

Child and adolescent deaths: a call for strengthening mortality surveillance systems



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Children and adolescents aged 5–19 years have increasing threats to their health and wellbeing, with stark inequities for those living in areas where they face poverty, preventable injuries, conflict, and climate change.¹ Investing in their wellbeing has benefits that extend into their adult lives and the next generation.¹ Deaths in this age group are the lowest when compared with the remainder of the lifespan, but reducing their mortality has not received enough attention until recent calls for a redesign of child health policies that prioritises a life-course approach in children up to adulthood.^{2,3} Estimates of causes of mortality are severely restricted with significant gaps in empirical data for children older than 5 years, especially at subnational levels which can assist with monitoring inequities. Despite this, the deaths of children and young adults that have been observed and counted are mostly associated with preventable causes of death.^{3,4}

Before the COVID-19 pandemic, 1·48 million deaths occurred in 5–19-year-olds in 2019.² In *The Lancet Global Health* Li Liu and colleagues⁵ provide the latest annual age and sex-disaggregated estimated trends from 2000 to 2019 in causes of death for children and adolescents between the ages of 5 years and 19 years in 195 countries. They use data sources from countries categorised by levels of mortality and quality of national vital registration data. They use a Bayesian modelling approach to manage the uncertainty, biases, and gaps in empirical data for countries without high quality vital registration. Not surprisingly, as seen with previous estimates,^{3,4} causes of death are broad for this age group with road traffic injuries—which accounted for less than 8% of all deaths—the leading cause, followed by neoplasms, malaria, drowning, and diarrhoeal diseases. The estimates are skewed by the burden of high mortality in populous countries—such as India and Nigeria. Countries in western and central Africa continue to bear the highest burden of communicable diseases in addition to injuries and non-communicable diseases. Neoplasms are the second most common cause of death and have had the slowest reduction in associated mortality rates. However, almost 45% of childhood cancers are expected to remain undiagnosed

or misdiagnosed in the near future.⁶ The sex-specific differences in burden of injuries are more pronounced for adolescents aged 15–19 years. An important contribution is the separate analysis for countries made fragile or affected by conflict. By 2019, 35·1% of deaths of children and adolescents aged 5–19 occurred in these countries. Although most of the leading causes of death have declined, violence and conflict-related mortality has increased in the past decade for children and adolescents.

The estimates provided by Liu and colleagues⁵ provide an important advance in methodological assessments of mortality data to support planning and timely measurement of the effectiveness of interventions to promote wellbeing and reduce premature mortality.⁷ Yet, as with previous attempts, they faced the stark limitation of empirical cause of death data availability in many countries. Almost 84% of the world's 1·9 billion adolescents and children aged 5–19 years live in countries where causes of death are not routinely recorded completely or with high quality. Only 5% of datapoints derived from 21 of the 71 high mortality countries supported estimation of causes for 82·5% of the global deaths that occurred in those countries. Six countries of those without high quality vital registration systems had nationally representative verbal autopsy records. The scarcity of empirical data means that many countries, especially those in which acute attention is needed, are forced to depend on models from other countries.

The effect of COVID-19 on mortality in children and adolescents aged 5–19 years is still not clear and was left unestimated.^{2,5,8} The advances in digital technology, with an unprecedented rise in surveys using mobile services, offer a unique opportunity to digitalise mortality surveillance systems to make them resilient to shocks—like pandemics—that often come with restrictions to population movements and traditional face-to-face data collections. Disease surveillance at health facilities alone means delayed action when deaths occur outside of health facilities. Liu and colleagues⁵ and others before them have emphasised the need to invest and strengthen empirical data collection.^{4,8,9} A few countries,

such as India, China, and Bangladesh, have shown the usefulness of sample registration system approaches that use verbal autopsy to obtain representative cause specific mortality rates by age and sex. More recently, sample registration system have been initiated in Mozambique and Sierra Leone and initial results hold promise.^{9,10} Such efforts must be emulated by other countries with high mortality rates, with support from the global health community, while civil registration and vital statistics systems are being strengthened.⁹

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