatal mortality rate above 11 per 1,000 live births. By 2012 this had been reduced to 1.6—a decline of 86 percent. Luxembourg (82 percent), Maldives (81 percent), Lithuania (78 percent), the Czech Republic (76 percent) and Serbia (76 percent) also reduced their neonatal mortality rates substantially over this period.

Children that die before 28 days of life often suffer from diseases and conditions that are readily preventable or treatable with proven, cost-effective interventions. Globally, almost a quarter of neonatal deaths were caused by sepsis and meningitis (12 percent), pneumonia (10 percent) or diarrhoea (2 percent) in 2012. These diseases are highly treatable, provided simple interventions and basic treatment knowledge are available. Another 34 percent of neonatal deaths, the majority of them preventable, were caused by complications from preterm birth.

With the share of under-five deaths during the neonatal period rising in every region and almost all countries, neonatal health will need to be addressed more effectively if progress on overall child mortality is to continue at a rapid rate. 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 babies. For example, early postnatal home visits are effective in promoting healthy behaviours such as breastfeeding and clean cord care and 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 with kangaroo mother care, where the preterm baby is held skin to skin with their mother.⁶

Notes

1. Values in parentheses indicate 90 percent uncertainty intervals for the estimates. The uncertainty intervals for the number of deaths are likely to be too narrow because they are based only on the uncertainty in the under-five mortality rate and do not account for uncertainty related to other inputs in the calculation of the number of deaths, such as the population under age five.

2. Regional classifications used in this report are MDG regions (see page 30). The MDG regional classifications can also be found on the official United Nations site for the MDG indicators (United Nations Statistics Division, 'Millennium Development Indicators: World and regional groupings', <<http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Data/RegionalGroupings.htm>>, accessed 28 August 2013). Countries for which data are available are listed in the statistical annex.

3. Alkema, Leontine, and Jin Rou New, 'Global Estimation of Child Mortality Using a Bayesian B-spline Regression Model', Arxiv.org, 2013.

4. Alkema, Leontine, Fengqing Chao, and Cheryl Sawyer, 'Sex Differences in U5MR: Estimation and Identification of Countries with Outlying Levels or Trends', Paper presented at the XXVII IUSSP International Population Conference, Busan, Republic of Korea, August 2013.

5. The World Bank's fragile and conflict-affected situations list (fiscal 2014) is used to identify countries with conflict or violence or in fragile situations (World Bank, 'Harmonized List of Fragile Situations', Washington, DC, <<http://siteresources.worldbank.org/EXTLICUS/Resources/511777-1269623894864/HarmonizedlistoffragilestatesFY14.pdf>>, accessed 28 August 2013).

6. March of Dimes, et al., *Born Too Soon: The Global Action Report on Preterm Birth*, edited by Christopher P. Howson, Mary V. Kinney and Joy E. Lawn, World Health Organization, Geneva, 2012.



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) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Afghanistan	176	161	193	134	123	146	99	84	116	59	2.6	1.9	3.4
Albania	43	37	49	29	25	33	17	10	25	14	4.2	2.3	6.5
Algeria	50	47	53	35	34	36	20	13	30	17	4.1	2.2	6.1
Andorra	8	8	9	5	5	5	3	3	4	3	4.3	3.6	5.0
Angola	213	188	240	203	178	229	164	111	236	71	1.2	−0.5	3.0
Antigua and Barbuda	24	18	31	16	14	17	10	7	13	8	3.9	2.1	5.8
Argentina	28	27	28	20	20	21	14	14	15	9	3.0	2.8	3.2
Armenia	49	45	54	30	27	33	16	13	21	16	5.0	3.9	6.1
Australia	9	9	9	6	6	6	5	5	5	3	2.9	2.6	3.2
Austria	10	9	10	6	5	6	4	4	4	3	3.9	3.6	4.3
Azerbaijan	93	84	103	72	64	81	35	24	50	31	4.4	2.8	6.1
Bahamas	23	22	25	17	16	18	17	13	21	8	1.4	0.4	2.5
Bahrain	23	22	24	13	12	13	10	8	11	8	4.0	3.3	4.8
Bangladesh	144	139	148	88	85	91	41	39	43	48	5.7	5.4	6.0
Barbados	18	17	19	18	17	19	18	15	23	6	−0.2	−1.3	0.9
Belarus	17	16	17	14	14	15	5	5	6	6	5.3	4.8	5.7
Belgium	10	10	10	6	6	6	4	4	5	3	3.9	3.5	4.4
Belize	43	39	49	25	23	27	18	15	22	14	3.9	3.0	4.9
Benin	181	169	192	147	136	160	90	61	126	60	3.2	1.6	4.9
Bhutan	131	116	148	80	72	91	45	33	60	44	4.9	3.5	6.3
Bolivia (Plurinational State of)	123	117	130	78	73	84	41	32	54	41	5.0	3.8	6.2
Bosnia and Herzegovina	18	18	19	10	10	10	7	6	7	6	4.6	4.2	5.0
Botswana	48	42	56	85	66	105	53	22	97	16	−0.5	−3.3	3.9
Brazil	62	57	66	33	30	36	14	13	16	21	6.6	6.1	7.1
Brunei Darussalam	12	12	13	10	9	10	8	7	9	4	2.0	1.2	2.6
Bulgaria	22	22	23	21	21	22	12	12	13	7	2.7	2.5	3.0
Burkina Faso	202	189	214	186	173	200	102	84	124	67	3.1	2.2	4.0
Burundi	164	147	182	150	132	170	104	66	151	55	2.1	0.3	4.2
Cambodia	116	108	126	111	102	120	40	24	71	39	4.9	2.3	7.2
Cameroon	135	125	145	150	138	165	95	61	151	45	1.6	−0.5	3.6
Canada	8	8	8	6	6	6	5	5	6	3	2.0	1.6	2.5
Cape Verde	62	53	70	38	35	41	22	19	26	21	4.6	3.7	5.6
Central African Republic	171	156	189	164	145	186	129	91	184	57	1.3	−0.4	2.9
Chad	209	193	226	189	173	207	150	109	202	70	1.5	0.2	2.9
Chile	19	19	20	11	11	11	9	7	11	6	3.4	2.4	4.4
China	54	50	60	37	35	39	14	12	16	18	6.1	5.4	6.9
Colombia	35	33	38	25	23	27	18	13	24	12	3.1	1.8	4.4
Comoros	124	111	139	99	79	117	78	46	138	41	2.1	−0.6	4.5
Congo	100	85	117	118	105	135	96	62	141	33	0.2	−1.7	2.1
Cook Islands	25	23	28	17	15	20	11	8	14	8	3.9	2.5	5.3
Costa Rica	17	17	17	13	13	14	10	8	12	6	2.4	1.7	3.2
Côte d'Ivoire	152	141	164	145	132	159	108	85	135	51	1.6	0.5	2.7
Croatia	13	13	13	8	8	9	5	4	5	4	4.6	4.3	5.0
Cuba	13	13	14	8	8	9	6	5	6	4	4.0	3.3	4.7

