Civil Registration and Vital Statistics (CRVS) Systems: Data and Indicators to Inform the Sustainable Development Goals

Select Topics in International Population and Health

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INTRODUCTION

Civil Registration and Vital Statistics (CRVS) systems, in their capacities to record statistics about births, deaths, marriages, and other life events, have the potential to advance population health and human rights (United Nations, 2014 and 2021b). Data from well-functioning systems provide vulnerable individuals with information documents that ensure fundamental protections and supply governments, policymakers, and researchers aggregate-level statistics for monitoring human development. As such, the United Nations (UN) has identified CRVS as a key resource to help countries reach several Sustainable Development Goals (SDGs).

This brief, part of the Select Topics in International Population and Health (STIPH) series, will introduce the myriad ways CRVS systems can promote population health and human rights, as well as the principles and practices recommended to advance and sustain them.

Many experts in national statistics offices (NSOs) and ministries of health (MOHs) are familiar with aggregate-level vital statistics and the wealth of information they can provide to measure population, fertility, and mortality, as well as to formulate sound public policy. Figure 1 summarizes the various types of data and metrics that can be sourced from a well-functioning CRVS system.

What may be less apparent from the aggregate-level statistics is the depth of benefits that CRVS systems can give to vulnerable individuals within the populations they endeavor to serve. Figures 2a-2c illustrate some of the individual-level benefits that identity certification and official registration can provide through the life course (Data 2x, 2018).

Birth registration and subsequent certification and identity "proof" can ensure that individuals can access healthcare, receive education, use financial services, and vote (Figure 2a).

While rights to these fundamental resources have historically been difficult to achieve in many populations, the recent rise of mobility and migration has led to increases in the number of infants born in transit, with lessened chances for birth registration and heightened risk for permanent statelessness, trafficking, and lifelong marginalization from the institutions necessary for healthy development and participation in society.

This impact on people's lives means a well-functioning civil registration system is a crucial component of society (Sant Fruchtman et al., 2021).

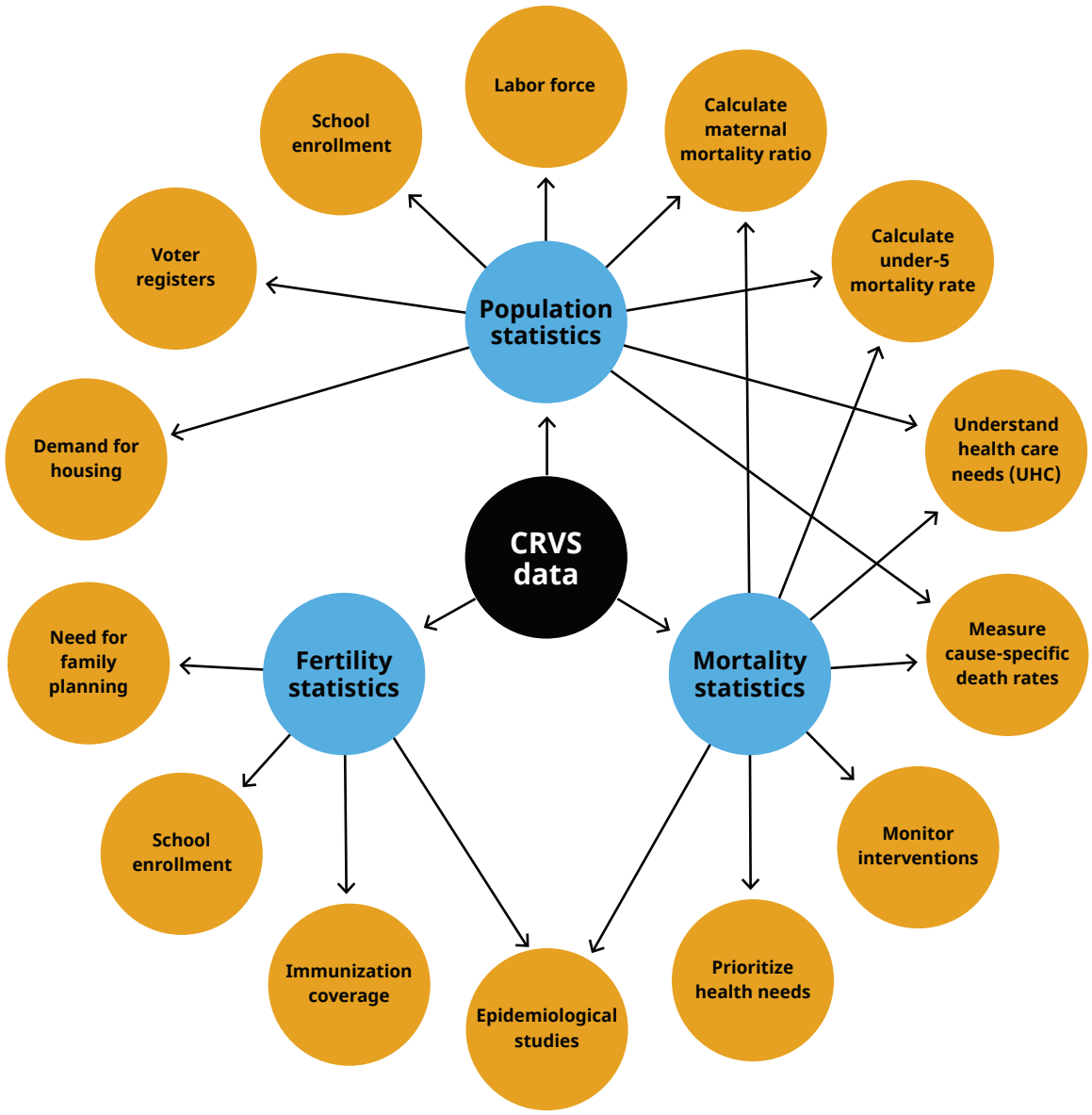
Marriage registration and certification provide several protections to vulnerable women, girls, and infants including the potential to prevent child marriage, legal justification for property ownership and inheritance, and official paternity recognition needed for ensuring that children born from otherwise vulnerable partnerships have access to resources (Figure 2b).

Death registration also provides special benefits to vulnerable women in particular, as the data produced from records on registered deaths have the potential to reveal disproportional risks of mortality due to certain diseases and provide numerators for the accurate calculation of maternal mortality rates (Figure 2c).

