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## **IMPROVING DATA FOR POLICY: STRENGTHENING HEALTH INFORMATION AND VITAL REGISTRATION SYSTEMS**

Reliable health information systems (HIS) are essential for the effective functioning of health systems that can be responsive to population needs. Health service managers and policy-makers use data for patient care, to enhance the efficiency and effectiveness of health services, to aid evidence-based decision-making and to prioritize resource allocation. By investing in HIS and civil registration and vital statistics (CRVS) systems, governments will have access to increasingly accurate and timely data for informed decision-making for health planning and evaluation.

While efforts to improve HIS and CRVS systems are under way in the region, Pacific island countries and areas (PICs) must further strengthen these systems in order to generate reliable data for policy-making. Key concerns include HIS workforce capacity; further improvements in data collection and registration processes; better analysis, dissemination and use of data; investments in information and communication technology (ICT); and strengthening relationships with agencies beyond the health sector that collect and use health information.

There is a critical need for health leaders to demand better data from their HIS and to instil a culture of information use for policy-making. Continued investments in HIS and CRVS systems must remain a national priority to ensure PICs can make evidence-based decisions that utilize resources effectively and provide maximum health benefits to their people. A current challenge for the region is the sustainability of networks and programs that play a role in supporting national improvements. Coordination of investments by development partners and the use of regional mechanisms will be essential to sustain ongoing support for HIS and CRVS systems in the region.

## 1. BACKGROUND

Routine health information is essential for monitoring health status, understanding low life expectancies, assessing the emergence of noncommunicable diseases (NCDs) as a major public health emergency, and controlling the resurgence of communicable diseases such as dengue fever and tuberculosis. In particular, vital statistics, ideally from civil registration and vital statistics (CRVS) systems, on births, deaths and cause-of-death are a critical source of information for monitoring population health, identifying health priorities and evaluating the impact of health programmes. These data also are important for a broad range of social and development investments, including basic population statistics, education, social security and child protection. Vital statistics from civil registration are also the best source to monitor progress towards the Millennium Development Goals (MDGs) and track improvements in maternal and child health. Both health information systems (HIS) and CRVS systems involve a broad range of primary stakeholders in the data collection and reporting processes, including health services, national statistical offices and civil registry offices.

The collection of data has long been regarded as an important activity in the Pacific, and this is reflected by the substantial amount of data collected in Pacific island countries and areas (PICs). While most countries have complex facility registries, reporting forms and medical record rooms, their health information units are often unable to analyse, transform and report on the data in a useful way for planning and policy-making. As a result, decision-makers have little trust in local health data and in the ability of their own HIS to provide reliable information. Furthermore, observations made over past decades have highlighted the importance of key principles, such as integration, leadership and the use of data in decision-making. These are the cornerstones of an effective HIS.

The Pacific thus remains one of the few regions in the world where countries continue to struggle to provide accurate, complete and timely data from their own HIS, and consequently, must rely on partial data or external global and country estimations. The absence of reliable and timely data is a significant barrier to effective planning and cost-effective resource allocation.

It is widely accepted that the Pacific is facing a rapid increase in the rates of NCDs. Currently, national HIS do not provide Pacific decision-makers with enough information to

measure the burden of NCDs and to address NCD prevention and control needs. Decision-makers must have access to information on the magnitude of public health problems posed by NCDs, information on the levels and trends of risk factor prevalence, and information on the impact of current policies and programmes on these trends in order to address this epidemic effectively.

A successful response will require the generation and dissemination of accurate information and evidence for use by senior decision-makers, national programme managers, and health facility managers for their day-to-day management of NCD services and programmes, and clinicians to facilitate the long-term clinical management of patients. Civil registration with cause-of-death certification is important for generating accurate data on trends in cause-specific mortality for different NCDs. Indeed, many PICs still do not know the real burden of specific components of NCDs because reliable cause-of-death data is often absent.

There are significant benefits for countries to have access to regional platforms for both HIS and CRVS systems improvements. Through these platforms, specialized technical expertise can be leveraged and countries can share experiences and establish standards and best practices for regional comparison, reporting and accountability. A number of important regional networks and centres are currently active, including:

- 1) The Pacific Health Information Network (PHIN) aims to support health outcomes and systems through strengthening the quality and use of information. An important goal of PHIN is to provide a mechanism for networking, information sharing and support for training health information professionals.
- 2) The Health Information Systems Knowledge Hub, an initiative funded by the Australian Agency for International Development (AusAID), has developed and provided technical tools, guidance and support for capacity-building as part of HIS and CRVS strengthening activities.
- 3) Pacific Public Health Surveillance Network (PPHSN) is a voluntary network of countries and organizations that was established in 1996 under the auspices of Secretariat of the Pacific Community (SPC) and the World Health Organization (WHO). It is governed by PICs and is dedicated to the promotion of public health surveillance with a focus on diseases.