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			2012			1990		2012		1990	2012	1990	2012	1990	2012	1990	2012
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Afghanistan	96	87	107	103	87	123	180	172	102	95	120	71	66	73	50	36	27	37
Albania	4	3	4	1	0	1	46	39	18	15	37	15	3	1	17	8	2	0
Algeria	41	38	44	20	13	30	54	45	22	18	42	17	34	17	23	12	19	12
Andorra	0	0	0	0	0	0	9	8	4	3	7	3	0	0	2	1	0	0
Angola	106	92	122	148	97	224	223	203	171	156	126	100	64	90	52	45	26	41
Antigua and Barbuda	0	0	0	0	0	0	26	21	11	9	20	9	0	0	12	6	0	0
Argentina	20	20	21	10	10	11	31	24	16	13	24	13	18	9	16	8	12	5
Armenia	4	4	4	1	1	1	54	44	18	15	42	15	3	1	24	10	2	0
Australia	2	2	2	2	1	2	10	8	5	4	8	4	2	1	5	3	1	1
Austria	1	1	1	0	0	0	11	8	4	4	8	3	1	0	5	2	0	0
Azerbaijan	19	17	21	6	4	8	100	85	38	32	74	31	15	5	29	15	6	3
Bahamas	0	0	0	0	0	0	25	21	18	16	20	14	0	0	10	8	0	0
Bahrain	0	0	0	0	0	0	24	22	10	9	20	8	0	0	8	4	0	0
Bangladesh	531	513	550	127	120	134	146	141	44	38	100	33	365	102	54	24	200	76
Barbados	0	0	0	0	0	0	19	16	20	17	16	17	0	0	9	10	0	0
Belarus	3	3	3	1	0	1	19	14	6	5	14	4	2	0	7	3	1	0
Belgium	1	1	1	1	0	1	11	9	5	4	8	3	1	0	5	2	1	0
Belize	0	0	0	0	0	0	47	39	20	16	35	16	0	0	17	9	0	0
Benin	39	37	42	32	21	46	187	173	93	85	109	59	24	21	41	28	9	10
Bhutan	3	2	3	1	0	1	137	125	49	40	92	36	2	1	42	21	1	0
Bolivia (Plurinational State of)	29	28	31	11	8	14	130	117	45	38	85	33	20	9	38	19	9	5
Bosnia and Herzegovina	1	1	1	0	0	0	20	16	7	6	16	6	1	0	11	4	1	0
Botswana	2	2	3	3	1	5	52	44	58	49	38	41	2	2	25	29	1	1
Brazil	219	201	236	42	39	46	68	56	16	13	52	13	180	37	28	9	98	27
Brunei Darussalam	0	0	0	0	0	0	13	11	9	7	9	7	0	0	7	4	0	0
Bulgaria	3	3	3	1	1	1	25	19	13	11	18	11	2	1	12	7	1	0
Burkina Faso	79	73	84	66	54	81	209	193	108	97	102	66	40	43	40	28	16	18
Burundi	43	38	49	43	27	64	173	154	111	98	100	67	27	29	46	36	12	15
Cambodia	40	37	44	14	8	26	124	109	44	35	85	34	28	12	37	18	12	7
Cameroon	69	64	74	74	47	122	142	127	101	89	84	61	43	48	35	28	18	22
Canada	3	3	3	2	2	2	9	7	6	5	7	5	3	2	4	4	2	1
Cape Verde	1	1	1	0	0	0	66	57	25	20	47	19	1	0	21	10	0	0
Central African Republic	20	18	22	19	13	28	178	164	135	122	113	91	13	14	47	41	5	6
Chad	59	54	64	82	59	114	218	199	157	142	114	89	32	50	47	40	13	22
Chile	6	6	6	2	2	3	21	17	10	8	16	8	5	2	8	5	3	1
China	1,647	1,506	1,826	258	225	301	56	52	15	13	42	12	1,315	224	25	9	760	157
Colombia	31	29	34	16	12	22	39	31	20	16	29	15	26	14	20	11	17	10
Comoros	2	2	2	2	1	4	131	117	83	72	87	58	1	1	41	31	1	1
Congo	9	7	10	15	10	23	106	94	101	91	65	62	6	10	33	32	3	5
Cook Islands	0	0	0	0	0	0	28	22	12	9	21	9	0	0	12	6	0	0
Costa Rica	1	1	1	1	1	1	19	15	11	9	14	9	1	1	9	7	1	0
Côte d'Ivoire	73	67	80	75	58	96	163	140	116	99	104	76	51	54	48	40	23	29
Croatia	1	1	1	0	0	0	14	11	5	4	11	4	1	0	8	3	0	0
Cuba	2	2	3	1	0	1	15	11	6	5	11	4	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) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Cyprus	11	11	12	7	6	7	3	3	4	4	5.7	4.7	6.6
Czech Republic	15	14	15	7	6	7	4	4	4	5	6.1	5.8	6.5
Democratic People's Republic of Korea	44	34	56	60	47	77	29	22	37	15	1.9	—	—
Democratic Republic of the Congo	171	155	192	171	155	192	146	110	193	57	0.7	−0.4	1.9
Denmark	9	9	9	6	5	6	4	3	4	3	4.0	3.6	4.5
Djibouti	119	100	140	108	89	128	81	49	128	40	1.8	−0.4	4.0
Dominica	17	16	19	16	14	17	13	10	16	6	1.4	0.3	2.5
Dominican Republic	60	56	64	40	37	44	27	20	38	20	3.6	2.1	5.1
Ecuador	56	50	62	34	30	40	23	16	35	19	4.0	2.1	5.7
Egypt	86	82	90	45	42	48	21	20	22	29	6.4	6.1	6.7
El Salvador	59	54	65	32	28	36	16	11	23	20	6.0	4.3	7.6
Equatorial Guinea	182	153	215	143	120	171	100	58	180	61	2.7	−0.1	5.3
Eritrea	150	137	163	89	81	98	52	39	71	50	4.8	3.4	6.2
Estonia	20	20	21	11	11	12	4	3	4	7	7.9	7.2	8.5
Ethiopia	204	190	220	146	135	158	68	52	86	68	5.0	3.9	6.3
Fiji	31	26	36	24	23	26	22	19	26	10	1.4	0.4	2.4
Finland	7	7	7	4	4	4	3	3	3	2	3.8	3.4	4.2
France	9	9	9	5	5	6	4	4	4	3	3.6	3.4	3.9
Gabon	92	81	106	86	75	100	62	48	79	31	1.8	0.5	3.1
Gambia	170	149	195	116	101	135	73	52	100	57	3.8	2.4	5.3
Georgia	35	29	42	34	28	41	20	15	26	12	2.5	1.0	4.1
Germany	9	8	9	5	5	6	4	4	4	3	3.3	3.1	3.6
Ghana	128	121	135	103	96	110	72	56	92	43	2.6	1.5	3.8
Greece	13	12	13	8	8	8	5	4	5	4	4.4	3.9	4.8
Grenada	22	20	24	16	15	17	14	11	17	7	2.2	1.2	3.3
Guatemala	80	75	86	51	45	56	32	23	44	27	4.2	2.7	5.7
Guinea	241	225	257	171	159	183	101	81	122	80	3.9	3.1	5.0
Guinea-Bissau	206	180	235	174	153	200	129	96	171	69	2.1	0.9	3.5
Guyana	60	54	67	46	41	52	35	25	51	20	2.4	0.7	4.1
Haiti	144	136	154	105	98	113	76	66	89	48	2.9	2.2	3.6
Holy See	—	—	—	—	—	—	—	—	—	—	—	—	—
Honduras	59	55	63	38	35	41	23	19	27	20	4.3	3.5	5.1
Hungary	19	19	20	11	11	12	6	6	7	6	5.1	4.6	5.5
Iceland	6	6	7	4	4	5	2	2	3	2	4.7	3.4	6.0
India	126	122	130	92	88	95	56	51	62	42	3.6	3.2	4.1
Indonesia	84	80	88	52	50	55	31	27	36	28	4.5	3.9	5.2
Iran (Islamic Republic of)	56	52	61	35	32	38	18	15	21	19	5.3	4.5	6.2
Iraq	53	49	58	45	41	49	34	29	41	18	2.0	1.1	2.8
Ireland	9	9	10	7	7	8	4	4	5	3	3.8	3.3	4.4
Israel	12	11	12	7	7	7	4	4	5	4	4.6	4.2	5.0
Italy	10	10	10	6	5	6	4	4	4	3	4.3	3.9	4.6
Jamaica	30	25	36	23	20	28	17	12	25	10	2.6	0.8	4.3

