STRENGTHENING CRVS SYSTEMS

Research priorities for country CRVS strengthening

CRVS Roadmaps for Action

November 2017

Introduction

Today's health and development challenges cannot be adequately or sustainably addressed without reliable data on births, deaths, and causes of death provided by well-functioning civil registration and vital statistics (CRVS) systems.[1] Furthermore, countries will need data on levels and patterns of mortality generated by quality and reliable CRVS systems to measure Sustainable Development Goal achievement, as well as to monitor progress toward achieving targets under the Sendai Framework for Disaster Risk Reduction.[2,3]

Although some high-income countries like Sweden and the United Kingdom have rapidly improved their CRVS systems, these examples should not serve as one-size-fits-all models for the rest of the world. Given countries' diversity in politics, culture, history, geography, demographic profile and available resources, countries should and will vary in their planning for CRVS system strengthening. However, in so doing, it is crucial countries:

- Systematically document their activities and experiences

- Scientifically monitor and evaluate technical implementation efforts

- Examine how best to address CRVS system weaknesses and gaps using sound quantitative and qualitative research techniques

- Develop a comprehensive research agenda supportive of CRVS policy and programming.[4]

Research helps countries *confidently* and *transparently* determine what CRVS interventions work in which kinds of settings. This is important because the CRVS priorities and needs in subnational settings may vary considerably. For example, each of Peru's three regions (the Amazon, mountain, and coastal regions) has a very distinct birth, death, disease and injury profile due to differing epidemiological, socioeconomic and geographical characteristics.[5,6]

Research helps make CRVS interventions sustainable and cost-effective, as well as enhance a country's broader CRVS capacity-building efforts. Importantly, lessons learned in other countries and contexts that are locally, regionally and internationally disseminated, "ensure that the potential benefits of innovation are successfully scaled up, and that possible pitfalls are avoided" in *all* countries across the globe.[7]

Common roadblocks

Too few low and middle income countries (LMICs) have a functioning CRVS system, resulting in unreliable birth, death and cause of data crucial for health and development policy and planning.[8] Long-term inattention to CRVS systems in many parts of the world has left critical knowledge gaps. For instance, CRVS system improvement might have occurred but has not been documented, or the findings of CRVS activities and experiences might not be readily available among government agencies, or shared externally with country and other stakeholders.

Because of this knowledge gap, countries lack a consolidated, scientific evidence-base to draw on for optimal health policy and planning.[8] This evidence-base will be key to inform, guide and support country CRVS stakeholders, advocates and innovators now - and well into the future.

Moving forward

The Bloomberg Philanthropies Data for Health Initiative (BD4H) is working on CRVS strengthening in sixteen countries and two cities. Based on the experience of the BD4H team, the following six areas are excellent starting points for much needed CRVS research.

