Small babies, big numbers: global estimates of preterm birth

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Preterm birth (birth at <37 weeks gestation) counts. It is the leading cause of under-5 child mortality,[1] and an important cause of serious morbidity, associated with long hospital admissions. Preterm birth survivors and their families can face adverse lifelong health consequences.[2] The past 5 years have seen increased attention for preterm birth, including the *Born Too Soon* report[3] and annual parent-led World Prematurity Day[4] on Nov 17.

Improved counting of preterm births, and related outcomes, is a priority of the Every Newborn Action Plan,[5] led by UNICEF and WHO, and will be crucial to achieving national Sustainable Development Goals (SDGs) to end preventable newborn and child deaths by 2030. In *The Lancet Global Health*, Saifon Chawanpaiboon, Joshua Vogel, and colleagues[6] present results of a systematic review and modelling analysis to estimate levels of preterm birth globally in 2014. They estimated that 14·8 million infants were born preterm in 2014 (10·6% of live births), with 81% of preterm births in Asia and sub-Saharan Africa. Approximately 15% of preterm newborns were born before 32 weeks of gestation and require special inpatient care. In 26 of the 38 countries with adequate quality data, rates of preterm birth were rising, although, as the authors note, gaps in data quality and comparability mean that caution is needed in interpreting these trends.

WHO has committed to update estimates of preterm birth every 3–5 years.[7] This paper provides the third global estimates of preterm birth. The analysis draws on a larger database than previous estimates (more than 1241 inputs from 107 countries), perhaps because of the increasing visibility and motivation to improve data. A more complex Bayesian approach to the modelling is used, which could help to improve stability of the estimates and is the method used in other recent global estimates by WHO. Previous estimates suggested similar results at a global and regional level in 2000[8] and 2010.[9] However, although global and regional estimates remain similar, some country estimates are very different, possibly related to the different modelling approach.

Data gaps, in both quantity and quality, especially from low-income settings, remain an important limitation. 90% of the available data points in the modelling dataset were from high-income or upper-middle-income countries, which account for less than 5% of the world's births. No data were available from 40% of the 196 UN member states.

There are several reasons for this data gap. Investments in health management information systems, birth and death registration, and household surveys are gradually improving data availability. However, frequent failure to record gestational age, or to enter these data into health information systems, is a missed opportunity. Additionally, the accuracy of different methods to determine gestational age vary greatly: from ±5–7 days for early ultrasound[10] to ±4 weeks for newborn examination,[11] and even greater for fundal height. The method of measurement of gestational age significantly influences estimates of preterm birth rates, yet in this analysis, the investigators were unable to adjust for the method used because data on the method of measurement were not reported in 75% of sources. Finally, data quality is reduced by the varying definitions of the lower threshold of viability (ranging from 20 to 28 weeks), resulting in omission of liveborn newborn babies with lower gestational ages from the data system and misclassification as stillbirths. This variation can have a marked effect on reported preterm birth rates.[12]

What can be done to close the gap? First, count all births. Preterm birth rates also reflect perinatal care services, with provider-initiated preterm birth (often caesarean section) used to prevent potential fetal deaths.[13] To achieve comparability across settings, all births must be counted, whether live or stillborn, with vital status at birth.

Second, birthweight and gestational age should always be recorded (ideally with the method of assessment documented). Last menstrual period is typically the most commonly available information in low-income and middle-income countries from which a gestational age can be calculated, and simple tools can be used to improve recording and accuracy of recall. Ultrasonography early in antenatal care (before 24 weeks' gestation) is the gold standard recommended by WHO. Yet, less than 8% of women in sub-Saharan Africa have access to it. Efforts are needed to increase coverage and access.

Finally, innovations are needed to increase measurement of gestational age. Novel measurements and methods are being developed by many researchers, and will need to translate into robust, low cost, and feasible tools before they are scalable in low-income regions. Innovations are also needed in data capture systems and data linking.

The large burden of preterm births calls for research to understand mechanisms and interactions of risk factors, and to develop more effective interventions for primary prevention. Immediate and major effects are possible by improving the clinical care of preterm newborn babies. Feasible, evidence-based interventions such as Kangaroo Mother Care are being scaled up. Improved hospital care for small and sick newborn babies, will be needed to reach the SDG target of 12 or fewer neonatal deaths per 1000 livebirths.

Innovation and advances in measurement, research, devices, human resources, and health systems will make more rapid change possible for the large numbers of the world's smallest and most vulnerable citizens.

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