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			2012			1990		2012		1990	2012	1990	2012	1990	2012	1990	2012
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Cyprus	0	0	0	0	0	0	12	10	4	3	10	3	0	0	5	2	0	0
Czech Republic	2	2	2	0	0	0	17	13	4	3	13	3	2	0	9	2	1	0
Democratic People's Republic of Korea	16	12	20	10	8	13	47	40	32	26	33	23	12	8	21	16	7	5
Democratic Republic of the Congo	267	240	302	391	291	531	179	163	154	137	112	100	178	271	47	44	75	118
Denmark	1	1	1	0	0	0	10	8	4	3	7	3	0	0	5	3	0	0
Djibouti	3	3	4	2	1	3	126	112	86	75	93	66	3	2	40	31	1	1
Dominica	0	0	0	0	0	0	19	16	14	12	14	12	0	0	12	9	0	0
Dominican Republic	13	12	13	6	4	8	64	55	30	24	46	23	10	5	27	15	6	3
Ecuador	17	15	19	8	5	12	61	50	26	20	44	20	13	6	20	10	6	3
Egypt	155	147	163	40	38	42	86	85	22	20	63	18	114	35	33	12	59	23
El Salvador	10	9	11	2	2	3	64	54	18	14	46	14	8	2	17	6	3	1
Equatorial Guinea	3	3	4	3	1	5	190	174	106	94	123	72	2	2	47	34	1	1
Eritrea	21	19	23	11	8	16	161	139	57	47	92	37	13	8	35	18	5	4
Estonia	0	0	1	0	0	0	23	18	4	3	17	3	0	0	11	2	0	0
Ethiopia	444	409	483	205	153	259	217	190	74	62	121	47	267	140	54	29	120	88
Fiji	1	1	1	0	0	0	34	27	25	20	26	19	1	0	13	10	0	0
Finland	0	0	0	0	0	0	7	6	3	3	6	2	0	0	4	2	0	0
France	6	6	6	3	3	3	10	8	5	4	7	3	5	3	4	2	2	2
Gabon	3	3	4	3	2	4	99	86	67	57	60	42	2	2	33	25	1	1
Gambia	7	6	8	5	4	7	177	162	78	68	80	49	3	4	46	28	2	2
Georgia	3	3	4	1	1	2	39	30	22	17	30	18	3	1	23	15	2	1
Germany	7	7	7	3	3	3	10	7	5	4	7	3	6	2	4	2	3	2
Ghana	70	66	75	56	43	72	135	121	77	66	80	49	44	38	40	28	22	22
Greece	1	1	1	1	1	1	14	11	5	4	11	4	1	0	9	3	1	0
Grenada	0	0	0	0	0	0	24	20	15	12	18	11	0	0	10	7	0	0
Guatemala	27	25	28	15	11	21	85	75	35	29	60	27	20	12	29	15	10	7
Guinea	64	59	69	41	33	51	248	233	106	96	142	65	38	27	54	34	14	14
Guinea-Bissau	9	7	10	8	6	10	220	191	139	119	122	81	5	5	58	46	2	3
Guyana	1	1	1	1	0	1	67	53	40	31	46	29	1	0	28	19	1	0
Haiti	36	34	39	20	17	24	152	135	82	69	100	57	25	15	37	25	9	7
Holy See	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Honduras	11	10	12	5	4	6	64	54	26	20	46	19	8	4	23	12	4	2
Hungary	3	3	3	1	1	1	21	17	7	6	17	5	3	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	3,325	3,208	3,439	1,414	1,280	1,573	121	130	54	59	88	44	2,333	1,097	51	31	1,354	779
Indonesia	385	367	404	152	131	175	90	77	35	27	62	26	279	125	30	15	134	72
Iran (Islamic Republic of)	107	98	116	26	22	31	57	56	19	17	44	15	82	23	26	11	49	16
Iraq	35	32	38	35	29	42	57	49	38	31	42	28	28	29	26	19	17	19
Ireland	0	0	0	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	3	1	1	6	2	1	0
Italy	5	5	6	2	2	2	11	9	4	4	8	3	5	2	6	2	4	1
Jamaica	2	1	2	1	1	1	34	26	19	15	25	14	1	1	17	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) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Japan	6	6	6	5	4	5	3	3	3	2	3.4	3.1	3.6
Jordan	37	34	39	28	26	30	19	16	23	12	3.0	2.1	3.8
Kazakhstan	54	49	60	44	41	49	19	18	20	18	4.8	4.3	5.3
Kenya	98	93	105	110	102	120	73	49	105	33	1.4	−0.3	3.1
Kiribati	94	80	110	71	62	82	60	43	84	31	2.1	0.4	3.7
Kuwait	16	16	17	13	13	13	11	10	12	5	1.8	1.4	2.1
Kyrgyzstan	71	61	81	50	42	56	27	22	30	24	4.4	3.7	5.4
Lao People's Democratic Republic	163	148	180	120	108	134	72	59	87	54	3.7	2.8	4.7
Latvia	20	20	21	17	16	18	9	8	10	7	3.9	3.2	4.5
Lebanon	33	30	37	20	17	23	9	6	15	11	5.7	3.6	7.9
Lesotho	85	77	93	114	103	124	100	76	134	28	−0.7	−2.2	0.5
Liberia	248	227	270	176	161	193	75	56	100	83	5.4	4.1	6.8
Libya	43	36	50	28	27	30	15	13	19	14	4.7	3.5	5.8
Liechtenstein	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania	17	16	17	12	11	12	5	5	6	6	5.1	4.7	5.7
Luxembourg	9	8	9	5	4	5	2	2	3	3	6.2	5.0	7.4
Madagascar	159	148	169	109	99	119	58	41	82	53	4.6	3.0	6.2
Malawi	244	230	258	174	162	185	71	56	92	81	5.6	4.4	6.7
Malaysia	17	16	17	10	10	10	9	8	10	6	3.0	2.5	3.6
Maldives	94	86	103	45	41	50	11	9	12	31	10.0	9.3	10.7
Mali	253	238	271	220	205	238	128	91	177	84	3.1	1.7	4.6
Malta	11	11	12	8	7	8	7	6	8	4	2.3	1.5	3.2
Marshall Islands	49	41	58	41	36	48	38	30	48	16	1.2	−0.2	2.6
Mauritania	128	117	139	111	100	122	84	58	122	43	1.9	0.2	3.6
Mauritius	23	22	24	19	18	19	15	13	18	8	1.9	1.2	2.6
Mexico	46	42	51	25	24	27	16	16	17	15	4.8	4.3	5.2
Micronesia (Federated States of)	55	44	70	54	37	79	39	18	78	18	1.6	−1.4	4.8
Monaco	8	7	9	5	5	6	4	3	4	3	3.3	2.5	3.9
Mongolia	107	97	116	63	57	71	28	19	38	36	6.2	4.7	7.8
Montenegro	17	16	18	14	13	14	6	5	7	6	4.8	4.0	5.6
Morocco	80	75	85	50	46	54	31	26	36	27	4.3	3.5	5.1
Mozambique	233	215	251	166	154	179	90	77	106	78	4.3	3.6	5.0
Myanmar	106	96	118	79	72	87	52	39	68	35	3.2	1.9	4.7
Namibia	73	66	80	73	67	81	39	27	55	24	2.9	1.2	4.5
Nauru	58	36	93	42	36	50	37	25	53	19	2.0	−0.9	5.1
Nepal	142	133	151	82	76	88	42	33	52	47	5.6	4.6	6.6
Netherlands	8	8	9	6	6	6	4	4	4	3	3.2	3.0	3.4
New Zealand	11	11	12	7	7	8	6	5	6	4	3.1	2.6	3.5
Nicaragua	66	61	71	40	36	44	24	17	36	22	4.5	2.7	6.3
Niger	326	306	347	227	211	244	114	91	140	109	4.8	3.8	5.8
Nigeria	213	198	227	188	175	201	124	101	151	71	2.5	1.5	3.4
Niue	14	9	21	23	17	32	25	13	46	5	−2.7	−6.1	0.9
Norway	9	8	9	5	5	5	3	2	3	3	5.2	4.6	5.8

