Towards a Research Agenda for Civil Registration and Vital Statistics in the Asia-Pacific Region

Abstract

In this paper, first steps in developing a civil registration and vital statistics (CRVS) research agenda are described, and an initial framework is presented for guiding discussion of research priorities. The paper also provides guidance on future CRVS research, including a matrix to identify key research questions for the improvement of CRVS systems.

Based on the findings of the study, it is concluded that research is needed to (a) generate and disseminate evidence about which CRVS strategies work in different contexts and (b) ensure that the potential benefits of innovation are successfully scaled up and possible pitfalls averted. If the potential of research to improve CRVS is to be exploited optimally, the institutional, political and cross-sectoral nature of CRVS systems should be recognized and dealt with, while taking into account rapid advances in knowledge and technologies, shifting expectations and concerns of the public, and increasing needs and changing priorities of decision makers. In addition, research findings need to be compiled and made readily accessible to users for the purposes of policy, programming and practice.

By Carla Abouzahr, Mia Harbitz, Haishan Fu and Raj Gautam Mitra

Introduction

The first three papers in this series have drawn attention to the striking fact that the majority of countries in Asia and the Pacific do not have universal civil registration and millions of people live and die without leaving any formal trace of their existence. The failure to register vital events has serious implications for individuals in terms of their ability to provide documentary evidence of identity, age and family relationships,
making it more difficult for them to access government services and participate in political and economic activities. It also means that national authorities and decision makers do not have reliable, timely and complete information on the populations they are there to serve and so cannot formulate evidence-based and informed policy, allocate and distribute resources or effectively monitor social programmes.

In response, countries, development partners, technical experts and academics have come together as part of a growing movement to strengthen country civil registration and vital statistics (CRVS) systems. At the Asia-Pacific regional level, a broad partnership includes government representatives from the registration, statistical, health and other key sectors, along with United Nations agencies and development partners. A similar inclusive mechanism has been established for the Africa region. Such a broad-based coalition offers the basis for a holistic and inclusive approach to improving CRVS, which is essential for country ownership, effectiveness and sustainability.

Why a research agenda is needed

The success of the growing momentum for improving CRVS will depend on the ability of those driving the effort to bring together and use knowledge to guide policy and programme choices. During discussions on the Regional Strategic Plan for CRVS in 2012, as discussed in the first article in the present issue of the Journal, participants affirmed the importance of research and documentation of country experiences. If policymakers are to make the decisions needed to strengthen their CRVS systems, they will want to know whether they are investing resources wisely and well. They need to know what works in which kinds of settings and how lessons learned from other countries are relevant to their own circumstances. Research can help answer questions such as these. Research generates knowledge, enables practitioners to filter and make sense of available information, and supports the translation of knowledge into action. Research thus underpins all effective action.

A case is made in this paper that a strong research effort is essential to support sound policy and practice for CRVS. A broad view is taken of research, encompassing different research methods as well as compilations of experiences and lessons learned. Furthermore, it is argued that research is not only a matter of creating knowledge, but also about how evidence and knowledge are used to influence policy, programming and planning across multiple sectors. The growing demand for improved national statistical systems, as well as more effective use of resources, requires efficient coordination and collaboration at all levels, including for research. In this paper, it is claimed that the contents of a research agenda should be based on a review of existing knowledge, identification of information gaps that research could help address and the selection of the most relevant and appropriate research methods.
addition, a framework is proposed for stimulating action by the research community in response to the requests of ESCAP member States for evidence upon which to base their CRVS improvement efforts. While the call for a research agenda came from the Asia-Pacific region, many of the findings in this article are applicable on a global scale. Examples used in the article are taken from the Asia-Pacific region when available, but other literature has been included when appropriate.

The purpose of a research agenda is to identify the questions that merit particular attention from researchers and the research methods most relevant to the development of an evidence base for CRVS improvement in Asia and the Pacific and beyond. Research is needed that is at once locally relevant and also of broader regional and global utility. Research findings should inform current and future policy, planning and programme actions that will result in higher coverage and efficiency of CRVS. Research can help identify ways of overcoming barriers and bottlenecks and contribute to a shared resource bringing together implementation experiences and lessons learned on which those working to improve CRVS can draw. In the absence of a unifying framework for prioritization, there is the risk that research would remain haphazard and non-strategic, driven by the interests of specific groups, individuals, donors, or technologies and be out of touch with emerging priorities and the needs of countries and communities. A lack of strategic focus will hamper the effective translation of research results into policy and programming.

