Global, regional, and national causes of child mortality in 2000–13, with projections to inform post-2015 priorities: an updated systematic analysis

Li Liu PhD a, b, Shefali Oza MSc c, Daniel Hogan PhD d, Jamie Perin PhD b, Prof Igor Rudan MD e, Prof Joy E Lawn MD e, Prof Simon Cousens MA e, Colin Mathers PhD d, Prof Robert E Black MD a

Summary

Background
Trend data for causes of child death are crucial to inform priorities for improving child survival by and beyond 2015. We report child mortality by cause estimates in 2000–13, and cause-specific mortality scenarios to 2030 and 2035.

Methods
We estimated the distributions of causes of child mortality separately for neonates and children aged 1–59 months. To generate cause-specific mortality fractions, we included new vital registration and verbal autopsy data. We used vital registration data in countries with adequate registration systems. We applied vital registration-based multicause models for countries with under-5 mortality but inadequate vital registration, and updated verbal autopsy-based multicause models for high mortality countries. We updated our cause specific numbers of deaths to derive numbers of deaths by causes. We applied two scenarios to derive cause-specific mortality in 2030 and 2035.

Findings
Of the 6.3 million children who died before age 5 years in 2013, 51-8% (3.257 million) died of infectious causes and 44% (2.761 million) died in the neonatal period. The three leading causes are preterm birth complications (0.965 million [15-4%, uncertainty range (UR) 9-8-24-5]), pneumonia (0.935 million [14-9, 13-0-16-8]), and intrapartum complications (0.662 million [10-9, 6-7-16-8]). Reductions in pneumonia, diarrhoea, and measles collectively were responsible for half of the 3.6 million fewer deaths recorded in 2013 versus 2000. Causes with the lowest progress were congenital, preterm, neonatal sepsis, injury, and other causes. If present trends continue, 4.4 million children younger than 5 years will still die in 2030. Furthermore, sub-Saharan Africa will have 33% of the births and 60% of the deaths in 2030, compared with 25% and 50% in 2013, respectively.

Interpretation
Our projection results provide concrete examples of how the distribution of child causes of deaths could look in 15–20 years if priority setting in the 2015 era. More evidence is needed about shifts in timing, causes, and places of under-5 deaths to inform child survival agendas by and beyond 2015, to end preventable child deaths in a generation, and to count and account for every newborn and every child.

Funding
Bill & Melinda Gates Foundation.