and can be more responsive to their populations than central government. The Zero TB Cities Project will provide independent funding in addition to country resources. Chennai in India and Lima in Peru are the first cities to take part and progress will be assessed at 3-year intervals. The goal is to help communities move to zero deaths from tuberculosis in their own way, and create "islands of elimination", which will hopefully reverse the overall tuberculosis epidemic.

The final Series paper by Katrina Ortblad and colleagues[7] reminds us that tuberculosis is the quintessential disease of poverty in modern times. It is a result of poverty and is itself a driver of poverty. To date, interventions to tackle tuberculosis have largely been biomedical. But other risk factors, such as malnutrition, overcrowding, and poor health services, also need to be addressed. The Sustainable Development Goals offer an opportunity to rethink the fight against tuberculosis and to move to a more biosocial model that focuses not only on supply side interventions but also on demand side interventions at the individual level—for example, cash transfers and microcredit—to address the social determinants of this disease.

This *Lancet* Series is launched at the inauguration of the Harvard Medical School Center for Global Health Delivery—Dubai. The aim of this new centre is to promote research that will address the health delivery gap. Tuberculosis will be one of the disease areas of focus. We hope this Series will be a springboard that can help shift the global tuberculosis epidemic from incremental annual improvements to an accelerating global movement for tuberculosis elimination.

For the **Harvard Medical School Center for Global Health Delivery—Dubai** see http://ghsm.hms.harvard.edu/ghd-dubai/hms-center-for-global-health-delivery-dubai

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Will Public Health England lead research?

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Between 1990 and 2013, mortality rates in southeast regions of England fell below those of 18 comparison countries, whereas mortality rates in Scotland and Northern Ireland remained higher than all comparison countries except the USA. This headline can be gleaned from today's detailed report by Public Health England (PHE) and the Global Burden of Disease study (GBD) in *The Lancet*.[1] There are some caveats: analysis by region for the other 18 countries would also show a range around the national average; and the differences in mortality were greater for men than for women. England has lower mortality rates from self-harm and road injury, but higher rates of liver disease and mental disorders related to alcohol misuse, compared with the other countries. Regional mortality rates in England correlate closely with the national index of deprivation (the components of which are chosen to amplify such variation), yet many non-fatal causes of disability, including low back and neck pain, anxiety disorders, sense-organ diseases, and breast cancer, show little regional variation. With the lengthening life-span of the population, overall levels of disability also remained broadly unchanged, indicating the continued necessity for health care.

Welcomed by *The Lancet*,[2] the UK Department of Health in 2013 drew on the GBD study data for the new preventive health strategy for England, *Living Well for Longer*.[3] The strategy set a political "ambition for England to have amongst the lowest rates of premature mortality in Europe" but focused on cancer, heart, stroke, respiratory, and liver disease; the existing low rates for injuries and self-harm and the prevalence of disabilities are not mentioned. Yet in

2013, the UK Government also transferred public health services from the National Health Service (NHS) into 152 higher-tier local authorities,[4] whereas the national communicable disease control service was recast as PHE with a remit across all diseases and injury. How will public health work alongside the NHS?

GBD has created a comprehensive resource of epidemiological data and has quantified estimates of attributable risk for mortality and disability. However, the causal pathways determining health, which population interventions are working, and in what contexts—for disability as well as for premature mortality—also need to be better understood. Why has London, with a higher deprivation index and more migration than other English regions, seen most improvement in mortality? Why do disability rates, some with relatively imprecise diagnoses, show less social variation than mortality? How do national policies affect personal health behaviours, and to what extent are national mortality trends a cohort effect from past policies? How do different economic priorities and characteristics of health-care provision across European countries affect mortality and disability?

In August, 2015, PHE published a strategy for research, translation, and innovation.[5] The "Priority One" objective of the strategy is to "focus researchers in PHE and elsewhere on research questions relevant to the evidence needed for public health". The UK has a confident strategy for research in the life sciences,[6] promoting genomics, drug development, and medical technology. Funding for patient research through the Department of Health, Medical Research Council, Wellcome Trust, and medical charities is also substantial, but public health is only a small part of these medical research budgets.[7,8]

In a recent *Lancet* Comment about research using UK Biobank, Thompson and Willeit[9] suggested that "the challenge lies in how changes can be achieved rather than in removing any uncertainty in scientific understanding". Further knowledge is needed of which interventions work in which contexts, how to scale them up, and what the effects will be.[10] Studies can draw on NHS big data and disease registers, investigate organisational changes and innovation in the health systems, and make longitudinal assessments of the effects of social change, national policies, and local practice (the Public Health Practice Evaluation Scheme is a relevant start). Much better systems are also needed to provide evidence of the consequences of decisions: as clinicians see patient outcomes in a matter of days, and finance officers see monthly spending, so public health practice needs to show effects at population-level through real-time measures of social change, policy contexts, and programme implementation.