Defining a research agenda to respond to the needs of any policy community is challenging. The multi-year timeframes for research often are at odds with the policymakers’ short-term needs for useful evidence; when the policy community asks for definitive conclusions, researchers may answer with inferences that are heavily qualified – specific to a particular time and place, limited by the need to employ assumptions about factors that cannot be directly observed. Such tensions are not easily resolved. Nonetheless, there is much to be gained from attempts to understand the central policy questions and audiences from the outset of a new initiative or programme.3

This paper describes first steps in developing a CRVS research agenda and presents an initial framework for discussion on research priorities. For a CRVS comprehensive research agenda supportive of policy and programming to come to fruition, research groups will need to be brought together and dialogue established with potential funders whose time and material resources will be needed. Furthermore, the public, civil society representatives and non-governmental organizations (NGOs) that have the grass-roots contacts and experiences needed to inform efforts to strengthen CRVS and to provide oversight of the use of CRVS for the public good will have to be consulted.
Methods

The development of the framework comprised three steps. First, a review of published literature and unpublished reports (or grey literature) covering research on various aspects of civil registration and associated vital statistics, excluding, therefore, research on vital statistics derived from other sources, such as censuses or population surveys. The second step consisted of a review of interim findings by the ESCAP working group for CRVS established by the ESCAP secretariat, as shown in the previously mentioned first paper of this issue of the Journal. The working group brings together representatives of development partners whose mandates include the improvement of civil registration and vital statistics in Asia and the Pacific. In the third step, a simple analytical framework or matrix was developed for categorizing evidence gaps and methodologies that can be used in determining research priorities.

One source of information – especially of “grey” literature – on research related to civil registration and vital statistics is the civil registration and vital statistics knowledge base maintained by the Statistics Division of the United Nations Secretariat. The knowledge base brings together documents in a searchable database format, on civil registration and vital statistics guidelines, demographic methods and the development of civil registration and vital statistics in various countries. Some papers comprise analyses of the quality of birth or mortality and cause of death statistics derived from civil registration.

At the same time, an Internet search was conducted to determine the volume of material and topics addressed in publicly available research (broadly defined to include primary and secondary research and lessons learned as well as primary applied research) on CRVS. Key terms included various combinations of “vital registration”, “birth registration”, “death registration”, “birth certificate”, “death certificate”, “vital statistics”, “legal identity”, “social exclusion”, “democracy”, “development” and “research”. As shown in figure 1, using the MEDLINE search engine it was found that there has been a significant increase in references to CRVS since 2000. Although the search identified many more references to vital statistics than to civil or vital registration, an interesting finding is that there has been a significant increase in the number of published articles on civil registration over the past decade.

It is significant that the results of country activities to assess the functioning of their CRVS systems, many of which have been supported by ESCAP, the Secretariat of the Pacific Community (SPC) and other partners, are rarely available in the published literature. It is clear that...
more effective ways of sharing country experiences and lessons learned are required to enable country decision makers to benefit from mutual learning and exchange.

**Figure 1. Occurrences of civil registration and vital statistics terms in MEDLINE search, 1966-2013**


**Findings**

The findings of the review are summarized in line with the outcomes to which research should contribute, as described in the ESCAP Regional Strategic Plan.7

**Public awareness**

Public awareness of the need for and benefits of registration is a prerequisite for the successful functioning of the registration system. Barriers that impede registration include supply-side constraints, such as distance from registration facilities, cost of registration (direct and indirect as well as opportunity costs), as well as demand-side issues, such as social and cultural barriers related to poverty, ethnicity and social class. Efforts to address the supply side usually involve increasing the availability of registration points, especially in remote and underserved populations. In Latin America, the Inter-American Development Bank (IADB) has financed major efforts to strengthen the institutional capacity

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of the registration agencies. Addressing demand-side issues is usually more complex, requiring multiple interventions. IADB, the United Nations Children’s Fund (UNICEF) and Plan International have drawn attention to the particular economic, social and cultural barriers that impede birth registration among indigenous populations in several Latin American countries. A systematic analysis was undertaken to come up with lessons learned and the best practices that can be adapted and adopted more widely. The authors found no evidence in the published literature of similar research in the Asia-Pacific region.

Plan International and UNICEF have worked to increase awareness and stimulate demand for certificates by involving civil society in its campaigns for universal birth registration, acting as a catalyst for birth registration and promoting birth registration at the grass-roots level. As far as can be seen from the published literature, there have been no formal evaluations of such efforts, although the case studies themselves are of value. Plan International has compiled case studies in countries in which it has been involved in advocacy and action to strengthen birth registration, and which it had described as examples of best practices. More recently, evaluations of birth registration campaigns have started to appear in the published literature. However, evidence of the comparative effectiveness of mass campaigns compared with grass-roots level interpersonal communication techniques is still lacking.

Researchers and institutions have drawn attention to the importance of involving communities in the registration process. The Society for Participatory Research in Asia (PRIA), a civil society NGO based in New Delhi, has conducted community-based research to identify and bring to the attention of decisionmakers the practical issues and concerns faced by people in birth and death registration. Problems encountered were not limited to lack of access and shortages of staff and forms, but also bureaucratic obfuscation and inertia, hidden costs and corruption. There is not a great deal of evidence with regard to the most effective combinations of incentives for birth and death registration and penalties for failure to do so. United Nations guidance on the matter refers to the need for penalties for non-compliance with registration law or late registration, but the possible unintended negative effects of such penalties are presented mostly as anecdotes. In Latin America, there has been a move away from legal processes to administrative processes for late registration of births, as well as a reduction in the penalties in the light of evidence that the existing procedures were an impediment to the completeness of the registries. However, there is need for additional research on the potential of different kinds of incentives – monetary or other – to significantly improve the completeness of birth and death registration. Increased birth registration has been documented through the use of conditional cash transfers, but more evidence is needed as
to the long-term sustainability of such approaches and their potential for extension to the registration of other vital events, notably deaths.