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)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2012			1990		2012		1990	2012	1990	2012	1990	2012	1990	2012
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Japan	8	8	8	3	3	3	7	6	3	3	5	2	5	2	3	1	3	1
Jordan	4	4	4	4	3	5	38	35	20	18	30	16	3	3	19	12	2	2
Kazakhstan	21	19	24	6	6	7	61	47	22	16	46	17	18	6	23	10	9	3
Kenya	96	90	102	108	73	158	104	93	78	68	64	49	62	72	33	27	32	40
Kiribati	0	0	0	0	0	0	100	88	65	55	68	46	0	0	29	22	0	0
Kuwait	1	1	1	1	1	1	18	15	12	10	14	10	1	1	9	6	0	0
Kyrgyzstan	10	8	11	4	3	4	77	64	30	23	58	24	8	4	29	14	4	2
Lao People's Democratic Republic	29	26	32	14	11	17	170	155	77	66	112	54	20	10	44	27	8	5
Latvia	1	1	1	0	0	0	23	18	9	8	17	8	1	0	13	5	1	0
Lebanon	2	2	2	1	0	1	34	31	10	9	27	8	2	0	16	5	1	0
Lesotho	5	4	5	6	4	8	91	78	107	92	68	74	4	4	45	45	2	3
Liberia	23	20	25	11	8	15	260	235	80	69	165	56	15	8	51	27	5	4
Libya	5	4	6	2	2	2	47	39	17	14	37	13	4	2	21	9	2	1
Liechtenstein	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Lithuania	1	1	1	0	0	0	19	15	6	5	14	4	1	0	9	2	1	0
Luxembourg	0	0	0	0	0	0	10	8	2	2	7	2	0	0	4	1	0	0
Madagascar	80	75	86	44	31	63	166	151	62	54	97	41	52	31	40	22	21	17
Malawi	103	96	110	43	34	57	254	234	76	66	143	46	60	28	50	24	21	15
Malaysia	8	8	9	4	4	5	18	15	9	8	14	7	7	4	8	5	4	2
Maldives	1	1	1	0	0	0	100	88	12	9	68	9	1	0	34	6	0	0
Mali	91	84	98	83	59	118	262	244	134	122	130	80	46	53	59	42	21	28
Malta	0	0	0	0	0	0	12	10	7	6	10	6	0	0	7	5	0	0
Marshall Islands	0	0	0	0	0	0	54	44	42	33	39	31	0	0	19	16	0	0
Mauritania	10	9	11	11	7	16	137	118	92	76	82	65	7	8	43	34	3	4
Mauritius	0	0	0	0	0	0	26	20	17	13	20	13	0	0	16	9	0	0
Mexico	112	101	122	37	36	38	50	42	18	15	37	14	89	32	16	7	40	16
Micronesia (Federated States of)	0	0	0	0	0	0	60	51	42	35	43	31	0	0	21	16	0	0
Monaco	0	0	0	0	0	0	9	7	4	4	6	3	0	0	4	2	0	0
Mongolia	8	7	9	2	1	3	122	91	33	22	76	23	6	2	25	10	2	1
Montenegro	0	0	0	0	0	0	18	16	6	6	15	6	0	0	11	4	0	0
Morocco	56	53	60	23	19	27	85	75	34	28	63	27	44	20	35	18	24	13
Mozambique	132	121	145	84	71	100	241	223	94	85	155	63	87	59	54	30	30	28
Myanmar	117	105	130	48	36	64	114	99	58	47	76	41	81	38	41	26	44	24
Namibia	4	3	4	2	2	3	78	68	43	35	49	28	3	2	29	18	2	1
Nauru	0	0	0	0	0	0	63	53	41	33	45	30	0	0	28	21	0	0
Nepal	95	89	102	24	19	31	143	141	44	39	99	34	66	19	53	24	36	14
Netherlands	2	2	2	1	1	1	9	7	5	4	7	3	1	1	5	3	1	0
New Zealand	1	1	1	0	0	0	13	10	6	5	9	5	1	0	4	3	0	0
Nicaragua	10	9	10	3	2	5	71	61	27	22	50	21	7	3	25	12	4	2
Niger	129	119	139	91	72	113	330	322	117	110	137	63	54	52	48	28	19	23
Nigeria	849	785	916	827	663	1,025	222	203	129	118	126	78	502	528	52	39	207	267
Niue	0	0	0	0	0	0	15	12	28	22	12	21	0	0	7	12	0	0
Norway	1	0	1	0	0	0	10	8	3	3	7	2	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) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Oman	39	35	45	17	15	20	12	11	13	13	5.5	4.9	6.3
Pakistan	138	133	144	112	107	117	86	75	100	46	2.2	1.5	2.9
Palau	34	29	39	28	25	33	21	13	32	11	2.2	0.1	4.4
Panama	32	28	35	26	22	30	19	13	27	11	2.4	0.6	4.1
Papua New Guinea	89	80	99	79	68	91	63	43	93	30	1.6	−0.2	3.3
Paraguay	46	41	50	33	29	38	22	16	31	15	3.3	1.7	4.9
Peru	79	75	84	40	37	43	18	15	22	26	6.7	5.7	7.7
Philippines	59	55	63	40	37	44	30	22	42	20	3.1	1.5	4.5
Poland	17	17	18	9	9	10	5	5	5	6	5.7	5.4	6.1
Portugal	15	14	15	7	7	8	4	3	4	5	6.4	6.0	6.7
Qatar	21	19	22	12	12	13	7	6	9	7	4.7	3.9	5.4
Republic of Korea	7	7	7	6	6	6	4	4	4	2	2.8	2.6	3.1
Republic of Moldova	32	27	39	30	24	37	18	13	26	11	2.7	0.8	4.5
Romania	38	37	39	27	26	27	12	11	14	13	5.1	4.5	5.7
Russian Federation	26	26	27	23	23	24	10	10	11	9	4.2	3.9	4.6
Rwanda	151	142	161	182	171	195	55	42	72	50	4.6	3.3	5.8
Saint Kitts and Nevis	29	27	31	18	16	20	9	6	14	10	5.2	3.2	7.2
Saint Lucia	22	21	24	18	17	19	18	13	24	7	1.1	−0.3	2.5
Saint Vincent and the Grenadines	25	23	27	22	21	24	23	19	29	8	0.2	−0.7	1.2
Samoa	30	27	34	22	18	25	18	13	23	10	2.4	1.2	3.8
San Marino	11	9	14	6	4	8	3	2	6	4	5.4	2.4	8.6
Sao Tome and Principe	104	91	119	87	74	101	53	36	81	35	3.0	1.0	4.9
Saudi Arabia	47	39	56	22	20	25	9	8	10	16	7.7	6.6	8.7
Senegal	142	135	149	139	130	149	60	44	80	47	3.9	2.6	5.3
Serbia	28	27	29	13	12	13	7	6	7	9	6.6	6.1	7.0
Seychelles	17	15	18	14	13	15	13	10	17	6	1.1	−0.1	2.2
Sierra Leone	257	235	280	234	212	257	182	137	236	86	1.6	0.4	2.8
Singapore	8	7	8	4	4	4	3	2	3	3	4.4	3.7	5.2
Slovakia	18	17	18	12	12	12	8	7	8	6	3.9	3.6	4.2
Slovenia	10	10	11	6	5	6	3	3	4	3	5.5	4.8	6.0
Solomon Islands	39	33	46	35	29	41	31	20	49	13	1.0	−1.3	3.1
Somalia	177	146	219	171	134	226	147	94	241	59	0.8	−1.0	2.6
South Africa	61	54	69	74	66	83	45	36	56	20	1.4	0.1	2.6
South Sudan	251	208	298	181	154	212	104	72	148	84	4.0	2.1	5.9
Spain	11	11	11	7	6	7	5	4	5	4	4.1	3.7	4.4
Sri Lanka	21	21	22	17	17	18	10	9	11	7	3.6	3.1	4.2
State of Palestine	43	39	47	30	27	33	23	18	29	14	2.9	1.8	4.1
Sudan	128	119	139	106	96	116	73	59	88	43	2.6	1.7	3.5
Suriname	51	42	62	33	26	43	21	12	37	17	4.0	1.5	6.5
Swaziland	71	61	82	121	110	136	80	57	111	24	−0.5	−2.1	1.0
Sweden	7	7	7	4	4	4	3	3	3	2	3.9	3.6	4.3
Switzerland	8	8	9	6	6	6	4	4	5	3	2.9	2.5	3.4
Syrian Arab Republic	38	34	41	24	22	26	15	12	19	13	4.1	3.0	5.1
Tajikistan	105	93	118	91	77	107	58	29	114	35	2.7	−0.4	5.7