[1] This technical note is part of a series on *Select Topics in International Population and Health* that explores matters of interest to the international statistical community. The U.S. Census Bureau helps countries improve their national statistical systems by engaging in capacity building to enhance statistical competencies in sustainable ways.

Figure 1.

Statistical Applications of Civil Registration and Vital Statistics (CRVS) Data Including Sustainable Development Goals (SDG) Monitoring



Note: CRVS is "civil registration and vital statistics." SDG is "Sustainable Development Goals." This figure was adapted from the World Health Organization's "Civil Registration and Vital Statistics Strategic Implementation Plan 2021–2025."

Source: World Health Organization, 2021, <https://apps.who.int/iris/bitstream/handle/10665/342847/9789240022492-eng.pdf?sequence=1&isAllowed=y>.

The rights and resources supported by well-functioning CRVS systems have been recognized by the UN and incorporated into its SDGs, as well as the specific targets that operationalize various dimensions of them and the indicators that measure their progress. Those targets directly reflecting the function of CRVS systems are listed here (United Nations, Economic and Social Commission for Asia and the Pacific, 2017):

- Goal 16, Target 16.9: "By 2030, provide legal identity for all, including birth registration." (United Nations, 2015).
- Goal 17, Target 17.18: called for enhanced country support in improving statistical data, which includes those from CRVS systems: "By 2020, enhance capacity-building support to developing countries, including for least developed countries and small island developing States, to increase significantly the availability of high-quality, timely, and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location, and other characteristics relevant in national contexts." (United Nations, 2015).

- Goal 17, Target 17.19, Indicator 17.19.2: "Proportion of countries that (a) have conducted at least one population and housing census in the last 10 years, and (b) have achieved 100 percent birth registration and 80 percent death registration." (United Nations, 2017).

Aside from the SDG goals that CRVS systems support directly, a broad array of SDG indicators that require details on demographic events and population denominators would also benefit from advancing CRVS systems (Box 1). For example, indicators for infant mortality, maternal mortality, and mortality due to specific causes can be directly calculated from detailed death data, if they are available and of suitable quality.

The United Nations, World Health Organization, the Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics, and other international institutions have provided a comprehensive set of guidelines and tools for the establishment, improvement, and evaluation of CRVS systems (Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics, 2021; Centre of Excellence for CRVS Systems, 2021; United Nations, Economic and Social Commission for Asia and the Pacific, 2022; United Nations Statistics Division, 2014, 2021b; World Bank, n.d.; and World Health Organization, n.d.a.). While these resources can empower NSOs and MOHs to meet this global moment of interest in and incentive to improve CRVS, the development of their underlying principles and standards began many decades ago. Through implementation, observation, and practice, a wealth of handbooks, improvement frameworks, and metrics have been continuously updated and refined.

In the following sections, we highlight from these resources some key principles, practices, and findings. We hope this information provides a fruitful starting point for deeper learning and realization of CRVS systems advancement that can help in the achievement of SDGs.

CRVS SYSTEMS: BASIC FRAMEWORKS AND FUNCTIONS

Civil registration and vital statistics systems exist within a larger framework of institutions designed to support the social organization and population health of a country. Figure 3 diagrams CRVS systems' features and functions and illustrates the ordering and influence of their key components: civil registration and vital statistics.

According to the UN's "Principles and Recommendations for a Vital Statistics System," civil registration entails, " . . . the continuous, permanent, compulsory, and universal recording of the occurrence and characteristics of vital events pertaining to the population, as provided through decree or regulation in accordance with the legal requirements in each country." (United Nations, 2014). A vital statistics system consists of, " . . . (a) legal registration and (b) statistical reporting of, and (c) collection, compilation, and dissemination of statistics pertaining to vital events. . . . The vital events of interest are: live births, adoptions, legitimations and recognitions; deaths and fetal deaths; and marriages, divorces, separations, and annulments of marriage." (United Nations, 2014).

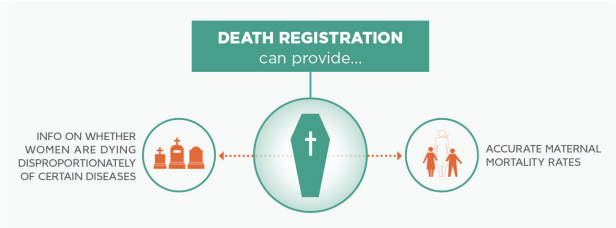
Figure 2a.
Benefits of Birth Registration

Note: This figure was reprinted from United Nations Foundation (2018).
Source: Data2x, 2018, <https://data2x.org/wp-content/uploads/2019/05/CRVSandGenderBrief.pdf>.

Figure 2b.
Benefits of Birth Registration

Note: This figure was reprinted from United Nations Foundation (2018).
Source: Data2x, 2018, <https://data2x.org/wp-content/uploads/2019/05/CRVSandGenderBrief.pdf>.

Figure 2c.
Death Registration and Gender-Sensitive Statistics



Note: This figure was reprinted from United Nations Foundation (2018).
Source: Data2x, 2018, <https://data2x.org/wp-content/uploads/2019/05/CRVSandGenderBrief.pdf>.

Box 1.

Sustainable Development Goals

1. End poverty in all its forms everywhere.
2. End hunger, achieve food security and improved nutrition, and promote sustainable agriculture.
3. Ensure healthy lives and promote well-being for all at all ages.
4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
5. Achieve gender equality and empower all women and girls.
6. Ensure availability and sustainable management of water and sanitation for all.
7. Ensure access to affordable, reliable, sustainable, and modern energy for all.
8. Promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all.
9. Build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation.
10. Reduce inequality within and among countries.
11. Make cities and human settlements inclusive, safe, resilient, and sustainable.
12. Ensure sustainable consumption and production patterns.
13. Take urgent action to combat climate change and its impacts.
14. Conserve and sustainably use the oceans, seas, and marine resources for sustainable development.
15. Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.
16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all, and build effective, accountable, and inclusive institutions at all levels.
17. Strengthen the means of implementation and revitalize the global partnership for sustainable development.

