

Child mortality 30 years after the Alma-Ata Declaration

The 30th anniversary of Alma-Ata provides a tremendous opportunity to galvanise the increasing political commitment and global momentum behind meeting the health-related Millennium Development Goals (MDG). MDG 4 calls for a two-thirds reduction in mortality of children aged less than 5 years between 1990 and 2015. Accurate and timely estimates of childhood mortality are needed to help countries set priorities, to design programmes, and to monitor progress. Such estimates are challenging to make because data are scarce in many developing countries. In response, in 2004, experts at UNICEF, WHO, the World Bank, the UN Population Division (UNPD), and members of the academic community, formed the Inter-Agency Group for Child Mortality Estimation. The IGME aims to produce best estimates on levels and trends in child mortality worldwide, to improve and harmonise methods across partners, and to source and share new data on child mortality. Each year, UNICEF, on the basis of work of the IGME, publishes the latest summary data on global

mortality in children under 5 years of age as they become available. Detailed national estimates of mortality, trend analysis, and other indicators are then published in the annual *The State of the World's Children* report. Further analysis along with other policy and programme data are also presented every 2–3 years as the Countdown to 2015, involving UNICEF, WHO, UN Population Fund (UNFPA) and a range of civil society, academic, and donor partners.¹

Current methods for estimation of mortality in children aged less than 5 years are described in detail elsewhere.² Because developing countries often lack vital registration systems that can provide nationally representative estimates, household surveys, such as the UNICEF-supported multiple indicator cluster surveys and the USAID-supported demographic and health surveys have become the primary sources of data on child mortality. On behalf of the IGME, UNICEF and WHO compile national estimates from these surveys and other data of sufficient quality and representativeness, including reproductive

health surveys, vital registration, and population censuses. A regression curve is then fitted to these data points and extrapolated to a common reference year to produce a smooth trend. Country estimates and the child-mortality database are made publicly available as the IGME agrees on the estimates.³

As well as including new data from household surveys, methods have been revised to include an adjustment for AIDS-related deaths. Analysis of household surveys had indicated that survey-based estimates underestimated deaths among children because of under-reporting of child deaths in households where mothers are absent due to AIDS-related death or illness. By contrast, rapid increases in coverage of HIV prevention and treatment in recent years are likely to have positive effects on child survival.⁴ Estimates for 11 countries with the highest HIV prevalence, Botswana, Lesotho, Malawi, Namibia, Rwanda, South Africa, Swaziland, Tanzania, Uganda, Zambia, and Zimbabwe, include adjustments for HIV/AIDS.

In 1978, when the Alma-Ata Declaration was signed, nearly 15 million children aged less than 5 years were dying every year worldwide. In 1990, almost 13 million children died. Today, we publish new data indicating that around 9.2 million children died in 2007 (www.childinfo.org). Since 1990, mortality of children aged less than 5 years has declined by 27% from 93 per 1000 livebirths to 68 per 1000 livebirths in 2007 (table 1).

Furthermore, high levels of fertility in sub-Saharan Africa, together with high levels of mortality in children aged less than 5 years, have led to an increase in the absolute number of deaths (from 4.1 million in 1990 to 4.5 million in 2007). Sub-Saharan Africa now accounts for almost half of the of the 9.2 million deaths among children in this age group annually; and 7.5 million (82 %) occur in sub-Saharan Africa and south Asia combined (figure). Close to one in seven children in sub-Saharan Africa die before age 5 years (147 per 1000 livebirths). Table 2 lists the ten countries with the greatest annual reduction in child mortality since 1990.

The adjustments made for HIV/AIDS, however, indicate that mortality in children aged less than 5 years in some high HIV prevalence countries such as Botswana, Lesotho, and Swaziland, is beginning to decline. Mortality in Botswana is 40 per 1000 livebirths, indicating that it is on track for reaching MDG 4. More details on revised methods will be published online and in the *The State of the World's Children* report, 2009.