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			2012			1990		2012		1990	2012	1990	2012	1990	2012	1990	2012
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Oman	3	2	3	1	1	1	43	36	13	10	32	10	2	1	18	7	1	1
Pakistan	619	595	646	409	353	477	141	136	90	82	106	69	479	330	56	42	253	202
Palau	0	0	0	0	0	0	38	30	23	19	30	15	0	0	15	10	0	0
Panama	2	2	2	1	1	2	35	28	21	16	26	16	2	1	13	9	1	1
Papua New Guinea	12	11	14	13	9	20	95	83	68	58	65	48	9	10	30	24	4	5
Paraguay	6	6	7	3	2	5	49	42	24	20	36	19	5	3	22	12	3	2
Peru	51	49	55	11	9	13	84	75	20	16	56	14	37	8	28	9	18	6
Philippines	119	111	128	69	49	97	64	53	33	26	41	24	85	54	23	14	47	32
Poland	9	9	9	2	2	2	20	15	5	5	15	4	8	2	11	3	6	1
Portugal	2	2	2	0	0	0	16	13	4	3	12	3	1	0	7	2	1	0
Qatar	0	0	0	0	0	0	22	19	8	7	18	6	0	0	10	4	0	0
Republic of Korea	4	4	4	2	2	2	7	7	4	4	6	3	3	2	3	2	2	1
Republic of Moldova	3	2	3	1	1	1	36	28	20	16	27	15	2	1	14	9	1	0
Romania	16	16	17	3	2	3	42	34	14	11	31	11	14	2	18	8	8	2
Russian Federation	59	58	60	17	16	18	30	22	12	9	22	9	49	15	14	6	32	9
Rwanda	49	46	53	24	18	31	159	143	59	51	92	39	30	17	38	21	13	9
Saint Kitts and Nevis	0	0	0	0	0	0	32	26	10	8	23	7	0	0	18	7	0	0
Saint Lucia	0	0	0	0	0	0	25	20	19	16	18	15	0	0	13	10	0	0
Saint Vincent and the Grenadines	0	0	0	0	0	0	27	23	25	21	21	21	0	0	15	15	0	0
Samoa	0	0	0	0	0	0	33	28	19	16	25	15	0	0	11	7	0	0
San Marino	0	0	0	0	0	0	12	10	4	3	10	3	0	0	5	1	0	0
Sao Tome and Principe	0	0	0	0	0	1	110	98	58	49	67	38	0	0	31	20	0	0
Saudi Arabia	26	21	31	5	4	6	50	43	9	8	37	7	20	4	21	5	12	3
Senegal	44	42	47	30	22	40	148	135	65	55	71	45	22	23	41	24	13	12
Serbia	4	4	4	1	1	1	30	26	7	6	24	6	4	1	17	4	3	0
Seychelles	0	0	0	0	0	0	18	15	14	12	14	11	0	0	10	8	0	0
Sierra Leone	44	40	49	39	29	52	269	246	190	173	153	117	26	25	59	50	10	10
Singapore	0	0	0	0	0	0	8	7	3	3	6	2	0	0	4	1	0	0
Slovakia	1	1	2	0	0	0	20	16	8	7	16	6	1	0	12	4	1	0
Slovenia	0	0	0	0	0	0	11	9	3	3	9	3	0	0	6	2	0	0
Solomon Islands	0	0	1	1	0	1	42	35	34	28	31	26	0	0	16	14	0	0
Somalia	50	40	63	65	40	112	185	169	154	141	107	91	31	40	50	46	15	20
South Africa	65	57	74	50	40	63	67	55	49	40	47	33	50	37	21	15	22	17
South Sudan	66	53	81	40	27	58	262	241	109	98	149	67	40	26	57	36	15	14
Spain	5	4	5	2	2	2	12	10	5	4	9	4	4	2	7	3	3	1
Sri Lanka	7	7	7	4	3	4	23	20	10	9	18	8	6	3	13	6	4	2
State of Palestine	4	3	4	3	2	4	45	40	24	21	35	19	3	2	21	13	2	2
Sudan	101	93	110	89	71	108	136	120	79	67	80	49	64	60	40	29	32	35
Suriname	0	0	1	0	0	0	56	45	23	18	43	19	0	0	23	12	0	0
Swaziland	3	2	3	3	2	4	76	66	85	75	54	56	2	2	29	30	1	1
Sweden	1	1	1	0	0	0	8	6	3	3	6	2	1	0	4	2	0	0
Switzerland	1	1	1	0	0	0	9	7	5	4	7	4	1	0	4	3	0	0
Syrian Arab Republic	17	15	18	8	7	10	41	34	17	14	31	12	14	7	18	9	8	5
Tajikistan	23	20	26	15	8	31	113	96	64	52	82	49	18	13	33	23	7	6

