Levels & Trends in

Child Mortality

Report 2017

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

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CHILD SURVIVAL: KEY FACTS AND FIGURES

- The world has made substantial progress in reducing child mortality in the past several decades. The total number of under-five deaths dropped to 5.6 (5.4, 6.0)[1] million in 2016 from 12.6 (12.4, 12.8) million in 1990 – 15,000 every day compared with 35,000 in 1990.

- Globally, the under-five mortality rate dropped to 41 (39, 44) deaths per 1,000 live births in 2016 from 93 (92, 95) in 1990 – a 56 (53, 58) per cent decline.

- Globally, 2.6 (2.5, 2.8) million newborns died in 2016 – or 7,000 every day. Neonatal deaths accounted for 46 per cent of all under-five deaths, increasing from 41 per cent in 2000.

- The largest number of newborn deaths occurred in Southern Asia (39 per cent), followed by sub-Saharan Africa (38 per cent). Five countries accounted for half of all newborn deaths: India, Pakistan, Nigeria, the Democratic Republic of the Congo and Ethiopia.

- The neonatal mortality rate fell by 49 per cent from 37 (36, 38) deaths per 1,000 live births in 1990 to 19 (18, 20) in 2016.

- Children face the highest risk of dying in their first month of life, at a rate of 19 deaths per 1,000 live births. By comparison, the probability of dying after the first month but before reaching age 1 is 12 and after age 1 but before turning 5 is 11.

- Progress is slower in reducing neonatal mortality rates than in reducing mortality rates in children aged 1–59 months. While neonatal mortality declined by 49 per cent, the mortality in children aged 1–59 months declined by 62 per cent from 1990 to 2016.

- Disparities in child survival exist across regions and countries: in sub-Saharan Africa, approximately 1 child in 13 dies before his or her fifth birthday, while in the world's high-income countries the ratio is 1 in 189. Among newborns in sub-Saharan Africa, about 1 child in 36 dies in the first month, while in the world's high-income countries the ratio is 1 in 333.

- Many lives can be saved if the gaps across countries are closed. If all countries had reached an under-five mortality rate at or below the average rate of high-income countries – 5.3 deaths per 1,000 live births – 87 per cent of under-five deaths could have been averted, and almost 5 million children's lives could have been saved in 2016.

- If current trends continue with more than 50 countries falling short of the Sustainable Development Goal (SDG) target on child survival, some 60 million children under age 5 will die between 2017 and 2030 – and half of them will be newborns.

- If every country achieves the SDG target on child survival by 2030, an additional 10 million lives of children under age 5 will be saved throughout the period 2017–2030 – about half of them will be newborns.

- Most under-five deaths are caused by diseases that are readily preventable or treatable with proven, cost-effective interventions. Infectious diseases and neonatal complications are responsible for the vast majority of under-five deaths globally.

- The probability of dying among children aged 5–14 was 7.5 (7.2, 8.3) deaths per 1,000 children aged 5 in 2016 – substantially lower than among younger children. Still 1 (0.9, 1.1) million children aged 5–14 died in 2016. This is equivalent to 3,000 children in this age group dying every day. Among children aged 5–14, communicable diseases are a less prominent cause of death than among younger children, while other causes including injuries and non-communicable diseases become important.

Introduction

Every year, millions of children under 5 years of age die, mostly from preventable causes such as pneumonia, diarrhoea and malaria. In almost half of the cases, malnutrition plays a role, while unsafe water, sanitation and hygiene are also significant contributing factors. For this reason, child mortality is a key indicator not only for child health and well-being, but for overall progress towards the Sustainable Development Goals (SDGs).

With the end of the era of the Millennium Development Goals, the international community agreed on a new framework – the SDGs. The SDG target for child mortality represents a renewed commitment to the world's children: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 deaths per 1,000 live births and under-five mortality to at least as low as 25 deaths per 1,000 live births.

The world made substantial progress in reducing child mortality in the past few decades. Globally, the under-five mortality rate dropped from 93 deaths per 1,000 live births in 1990 to 41 in 2016. Progress in reducing child mortality has been accelerated in the 2000–2016 period compared with the 1990s – globally, the annual rate of reduction in the under-five mortality rate has increased from 1.9 per cent in 1990–2000 to 4.0 per cent in 2000–2016. The remarkable progress in improving child survival since 2000 has saved the lives of 50 million children under age 5 – children who would have died had under-five mortality remained at the same level as in 2000 in each country.

Despite the substantial progress in reducing child mortality, child survival remains an urgent concern. In 2016, 5.6 million children died before their fifth birthday – among them 2.6 million (46 per cent) died in the first month of life. It is unacceptable that 15,000 children die every day, mostly from preventable causes and treatable diseases, even though the knowledge and technologies for life-saving interventions are available.

