A new, comprehensive approach to measure inequality in preventable child mortality

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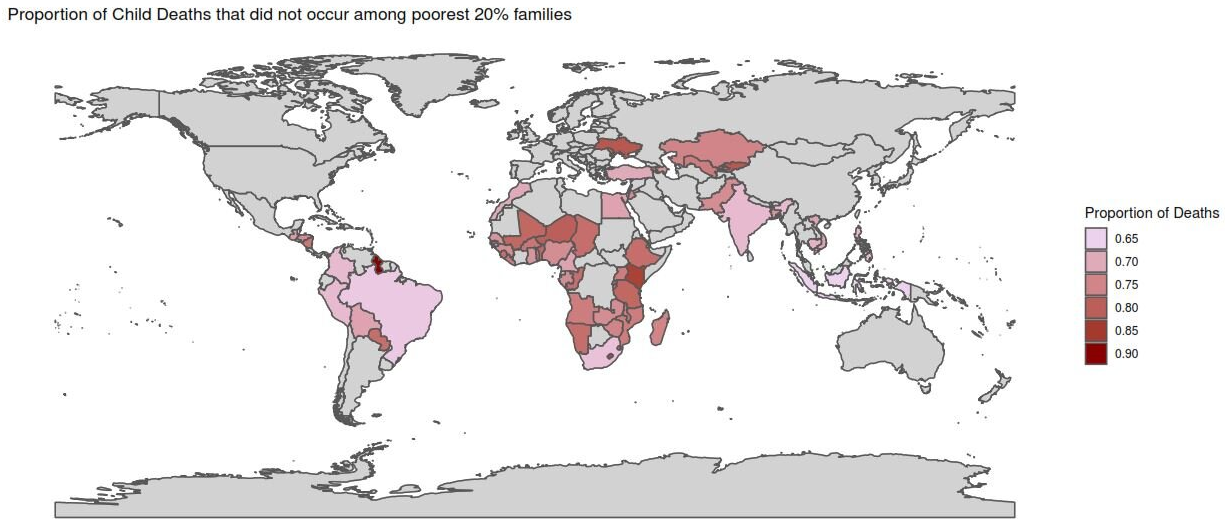

Proportion of child deaths that did not occur among poorest 20% families
Credit: Antonio Pedro Ramos and colleagues (2020)

A new model can more accurately and efficiently assess which children are at highest risk of preventable death, according to a study published October 14 in the open-access journal *PLOS ONE* by Antonio Ramos from the Fielding School of Public Health, UCLA, U.S., and colleagues.

One of the UN's Sustainable Development Goals calls for a substantial

reduction in preventable deaths for children five and younger by 2030. To effectively monitor and reduce inequities in under-5 mortality, it's necessary to identify children at highest risk so they can receive intervention. However, recent studies have shown that multiple risk factors are implicated in under-5 mortality, and program targeting based purely on poverty can be inefficient. In this study, Ramos and colleagues describe a new, more comprehensive model that uses data from multiple demographic variables to measure mortality inequities and identify high-risk subpopulations of children that would otherwise be left behind.

To build this framework, the authors used Demographic and Health Surveys (DHS) data on 1,691,039 births from 182 different surveys across 67 low- and middle-income countries (LMIC). After estimating mortality risk for each child in the dataset, the authors went on to quantify mortality risk within and between socioeconomic groups and describe the highest-risk sub-populations.

They found that across all 67 countries, there was more variability in mortality within socioeconomic groups than between them—and within countries, socioeconomic membership tended to explain less than 20 percent of the variation in mortality risk. The authors also found that the highest-risk births tended to be those from mothers who are in the lowest socioeconomic group, live in rural areas, and/or already experienced the death of a previous child. The authors note that while targeting children based on poverty alone is not sufficient to catch all potentially at-risk children, poverty is clearly linked to an increased risk in mortality—and examining poverty alongside the additional risk factors their model uses helps identify even more of these left-behind children.

The authors hope that researchers and policy makers will be able to use this model (or a similar approach using multiple risk factors simultaneously) in order to more effectively help the most at-risk and potentially left-behind children under five and achieve progress towards

the U.N.'s 2030 goal.

The authors add: "Our paper shows how to better identify at risk children and improve program targeting for at risk children in low and middle income countries. Policy makers often target the poorest 20% children for interventions to decrease risk of premature death. However, children with high risk of premature death exist across all socioeconomic groups. This map shows the percentage of child deaths that occurred outside the 20% poorest; these child deaths are missed by typical interventions. This percentage varies from 65% (Brazil, South African and India) to 95% (Ukraine). Gray areas are countries not included in the analysis. Identifying at risk children as those in the 20% poorest will miss the majority of children who could benefit from health policy interventions."

More information: Leave no child behind: Using data from 1.7 million children from 67 developing countries to measure inequality within and between groups of births and to identify left behind populations, *PLOS ONE* (2020). DOI: 10.1371/journal.pone.0238847

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