Despite the considerable investments in increasing public awareness, few studies have examined the issue of public distrust of civil registration or vital statistics systems. The exceptions are a few, often historical, studies that address the potential negative impact of civil registration, such as its use for the identification – and subsequent persecution – of religious or ethnic minorities.\textsuperscript{18,19,20} Public concerns in relation to the use of information from the registration system need to be addressed as part of efforts to enhance public awareness and cooperation.

\textit{Political commitment}

Advocacy is also important to generate political commitment and persuade Governments to make CRVS a priority and allocate resources for establishing and improving CRVS systems. The published literature does not include formal evaluation of efforts to generate political commitment but there are good examples of lessons learned from countries in the Asia-Pacific region, including Bangladesh,\textsuperscript{21} Fiji,\textsuperscript{22} the Philippines\textsuperscript{23} and Sri Lanka.\textsuperscript{24} Findings from these country experiences include the critical importance of national leadership among government officials in health, statistics and registration or home affairs; the role of academic researchers in providing a strong evidence base for action; the importance of reaching out to community leaders and grass-roots organizations; and the need to work with parliamentarians and legislators to apply an equity lens to the development of policy and legislation. In Bangladesh, high-level political commitment at the level of the Prime Minister’s office and the Cabinet was stimulated by the confluence of four key factors:

- National determination to become a middle income country by 2021 and the perception that improved CRVS and a linked population register would contribute to this;

- The positioning of CRVS within the whole-of-government commitment to “Digital Bangladesh” and the rapidly increasing availability and distribution of ICT;

- The existence of a national ID system;

- The availability of field level workers, especially in health, to enter data from digital devices directly from the field.

More policy research is needed on how to seize political moments when conditions align favourably for an issue, presenting opportunities for advocates to influence decisionmakers.
Investments

A gap in the research literature is the absence of research studies on the costs and benefits of CRVS. Such information is needed to make the investment case to Governments and donors. Even studies that include detailed descriptions of the functioning of country systems often neglect to mention anything about costs. Apart from descriptive analyses of the benefits of civil registration, for example compared with the costs of other sources of vital statistics, there are no examples in the published literature of quantitative cost-benefit analyses of CRVS. Without such analyses it is difficult to make the investment case to Governments which must bear the costs of civil registration systems.

A step forward in this area has been the formulation of a systematic framework to guide investment decisions by donors and Governments on methods of data collection for vital statistics or health information in general. However, the framework now needs to be populated with information on costs from countries. Researchers need to step up to fill this gap and engage country stakeholders in generating the data needed to develop investment cases for vital statistics. With support from the Government of Canada and the World Health Organization, several countries are currently describing their efforts to improve their CRVS systems, including the development of investment cases to support the mobilization of resources. These case studies offer valuable insights from which others can draw.

Policies, legislation and implementation of regulations

In practice, it can be challenging to bring about legal change; fundamental revisions of existing law tend to occur only when countries are engaged in a deep-rooted process of social transformation, as was the case in South Africa when apartheid ended. There are few published examples describing the processes and outcomes of efforts to improve civil registration legislation in countries, but with the increasing recognition that the legal frameworks have to be updated and/or upgraded, this is an area that will require more resources and attention in the short and medium term.

Weaknesses in civil registration law have wide-ranging policy effects. Studies on the social and economic impacts of dysfunctional or inadequate CRVS systems have examined the links between identity, citizenship and justice, and democratic governance. Research into poverty and economic, cultural and social exclusion in Bolivia, Ecuador and Guatemala found that not having a national identity document had major economic and financial implications and was a determining factor in the cycle of poverty. Some studies have described the changing fortunes of CRVS systems associated with political regimes. One paper specifically addressed the question of how better statistics can contribute to advancing human rights.
One study examined the causal impact of the lack of birth registration on schooling outcomes in the Dominican Republic. The research found that, controlling for potential endogeneity and standard socioeconomic determinants of education, children without birth registration documents did not face lower chances of entering the schooling system; however, the absence of birth registration was a critical obstacle to graduating from primary school and translated into fewer years of overall educational attainment.42

A study in Brazil found that, due to the economic and social policies of the 1970s and 1980s, broad segments of the population were socially excluded and saw little immediate reason to surmount the many obstacles to obtaining legal documents. However, since the 1990s and in the 2000s, policies that direct benefits to low income individuals in the informal sector have both exposed the number of undocumented people in the population and provided a strong incentive for them to acquire identity documents. In turn, the State has had to respond by making registration more accessible, especially for remote and marginalized populations.43 One study examined how a relatively good system of birth registration in the Democratic Republic of the Congo could be used to ensure the effectiveness of cash transfers, including universal and targeted child allowances, old age pensions and disability benefits.44