- 4) Brisbane Accord Group (BAG) is responsible for implementation and coordination of the Pacific Vital Statistics Action Plan, which aims to improve the availability, accuracy and use of vital statistics on births, deaths and cause-of-death data.
- 5) Centre for Health Information, Policy and Systems Research (CHIPSR) unit at Fiji National University was developed to ensure the use of evidence-based research in national policies.
- 6) Pacific Research Centre for the Prevention of Obesity and Non-Communicable Diseases (C-POND) is a partnership between Fiji National University and Deakin University that conducts solution-orientated research on obesity and NCDs for the Pacific.
- 7) The SPC Public Health Division Research, Evidence and Information Program is working on building operational research capacity in the region, and is developing an operational research agenda to respond to needs identified by PICs for enhancing the performance (quality, effectiveness or coverage) of public health programmes, including health information systems.
- 8) Pacific Islands Health Officers Association (PIHOA) Health Information Management Systems Initiative aims to assist member countries (U.S.-Affiliated Pacific Islands) improve the capture and use of data across the domains of vital statistics, community based surveys, medical records, disease registries, administrative data and information technology networks.

## **2. ACHIEVEMENTS AND PROGRESS**

### ***Health information systems***

A number of PICs have begun the task of improving and strengthening their HIS by comprehensively assessing and reviewing their systems and developing detailed, costed HIS strategic plans that address core weaknesses. For some, this has required that they develop or update HIS policies, legislation and regulations and strengthen their relationships with other government agencies. All PICs have been involved in capacity-building activities, including supporting staff to attend workshops and training opportunities on HIS and CRVS principles and practices. Targeted activities supported by partners have been implemented, such as

developing health data dictionaries, enhancing existing and implementing new software applications, and improving the quality of annual health reports.

While there has been much historical progress in strengthening HIS in the Pacific, recent investments and initiatives supported by donors have accelerated this work. Investments have not occurred in a linear fashion for all PICs, and this has resulted in three broad country categories of HIS development in the region:

PICs that have organized HIS committees, undertaken a comprehensive assessment of their HIS and developed a national framework to guide investments, including a prioritized and costed HIS strategic plans. These countries have begun to implement activities from within their strategic plans with increased national budgets and more rational and targeted support by partners. (American Samoa, Fiji, Nauru and Tonga).

PICs that have established committees and are working towards the development of a national framework and policy to guide HIS developments. With donor support these countries have also invested in improving basic data collection processes, such as improving medical records, data collection forms and routine HIS processes. (The Commonwealth of the Northern Mariana Islands, Cook Islands, the Federated States of Micronesia, Kiribati, the Marshall Islands [partial assessment], Samoa, Solomon Islands, Tokelau and Vanuatu).

PICs that are making steps to improve processes but have yet to develop national plans and processes for strengthening data completeness, analysis or use. (Guam, Palau, Papua New Guinea and Tuvalu).

The majority of PICs have utilized the *Regional Health Information Systems Strategic Plan* developed by PHIN ([www.phinnetwork.org](http://www.phinnetwork.org)) as a framework to develop a national HIS road map and guide to national HIS investments.

All PICs, through their national statistical offices, have agreed to and have begun reporting on 58 health-related indicators as part of the National Minimum Development Indicators coordinated by SPC and available online. Statistical offices have also made improving health statistics one of four key priority areas under Phase 1 (2011–2014) of the *Ten Year Pacific Statistics Strategy*.

### ***Civil registration and vital statistics systems***

Fifteen PICs are working in accordance with the *Pacific Vital Statistics Action Plan (2011–2014)*, which was developed to assist PICs to improve their statistics on births, deaths and cause-of-death. Country systems assessment and planning in CRVS has commenced in American Samoa, the Commonwealth of the Northern Mariana Islands, Cook Islands, the Federated States of Micronesia, Fiji, Guam, Kiribati, the Marshall Islands, Nauru, Niue, Palau, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu and Vanuatu, with most having completed draft plans and begun implementation of improvement activities. In each PIC, planning work has involved staff from the Ministry of Health, the National Statistics Office and the Civil Registry Office, along with other key partners.