1   AbouZahr C, de Savigny D, Mikkelsen L et al (2015). Civil registration and vital statistics: progress in the data revolution for counting and accountability. The Lancet 386:1373-1385.
2   University of Melbourne (2017). CRVS systems matter for Sustainable Development Goal achievement. CRVS Development Series. Bloomberg Philanthropies Data for Health Initiative. Melbourne: Australia.
3   Sendai Framework for Disaster Risk Reduction 2015-2030. Available online: http://www.unisdr.org/files/43291_sendaiframeworkfordrren.pdf
4   AbouZahr C, Harbitz M, Fu H et al (2014). Towards a research agenda for civil registration and vital statistics in the Asia-Pacific region. Asia-Pacific Population Journal 29:99-136.
5   Huicho L, Trelles M, Gonzales F (2006). National and sub-national under-five mortality profiles in Peru: a basis for informed policy decisions. BMC Public Health 6:173.
6   Huicho L, Trelles M, Gonzales F et al (2009). Mortality profiles in a country facing epidemiological transition: An analysis of registered data. BMC Public Health 9:47.
7   AbouZahr C, Cleland J, Coullare F et al (2015) The way forward. The Lancet 370:1791-1799.
8   Lopez AD, Setel PW (2015). Better health intelligence: a new era for civil registration and vital statistics? BMC Medicine 13:73.
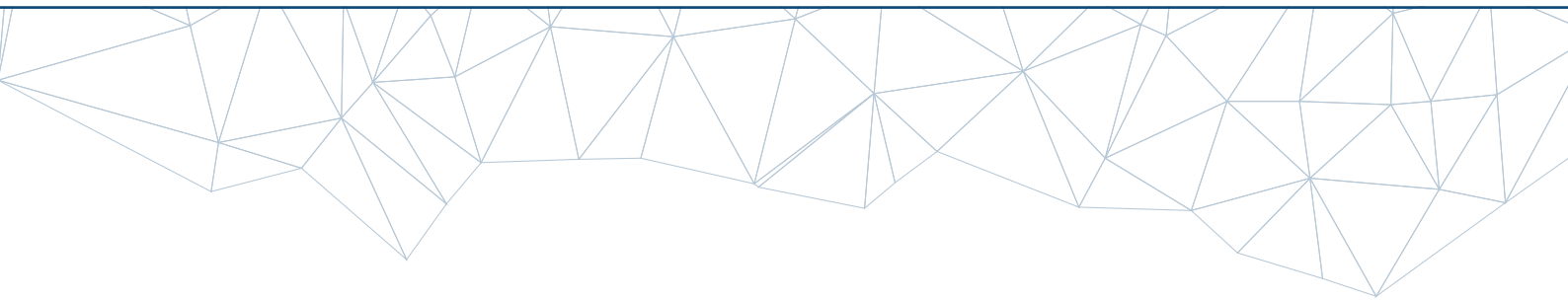
Process mapping

Countries looking to strengthen CRVS systems should first recognise that while these systems across the world share a common purpose, each country's will differ in terms of organisation, implementation, processes, scale, partners, and capacities. To explore areas for improvement, countries should use the tools of Enterprise Architecture to create process maps.[9] Process maps detail the complex information flows and stakeholders involved in a CRVS system, which will allow countries to identify current CRVS processes, opportunities, gaps and bottlenecks. CRVS system weaknesses identified through process mapping can then be investigated by an interdisciplinary research team.

Cost of improving coverage and quality of CRVS systems

Countries would benefit from researching comparative costs of different ways to obtain information about births and deaths. For example, one comparative costing of different methods to record births and deaths found that household surveys are more expensive than continued surveillance of vital events.[10] Findings like these will allow countries to implement the most cost-effective methods of obtaining birth and death information.

Indeed, further research to estimate comparative costs and cost-effectiveness of CRVS data collection methods is needed.[11]

The role of information technology

The role of information technology in CRVS strengthening is crucial. Many LMICs are moving from paper-based to computer-based CRVS systems, and thus digital and other communication technologies are being newly used and implemented for CRVS system improvement. For example, countries in the BD4H are implementing digital technologies to support CRVS systems strengthening, such as introducing mobile phone apps and tablets for collecting and analysing verbal autopsy (VA) data (ie 'automated VA' and 'SmartVA'), as well as introducing ANACONDA and Iris software (Box 1).[12,13,14]

Box 1. What is automated VA, ANACONDA, and Iris?

Automated VA

VA is a method for determining the most likely cause of death (COD) based on information collected from carers or family members about the signs and symptoms shown by the deceased before he or she died. Verbal autopsy (VA) is the only alternative for ascertaining COD in a population where deaths occur in the community without a doctor to medically certify the cause of death. Historically, the completed VA questionnaire form was reviewed by physicians to ascertain the most probable COD. However, automated VA diagnostic instruments and tools are being developed to avoid the need for the time-consuming and expensive physician review (especially in resource-limited and remote settings).

ANACONDA (Analysis of Causes of (National) Death for Action)

ANACONDA is an electronic tool that assesses the accuracy and completeness of mortality and COD data. It checks for potential errors and inconsistencies in the data and provides users with an understanding of basic epidemiological and demographic concepts to interpret their data.

Iris

Iris is an automated coding software that allows death records to be coded according to ICD-10 rules and standards. Iris has been installed in a number of European Union countries, as well as by the the Office for National Statistics in the United Kingdom and by Statistics Canada. In the Asia-Pacific region it is used by the Australian Bureau of Statistics and the Fijian Statistical Office. The Philippines is the first country in Asia to implement Iris; this was done through a BD4H initiative.