Source: United Nations, "Sustainable Development Goals," 2015, <www.un.org/sustainabledevelopment/sustainable-development-goals/>; United Nations Statistics Division, "Global Indicator Framework for the Sustainable Development Goals and Targets of the 2030 Agenda for Sustainable Development," 2017, <https://unstats.un.org/sdgs/indicators/Global%20Indicator%20Framework%20after%202022%20refinement_Eng.pdf>.

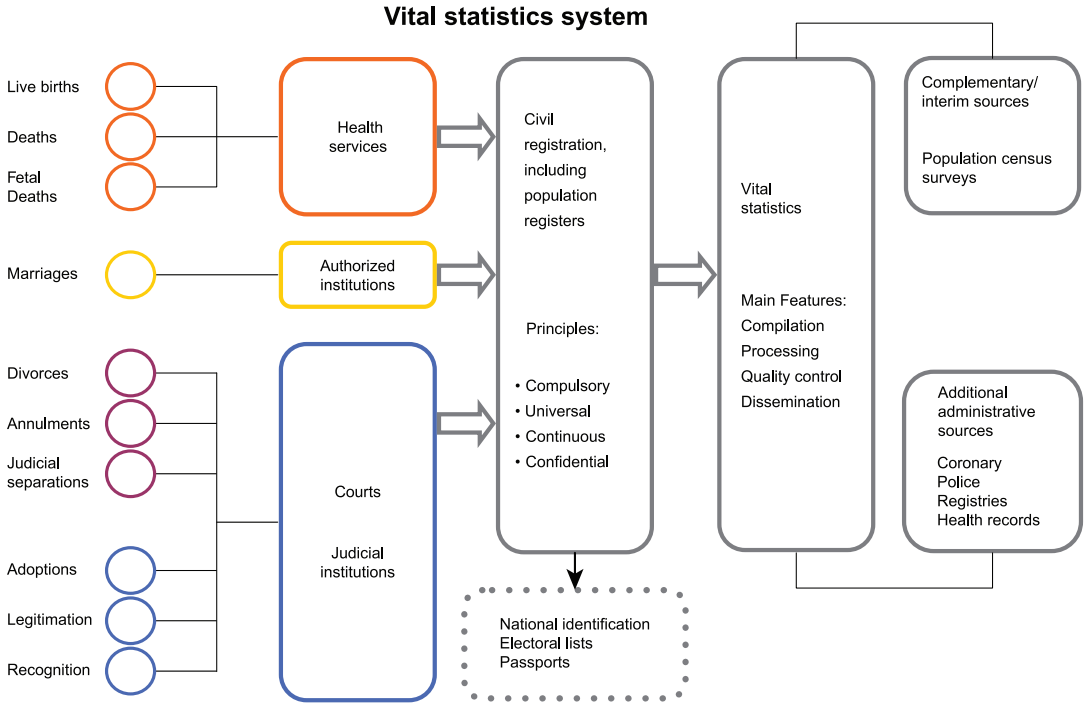
Vital statistics are produced with information from civil registrars. However, civil registration is not the only source of vital statistics—censuses, surveys, and other types of administrative records provide them as well—but vital statistics produced from well-functioning civil registration systems have the important "built in" feature of providing timely, up-to-date information for a consistent population universe. As such, they are uniquely positioned to provide a wealth of beneficial information for population and health policy in a timely and relatively predictable way.

According to the UN, CRVS systems should achieve standards of completeness, correctness or accuracy, availability, and timeliness (United Nations, 2014):

- **Completeness** is the achievement of registering every vital event in a country or subnational area and providing a statistical report to the agency responsible for producing vital statistics, assuming registration has achieved 100-percent coverage of the geographic area for which the CRVS system is accountable.
- **Correctness or accuracy** is the correct completion of each item in a vital record at the time of registration, as well as the error-free transfer of information from the vital record to the reports from which vital statistics are produced.
- **Availability** is achieved when civil registration data and vital statistics have been collected, filed, stored, and processed in each system, are accessible upon request, and provided in a user-friendly format.
- **Timeliness** refers to the successful registration of events within legally stipulated time frames, statistical reports based on these events are forwarded for production per scheduling requirements of the vital statistics program, and vital statistics are produced, published, and disseminated expeditiously enough to serve the needs of their users.

Among these criteria, completeness and accuracy are of higher priority, though all should be monitored and assessed to identify areas in need of improvement (United Nations, 2014).

Figure 3.
Civil Registration and Vital Statistics Systems



Note: This figure was reprinted from "United Nations Principles and Recommendations for a Vital Statistics System — Revision 3" and "Handbook on Civil Registration and Vital Statistics Systems: Management, Operation and Maintenance, Revision 1."
Source: United Nations Statistics Division, 2014, <https://unstats.un.org/unsd/demographic/standmeth/principles/M19Rev3en.pdf>; United Nations Statistics Division, 2021b, <https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Handbooks/crvs/crvs-mgt-E.pdf>.

More complex CRVS systems are computerized and allow for linkages across records of different events—e.g., births with infant deaths—and integration with data beyond the registration system, including those from censuses, surveys, population registers, and overarching identity management systems (United Nations, Department of Economic and Social Affairs, 1969; United Nations Statistics Division, 2014 and 2021b). The advantages of such complexity are numerous, and potential benefits include improving individual-level human rights and increasing the breadth and depth of aggregate-level measures for effective policymaking in population health. For example, with the capacity to link marriage registrars with birth records, the potential for child marriage could be flagged and ultimately prevented. Protecting the privacy and confidentiality of personally identifiable information during records linkage is important; and while adding such safeguards adds complexity to the process, the benefits to population health can be substantial. Of course, growing a CRVS system in this way is best pursued upon a foundation of well-performing civil registration systems, from where high-quality vital statistics can be generated.

