

Commentary: LiST: using epidemiology to guide child survival policymaking and programming

Cesar G Victora

Department of Programa de Pós-Graduação em Epidemiologia, Universidade Federal de Pelotas, Pelotas, Brazil

E-mail: cvictora@gmail.com

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At the turn of the millennium, there was a widespread feeling in the child health community that the over 10 million annual deaths of under five children were not receiving the attention they deserved.¹ A group of concerned scientists and policymakers gathered for a week in Bellagio, Italy, to prepare a series of articles arguing for increased funding for child survival actions, which became known as the Lancet Child Survival Series. The second article in the series² included a formal attempt to estimate how many deaths could be saved by each intervention then available. This modelling exercise took into account the levels and causes of deaths in 42 low- and middle-income countries, and the effectiveness of interventions against each of these causes, providing estimates of how many lives could be saved if then current coverage levels could be scaled up to reach all mothers and children. These calculations were carried out using a series of spreadsheets where the best existing data were inserted.² The results were remarkable: no fewer than two-thirds of all under five deaths, or over 6 million a year could be saved if every mother and child received a handful of proven interventions.

The Bellagio spreadsheets were sufficiently accurate for the purposes of this initial exercise and made an important contribution to placing child survival back on the international agenda. However, from a methodological standpoint there was substantial room for improvement. The articles in this supplement report on the methods and assumptions behind the Lives Saved Tool (LiST). This software was inspired by the Bellagio exercise, but went much further in terms of the background mortality data used, the quality of the literature reviews on intervention effectiveness and of the modelling process itself. LiST is relatively user-friendly and is becoming widely used at the country level to identify how much impact can be achieved by scaling up different interventions.³

A potential critique of LiST is that, by estimating the likely impact of each intervention, it would contribute to the implementation of vertical programmes in the spirit of what used to be known as selective primary health care.⁴ As such, it would detract from efforts to build up horizontal, primary health care systems providing multiple preventive and curative interventions against multiple diseases. However, recent experience of countries that have managed to reduce child mortality rapidly shows that initial focus on a few priority diseases and interventions is not incompatible with the strengthening of health systems for providing universal primary health care—the combination of these strategies has been described as the ‘diagonal approach’.^{5–7} Furthermore, use of LiST can counteract current emphasis on one-size-fits-all intervention packages, by suggesting which specific interventions are more likely to have an impact under different conditions.

Critics also argue that by emphasizing biomedical, proximate interventions, LiST does not take into account the impact of broader social determinants of health. I do not believe this is a fair criticism. First, modelling the effects of social and economic change on child mortality in different contexts is not straightforward, not to say unwise. Secondly, most of the effect of broad social determinants on child mortality will be mediated by interventions included in LiST—such as improved water and sanitation, better antenatal and delivery care, improved nutrition and greater access to high-quality case management of diseases such as pneumonia, diarrhoea and malaria. The fact that a tool such as LiST is directed at a certain level of determinants of child survival does not imply that broader determinants—or the causes of causes—are not equally or more important.⁸ The judicious use of LiST can even help narrow down social inequalities in child health by promoting universal access to life-saving interventions.

However, LiST can be improved. It is more user-friendly than the previous models that I have used, but it is still relatively easy to make mistakes when inputting the data or running the models. LiST currently assumes a single coverage level for each intervention across all social groups, and also assumes that all groups have similar levels and causes of mortality, which we know not to be true.⁹ If the poor have higher baseline mortality as well as lower coverage (even after the coverage target is reached for the population as a whole), ignoring such inequities when running the model may lead to incorrect results. One of the articles in this volume suggests that LiST may be useful in planning and assessing the extent to which specific constellations of interventions and delivery strategies are most likely to reach the poorest mothers and children.¹⁰ Work is currently underway to allow LiST to provide separate estimates of lives saved according to, e.g. maternal education or family wealth quintiles. Finally, LiST has now been expanded to incorporate maternal mortality, and to estimate the costs of different interventions.

I have had the opportunity to use LiST in a few countries, and I share the enthusiasm of its developers about its potential impact on policies and programmes. Sitting in front of a screen with national counterparts, one can discuss which interventions are available, which are more likely to be scaled up rapidly, what coverage targets are achievable, and what is the likely impact on mortality of different interventions, delivery channels and packages. In some early applications, this has led to a change in short-term priorities at the country level.³

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