Getty Images

mortality from childhood pneumonia and seven other main causes of child death. If these studies were of a questionable quality, the predictive power of these models would be poor. However, a high R^2 (0·58) implies a strong (and plausible) relation between child mortality and proportional mortality from pneumonia. Appendix 4 in our paper shows beyond doubt that pneumonia steeply declines as a proportional cause of death when child mortality declines, with narrow confidence intervals.

The most recent global estimates of child mortality for 2008,[1] which are based on the best available multicause evidence from all countries, also show a steep rate of decline in pneumonia mortality relative to change in mortality rate for children younger than 5 years during the same period and so does the forthcoming global single-cause model.

Furthermore, our Chinese colleagues cross-validated our cause-specific estimates against the most recent output from the Chinese Maternal and Child Surveillance system (MCMS), which is nationally representative but not in the public domain. They found that the differences between directly observed causes of death within MCMS and our modelled estimates were within 2% of each other for all eight major causes of death in 2008, which directly confirmed the validity of our cause-specific predictions for 2008. Therefore, we believe that the estimates of proportional causes of death in our paper should be considered reliable and that the rapid decline in pneumonia mortality in China can be largely explained by a rapid decline in the overall mortality rate in children younger than 5 years.

The remaining question is whether we can trust the Chinese MCMS, which was the source of the reported declining overall mortality trend. We spent time in China with the local experts studying the quality of MCMS.

We can confirm that the changes in MCMS, which we explained in our webappendix, have considerably improved the quality of this registry. Its national representativeness, quality-control protocols, and checks for under-reporting make it substantially more reliable than the routine reporting system that was in place previously.

The reported progress in reduction of the mortality rate for children younger than 5 years might seem spectacular, but there are several unique reasons why this should perhaps be expected. China has addressed child mortality through careful central planning and the coordinated, massive improvement in social determinants of child survival, near-universal primary health care, expanded vaccination coverage, economic growth, infrastructure development, health-systems building, integration of minority populations, maternal education, improved sanitation, and the introduction of the "one child" policy. It would not come as a surprise if all these parallel positive developments have led to unprecedented levels of reduction in child mortality in a multiplicative, rather than additive, way.

We declare that we have no conflicts of interest.

*Igor Rudan, Kit Yee Chan, Jian Shayne F Zhang, Evropi Theodoratou, Yan Guo, Harry Campbell
irudan@hotmail.com

Centre for Population Health Sciences, University of Edinburgh Medical School, Edinburgh, UK (IR, ET, HC); Nossal Institute for Global Health, University of Melbourne, Melbourne, VIC, Australia (KYC, JSFZ); and School of Public Health, Peking University, Beijing, China (YG)

1 Black RE, Cousens S, Johnson HL, et al, for the Child Health Epidemiology Reference Group of WHO and UNICEF. Global, regional, and national causes of child mortality in 2008: a systematic analysis. *Lancet* 2010; 375: 1969–87.

Department of Error