Legal documentation

Together with the macro-level, societal benefits, functioning civil registration systems are associated with multiple benefits at the individual level if essential safeguards are maintained as described above. There is a substantial body of research on the role of civil registration in enabling the realization of human rights.45 Many papers are focused on the way in which legal documentation facilitates access to health services, education, employment and social protection. For example, it was concluded in a legal study in Indonesia that legalization of marriage and divorce and the provision of birth certificates (requiring a legal marriage certificate) are particularly important for female heads of household and the families they support in terms of accessing broader public services, such as education and health.46 An innovative research effort involves studying the potential of CRVS as a tool for decreasing structural violence and promoting social inclusion.47 Some studies have identified the importance of civil registration in order to be able to access services in cases of conflict or disasters. Surviving women and children face particular challenges in proving their identity when legal identity is largely processed through male family members.48

Research commissioned by Plan International identified discriminatory laws that prevent a woman from registering her child alone or from conferring her nationality to her son or daughter.49 Research found that discrimination against women was a major barrier to birth registration
in several countries, including Brazil, the Dominican Republic, Ecuador, India, the Lao People’s Democratic Republic, Nepal, Pakistan and Sudan. In some cases this is because the law states that, if a birth takes place at home, the primary responsibility for the registration of a child lies with the head of the household. In most cases this will be the husband or, for a single woman, her father or another male relative: women not recognized as household heads may have difficulties in registering their own child. Further research is needed on the impact of gender-based discrimination in perpetuating the cycle of exclusion.

The primary legal document is the issuance of a birth certificate that establishes the identity of an individual by recording biographical data. An increasing number of initiatives are now adding attributes, such as unique identification numbers and biometrics, to determine the unique, secure legal identity of the individual for use in identification cards and machine-readable passports. Lessons learned from these experiences in countries need to be brought together to create a repository of good practices in modernizing civil registries and ensuring links with civil identification in order to ensure trustworthy and certifiable legal documentation.

Statistics on vital events

The largest volume of research has been on the ability of the registration system to generate statistics on vital events. A significant proportion of published studies consists of a critical evaluation of the completeness and quality of vital statistics – most commonly on mortality and cause of death – derived from civil registration. Other studies consist of secondary analyses of vital statistics (sometimes with statistical modelling) in order to identify disparities in life expectancies and mortality rates across small areas and ethnicities. Recent research relates to the development of methods – algorithms or automated methods – for improving the availability and quality of cause of death statistics derived from civil registration. There are several examples of research on the development and evaluation of methods of ascertaining cause of death in settings where medical certification is not available. Further implementation research is needed on how these new methods could be integrated into routine civil registration systems. One study suggested that informal traditional systems for the reporting of vital events at the village level could offer an interim solution for accelerating the production and use of district-level vital statistics for legal, administrative and statistical purposes while waiting for more comprehensive national systems to become a reality.

Statistics on registration coverage can also be derived by including questions on birth registration in household surveys, such as the Demographic and Health Surveys sponsored by the United States
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Agency for International Development and the Multiple Indicator Cluster Surveys sponsored by the United Nations Children’s Fund.\textsuperscript{78} This type of approach is of particular value in settings where, although births and other vital events are registered by the civil registration authorities, the individual information is not compiled into aggregate statistics nor disseminated.

Population registers are a logical extension of civil registration and include data on place of residence, migration and other characteristics. In response to the growing interest in establishing population registers in low- and lower-middle income countries, research and documentation are needed on how to do so effectively and the associated costs, benefits and risks, in particular with regard to privacy and confidentiality.

\textit{Coordination among key stakeholders}

A prerequisite for a sound, efficient and effective vital statistics system is that there be close collaboration among all the agencies involved, including the civil registration office, the national statistical office, the health ministry, doctors, birth attendants and local government officials. In practice, given the legal and institutional frameworks, each entity tends to function independently and there is often duplication of efforts coupled with gaps in key areas. There have been some recent efforts to address the issue of cross-sectorial links needed to ensure the effective functioning of CRVS, for example to integrate birth registration into the health sector at the local level.\textsuperscript{79,80,81,82} Several demonstration projects are underway consisting of combinations of legislative change, training and improvement of statistical analysis.\textsuperscript{83} No results are yet available however on the effectiveness, scalability and sustainability of such interventions.

\textit{Use of vital statistics}

Vital statistics are not ends in themselves but are intended to support national and local decision-making across a range of social and economic sectors to facilitate the formulation of evidence-based policy. The contribution of vital statistics to evidence-based decision-making is dependent upon timely dissemination to and appropriate uptake by the relevant decisionmakers. However, there is a surprising shortage of published literature on the effective use of vital statistics from the civil registration system to support policy and programme decision-making. A valuable exception to this rule is from Cape Town, South Africa, where the detailed analysis of data from the registration system was used to identify the leading causes of premature death and the subpopulations suffering the highest levels of premature mortality. User-friendly summaries of the findings and widespread dissemination to local communities and decisionmakers led to changes in health planning and policymaking, particularly for poor urban communities.\textsuperscript{84} In countries such as the United States of America, with well-established CRVS
systems, vital statistics generated at the local level have proven to be of great value to policymakers for identifying regional inequities in health status. In Australia, vital statistics data are used to identify local areas of population growth or decline and have a direct impact on government resource allocation.