	1990	1995	2000	2005	2006	2007	Change 1990-2007 (%)
Mortality rates for children aged under 5 years (per 1000 livebirths)							
Sub-Saharan Africa	187	181	166	153	150	147	21 ↓
Eastern and southern Africa	166	158	145	129	126	123	26 ↓
Western and central Africa	206	201	185	174	172	169	18 ↓
Middle East and north Africa	79	67	57	49	48	46	42 ↓
South Asia	125	111	97	83	81	78	38 ↓
East Asia and Pacific	56	49	40	30	29	27	52 ↓
Latin America and Caribbean	55	44	35	29	28	26	53 ↓
Central and eastern Europe and Commonwealth of independent states	53	48	39	28	27	25	53 ↓
Industrialised countries	10	8	7	6	6	6	40 ↓
Developing countries	103	97	87	78	76	74	28 ↓
Least developed countries	180	166	149	134	132	129	28 ↓
World	93	88	80	71	70	68	27 ↓
Deaths in children aged under 5 years (in millions)							
Sub-Saharan Africa	4.1	4.4	4.4	4.5	4.5	4.5	10 ↑
Eastern and southern Africa	1.8	1.8	1.8	1.8	1.8	1.8	0
Western and central Africa	2.3	2.6	2.6	2.7	2.7	2.7	17 ↑
Middle East and north Africa	0.8	0.6	0.5	0.5	0.5	0.4	50 ↓
South Asia	4.7	4.3	3.7	3.1	3.1	3.0	36 ↓
East Asia and Pacific	2.1	1.7	1.2	0.9	0.9	0.8	62 ↓
Latin America and Caribbean	0.6	0.5	0.4	0.3	0.3	0.3	50 ↓
Central and eastern Europe and Commonwealth of independent states	0.4	0.3	0.2	0.2	0.2	0.1	75 ↓
Industrialised countries	0.1	0.1	0.1	0.1	0.1	0.1	0
Developing countries	12.5	11.7	10.4	9.4	9.3	9.1	27 ↓
Least developed countries	4.0	4.0	3.9	3.8	3.8	3.8	5 ↓
World	12.8	11.9	10.5	9.6	9.4	9.2	28 ↓

Table 1: Mortality rates and number of deaths in children aged less than 5 years

Substantial progress has been made towards the achievement of MDG 4; indeed, since the Alma-Ata Declaration in 1978, around 5.5 million fewer children aged less than 5 years are dying every year. Progress is still grossly insufficient, particularly in much of sub-Saharan Africa and south Asia. However, even in these regions, there are examples of poor countries, such as Eritrea and Bangladesh, proving that MDG 4 is achievable. Additionally, countries with high HIV/AIDS prevalence, such as Botswana, achieving high population-based coverage with critical HIV interventions might provide models for countries with similar epidemiological profiles. UNICEF will be investing more time in assessing why some countries are progressing well on the health-related MDGs and others are not.

Analysis of intervention coverage data¹⁵ has added further clarity. Although findings are positive for interventions that either can be delivered through

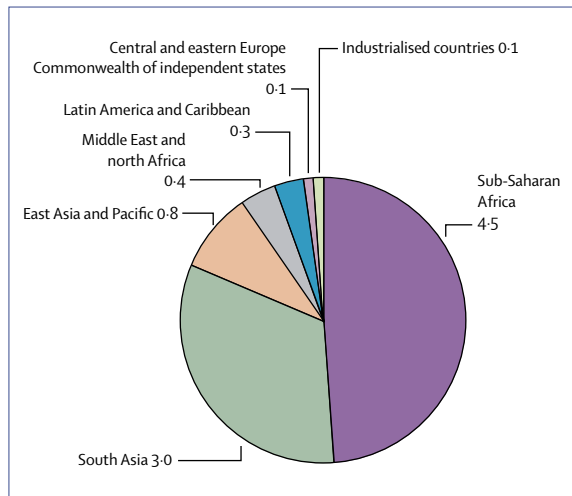


Figure: Regional distribution of the 9.2 million children who died in 2007 before they reached their fifth birthday