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) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Thailand	38	36	41	23	20	26	13	9	19	13	4.8	3.2	6.5
The former Yugoslav Republic of Macedonia	37	35	38	16	15	17	7	6	9	12	7.3	6.6	8.0
Timor-Leste	171	155	188	106	96	117	57	41	75	57	5.0	3.7	6.5
Togo	143	133	155	122	110	135	96	73	125	48	1.8	0.7	3.0
Tonga	23	19	28	18	13	24	13	7	22	8	2.6	0.2	4.9
Trinidad and Tobago	33	28	39	28	22	36	21	12	36	11	2.1	−0.3	4.5
Tunisia	51	45	58	30	25	35	16	14	19	17	5.3	4.2	6.3
Turkey	74	69	79	37	33	42	14	10	21	25	7.5	5.7	9.3
Turkmenistan	90	78	103	79	67	93	53	29	90	30	2.4	0.1	5.1
Tuvalu	58	49	68	42	38	47	30	21	44	19	3.0	1.0	4.9
Uganda	178	168	189	147	138	157	69	57	84	59	4.3	3.4	5.2
Ukraine	20	18	23	19	17	21	11	10	12	7	2.8	2.1	3.5
United Arab Emirates	17	14	20	11	11	12	8	7	10	6	3.2	2.2	4.0
United Kingdom	9	9	10	7	6	7	5	5	5	3	3.0	2.8	3.3
United Republic of Tanzania	166	157	177	132	123	141	54	41	71	55	5.1	3.9	6.3
United States	11	11	11	8	8	9	7	6	8	4	2.1	1.4	2.7
Uruguay	23	22	24	16	16	17	7	5	10	8	5.3	3.7	7.0
Uzbekistan	74	64	84	61	53	71	40	21	67	25	2.8	0.5	5.6
Vanuatu	35	29	42	24	19	33	18	10	33	12	3.0	0.3	5.8
Venezuela (Bolivarian Republic of)	30	29	30	21	21	22	15	14	17	10	3.0	2.6	3.4
Viet Nam	51	46	55	32	29	34	23	22	24	17	3.6	3.1	4.0
Yemen	125	117	134	97	89	105	60	42	85	42	3.3	1.8	5.0
Zambia	192	180	205	169	156	183	89	60	140	64	3.5	1.4	5.3
Zimbabwe	74	68	80	102	92	113	90	70	120	25	−0.9	−2.3	0.3

Estimates of under-five, infant and neonatal mortality by Millennium Development Goal region^a

Developed regions	15	15	15	10	10	10	6	6	7	5	3.8	3.6	4.1
Developing regions	99	98	101	83	82	84	53	51	56	33	2.9	2.6	3.1
Northern Africa	73	71	75	43	41	44	22	20	25	24	5.4	4.8	5.9
Sub-Saharan Africa	177	174	182	155	152	159	98	92	107	59	2.7	2.3	3.0
Latin America & Caribbean	54	52	56	32	31	33	19	18	20	18	4.7	4.4	5.0
Caucasus & Central Asia	73	69	78	62	58	67	36	28	50	24	3.2	1.7	4.3
Eastern Asia	53	49	59	37	35	39	14	12	16	18	6.1	5.3	6.8
Excluding China	27	24	32	31	25	38	15	13	18	9	2.7	2.4	3.0
Southern Asia	126	123	128	92	90	95	58	54	62	42	3.5	3.2	3.9
Excluding India	125	123	128	93	91	96	61	56	67	42	3.3	2.8	3.7
South-eastern Asia	71	69	73	48	46	49	30	28	34	24	3.9	3.3	4.3
Western Asia	65	63	68	42	40	44	25	22	29	22	4.4	3.6	5.1
Oceania	74	68	81	67	59	76	55	39	78	25	1.4	−0.3	2.9
World	90	89	92	75	74	77	48	46	51	30	2.9	2.6	3.0

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)		Number of infant deaths (thousands)		Neonatal mortality rate (deaths per 1,000 live births)		Number of neonatal deaths (thousands)	
	1990			2012			1990		2012		1990	2012	1990	2012	1990	2012	1990	2012
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Thailand	42	39	45	9	6	14	43	33	15	11	31	11	34	8	19	8	21	6
The former Yugoslav Republic of Macedonia	1	1	1	0	0	0	39	35	8	7	33	7	1	0	17	6	1	0
Timor-Leste	5	4	5	2	2	3	179	162	62	52	129	48	3	2	47	24	1	1
Togo	22	20	24	22	17	30	152	135	102	89	89	62	14	15	41	33	6	8
Tonga	0	0	0	0	0	0	25	20	14	11	20	11	0	0	11	7	0	0
Trinidad and Tobago	1	1	1	0	0	1	36	30	23	19	29	18	1	0	22	15	0	0
Tunisia	11	10	13	3	3	4	54	48	17	15	40	14	9	3	24	10	5	2
Turkey	102	95	111	18	12	27	78	70	16	13	55	12	76	16	30	9	41	11
Turkmenistan	12	10	14	6	3	10	101	79	60	45	72	45	10	5	31	22	4	2
Tuvalu	0	0	0	0	0	0	61	54	33	27	45	25	0	0	22	13	0	0
Uganda	145	136	155	103	86	128	190	166	75	62	107	45	89	69	39	23	32	35
Ukraine	14	12	16	6	5	6	22	17	12	9	17	9	12	5	9	5	6	3
United Arab Emirates	1	1	1	1	1	1	19	15	9	8	14	7	1	1	10	5	0	1
United Kingdom	7	7	7	4	4	4	11	8	5	4	8	4	6	3	5	3	4	2
United Republic of Tanzania	179	168	191	98	75	130	173	159	58	50	101	38	110	69	43	21	47	39
United States	44	43	44	29	26	34	13	10	8	6	9	6	37	25	6	4	22	17
Uruguay	1	1	1	0	0	0	26	21	8	7	20	6	1	0	11	4	1	0
Uzbekistan	54	47	62	25	13	43	82	65	45	34	61	34	45	22	21	14	15	9
Vanuatu	0	0	0	0	0	0	38	31	20	16	29	15	0	0	15	9	0	0
Venezuela (Bolivarian Republic of)	17	17	17	9	9	10	33	26	17	13	25	13	14	8	15	9	8	5
Viet Nam	99	91	108	33	31	35	56	45	26	20	36	18	72	26	22	12	44	17
Yemen	71	66	77	43	30	62	130	119	64	56	88	46	50	34	42	27	24	20
Zambia	63	59	68	50	33	82	201	183	94	83	114	56	38	33	44	29	14	17
Zimbabwe	28	25	30	39	30	53	80	68	96	83	50	56	18	24	31	39	11	17