Researchers have made good use of vital statistics, for example in producing estimates of the global burden of disease and of cause-specific mortality. A striking proportion of the published research has focused on cohort studies on various aspects of health and mortality using data derived from the Danish population registration system, which links information from the civil registration system with other administrative databases, such as place of residence, so that up-to-date information on the whole population is readily available. This has permitted researchers to undertake analyses of twinning rates, impact of smoking on foetal and neonatal survival, socioeconomic determinants of adult mortality and risk factors for suicide in young people. Detailed population-based information of this kind furnishes benefits beyond the health sector; it also results in better planning and governance across all sectors.

**Innovation for CRVS**

There is great interest in the potential of new information technologies (IT), including hand-held electronic devices, to facilitate the notification of vital events, speed up the process of delivery of certificates to individuals and improve the availability and quality of vital statistics.

A significant research effort was initiated in 2010 by the Health Metrics Network, a partnership hosted by the World Health Organization. In Kenya, the MOVEIT (Monitoring of Vital Events using Information Technology) project is examining the feasibility of using mobile phone technology (short message service or SMS) by community health workers to send notifications of vital events to an automated system, which would then trigger notifications to the registration officials who would then follow up to register the births or deaths on electronic birth/death notification forms. A project in Rwanda also involves low-end phones and RapidSMS technology to transmit information on births and deaths by SMS. An important early lesson learned is that legal processes need to be established whereby SMS can be treated as a formal notification, something that is not currently in place.

In Bangladesh, the MOVEIT project is aimed at registering all pregnant mothers and their children in a unified electronic information system. An early decision was made to build upon the nascent unified identification system of the Prime Minister’s Office that will become the de facto standard for all national identification documents (ID). This involves two existing IDs: the national ID (NID) that is managed
by the Election Commission and the birth registration number (BRN) that is managed by the local government departments concerned. As previously noted, this is an illuminating example of the power of high-level political commitment.

The MOVEIT project in Ghana is focused on the use of community volunteers in order to (a) produce real time, continuous data on births and deaths (by age and sex) in a limited number of districts in northern Ghana; (b) generate evidence about the feasibility of reinforcing vital registration in rural communities using existing volunteer structures and appropriate innovative technologies in data transfer and dissemination of results to expand coverage of vital registration; and (c) estimate the cost of scale-up and sustained implementation of reporting of vital events by community volunteers.104

The Philippines MOVEIT project brings together two existing monitoring tools: the Barangay Civil Registration System (BCRS) and the Watching Over Mothers and Babies, an ongoing project of the Department of Health to enable registration and processing of maternal and child vital events, and for the generation and utilization of vital statistics at the local level.105 BCRS supports the civil registration process by bringing it closer to the communities, trying thus to transcend physical, economical and geographical barriers experienced by the population.

Other studies have focused on using IT to improve the recording and ascertainment of causes of death. In Mozambique, the project is focused on hospitals and consists of training on the coding of International Statistical Classification of Diseases and Related Health Problems, 10th Revision (ICD-10) and classification of causes of death for the clinical staff and users of the system.106,107 The Indonesia project was designed around the development and implementation of software solutions for data entry, management and processing of vital registration data – mainly mortality data.108

A review of the MOVEIT projects concluded that strong programme logic should drive the system by strengthening efforts rather than simply the availability of a new technology.109 In recent research on 58 studies on so-called eCRVS or mCRVS** interventions, it was concluded that a rigorous evaluation component was often absent from the projects, rendering them of limited usefulness.110 Many projects were implemented on a small scale at the local level and issues of scalability were rarely addressed. Moreover, they generally related only to one aspect of the CRVS system, such as using mobile phones for notification of births (or, less commonly, deaths). Whereas several interventions were

** These terms refer to “electronic computer technologies for CRVS” and “mobile phone technologies for CRVS”, respectively.
focused on using mobile phones to increase the notification of births or deaths, very few investigated how such notification could be used to increase the issuance of certificates by the registration authorities. One study that addressed this issue found that the SMS intervention resulted in significant improvements in the notification step and modest improvements in the registration step but that both notifications and registrations still fell short of the vital events identified in the local demographic surveillance system.

The application of ICT to achieve improvements across all components of CRVS – from notification and registration of vital events to the issuance of certificates, the compilation and dissemination of vital statistics and archiving of civil registration records – has not been systematically addressed through research. This research gap is particularly striking given the burgeoning interest in using digital biometric identification technology, such as fingerprints or iris scans, in order to help “leapfrog” traditional paper-based identity systems based on civil registration. There are many examples of the use of such systems but limited evidence of research on how they should or can be integrated into existing civil registration or vital statistics infrastructure. Very often, the private sector and IT companies play a significant role and there is a lack of understanding about the need to link identity management to civil registration, which provides the first “breeder” document for subsequent identity management.