Inequities in child mortality across and within countries remain large. At the country level, the under-five mortality rate ranged from a high of 133 deaths per 1,000 live births to a low of 2 deaths per 1,000 live births in 2016. Many countries still have very high rates – particularly in sub-Saharan Africa, home to all six countries with an under-five mortality rate above 100 deaths per 1,000 live births. Hypothetically, if all countries had reached an under-five mortality rate at or below the average rate of high-income countries – 5.3 deaths per 1,000 live births – the toll of under-five deaths in 2016 would have been 0.7 million. In other words, almost 5 million deaths (87 per cent of the total under-five deaths) could have been prevented in 2016. Reducing inequities and reaching the most vulnerable newborns and children as well as their mothers are important priorities to achieve the SDG targets on ending preventable child deaths.

While the mortality risk for children aged 5–14 is about one fifth of the risk of dying for children under age 5, still about 1 million children aged 5–14 died in 2016. Public health interventions need to address the particular health risks for this age group, which differ from the primary risks among younger children. Special attention needs to be paid to sub-Saharan Africa where the probability that a child aged 5 dies before reaching his or her fifteenth birthday (19 deaths per 1,000 children aged 5) is 17 times higher than the average in high-income countries (1.1 deaths per 1,000 children aged 5).

Evidence-based estimation of child mortality is a cornerstone for tracking progress towards child survival goals and identifying priority areas to accelerate progress towards eliminating preventable child deaths. Reliable estimates are crucial for planning national and global health strategies, policies and interventions on child health and well-being. In the context of monitoring child survival, the United Nations Inter-agency Group for Child Mortality Estimation (UN IGME) updates child mortality estimates annually. This report presents the group's latest estimates of under-five, infant and neonatal mortality up to the year 2016, and assesses progress at the country, regional and global levels. The report also presents, for the first time, the mortality estimates for children aged 5–14 generated by UN IGME. In addition, the report provides an overview on the estimation methods used for child mortality indicators.

Levels and Trends in Child Mortality

Mortality among children under age 5

Under-five mortality

The world has made substantial progress in child survival since 1990. The global under-five mortality rate declined by 56 per cent (53, 58), from 93 (92, 95) deaths per 1,000 live births in 1990 to 41 (39, 44) in 2016 (Table 1 and Figure 1). The majority of the regions in the world and 142 out of 195 countries at least halved their under-five mortality rate. Among all countries, more than a third (67) cut their under-five mortality by two thirds – 28 of them are low- or lower-middle-income countries, indicating that improving child survival is possible even in resource-constrained settings.

Despite substantial progress, improving child survival remains a matter of urgent concern. In 2016, an estimated 5.6 (5.4, 6.0) million children died before reaching their fifth birthday (Table 2), mostly from preventable diseases. This translates to 15,000 under-five deaths per day, an intolerably high number of largely preventable child deaths.

The burden of under-five deaths remains unevenly distributed. About 80 per cent of under-five deaths occur in two regions, sub-Saharan Africa and Southern Asia. Six countries account for half of the global under-five deaths, namely, India, Nigeria, Pakistan, the Democratic Republic of the Congo, Ethiopia and China. India and Nigeria alone account for almost a

TABLE 1 **Levels and trends in the under-five mortality rate, by Sustainable Development Goal region, 1990-2016**

Region	Under-five mortality rate (deaths per 1,000 live births)							Decline (per cent) 1990-2016	Annual rate of reduction (per cent)		
	1990	1995	2000	2005	2010	2015	2016		1990-2016	1990-2000	2000-2016
Northern America and Europe	14	12	10	8	7	6	6	59	3.5	3.8	3.3
Northern America	11	9	8	8	7	7	6	41	2.0	2.8	1.5
Europe	15	13	10	8	7	6	5	65	4.0	3.9	4.1
Latin America and the Caribbean	55	44	33	26	25	18	18	68	4.4	5.0	4.0
Central Asia and Southern Asia	124	108	91	75	60	48	46	63	3.8	3.1	4.3
Central Asia	73	74	64	49	37	28	26	64	3.9	1.2	5.6
Southern Asia	126	109	92	76	61	49	47	63	3.8	3.2	4.2
Eastern Asia and South-Eastern Asia	57	50	40	29	22	17	16	72	4.9	3.6	5.7
Eastern Asia	51	45	35	23	15	10	10	81	6.4	3.9	8.0
South-Eastern Asia	72	59	49	40	33	28	27	63	3.8	3.9	3.8
Western Asia and Northern Africa	75	62	51	41	33	29	28	62	3.7	3.9	3.6
Western Asia	66	54	43	34	27	25	24	63	3.8	4.2	3.6
Northern Africa	84	71	60	49	40	34	33	61	3.6	3.4	3.8
Sub-Saharan Africa	183	175	157	128	102	82	79	57	3.2	1.5	4.3
Oceania	35	33	33	31	27	24	23	35	1.6	0.6	2.3
Oceania excluding Australia and New Zealand	74	69	66	63	57	50	49	34	1.6	1.1	1.9
Australia and New Zealand	10	7	6	6	5	4	4	58	3.4	4.1	2.9
Least developed countries	176	160	139	111	89	71	68	61	3.6	2.4	4.4
Landlocked developing countries	167	158	141	111	85	66	63	62	3.7	1.7	5.0
Small island developing States	79	70	62	56	79	43	42	47	2.4	2.4	2.4
World	**93**	**87**	**78**	**64**	**52**	**42**	**41**	**56**	**3.2**	**1.9**	**4.0**