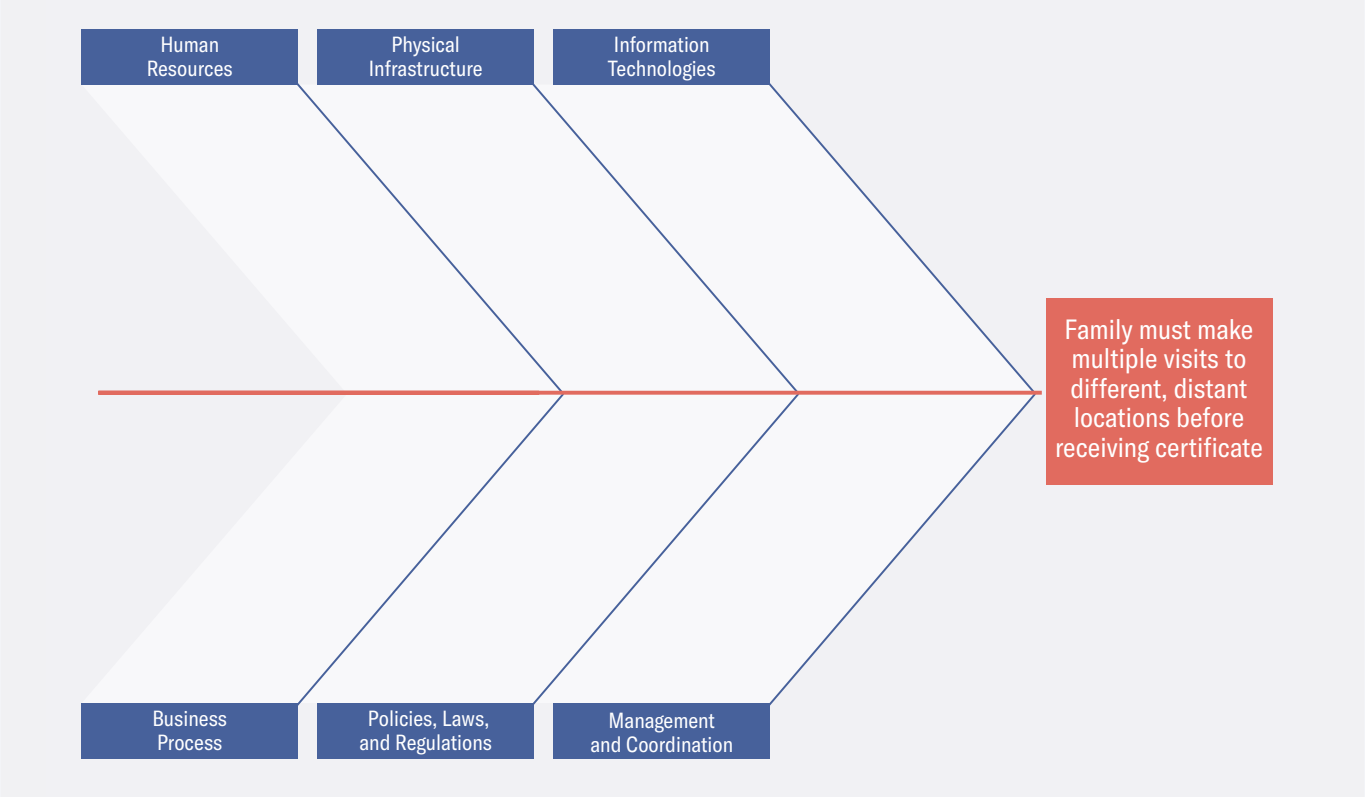
CIVIL REGISTRATION SYSTEMS: ASSESSING PERFORMANCE

An array of guidelines and tools are available for constructing systematic and structured workflows to assess the performance of civil registration systems (Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics, 2021; United Nations Statistics Division, 2014, 2021b; World Bank, n.d.; World Health Organization, n.d.a.). Here we focus on the CRVS Systems Improvement Framework developed by the Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics (2021) that incorporates established international standards and global lessons-learned into a user-friendly, consensus-based approach. The framework, mostly geared towards improving the civil registration components of CRVS systems, consists of three stages: (1) assessment, analysis, and redesign, (2) development of the strategic action plan, and (3) implementation, monitoring, and evaluation.

A key stage one assessment tool and example provided in the framework will be reproduced and reviewed here, as it is illustrative of one of the burdens often endured in low- and middle-income countries in the registration process and offers an effective strategy for identifying root

Figure 4a.

Example Diagram for Major Cause Categories of Civil Registration and Vital Statistics (CRVS) Process Performance



Source: Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics, 2021, <https://getinthepicture.org/sites/default/files/resources/210127_CRVSImprovementFramework_v03-7.pdf>.

causes of it. The burden identified in the example is the requirement of birth registration informants—families with newborns—to make multiple trips to separate and sometimes distant government offices to complete the registration and certification process. Figures 4a-4c illustrate a three-step diagraming process designed to identify and diagnose the root causes of this issue, "Family must make multiple visits to different, distant locations before receiving certificate."

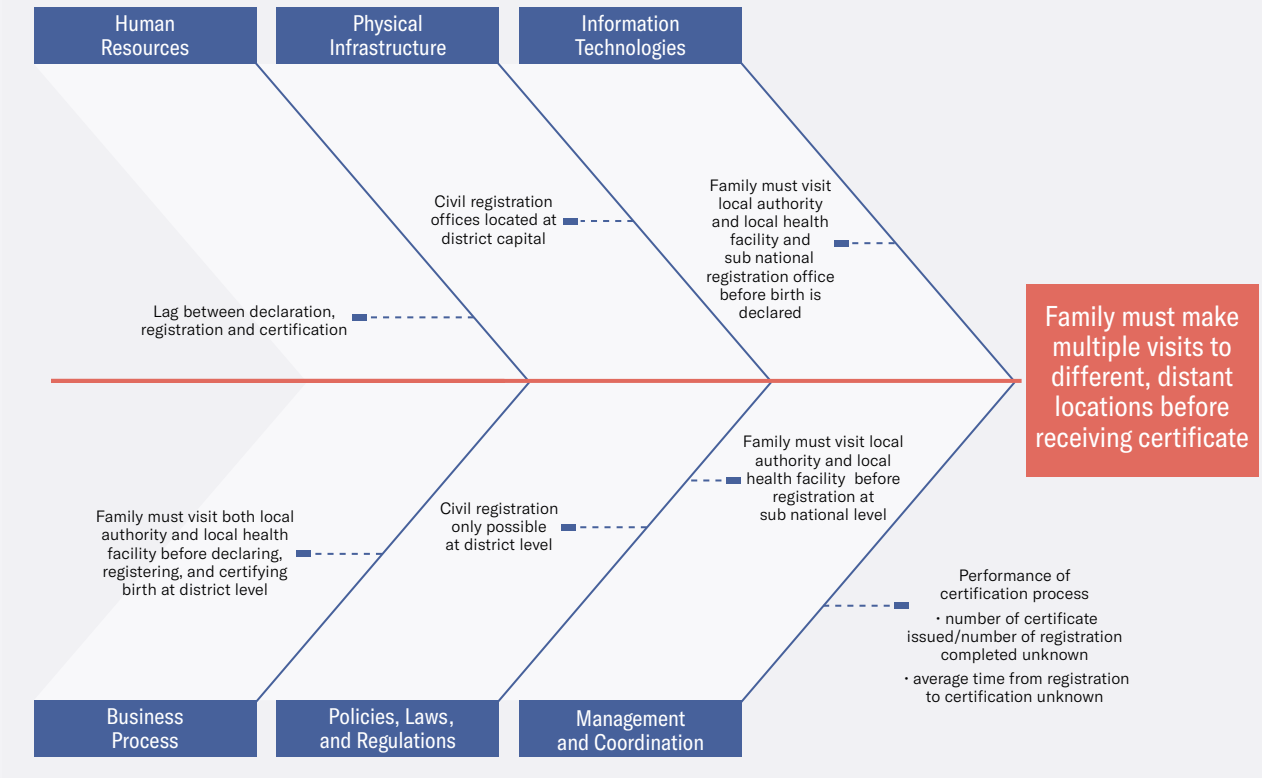
Figure 4a displays the first step of diagnosis, which is to identify and chart major cause categories of the issue. The categories include human resources, physical infrastructure, information technologies, business process, management and coordination, and policies, laws, and regulations.