Research is also needed on the extent to which these systems are indeed effective in widening inclusion rather than further excluding the poor and vulnerable. Moreover, the driver for many of these initiatives is a desire to limit benefit fraud and ensure that welfare programmes are accurately targeted, and concerns have been raised regarding the confidentiality of personal data and on the potential for increased surveillance and erosion of privacy. Although many biometrics projects in developing countries are implemented through the health sector, they mostly relate to verification of insurance coverage or benefits, maintaining electronic health records and linking data and records. Research and case studies are needed on ways of linking these fragmented efforts into broader initiatives to improve the broader CRVS systems, enabling the targeting of health programmes and the generation of data on health and mortality through birth and death registration.

United Nations standards draw attention to the ethical dimensions and data security needs of civil registration. However, few contemporary studies have addressed such issues as how to strike a balance between the importance of good information about marginalized subpopulations and the risks of collecting information about religion or ethnicity. The increased use of electronic systems for collating and compiling individual data has highlighted the need to assure public and democratic oversight and confidentiality while simultaneously permitting the aggregation
of data for the purposes of statistical analysis of social conditions and population health. There is an urgent need to update and harmonize legislation that governs both civil registration and the management of vital statistics. Few developing countries have provisions for electronic transfer, storage of personal information, nor the proper systems for validation and verification.

Cross-cutting research on CRVS

While most research projects are narrowly delineated in terms of the interventions, some research efforts have addressed CRVS improvement in a more systemic way. System-wide efforts to improve CRVS in ways that cut across these distinct outcomes have been published with reference to Albania, Brazil, Fiji, South Africa, and Sri Lanka. A major finding is that, even in settings where such activities have been carried out, they have not been well documented, with the result that the experiences are not available to others treading a similar path. Several studies describe critical evaluations of the functioning of country CRVS. However, there is a high degree of fragmentation of research along agency and institutional lines. For example, in one country, research has been conducted or is underway on governance aspects of CRVS, on using community volunteers for CRVS, on linking civil registration, verbal autopsy and electronic medical records, on campaigns for birth registration, and on innovation and mobile technologies for CRVS. Such findings make the search for a coherent research agenda for CRVS all the more urgent.

Proposed strategic framework to guide the CRVS research agenda

Research categories

The present paper makes the case that there is a continuing need for research on how to strengthen CRVS systems in countries. However, there are a number of different kinds of research, not all of which are equally relevant to the needs of CRVS. Research can be categorized using three primary characteristics: the focus of the research, the users of the research outputs and the utility of the research outputs. This categorization results in a fourfold classification of types of applied research: operational, implementation, systems-wide and policy research, as described below:

Operational research is primarily, though not exclusively, concerned with operational issues of concern to national and local levels of action, such as at a local registration office or in a local health facility where birth and deaths occur, but also how the system is interoperable on a national level. The findings of operational research studies are predominantly of use to those working on aspects of civil registration and vital statistics...
at local and national levels. Because operational research generally addresses practical problems, taking into account the particular context in which they occur, the research utility of the outputs would not be readily applicable to other settings without careful and considerable adaptation. Even though the core elements of CRVS systems are common across settings, the practical implementation mechanisms will differ depending on local circumstances. Thus, incentives for registration that work well in one setting will not necessarily be effective elsewhere.

Implementation research is predominantly of use to higher-level managers of civil registration and vital statistics, especially when considering how to rollout a large-scale improvement effort. While contextual factors remain important, the utility of findings from implementation research can often be generalized to other settings within the country or even for other countries. Particular challenges in the ability to generalize the results lie in the variability in data availability and quality in different settings.

Systems-wide research is aimed at remedying failings in CRVS systems as a whole and is of most use to those who manage or need to design policies, programmes and business processes for CRVS. While all systems-wide research is context-specific, careful consideration of study design and reporting of context-specific factors generally improves the application of this type of research to other settings. Systems-wide research requires a high degree of cross-sectoral collaboration and use of interdisciplinary methods. Because it involves complex interventions in real-life settings, it tends to generate evidence of plausibility rather than of cause and effect.

Policy research is designed to increase understanding and improve how institutions and societies organize themselves in achieving collective goals, and how different actors interact in the policy and implementation processes to contribute to policy outcomes. By nature, it is interdisciplinary, a blend of economics, sociology, anthropology, political science, public health and epidemiology, and takes social norms and practices into account. It encompasses research on and is concerned with how policies are developed. Policy research has utility beyond the specific location in which it is conducted and can be used to influence national, regional and global-level advocacy and policymaking.