Estimates of under-five, infant and neonatal mortality by Millennium Development Goal region^a (continued)

Developed regions	226	224	229	90	86	95	16	13	7	6	12	5	189	76	8	4	117	50
Developing regions	12,394	12,192	12,641	6,463	6,234	6,868	102	97	55	51	69	38	8,662	4,725	36	23	4,507	2,802
Northern Africa	268	260	278	88	80	99	75	70	24	20	56	19	205	76	30	13	109	51
Sub-Saharan Africa	3,772	3,689	3,872	3,245	3,048	3,578	186	168	103	92	107	64	2,285	2,146	45	32	968	1,090
Latin America & Caribbean	627	606	648	206	198	219	58	49	21	17	43	16	496	174	22	10	255	106
Caucasus & Central Asia	146	138	155	64	50	90	81	65	41	32	60	31	120	56	25	15	50	27
Eastern Asia	1,675	1,535	1,855	272	238	315	55	51	15	13	42	12	1,336	235	24	8	771	164
Excluding China	28	24	32	14	11	17	29	25	17	13	21	12	21	11	11	7	11	7
Southern Asia	4,784	4,664	4,904	2,108	1,959	2,277	123	128	57	58	89	45	3,400	1,648	50	31	1,925	1,127
Excluding India	1,459	1,427	1,496	694	635	766	128	123	64	58	92	49	1,067	551	49	31	571	348
South-eastern Asia	843	819	871	346	314	389	77	65	34	27	52	25	609	280	27	15	315	168
Western Asia	265	255	277	120	104	142	69	61	27	23	49	20	200	98	27	13	109	63
Oceania	14	13	16	15	10	21	79	69	59	50	55	42	11	11	26	22	5	6
World	12,621	12,418	12,868	6,553	6,323	6,958	92	87	50	46	63	35	8,851	4,801	33	21	4,625	2,852

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

Estimates of under-five, infant and neonatal mortality by UNICEF region^a

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Africa	162	159	166	143	140	146	90	85	98	54	2.7	2.3	3.0
Sub-Saharan Africa	177	174	182	155	152	159	98	92	107	59	2.7	2.3	3.0
Eastern and Southern Africa	163	159	168	139	136	143	77	71	86	54	3.4	2.9	3.8
West and Central Africa	195	189	202	174	169	181	118	108	133	65	2.3	1.8	2.7
Middle East and North Africa	71	69	73	50	48	52	30	28	33	24	3.9	3.5	4.3
Asia	90	88	93	70	69	72	41	39	44	30	3.6	3.2	3.9
South Asia	129	126	132	94	92	97	60	55	64	43	3.5	3.2	3.9
East Asia and Pacific	58	55	62	41	40	43	20	19	22	19	4.8	4.3	5.2
Latin America and Caribbean	54	52	56	32	31	33	19	18	20	18	4.7	4.4	5.0
Central and Eastern Europe/Commonwealth of Independent States	47	46	49	36	35	38	19	16	23	16	4.2	3.2	4.8
World	90	89	92	75	74	77	48	46	51	30	2.9	2.6	3.0

Estimates of under-five, infant and neonatal mortality by World Health Organization region^a

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Africa	173	170	177	154	150	157	95	90	105	58	2.7	2.3	3.0
Americas	42	41	44	26	25	27	15	15	16	14	4.6	4.3	4.8
Eastern Mediterranean	103	101	106	82	80	85	57	53	63	34	2.7	2.3	3.1
Europe	32	31	33	22	21	23	12	11	14	11	4.4	3.6	5.0
South-East Asia	118	115	121	84	81	86	50	46	54	39	3.9	3.5	4.3
Western Pacific	52	49	57	35	34	37	16	15	18	17	5.3	4.7	5.9
World	90	89	92	75	74	77	48	46	51	30	2.9	2.6	3.0

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

Estimates of under-five, infant and neonatal mortality by UNICEF region^a (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			2012			1990		2012		1990		2012			1990		2012	
	Under- five deaths	Lower bound	Upper bound	Under- five deaths	Lower bound	Upper bound	Male	Female	Male	Female	1990	2012	1990	2012		1990	2012	1990	2012
Africa	4,040	3,958	4,141	3,333	3,136	3,666	170	154	95	84	99	59	2,490	2,222	43	30	1,078	1,141	
Sub-Saharan Africa	3,772	3,689	3,872	3,245	3,048	3,578	186	168	103	92	107	64	2,285	2,146	45	32	968	1,090	
Eastern and Southern Africa	1,686	1,640	1,741	1,170	1,081	1,323	172	154	82	71	101	51	1,050	785	43	28	444	424	
West and Central Africa	1,982	1,911	2,063	1,985	1,795	2,251	204	186	124	112	115	76	1,169	1,300	48	37	491	631	
Middle East and North Africa	643	626	661	306	282	337	74	68	32	28	53	24	478	242	29	15	260	155	
Asia	7,209	7,023	7,435	2,714	2,562	2,900	90	90	41	41	65	32	5,273	2,152	37	22	2,967	1,449	
South Asia	4,677	4,557	4,795	2,082	1,933	2,250	127	132	59	60	92	47	3,318	1,626	51	32	1,876	1,111	
East Asia and Pacific	2,532	2,392	2,713	632	588	697	61	55	22	19	44	17	1,955	527	25	11	1,091	338	
Latin America and Caribbean	627	606	648	206	198	219	58	49	21	17	43	16	496	174	22	10	255	106	
Central and Eastern Europe/Commonwealth of Independent States	357	346	370	112	97	140	52	42	21	17	38	16	288	97	19	9	146	53	
World	12,621	12,418	12,868	6,553	6,323	6,958	92	87	50	46	63	35	8,851	4,801	33	21	4,625	2,852	