The second step, according to the framework authors, usually demands the most effort in the diagnosis process. This step includes brainstorming the primary causes of the problem and placing each cause under a relevant major cause category, wherein some major cause categories may be found to contain the same primary cause. In this example, the following issues were found to cause the problem of a family needing to make multiple visits to different and distant locations before receiving a birth certificate: (1) the family is required to obtain a documented proof of birth from a local authority, (2) a separate birth notice document is then required from the family's local health facility (before a birth is eligible to be declared), (3) the family then needs to travel to a third location (the subnational civil registration office) with the requisite documentation to register the birth, and (4) because of the lag time between registration and certification, an additional visit to the subnational civil registration office must be made in order to acquire the official birth certificate. Figure 4b places these primary causes within major cause categories.

The final step in the diagnosis entails a deep examination of the processes within the major cause categories explaining why the multiple visits specified in step two occur. These explanations are then charted as "branching off" from the primary causes. As in the prior step, one explanation may apply to several cause categories. In this example, legal mandates were found to have determined the requirement to visit three separate offices to certify a birth, as displayed in Figure 4c. In this method of diagraming causes, the cascading impacts of such requirements, as well as multipronged solutions, can be revealed and potentially resolved.

Figure 4b.

Example Diagram for Primary Causes of Civil Registration and Vital Statistics (CRVS) Process Performance



Source: Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics, 2021, <https://getinthepicture.org/sites/default/files/resources/210127_CRVSImprovementFramework_v03-7.pdf>.

The aforementioned process is recommended for application within a team setting and on the basis of consensus. Among follow-up activities for the process, verification of the laws, procedures, and business practices noted while brainstorming is also recommended to provide the credibility needed for decisions involving resource expenditure. In this way, a strong foundation can be set for the next stages of strategic action plan development and implementation, monitoring, and evaluation.

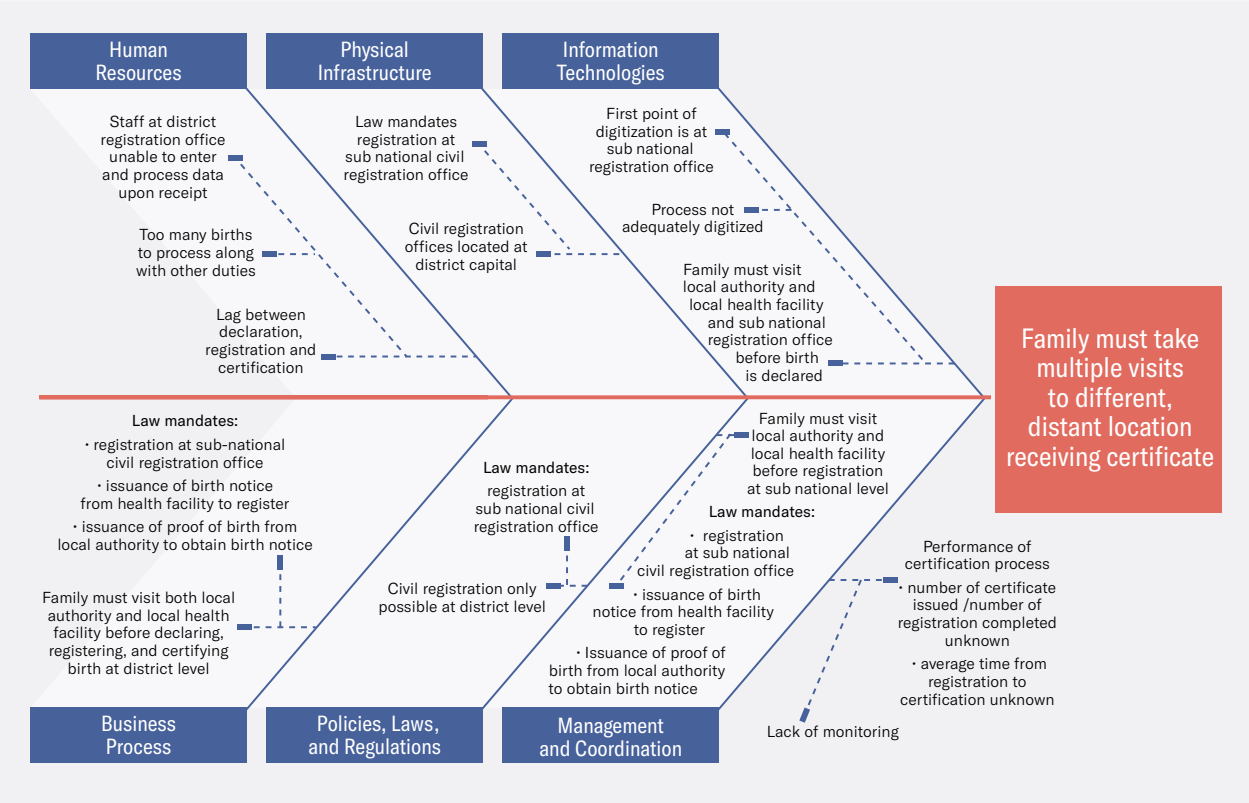
Qualitative data, such as those noted above, provide important insight into the underlying processes that limit timeliness of registration and ultimately may compromise completeness. Additionally, survey-based strategies and quantitative methods are available to measure and summarize performance. The United Nations Statistics Division (2014) recommends the use of sample surveys conducted among vital records informants (such as mothers who registered the births of their infants), requesting information provided to the registrar, and comparison of the response with the original birth record.

