Integration and innovation to advance newborn survival

It seems appropriate that The Lancet should launch the Every Newborn Series in the year of the 40th anniversary of the Expanded Programme for Immunization, and of the 20th anniversary of the first publication showing evidence that antiviral treatment can prevent mother-to-child transmission of HIV. Not only have these factors had a positive effect on childhood mortality, but they will need to play a broader part if we are to have a similar effect on neonatal deaths.6

Despite the fact that more children are surviving their early years than ever before, with under-5 mortality nearly halving—from 12·6 million to 6·6 million—between 1990 and 2012, in recent years gains in neonatal mortality appear to have stalled, levelling off at 2·9 million a year.7 This stalling means that the proportion of deaths occurring within the first 28 days after birth has crept up to 44% of all under-5 deaths. And this figure does not include the 2·6 million stillbirths that occur each year, 1·2 million of whose hearts stop during labour.8 Almost all of these neonatal deaths, 99%, occur in low-income and middle-income countries, with the three main causes of death being infections, asphyxia, and low birthweight. All of these are preventable, with simple low-cost solutions.

What these data tell us is that in relative terms the periods before, during, and shortly after birth are by far the most dangerous for an infant, with most neonatal deaths occurring in the first 7 days. The solution is two-fold: we need to innovate and integrate. That is, we need research to find new appropriate interventions, but also, where solutions already exist but are not reaching mothers and newborn babies, we need to improve access to them by leveraging existing interventions.

We know, for example, that 22% of newborn deaths are due to infections that can lead to death from septicaemia, pneumonia, diarrhoea, and malaria.9 So new ways to deal with these infections need, in the first instance, better and more available treatment for neonatal infections. But they might also include innovations in maternal immunisation and treatment, such as for respiratory syncytial virus or group B streptococcus,10 and intermittent prophylaxis for malaria and earlier treatment of pregnant women living with HIV.

Another major cause of newborn deaths is asphyxia, which is responsible for 25% of deaths.2 Research in Tanzania has shown that the introduction of simple devices with appropriate, on-the-spot training can reduce neonatal mortality by as much as 47% during the first 24 h.10

Other important targets include tetanus and syphilis. In 1988 there were 787,000 neonatal tetanus deaths. Thanks to a drive to eliminate maternal and neonatal tetanus globally, that number fell to 53,800 in 2012.11 Today, neonatal tetanus makes up only 1% of all neonatal deaths, a drop from 7% in 2005. This is great progress, yet by the end of 2013 there were still 25 countries that had not yet eliminated maternal and neonatal tetanus.12 Similarly, antenatal screening and treatment of syphilis could prevent almost 500,000 adverse pregnancy outcomes per year, the majority of which are associated with perinatal deaths.

And there are other simple solutions that could significantly reduce neonatal deaths, if included in existing delivery mechanisms. But such interventions can often lack effective or established delivery mechanisms and so could greatly benefit from existing health systems as an entry point. Indeed, to some extent this is already being done, such as through maternal tetanus vaccines as part of broader childhood immunisation campaigns. And smarter investments from programmes such as those for HIV/AIDS and malaria are leading to stronger integrated antenatal and delivery services, which in turn are resulting in increased uptake of such services.
Also, with neonatal mortality intimately related to maternal health, 34% of neonatal deaths are related to preterm birth complications. Improved access to quality services for women is therefore crucial. Many new aids to improve management are now available and in the process of being scaled up, including results-based financing for payment of health personnel and financial support to enable poor women to access health services. In Argentina such approaches have helped to reduce neonatal mortality by 74%.13

The fact is that we have several solutions ready now thanks to funding streams. If we are to give children born in developing countries the same chances as those born in industrialised parts of the world, then we will need to reduce their chances of death by a hundred times. With many of the pieces to make this happen already in place, the key to success has to be scale-up and integration.

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