Strategic matrix

To guide the development of a CRVS research agenda, a strategic matrix is proposed that brings together desired outcomes of research in terms of improved knowledge to guide country and regional action and types of research questions (annex). This can be used to identify gaps in types and topics of research and to rebalance the types of research and respond to the needs of practitioners who implement the national plans.
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The way forward

This review is only the first step in the development of a research agenda. Next steps include the following:

(a) Solicit inputs from other global and regional partners, notably the United Nations system agencies, multilateral development banks and NGOs working in civil registration;

(b) Reach out to academic institutions and think tanks as potential partners in identifying research gaps and conducting the needed research. Develop partnerships with researchers working in demographic and health surveillance sites to promote closer links between research-based surveillance and routine civil registration and vital statistics systems;

(c) Consider approaching a range of journals across the development spectrum – statistics, governance, development, planning, health, human rights – to solicit possible interest in CRVS studies, either on an individual basis or as part of a series on CRVS;

(d) Approach the organizers of upcoming major academic conferences and propose special sessions, calls for papers and posters on CRVS. Possibilities include meetings of the International Union for the Scientific Study of Populations, World Statistics Congress of the International Statistical Institute, International Epidemiological Association and Population Association of America;

(e) Approach donors and development partners potentially able and interested in funding research and in supporting the development of global and regional repositories of research findings that can be accessed by CRVS practitioners.

Conclusions

Research can make a critical contribution to the gathering momentum for action to strengthen CRVS. For the research to be applicable and contribute to strengthening CRVS systems, it is imperative to recognize and deal with the institutional, political and cross-sectoral nature of civil registration and vital statistics systems, while taking into account rapid advances in knowledge and technologies, shifting expectations and concerns of the public and the increasing needs and changing priorities of decisionmakers. If the potential of research to improve CRVS is to be exploited optimally, it will be important to create synergies and complementarities across national, regional and global research efforts and support the kind of research that is most relevant and needed.
A considerable body of research and experience in relation to CRVS is available. While a lot of this information is based on descriptive research and analysis, it nonetheless offers a foundation upon which to build improvement efforts. Moreover, globally, there is an accumulating body of knowledge on strengthening weak or dysfunctional CRVS that needs to be widely shared so that countries can learn from the experience of others. To date, much of this knowledge is derived from experience rather than from formal evaluation or systems-wide research. Furthermore, the contribution of countries and researchers in the Asia-Pacific region to the published literature on CRVS is limited.

Many operational and implementation research studies have been confined to narrowly defined components of CRVS – for example improving medical certification of cause of death and introducing mobile phones for notification of vital events – few of which have addressed the challenge of scaling-up. On the other hand, there are lessons to be learned from innovative approaches to strengthening CRVS in challenging circumstances, such as in refugee and displaced populations, and in remote and marginalized populations.

An important gap is research on how to influence the many actors in policy and implementation processes and how to position CRVS as part of national policy. Policy research on the overarching value of CRVS remains rare, and there is a need to establish an econometric research agenda to support policy and financial decisionmakers.

A large proportion of the available evidence on improving CRVS is fragmented along sectorial lines with the result that within any single country, research projects on aspects of CRVS may be happening in different sectors but are not brought together to harness potential synergies. Bringing all this together in a systematic way would provide important evidence on which other countries could draw.

The paucity of published research on key barriers to functioning CRVS needs to be addressed through applied research. For example, although community involvement in and trust of civil registration is widely acknowledged to be critically important, behavioural research and lessons learned on how to do so is limited. Little research has been published about what kinds of incentives work and do not work for improving birth and death registration. There is also a lack of published research on the costs and benefits of establishing universal civil registration and complete vital statistics, although recently more work is being carried out in this regard.

The growing interest in the potential of information technologies and biometrics to rapidly scale up and accelerate the registration of vital events and assure legal identity presents important opportunities for strengthening CRVS but also a number of risks. Research is needed
on how to maximise the benefits of these technologies while ensuring that the core principles of civil registration and vital statistics systems – universality, continuity, completeness, confidentiality and dissemination – are respected.

The lessons learned from operational, implementation and policy research – both successes and failures – need to be documented and shared. The potential for South-South and peer-to-peer sharing of experiences has not yet been adequately harnessed for CRVS. Research on CRVS needs to be compiled and made readily accessible to users for the purposes of policy, programming and practice. This implies the development of a knowledge translation facility to ensure that the findings of research and lessons learned from countries are brought together and analysed for the benefit of those working to build CRVS at the country level.