Such "dual records systems" can take other forms, including the operation of a sample survey concurrent with registration activity and subsequent matching of results, or the assignment of two independent coding teams to produce the same set of statistical reports with registration details. Other direct matching techniques involve using records from institutions and data collection operations entirely outside of the CRVS system such as other administrative and social systems (e.g., hospital records and school enrollment listings), population and housing censuses, and household surveys that may include listings of live births or deaths for available years. Strategies for use of records internal to CRVS systems are also described. For example, within CRVS systems, infant death records can be used to verify the registration of births. While these matching procedures have the potential to reveal important details about errors, their reliance on highly sensitive information requires the development of and compliance with rules, regulations, and well-established practices to ensure privacy and confidentiality. In addition to records-matching, the completeness of civil registration can be gauged with sample survey questions asking respondents whether or not registration of vital events took place such as those included in Demographic and Health Surveys and Multiple Indicator Cluster Surveys.

The quality of civil registration can serve as a partial indicator of the quality of vital statistics produced from it. Because issues can occur in the production of registration information into statistical reports, as well as during

Figure 4c.

Example Diagram for Charting Deeper Causes of Civil Registration and Vital Statistics (CRVS) Process Performance



Source: Africa Programme on Accelerated Improvement of Civil Registration and Vital Statistics, 2021, <https://getinthepicture.org/sites/default/files/resources/210127_CRVSImprovementFramework_v03-7.pdf>.

the transfer of such reports to the vital statistics authority in charge of generating vital statistics and aggregating events for dissemination purposes, data from the vital statistics system themselves also need evaluation.

VITAL STATISTICS GENERATED FROM CIVIL REGISTRATION SYSTEMS: EVALUATING QUALITY

The United Nations Statistics Division (2014) also provides several strategies for evaluating the quality of vital statistics. As mentioned in the prior section on civil registration systems, monitoring the transfer of statistical reports from the civil registration system to the authority responsible for vital statistics production, as well as the performance level of the civil registration system itself, are important steps. Another important accounting exercise in preparation for completeness assessments involves gauging the proportion of registrations that are late, i.e., completed after the required deadline, but within the allowed grace period, with those that are delayed (completed after the grace period). Accounts of late and delayed registrations, in turn, can provide the basis for adjustments (United Nations Statistics Division, 2014; United Nations Economic and Social Commission for Asia and the Pacific, 2022).

Once aggregate vital statistics from the civil registration system are generated, initial assessments of coverage and completeness can be conducted through simple calculations and integration of independent aggregate-level data.

$$(1)\ \text{Coverage}\ (\%) = \frac{\text{Population in administrative areas served by the CRVS}}{\text{Total population}} * 100$$

The United Nations Economic and Social Commission for Asia and the Pacific (2022) released a user-friendly guide detailing a number of these calculation strategies, as well as adjustment methods to account for data deficits. Among the more fundamental measures are metrics for coverage and completeness, as displayed in equations 1-3.

Coverage is a spatial metric indicating the geographical reach, or accessibility, of the CRVS system, while completeness measures the proportion of vital events captured in the CRVS system, among the population covered (Carter, 2016; United Nations, 2022). Equation 1 shows the formula for coverage, wherein the numerator is the population in administrative areas served by CRVS, and the denominator is the total population that the CRVS system intends to serve.

Metrics for completeness depend on information about coverage, as they are designed to measure the number

of events in covered areas only. A strict operationalization of the completeness concept is displayed in equation 2, wherein the completeness formula is expressed as the number of events from the vital statistics system in areas covered by civil registration divided by the total number of events expected in the same areas covered by civil registration. The denominator is derived independently of vital statistics from civil registration and, therefore, achieving the geographic precision needed to exactly match the numerator can be difficult. Because of this challenge, a rougher estimate generated by the formula in equation 3 can in many cases suffice to provide a usable indicator of completeness.

$$(2)\ \text{Completeness (\%)} = \frac{\text{Number of events registered in covered areas}}{\text{Total number of events expected covered areas}} * 100$$

$$(3)\ \text{Completeness (\%)} = \frac{\text{Civil registration events}}{\text{Estimated "true" number of events}} * 100$$