	1990	1995	2000	2005	2007	Average annual rate of reduction
Haiti	152	141	109	84	76	4.1
Eritrea	147	122	97	78	70	4.4
Laos	163	131	101	79	70	5.0
Bangladesh	151	122	91	68	61	5.3
Bolivia	125	105	84	65	57	4.6
Nepal	142	117	85	62	55	5.6
Turkmenistan	99	87	71	55	50	4.0
Mongolia	98	82	63	48	43	4.8
Botswana	57	70	87	44	40	2.1
Azerbaijan	98	93	69	46	39	5.4

Mortality rates 1000 livebirths. All are on track for meet MDG 4.

Table 2: Countries making the greatest progress in reducing mortality in children aged less than 5 years, 1990-2007

outreach or basic health services (such as immunisation, vitamin A supplementation, and insecticide-treated bednets) or part of high-profile disease-specific initiatives (eg, prevention of mother-to-child transmission and paediatric antiretroviral treatment), coverage for other interventions is lagging. Particularly disappointing is the low coverage of services for pneumonia and diarrhoea treatment and the breakdown of the continuum of care.⁶ UNICEF and the Countdown 2015 partners are working with the Inter-Parliamentary Union to ensure an understanding of these data at the national level and to determine the best national responses.⁷

UNICEF will be focusing its health-related programme investments, now approaching US\$1.5 billion per year, on the expansion of integrated packages particularly

focused at the community level to prevent, treat, and control moderate and severe acute malnutrition, pneumonia, diarrhoea, malaria, and other disorders. Working with WHO, UNFPA, WHO, and The World Bank, we will be giving renewed attention to maternal and newborn health, the subject of the 2009 *The State of the World's Children* report. The sub-Saharan Africa and South Asia regions will remain priorities. In keeping with the original principles of Alma-Ata, more attention will be given to ensure equity for the most underserved as intervention coverage increases. Furthermore, stronger links are being made between UNICEF-assisted health, water and sanitation, nutrition, and HIV programmes. Finally, more investments will be made to collect high quality data and continue to improve estimation methods.

Measures of intervention coverage emphasised in Countdown to 2015 will continue to be important. However, the ultimate measure of our efforts—on health system strengthening, in disease-specific work on measles, tetanus, HIV, and malaria, or in the myriad of global health partnerships and initiatives—will be a substantial and verifiable reduction in maternal and child deaths. We call upon others to join us in redoubling our efforts to meet these goals, by translating the laudable aspirations of Alma-Ata into the concrete investments and specific evidence-based actions at the country level, that will make the principles of primary health care a reality for the world's underserved.

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We declare that we have no conflict of interest.

- 1 Countdown to 2015. Tracking progress in maternal newborn & child survival: the 2008 report. 2008. http://www.countdown2015mnch.org/index.php?option=com_content&view=article&id=68&Itemid=61 (accessed Sept 9, 2008).
- 2 UNICEF, WHO, The World Bank, UN Population Division. Levels and trends in child mortality 2006: estimates developed by the Interagency Group for Child Mortality Estimation. New York: UNICEF, 2007.
- 3 UNICEF. Monitoring the situation of children and women. 2008. http://www.childinfo.org/mortality_underfive.php (accessed Sept 9, 2008).
- 4 UNICEF, UNAIDS, WHO. Towards universal access: scaling up HIV services for women and children in the health sector: progress report 2008. New York: WHO, 2008.
- 5 UNICEF. Progress for children: a world fit for children statistical review—New York, Number 6. New York: UNICEF, 2007.
- 6 Countdown Coverage Writing Group. Countdown to 2015 for maternal, newborn and child survival: the 2008 report on tracking coverage of interventions. *Lancet* 2008; **371**: 1247–58.
- 7 Bustreo F, Johnsson AB. Parliamentarians: leading the change for maternal, newborn and child survival. *Lancet* 2008; **371**: 1221–22.