Newborn health research priorities beyond 2015

In 2012, an estimated 2·9 million newborn babies died and 2·6 million were stillborn in 2009. An even greater number have long-term impairment associated with preterm birth, intrauterine growth restriction, congenital anomalies, and intrapartum or infectious insults. Despite the increasing proportion of child deaths that are neonatal—estimated at 44% at present—and research funding is modest. In view of the Millennium Development Goal (MDG) deadline in 2015 and the shift to a new framework targeting the unfinished survival agenda and beyond, including healthy development, growth, and human capital, there is increased attention to birth outcomes as highlighted in the Lancet Every Newborn Series and the upcoming Every Newborn Action Plan. Research priorities are required for this wider agenda and longer timeframe.

In 2007–08, WHO held a series of exercises to set global research priorities to reduce mortality among newborn babies and children until 2015. In 2013, a new priority setting process was initiated for the post-MDG era, initially to 2025, regarding maternal, newborn, child, and adolescent health. As part of this initiative, the global exercise to set research priorities for newborn health was coordinated by WHO and Saving Newborn Lives/Save the Children, with support from the Bill & Melinda Gates Foundation.

We adapted and used the Child Health and Nutrition Research Initiative (CHNRI) method. The CHNRI process is transparent, replicable, and feasible for online application and has been used for many exercises varying from mental health to primary care. We identified and approached 200 of the most productive researchers in the field in the past 5 years and 400 programme experts, and 132 of them submitted their three best research ideas online. Ideas were collated into a set of 205 research questions, and sent for scoring to the 91 responding experts. Research priority scores were then computed as the mean of the aggregated scores to identify priorities in the three domains of research: delivery, development, and discovery.

Nine of the ten top-ranked priorities were in the domain of delivery (table), exploring how to take effective interventions to every mother and every newborn baby. Research priority scores ranged from 79% to 90%, and the interscorer variability analyses showed a high level of agreement (65–77%). The top delivery research priorities included identifying approaches to scale up simplified newborn resuscitation at lower levels of the health system, identification and management of newborn infection at community level, addressing barriers in the scaling up of exclusive breastfeeding.
and facility-based kangaroo mother care, evaluating chlorhexidine cord cleansing for neonates born in health facilities, and developing strategies to improve the quality of facility-based care during labour and childbirth.

In the domain of development to improve existing interventions, the overall research priority scores ranged from 74% to 82%, with moderate to high agreement between scorers (57–64%). The top ranked priorities included evaluating the impact and safety of kangaroo mother care initiated at the community level, early detection of high-risk women in pregnancy and labour, improved and simplified intrapartum monitoring, evaluation of appropriate oral antibiotics for treatment of neonatal sepsis, and the role of perinatal audits in improving quality of care during labour and childbirth.

Discovery research priorities emphasised the need to invest in science and technology to expand the arsenal of effective interventions. Overall research priority scores ranged from 61% to 71% and agreement scores from 43% to 49%. The highest priorities in this domain were to discover causal pathways of preterm labour, new tocolytics to delay preterm birth, stable surfactant for treatment of neonatal respiratory distress syndrome, and the role of perinatal audits in improving quality of care during labour and childbirth.

In coming years, the newborn health research agenda should be placed at the forefront of efforts to reduce global under-5 child mortality and improve human capital. The results described here will assist both donors and researchers in setting evidence-based priorities to address the key gaps in knowledge that could make the most difference in saving newborn lives, preventing stillbirth, and other birth outcomes.

We challenge the many partners linked to the Every Newborn Action Plan, including governments, non-governmental organisations, research institutes, and donors, to ensure that the top ranked priorities are evaluated and inform accelerated progress around the world for every woman, every newborn baby, and every child.

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We declare no competing interests. SY and RB are employees of WHO, the views expressed in this paper are the responsibility of the authors and do not necessarily represent the views of WHO. See appendix for full list of members of the neonatal health research priority setting group.

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