Note: All calculations are based on unrounded numbers.

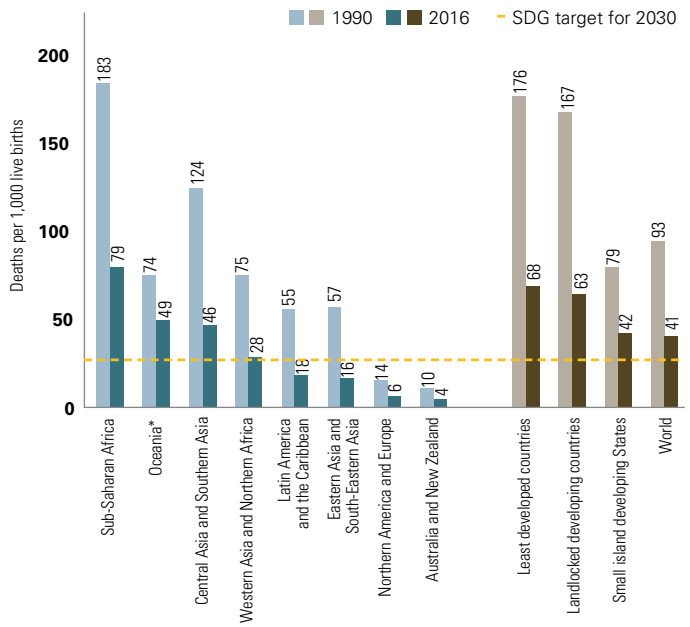
TABLE 2 **Levels and trends in the number of deaths of children under age 5, by Sustainable Development Goal region, 1990-2016**

Region	Under-five deaths (thousands)							Decline (per cent) 1990-2016	Share of global under-five deaths (per cent)	
	1990	1995	2000	2005	2010	2015	2016		1990	2016
Northern America and Europe	191	144	112	97	84	72	71	63	1.5	1.3
Northern America	47	40	35	35	32	28	28	41	0.4	0.5
Europe	144	104	77	62	52	44	43	70	1.1	0.8
Latin America and the Caribbean	652	513	387	293	270	194	187	71	5.2	3.3
Central Asia and Southern Asia	4,950	4,322	3,645	2,997	2,394	1,859	1,775	64	39.3	31.5
Central Asia	113	106	78	61	54	44	41	63	0.9	0.7
Southern Asia	4,836	4,217	3,566	2,936	2,339	1,815	1,734	64	38.4	30.7
Eastern Asia and South-Eastern Asia	2,312	1,688	1,203	881	675	522	495	79	18.3	8.8
Eastern Asia	1,446	1,001	646	413	286	197	180	88	11.5	3.2
South-Eastern Asia	866	687	558	468	390	326	314	64	6.9	5.6
Western Asia and Northern Africa	689	568	463	392	354	330	323	53	5.5	5.7
Western Asia	302	254	207	168	146	137	135	55	2.4	2.4
Northern Africa	388	314	256	223	208	193	188	52	3.1	3.3
Sub-Saharan Africa	3,787	4,040	4,040	3,667	3,220	2,838	2,777	27	30.1	49.2
Oceania	18	18	18	18	17	15	15	17	0.1	0.3
Oceania excluding Australia and New Zealand	15	15	16	16	15	14	13	10	0.1	0.2
Australia and New Zealand	3	2	2	2	2	2	1	50	0.0	0.0
Least developed countries	3,669	3,639	3,437	2,966	2,544	2,154	2,101	43	29.1	37.2
Landlocked developing countries	1,763	1,789	1,708	1,450	1,204	1,001	972	45	14.0	17.2
Small island developing States	94	84	74	66	96	52	51	46	0.7	0.9
World	**12,598**	**11,293**	**9,868**	**8,344**	**7,014**	**5,831**	**5,642**	**55**	**100.0**	**100.0**

Note: All calculations are based on unrounded numbers.