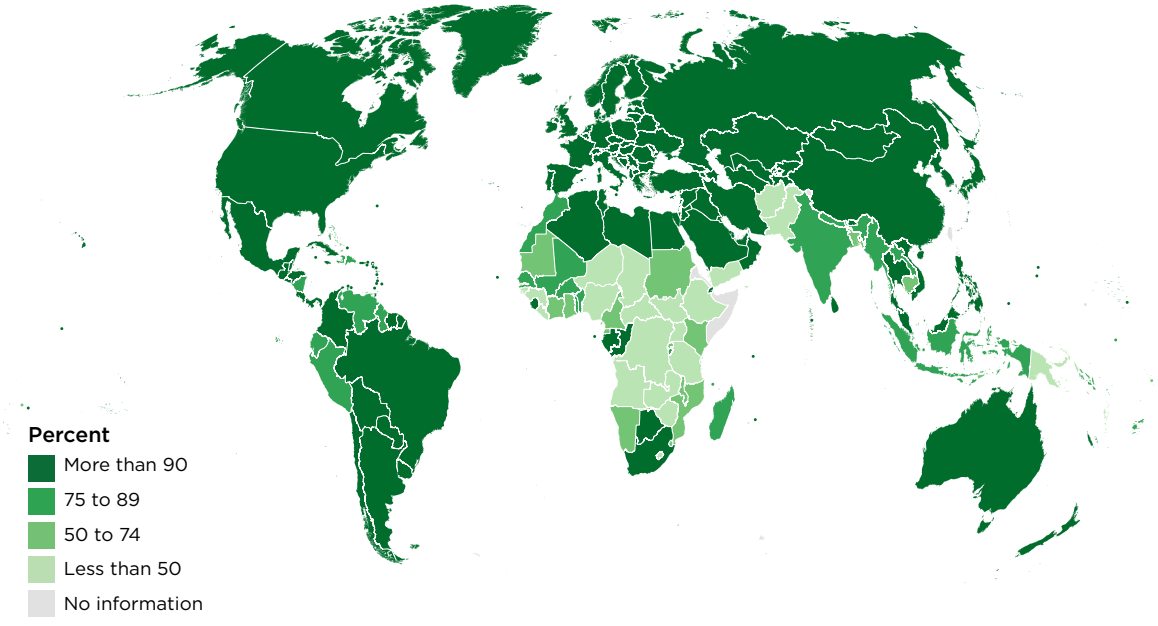
The UN's guidance points to several mechanisms through which independent estimates can be derived, and similar to much demographic and health accounting, it is usually a good idea to employ a mix of measurement strategies, while being mindful of the limitations in each. Independent estimates can be accessed from the CRVS system itself, aggregate census or survey data, or estimates and projections produced in-house by an NSO or MOH, as well as those available from international and internationally oriented organizations. While these data can serve as input to the formulas above, they can also be employed to conduct larger analyses and cross-country comparisons (United Nations Economic and Social Commission for Asia and the Pacific, 2022; United Nations Statistics Division, 2014).

The United Nations Statistics Division (UNSD) periodically assesses the completeness of registered births and deaths for countries around the world. Their most recent sets of global estimates available at the time of drafting this brief are displayed in Figures 5a and 5b.[2]

The methods employed in their assessment include those described in "Principles and Recommendations for a Vital Statistics System" (United Nations Statistics Division, 2014). The primary sources are responses provided by national governments to a questionnaire about their own assessments of the quality of their vital statistics, as well as the methods and independent data sources employed in their assessments (United Nations Statistics Division, n.d.). The UNSD's evaluation also includes UN workshops that have been conducted in the past, wherein country representatives from NSOs or civil registration authorities provided the relevant information. In cases where required information is not available from country representatives

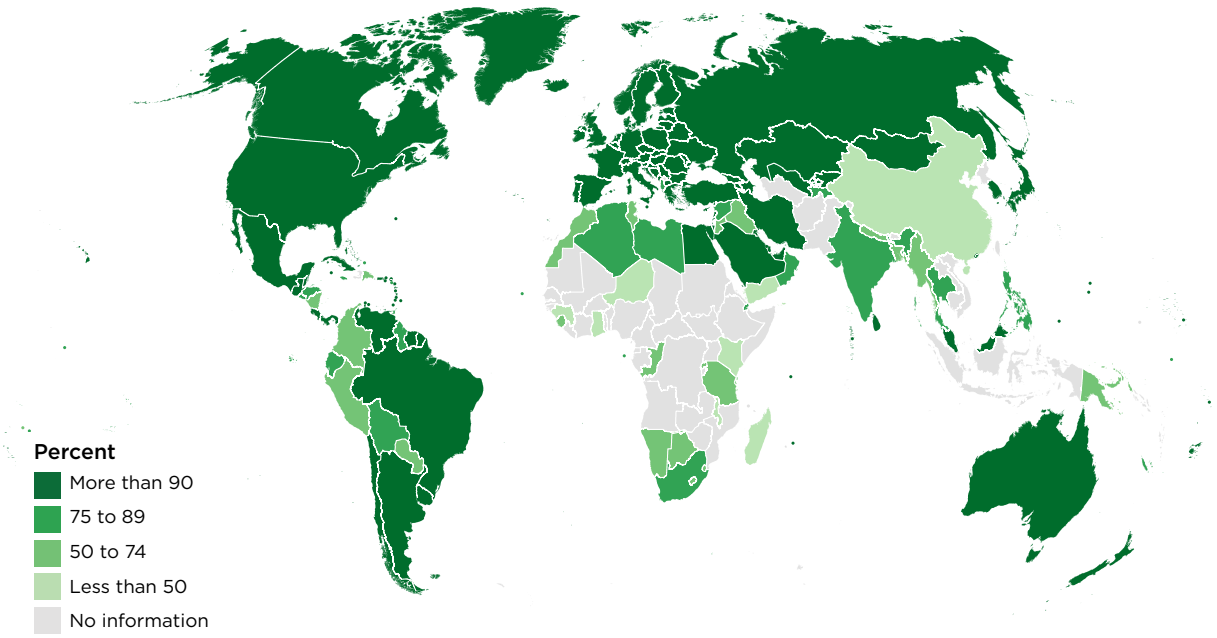
[2] More recent publications for specific regions and countries are gradually becoming available, including UNESCAP's recent release, "Reaching a Regional Estimate of Death Registration Completeness," (United Nations Economic and Social Commission for Asia and the Pacific, 2023) though it should be noted that the source data for these estimates represent year 2018.

Figure 5a.
Estimated Completeness of Birth Registration: February 2021



Note: Smaller geographic areas have been represented as points to improve visibility. This map was adapted from the United Nations Statistics Division's "Coverage of Birth and Death Registration."
Source: United Nations Statistics Division, 2021a, <https://unstats.un.org/unsd/demographic-social/crvs/>.

Figure 5b.
Estimated Completeness of Death Registration: February 2021



Note: Smaller geographic areas have been represented as points to improve visibility. This map was adapted from the United Nations Statistics Division's "Coverage of Birth and Death Registration."
Source: United Nations Statistics Division, 2021a, <https://unstats.un.org/unsd/demographic-social/crvs/>.

and authorities, Demographic and Health Surveys, Multiple Indicator Cluster Surveys, or data from the World Health Organization are used. Further, if these sources are not available, various research reports by UNSD are used. The UNSD's most recent set of global estimates available at the time of drafting this brief have a reference date of February 2021. One key consideration is that the data sources for most countries used for the assessment are from 2019 or earlier and therefore do not reflect the impacts of the COVID-19 pandemic (Box 2).

A country that is in the process of advancing its CRVS data through reliance on population and health metrics can now benefit from a host of readily available online technical guides and tools for evaluating and producing them.