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Determined coordination of an integrated, long-term budget for health research and innovation is required to match the dynamism that health metrics have generated and to develop a body of health knowledge comparable with clinical practice. The PHE study[1] has more than 60 UK authors, with almost as many affiliations, and shows the substantial UK capability to undertake research across a wide range of diseases and conditions, without commercial interests, patents, or spin-off companies. Can PHE bring all the partners together to achieve high-quality research on public health practice?

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I declare no competing interests.

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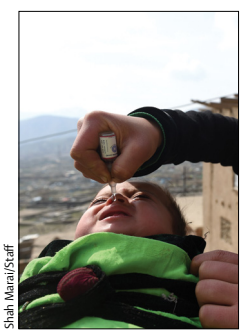
Child survival in 2015: much accomplished, but more to do


Shah Marai/Staff

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The year 2015 marks the end of the era of the Millennium Development Goals (MDGs) and the beginning of implementation of the Sustainable Development Goals (SDGs). For child survival, which is the fourth goal of the MDGs and an important proposed indicator for the SDG health goal, 2015 is a crucial time to take stock of national, regional, and global progress. In *The Lancet*, Danzhen You and colleagues,[1] on behalf of the UN Inter-agency Group for Child Mortality Estimation (UN IGME), estimate under-5 mortality levels and trends for 1990–2015, and project how these rates will change up to 2030 in various hypothetical scenarios. These estimates are invaluable in evaluating progress toward MDG 4 and informing the SDG process.

You and colleagues report[1] that global under-5 mortality has declined remarkably since 1990, from 90·6 deaths per 1000 livebirths (90% uncertainty interval 89·3–92·2) to 42·5 deaths per 1000 livebirths (40·9–45·6) in 2015, with acceleration after 2000. Two regions, east Asia and the Pacific, and Latin America and the Caribbean, achieved the ambitious MDG 4 target of a two-thirds reduction in under-5 mortality. All other regions at least halved their under-5 mortality rates. Even in regions that did not achieve the target, many low-income and lower-middle-income countries did, such as Ethiopia, Eritrea, Liberia, Madagascar, Malawi, Mozambique, Niger, Rwanda, Tanzania, and Uganda. The ways these countries were able to achieve this level of reduction deserve careful study. In-depth case studies, such as Countdown to 2015 exercises in Niger and Tanzania,[2,3] are powerful tools to disentangle the complex interplay between socioeconomic context, national policy, health system and financing, and implementation of life-saving interventions to gain insights into country successes and challenges. For example, in Niger almost 90% of the decline in child mortality from 1998 to 2009 was attributed to introduction of insecticide-treated bednets, improvements in nutritional status including vitamin A supplementation, treatment of malaria, pneumonia, and diarrhoea, and vaccinations, yet with little increase in maternal and newborn interventions, mortality in the neonatal period did not significantly decrease.[2]

If the current trends continue, sub-Saharan Africa could be home to about three-fifths of global under-5 deaths in 2030 due to persistent high fertility and high child mortality in many countries.[1,4] Global child survival and family planning communities will need to join forces to focus on sub-Saharan Africa where the dual challenges are to make contraception more accessible and to deliver child survival interventions.

You and colleagues[1] focused on under-5 and infant mortality, but did not consider neonatal mortality. The UN IGME in a separate report estimated that 45% of under-5 deaths occurred in the neonatal period in 2015.[5] For 1990–2015, mortality rates of children aged 1–59 months decreased much faster than those in neonates. Given the high burden and a slower rate of reduction of neonatal mortality, achieving new targets for child survival will increasingly depend on addressing neonatal causes of death. Stronger attention will need to be paid to the continuum of care, from adolescent girls and women before and during pregnancy, to newborn babies.

Affordable proven interventions are available to reduce the burden of major causes of under-5 mortality.[6] Widescale implementation of case management of pneumonia and diarrhoea and scaling up of *Haemophilus influenzae* type B, pneumococcus, and rotavirus vaccines will further reduce the burden of deaths owing to childhood pneumonia and diarrhoea.[7] In addition to insecticide-treated bednets and quality assured artemisinin-based combination therapies, the recently approved malaria vaccine holds potential for further reduction of malaria.[8,9] Addressing major