Estimates of under-five, infant and neonatal mortality by World Health Organization region^a (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			2012			1990		2012		1990		2012			1990		2012	
	Under- five deaths	Lower bound	Upper bound	Under- five deaths	Lower bound	Upper bound	1990		2012		1990	2012	1990	2012		1990	2012	1990	2012
							Male	Female	Male	Female									
Africa	3,593	3,512	3,688	3,071	2,871	3,389	182	164	101	90	105	63	2,182	2,036	44	32	924	1,032	
Americas	673	653	695	237	229	251	46	39	17	14	34	13	535	201	18	8	279	124	
Eastern Mediterranean	1,429	1,395	1,470	899	832	998	106	100	60	54	76	44	1,056	692	40	26	550	415	
Europe	417	406	430	136	120	163	35	29	13	11	26	10	339	117	14	6	179	67	
South-East Asia	4,525	4,406	4,645	1,792	1,658	1,955	117	119	49	50	83	39	3,182	1,403	47	27	1,803	981	
Western Pacific	1,979	1,839	2,157	416	378	472	55	49	18	15	40	14	1,554	350	23	9	888	231	
World	12,621	12,418	12,868	6,553	6,323	6,958	92	87	50	46	63	35	8,851	4,801	33	21	4,625	2,852	

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

Estimates of under-five, infant and neonatal mortality by World Bank region^a

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)									Millennium Development Goal target for 2015	Annual rate of reduction (ARR) (percent) 1990–2012		
	1990			2000			2012				ARR	Lower bound	Upper bound
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound				
Low income	166	163	169	134	132	137	82	77	90	55	3.2	2.8	3.5
Middle income	87	85	89	71	69	72	45	43	48	29	3.0	2.7	3.2
Lower middle income	118	116	121	93	91	95	61	58	66	39	3.0	2.6	3.3
Upper middle income	54	52	58	38	37	39	20	19	23	18	4.5	3.9	5.0
Low and middle income	99	98	101	83	82	85	53	51	56	33	2.9	2.6	3.0
High income	15	14	15	10	10	10	6	6	7	5	3.9	3.5	4.1
World	90	89	92	75	74	77	48	46	51	30	2.9	2.6	3.0

Estimates of under-five, infant and neonatal mortality by United Nations Population Division region^a

Region	Under-five mortality rate (U5MR) (deaths per 1,000 live births)										Annual rate of reduction (ARR) (percent) 1990–2012		
	1990			2000			2012			Millennium Development Goal target for 2015			
	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound	U5MR	Lower bound	Upper bound		ARR	Lower bound	Upper bound
More developed regions	15	15	15	10	10	10	6	6	7	5	3.8	3.6	4.0
Less developed regions	99	98	101	83	82	84	53	51	56	33	2.9	2.6	3.1
Least developed countries	172	169	175	138	135	141	85	80	93	57	3.2	2.8	3.5
Excluding least developed countries	85	83	87	68	67	70	43	41	46	28	3.1	2.8	3.3
Excluding China	113	112	115	91	90	92	59	57	63	38	2.9	2.7	3.1
Sub-Saharan Africa	179	176	184	157	154	161	99	93	108	60	2.7	2.3	3.0
Africa	162	159	166	143	140	146	90	85	98	54	2.7	2.3	3.0
Asia	87	85	89	67	65	68	39	37	41	29	3.7	3.3	3.9
Europe	18	17	18	12	12	12	7	6	7	6	4.5	4.4	4.7
Latin America & Caribbean	54	52	56	32	31	33	19	18	20	18	4.7	4.4	5.0
Northern America	11	11	11	8	8	8	7	6	8	4	2.1	1.4	2.6
Oceania	35	32	37	33	30	38	26	19	36	12	1.4	−0.2	2.7
World	90	89	92	75	74	77	48	46	51	30	2.9	2.6	3.0

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.

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

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

Estimates of under-five, infant and neonatal mortality by World Bank region^a (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			2012			1990		2012		1990	2012	1990	2012	1990	2012	1990	2012
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
Low income	3,252	3,196	3,322	2,166	2,042	2,382	173	158	87	77	104	56	2,045	1,486	47	30	920	788
Middle income	9,148	8,951	9,377	4,294	4,082	4,612	89	85	46	44	62	34	6,625	3,237	34	21	3,592	2,012
Lower middle income	6,386	6,247	6,524	3,541	3,331	3,831	119	117	63	60	82	46	4,440	2,631	44	28	2,371	1,631
Upper middle income	2,763	2,619	2,941	754	694	850	57	51	22	19	42	16	2,185	606	24	10	1,221	381
Low and middle income	12,400	12,197	12,647	6,460	6,230	6,865	101	97	55	51	69	39	8,669	4,723	36	23	4,512	2,800
High income	221	216	226	93	89	98	16	13	7	6	12	5	182	78	7	4	112	52
World	12,621	12,418	12,868	6,553	6,323	6,958	92	87	50	46	63	35	8,851	4,801	33	21	4,625	2,852

Estimates of under-five, infant and neonatal mortality by United Nations Population Division region^a (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			2012			1990		2012		1990	2012	1990	2012	1990	2012	1990	2012
	Under-five deaths	Lower bound	Upper bound	Under-five deaths	Lower bound	Upper bound	Male	Female	Male	Female								
More developed regions	225	223	228	89	85	94	16	13	7	6	12	5	188	75	8	4	116	50
Less developed regions	12,396	12,193	12,642	6,464	6,234	6,869	101	97	54	51	69	38	8,663	4,725	36	23	4,508	2,802
Least developed countries	3,525	3,466	3,597	2,388	2,259	2,622	179	164	90	79	107	58	2,206	1,634	48	30	987	858
Excluding least developed countries	8,871	8,674	9,101	4,075	3,866	4,376	87	83	44	42	61	33	6,457	3,091	34	21	3,522	1,944
Excluding China	10,749	10,604	10,911	6,206	5,977	6,604	116	110	62	57	77	43	7,348	4,501	40	25	3,748	2,644
Sub-Saharan Africa	3,671	3,589	3,770	3,157	2,959	3,487	188	170	104	92	108	64	2,221	2,086	45	33	936	1,055
Africa	4,040	3,958	4,141	3,333	3,136	3,666	170	154	95	84	99	59	2,490	2,222	43	30	1,078	1,141
Asia	7,722	7,534	7,950	2,913	2,763	3,106	87	86	39	38	63	31	5,672	2,320	36	21	3,173	1,551
Europe	168	166	170	52	51	54	20	15	7	6	15	6	141	45	9	4	88	29
Latin America & Caribbean	627	606	648	206	198	219	58	49	21	17	43	16	496	174	22	10	255	106
Northern America	47	46	48	32	28	36	12	10	8	6	9	6	39	27	6	4	24	18
Oceania	17	16	19	17	12	23	37	32	28	23	26	20	13	13	13	11	6	7
World	12,621	12,418	12,868	6,553	6,323	6,958	92	87	50	46	63	35	8,851	4,801	33	21	4,625	2,852

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, Oman, Qatar, Saudi Arabia, State of Palestine, Syrian Arab Republic, Turkey, United Arab Emirates, Yemen

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April 2012, A child waiting for his meal at the UNICEF-supported Positive Deviance site in the commune of Matongo, Kayanza province, north of Burundi. Positive Deviance is a community-led package of nutrition, health and hygiene interventions to improve children's well-being.

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The UN Inter-agency Group for Child Mortality Estimation

The UN Inter-agency Group for Child Mortality Estimation (UN 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 UN IGME includes the United Nations Children's Fund, the World Health Organization, the World Bank and the United Nations Population Division of the Department of Economic and Social Affairs as full members.

The UN 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 UN IGME updates its child mortality estimates annually after reviewing newly available data and assessing data quality. This report contains the latest UN 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.