The U.S. Census Bureau has several online resources available for such endeavors, including the Demographic Analysis and Population Projection System (DAPPS) software, Population Analysis for Microcomputers (PAS) software, Subnational Projections Toolkit, and a methods document describing many of the underlying evaluation and estimation formulas for these tools (Arriaga, 1994a, 1994b; U.S. Census Bureau, 2014a, 2014b, 2021a).

The United Nations also provides web-based tools and manuals, including Mortpak software and "Manual X: Indirect Techniques for Demographic Estimation"; it has also made a presentation available that displays key approaches in assessing coverage and completeness from its Expert Group Meeting on the Methodology and Lessons Learned to Evaluate the Completeness and Quality of Vital Statistics Data from Civil Registration (Carter, 2016; United Nations Economic and Social Commission for Asia and the Pacific, 2022; Department of International Economic and Social Affairs of the United Nations Secretariat, 1983; United Nations Population Division, 2013).

Additionally, the International Union for the Scientific Study of Population provides a set of tutorials in its Tools for Demographic Estimation resource (International Union for the Scientific Study of Population, 2014), and Avenir Health offers several projections models in its Spectrum software (Avenir Health, 2023).

In case in-house estimation and projection is not possible, and for use in comparing such measures with outside sources, population estimates and projections of countries and areas around the world are available from the United Nations' World Population Prospects and the U.S. Census Bureau's International Database, among other resources from organizations in the global statistical community (United Nations Population Division, 2022; U.S. Census Bureau, 2021b).

Box 2.

Civil Registration and Vital Statistics (CRVS) Systems in Emergencies: Lessons Learned From the COVID-19 Pandemic and Other Crises

Like other crises, the COVID-19 pandemic revealed preexisting deficits, in many cases exacerbated them, and often created additional strains in the process of accessing the basic resources that CRVS systems are intended to provide (AbouZhar, 2021; Kelly et al., 2021; Niamba, 2021; Silva-Valencia et al., 2021). While the extent of COVID-19 impacts have not yet fully been assessed, those that have, when combined with lessons learned in other crises, can provide the foundation upon which CRVS systems can be strengthened.

The Centre of Excellence for CRVS Systems, drawing on a number of country case studies and following the standards established by the United Nations and World Health Organization, created a framework for building resiliency into CRVS systems in order to help them prepare for the next emergency, as well as function more effectively during normal, noncrisis periods (Sant Fruchtman et al., 2021). The framework consists of seven interdependent core competencies (or qualities) that CRVS systems should assume in order to position themselves to respond to crises and better serve populations in their more fundamental day-to-day needs: agile, efficient, essential, inclusive, integrated, responsive, and robust.

- **Agile**: The capacity of CRVS systems to quickly adapt to new demands.
- **Efficient**: The ability to utilize limited resources well and to properly prioritize during emergencies. This quality is recognized in the context of limited funding and is a burden often endured in the CRVS systems of low- and middle-income countries.
- **Essential**: Key stakeholders, such as policymakers and other governmental decision-makers, recognize the value of CRVS systems to a population and prioritize their development, inclusion of vulnerable groups, and accessibility during crises.
- **Inclusive**: The capacity of CRVS systems to account for the needs of groups who are typically marginalized—e.g., children, women, senior citizens—and to work towards destigmatizing the details in vital events that may prevent their inclusion in civil registers.
- **Integrated**: CRVS systems that coordinate and share data types across government agencies, nonstate actors, and national borders while ensuring data protection, privacy, and confidentiality for individuals, as well as remaining accessible to these individuals and their communities.
- **Responsive**: CRVS systems that are designed from the perspective of the populations they aim to serve and pay special attention to vulnerable and hard-to-reach groups.
- **Robust**: CRVS systems that can continue to function and even expand operations during times of shock and stress.

Source: AbouZhar et al., "The COVID-19 Pandemic: Effects on Civil Registration of Births and Deaths and on Availability and Utility of Vital Events Data," American Journal of Public Health 111(6): pp. 1123–1131, 2021, <https://pubmed.ncbi.nlm.nih.gov/33856881/>; Kelly et al., "Lessons Learnt and Pathways Forward for National Civil Registration and Vital Statistics Systems After the COVID-19 Pandemic," Journal of Epidemiology and Global Health, 11(3): pp. 262–265, 2021, <https://pubmed.ncbi.nlm.nih.gov/34270182/>; Niamba, "Civil Registration and Vital Statistics Systems in the Face of the COVID-19 Pandemic: A Literature Review," CRVS Working Paper Series, Issue 3, Ottawa: Centre of Excellence for CRVS Systems, 2021, <https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/60206/IDL-60206.pdf?sequence=2&isAllowed=y>; Sant Fruchtman et al., "Building Resilient CRVS Systems: Lessons From the COVID-19 Pandemic and Other Emergencies," in Compendium of Good Practices: Harnessing Civil Registration and Vital Statistics (CRVS) Systems in Confict, Emergencies, and Fragile Settings, Ottawa: Centre of Excellence for CRVS Systems, 2021, <https://crvs-systems.ca/sites/default/files/assets/images/02%20EN%20CRVS%20in%20Conflict%2C%20Emergencies%20and%20Fragile%20Settings_Lessons_WEB.pdf>; Silva-Valencia et al., "How Has COVID-19 Impacted the Civil Registration and Vital Statistics System in Loreto, Perú? Evidence Using Process Mapping and Qualitative Analysis," BMJ Open, 11(11), 2021, <https://pubmed.ncbi.nlm.nih.gov/34799366/>.

CONCLUSION

Civil Registration and Vital Statistics (CRVS) systems can provide the aggregate data and individual resources for improving population health and ensuring fundamental human rights. The United Nations and other international organizations have identified CRVS as a key resource to help countries achieve Sustainable Development Goals (SDGs). Civil registration and vital statistics systems comprise an integral part of the networks and institutions designed to support the social organization and population health of a country. Guidelines and tools from a host of international organizations are available for assessing the performance of civil registration systems and the

quality of vital statistics generated from them. While the COVID-19 pandemic and other emergencies have imposed setbacks on CRVS development, lessons learned from these crises can set the foundation for building stronger systems and better serving the vulnerable populations who may depend on them.

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