In the final analysis, research alone will be insufficient to move the CRVS agenda in countries. Alongside research, it is essential to bring together and document country lessons about what worked and to bring decision makers and stakeholders together to learn from such experiences as they move forward to improve CRVS in their own settings.
### Annex

**Matrix for identifying research questions: an illustrative approach**

<table>
<thead>
<tr>
<th>Type of research</th>
<th>Operational research (of local relevance in specific settings)</th>
<th>Implementation research (relevant for scaling up promising interventions)</th>
<th>Systems-wide research (systemic research with relevance to other settings)</th>
<th>Policy research (how policies are developed and implemented)</th>
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<tr>
<td><strong>Outcomes</strong></td>
<td>Enhanced public awareness of the value of civil registration and vital statistics (CRVS).</td>
<td>Actions taken to ensure public and democratic oversight of CRVS systems.</td>
<td>Actions taken to remove barriers to registration at all levels.</td>
<td>Potential of improved registration of vital event among poor, remote and marginalized groups to reduce inequities and enable better targeting of programmes.</td>
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<td>Cost effectiveness and security of use of ICT and mobile devices in remote areas.</td>
<td>Scale-up of information, education and communication campaign on awareness of and compliance with civil registration, especially among marginalized groups.</td>
<td>Lessons learned from interventions to improve community involvement in CRVS.</td>
<td>Role and responsibilities of government and civil society in ensuring confidentiality and appropriate use of CRVS information.</td>
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<td></td>
<td>Definition of incentives vs. effects of penalties for failure to comply with registration of vital events.</td>
<td>Use of vital statistics as decision-making tools at the local level (in communities and municipalities).</td>
<td>Implementation of strategies to involve civil society organizations in promoting civil registration.</td>
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<td></td>
<td>Use of vital statistics as decision-making tools at the local level (in communities and municipalities).</td>
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Towards a Research Agenda for Civil Registration and Vital Statistics in the Asia-Pacific Region

- Development of consensus on public oversight mechanisms.
- Involvement of the health sector in supporting registration of vital events, for example through facility reporting, community health workers, immunization services.
- Political commitment to support improvement of CRVS.
- Use of local media to raise awareness of CRVS barriers and benefits.
- Enhancing awareness of policymakers and parliamentarians concerning value of CRVS.
- Assessment of different ways of reaching out to community and most effective advocacy techniques.
- Impact of national CRVS assessments and action plans on political commitment.
- Evaluation of role of municipal leaders in improving CRVS systems.
- Identification of drivers for policymaking and how can these be leveraged for CRVS.

<p>| Political commitment to support improvement of CRVS. | Use of local media to raise awareness of CRVS barriers and benefits. | Enhancing awareness of policymakers and parliamentarians concerning value of CRVS. | Impact of national CRVS assessments and action plans on political commitment. | Identification of drivers for policymaking and how can these be leveraged for CRVS. |
| Sustainable investments for CRVS. | Evaluation of benefits and risks with regard to fees for services to help finance local registration services. | Strategies for generating CRVS resources at the local level. | Use of business processes to demonstrate cost-effectiveness and stimulate allocation of national resources to CRVS. | Costs and benefits of CRVS for national development and returns on investment. |
| Improved policies, legislation and implementation of regulations for CRVS systems. | Assessment of strategies for drafting and promoting new legislation. | Evaluation of local and national government initiatives to strengthen CRVS. | Changes in CRVS legal and administrative structures to improve completeness and quality. | Effective ways of communicating CRVS challenges and solutions to policymakers. |
| | Linkages with social programmes and administrative registries. | | | Constraints and benefits of closer linkages between civil registration and civil identification systems. |</p>
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<tr>
<th>Improved availability and quality of legal documentation.</th>
<th>Targeted training of local registrars to improve the timeliness, completeness and overall quality of registration.</th>
<th>Evaluation of interventions to improve the capacity of the registration system to issue verifiable legal identity documents.</th>
<th>Strategies for improving behaviours and practices of CRVS system actors.</th>
<th>Role of improved registration documentation in promoting human rights.</th>
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<td></td>
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<td>Evaluation of improved legal documentation on access to services and economic activities.</td>
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<td>Impact of quality legal documentation from civil registration on overcoming inequities.</td>
</tr>
<tr>
<td>Increased country capacity to record, compile, analyze and disseminate complete and reliable vital statistics.</td>
<td>Evaluation of training to improve vital events recording, reporting compilation, archiving and analysis.</td>
<td>Evaluation of strategies to involve hospitals, health centres, religious institutions and schools in vital events registration.</td>
<td>Lessons learned on the potential of automated methods for improving coding on cause of death.</td>
<td>Role of health professionals and educational institutions in improving the quality of cause of death certification and coding.</td>
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<td>Effective coordination mechanisms among key CRVS stakeholders.</td>
<td>Overcoming barriers to effective coordination between health and civil registration authorities.</td>
<td>Evaluation of the impact of establishing local level CRVS coordination committees.</td>
<td>Impact of multisectoral CRVS committee on CRVS coverage, completeness and quality.</td>
<td>Lessons learned on challenges of establishing effective CRVS coordination mechanisms.</td>
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<td>Lessons learned from country experiences in integrating CRVS into national strategies for the development of statistics, social development strategies and sectoral plans.</td>
<td>Lessons learned on the benefits of functional CRVS in disaster risk reduction and in the provision of government services following emergencies.</td>
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<td>Increased capacity of countries to effectively use vital statistics.</td>
<td>Innovative methods for encouraging the use of vital statistics for local level/municipal decision-making.</td>
<td>Strategies for capacity development in the analysis and use of vital statistics.</td>
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<td>Use of improved cause of death data to guide health policy and resource allocation.</td>
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</table>
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