9   de Savigny D, Riley I, Chandramohan D et al (2017). Integrating community-based verbal autopsy into civil registration and vital statistics (CRVS): system-level considerations. Global Health Action 10:1272882.

10 HMN (2012). Technical note on the costs of alternative approaches to collecting population and vital events data. Geneva: World Health Organization.

11 For instance, see: Joshi R, Praveen D, Jan S et al (2015). How much does a verbal autopsy based mortality surveillance system cost in rural India? PLoS One 10:e0126410.

12 Zhao Y, Joshi R, Rampatige R et al (2016). Use of smartphone for verbal autopsy: results from a pilot study in rural China. Asia Pacific Journal of Public Health 28:601-610.

13 Martins RC, Buchalla CM (2015) Automatic coding and selection of causes of death: An adaptation of iris software for using in Brazil | [Codificação e seleção automáticas das causas de morte: Adaptação para o uso no Brasil do software Iris]. Revista Brasileira de Epidemiologia 18:883-893.

14 For information on BD4H's training course on the ANACONDA software, see: http://mspgh.unimelb.edu.au/__data/assets/pdf_file/0008/2372993/Overview_ANACONDA-Prospectus_051702.pdf

It is important countries empirically document, monitor and evaluate the issues in rolling-out new digital and communication technologies for CRVS system improvement. This is so countries can identify and best respond to associated transcultural and technological adaptation challenges.[15]

Further still, there is a dire need for research on how innovations in technology, including social media technologies, can be harnessed for improving notification, registration, and certification of vital events.

Incentives for vital event registration

Where there are low birth and death registration rates in certain country or intra-country contexts, investigation is needed.[16] Countries should research effective and sustainable ways to incentivise individuals and families to register vital events.[17] Conditional cash transfers have been shown to increase birth registration, although evidence on the sustainability of such an approach is lacking, as is evidence on the potential for cash transfers to increase death registration. Future research on linking registration to other sectors would form a solid evidence base for countries looking to incentivise individuals to register vital events as well.

Research into incentives would be best conducted using a community-based participatory research approach, where research efforts equitably involve researchers as well as community members and representatives from organisations involved in CRVS strengthening. Such an approach will ensure that all key stakeholders contribute knowledge and share ownership of the work conducted.

Supporting CRVS advocacy efforts

Research findings on the intersections of registration with its associated benefits will, for instance, play a huge role in advocacy efforts for advancing CRVS systems improvement in countries around the world. In turn, advocacy for CRVS system improvement should be documented so that other countries and stakeholders, including community members and civil society organisations, can learn from experience.

Legal empirical research

For countries to improve completeness of birth and death registration, they must ensure that their CRVS systems are grounded in strong domestic law that reflects international legal standards.[18,19] However, much of the existing domestic law on CRVS is out-dated and inconsistent, making it essential for countries to research and review CRVS-related laws and policies.

Summary

CRVS development has many facets and requires a robust evidence-base of knowledge on what works in different landscapes and contexts. Research findings need to be consolidated and made accessible to all CRVS stakeholders for better and more efficient policy making, programming, and practice.

15 University of Melbourne (2017). Introducing automated verbal autopsy: responding to technological and transcultural adaptation challenges. CRVS Development Series. Bloomberg Philanthropies Data for Health Initiative. Melbourne: Australia.

16 Calabro A (2013). Registering the births of Indigenous Australians: has New South Wales got it right? University of New South Wales Law Journal 36:809-838.

17 For example, see: Chereni A (2016). Underlying dynamics of child birth registration in Zimbabwe. International Journal of Children's Rights 24:741-763.

18 The University of Melbourne (2017). Solid legal frameworks are necessary to achieve complete birth and death registration and optimal CRVS system functioning. CRVS Development Series. Bloomberg Philanthropies Data for Health Initiative. Melbourne: Australia.

19 Brolan CE, Gouda H (2017). Civil registration and vital statistics, emergencies, and international law: understanding the intersection. Medical Law Review 25:314-339.

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