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FIVE AVOIDABLE CAUSES ACCOUNT FOR NEARLY 1.5 MILLION CHILD DEATHS IN INDIA

An **Article** published **Online First** by *The Lancet* shows that five avoidable causes accounted for nearly 1·5 million child deaths in India throughout the year 2005 with substantial differences between regions and sexes. Expanded neonatal and obstetric care, case management of diarrhoea and pneumonia, and the addition of new vaccines to immunisation programmes could substantially reduce child deaths in India. The study was led by the Registrar General of India (RGI) and co-authored by Professor Prabhat Jha, Centre for Global Health Research (CGHR), Li Ka Shing Knowledge Institute, St Michael's Hospital and Dalla Lana School of Public Health, University of Toronto, Canada and Professor Rajesh Kumar, Head of the School of Public Health, Post Graduate Institute of Medical Education and Research, Chandigarh.

Yearly child mortality rates in India have fallen between 1·7% and 2·3% in the past two decades. Despite this decrease, the United Nations (UN) estimates that about 2·35 million children died in India in 2005. This figure corresponds to more than 20% of all deaths in children younger than 5 years worldwide, which is more than in any other country.

Most deaths in India occur at home and without medical attention. To understand the causes of death among Indians, the RGI introduced in 2001 an enhanced form of "verbal autopsy" called RHIME—or routine, reliable, representative, resampled household investigation of mortality with medical evaluation—into its nationally representative sample registration system (SRS), which covered about 6·3 million people and monitored all deaths in 1·1 million homes.

These results are part of the Million Death Study, which seeks to assign causes to all deaths in the SRS areas during the 13 years from 2001 to 2013. In this report the authors present the causes of child deaths in India, separately for the neonatal period and at ages 1–59 months, for boys and girls, and for each of six major regions of India.

There were 10 892 deaths in neonates and 12 260 deaths in children aged 1–59 months in the study. When these numbers were projected nationally, three causes accounted for 78% (0·79 million) of all 1·01 million neonatal deaths: prematurity and low birthweight (0·33 million), neonatal infections (0·27 million,), and birth asphyxia and birth trauma (0·19 million). Two causes accounted for 50% (0·67 million) of all 1·34 million child deaths at ages 1–59 months: pneumonia (0·37 million) and diarrhoeal diseases (0·30 million). In children aged 1–59 months, girls in central India had a roughly five-times higher mortality rate (per 1000 livebirths) from pneumonia (21) than did boys in south India (4) and around four-times higher mortality rate from diarrhoeal disease (18) than did boys in west India (4).

The authors say: "Concern has been raised that neonatal death rates in India are not falling fast enough. However, our results suggest that almost half of India's neonatal deaths are caused by birth asphyxia and birth trauma, sepsis, pneumonia, and tetanus—most of which can be avoided by increases in delivery and postnatal care."

They add: "The substantial regional differences in cause-specific mortality, even in girls, could indicate the existence of some underlying social, behavioural, or biological risk factors for child deaths. However, at ages 1–59 months, girls in every region die more commonly than do boys, and inequities in access to care, rather than biological or genetic factors, are a more plausible explanation for these recorded differences between sexes."

They conclude: "Our results correspond to deaths before the wide-scale introduction of India's National Rural Health Mission (a major program designed to expand child health services to all of India) in 2006. That programme reports increases in institutional deliveries and in coverage of existing vaccines, and therefore might have reduced child mortality in India. Our study also suggests that specific interventions might be priorities for different regions—for example, expanded case management and introduction of newer vaccines into immunisation programmes would be particularly needed in central India, especially for girls. The changes in the sex-specific and region-specific rates and causes of neonatal mortality and mortality at ages 1–59 months will continue to be monitored and reported by the RGI, and should thus help to assess the effectiveness of the National Rural Health Mission and other efforts to reduce child mortality in India."

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