FIGURE 1 **Under-five mortality declined in all regions between 1990 and 2016**

Under-five mortality rate by Sustainable Development Goal region, 1990 and 2016



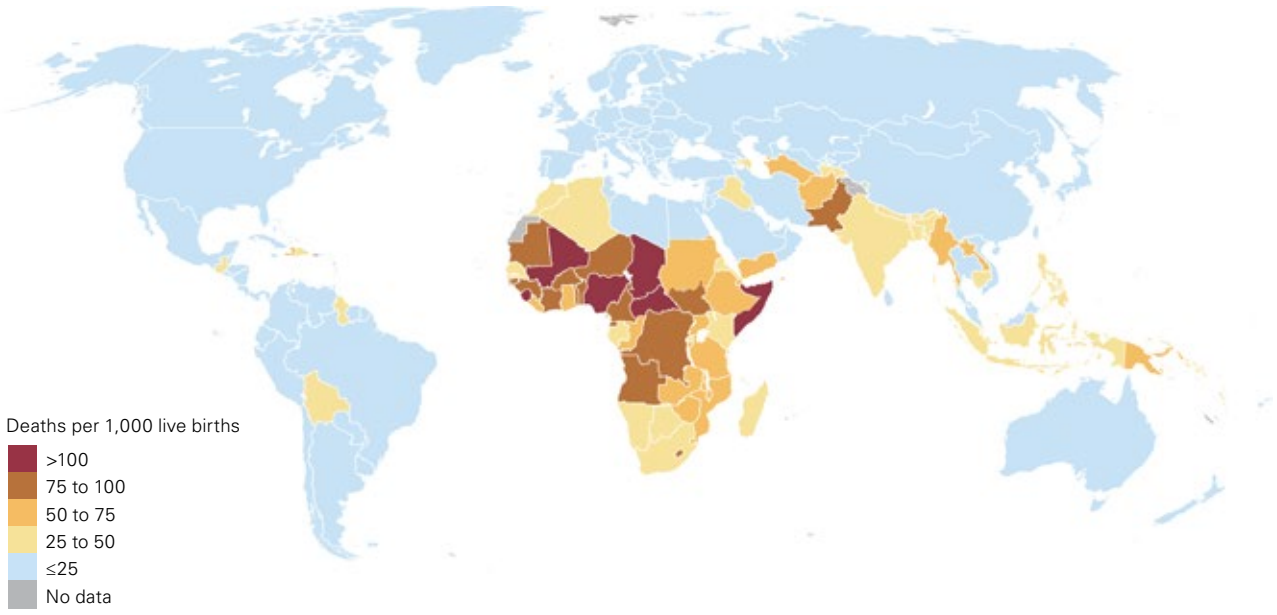
Note: Oceania* refers to Oceania excluding Australia and New Zealand.

third (32 per cent) of the global under-five deaths.

Huge disparities in under-five mortality exist across regions and countries. Sub-Saharan Africa remains the region with the highest under-five mortality rate in the world. In 2016, the region had an average under-five mortality rate of 79 deaths per 1,000 live births. This translates to 1 child in 13 dying before his or her fifth birthday – 15 times higher than the average ratio of 1 in 189 in high-income countries, or 20 times higher than the ratio of 1 in 250 in the region of Australia and New Zealand. At the country level, the under-five mortality rates in 2016 ranged from 2 deaths per 1,000 live births to 133 (Map 1). The risk of dying for a child born in the highest-mortality country is about 60 times higher than in the lowest-mortality country. All six countries with mortality rates above 100 deaths per 1,000 live births are in sub-Saharan Africa.

MAP 1 **Children in sub-Saharan Africa and Southern Asia face a higher risk of dying before their fifth birthday**

Under-five mortality rate (deaths per 1,000 live births) by country, 2016



Note: The classification is based on unrounded numbers. This map does not reflect a position by UN IGME agencies on the legal status of any country or territory or the delimitation of any frontiers.

Children in fragile context have about twice the risk of dying under age 5 than children in non-fragile context. Among the 10 countries with the highest under-five mortality rates, 7 are classified as fragile countries.[2] Moreover, fragile states accounted for 22 per cent of the under-five deaths among low- and middle-income countries in 2016, yet they only shared about 12 per cent of the under-five population.

The number of countries with significant gender-based gaps in child mortality has fallen

under-five mortality across states varied from 13 deaths per 1,000 live births to 62 based on the Sample Vital Registration data in 2015.[4] The latest mortality estimates by wealth quintile generated by UN IGME reveal that in 99 low- and middle-income countries,[5] under-five mortality among children born in the poorest households is on average twice that of children born in the wealthiest households.[6] The burden of under-five deaths is also disproportionally concentrated among poorer households, with the two poorest quintiles accounting for about half of the under