PIC outcomes have included:

- 1) Medical certification training for doctors (Cook Islands, the Federated States of Micronesia, Fiji, Nauru, Niue, Samoa, Tokelau, Tonga and Tuvalu)
- 2) Improving curriculum for medical students on certification practices and procedures (Fiji National University and Oceania University of Medicine Samoa)
- 3) Policy changes to adopt the WHO International Cause-of-Death Certificate (Fiji, Samoa, Tonga and Tuvalu)
- 4) Analytical capacity-building through participation in a one-week CRVS Short Course at the University of Queensland (Fiji, Samoa, Solomon Islands and Tonga)
- 5) Completing analytical and reporting writing attachments with SPC for vital statistics data (Nauru, Niue and Tonga)
- 6) Producing a comprehensive vital statistics report (Niue)
- 7) A large number of in-country meetings with representatives from statistics, civil registration and health units present to discuss improvements and agree on activities (Cook Islands, Fiji, the Federated States of Micronesia, Guam, the Marshall Islands, Niue, Nauru, Palau, Samoa, Tokelau, Tonga and Tuvalu)
- 8) Improving registration coverage of births and deaths (Fiji, Cook Islands, Nauru, Niue, Palau, Samoa, Tokelau, Tonga and Tuvalu).

### 3. CHALLENGES AND ISSUES

#### *Health information systems*

A number of challenges and issues need to be addressed if investments in HIS and CRVS systems are to be maximized. Further capacity-building is required to develop technical skills in epidemiology, biostatistics and database management. Enhanced capacity is also needed at all levels of the health system: from staff at health facilities that complete monthly reporting sheets and doctors certifying cause-of-death to data-entry clerks at information units and all the way up to senior decision-makers who need to use the information for resource allocation and planning. The NCD crisis in the Pacific makes this all the more urgent.

Even in countries where health and vital statistics are collected, they are often incomplete, as systems for reporting events from remote islands do not function well. Sometimes, incomplete data are the result of a lack of cooperation among different ministerial offices, such as health, statistics and civil registration. A high reporting burden on health facilities caused by the multiple, vertical information systems that exist for different diseases and disease programmes also compromise completeness of HIS and CRVS systems.

A 2009 regional assessment of health information systems by the Pacific Health Information Network (PHIN)<sup>1</sup> found that one of the key challenges for countries was integrating data from a range of sources and collections into an accessible shared system. Other key issues identified for HIS systems were:

- The need for stronger HIS leadership and governance;
- The limited “culture of information use”;
- Building capacity among individuals and institutions;
- Limited (or non-existent) infrastructure and support for information technology;
- Timeliness of information; and
- Data completeness.

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<sup>1</sup> PHIN is a regional network of HIS professionals. The PHIN secretariat is located at the University of Queensland.

### ***Civil registration and vital statistics***

While some PICs have complete or near complete reporting of births and deaths, others still rely on indirect methods through the census to obtain annual estimates. Under the *Vital Statistics Action Plan* countries are focused on achieving 80% coverage of registrations. At present, some PICs, such as the Cook Islands, Fiji, Nauru, Niue, Palau, Tonga and Tuvalu, (including all of the Pacific island territories), are able to generate reliable measures of births and deaths from registration data for the National Minimum Development Indicators. Fewer still are able to generate reliable cause-of-death data by age, sex and geographical location.

Other constraints with CRVS systems include:

- Significant problems with accuracy of cause-of-death data;
- Lost data due to events occurring offshore;
- Limited analysis and use of data;
- Duplication of responsibilities for vital registration; and
- Poor cause-of-death certification practices.

Critical to both HIS and CRVS systems is the need for strong leadership and governance to encourage a culture of information use and to facilitate communication among programmes, departments and agencies. Increasing incentives to collect, share, analyse and interpret statistics is paramount. Many decision-makers and political leaders do not regularly demand high-quality data, and there is limited discussion on identifying what is needed from data systems to make evidence-informed investments in health. Another issue is the challenge of collecting, sharing and analysing statistics across different sectors. Organizations that are essential in these activities stretch beyond local ministries of health and include national statistics and civil registration offices.



#### 4. FUTURE DIRECTIONS

While significant progress has already been made in the Pacific, most countries, should continue to focus on a few priority actions:

- 1) Develop a national committee(s) for the oversight of HIS and CRVS activities. The committee should have clearly defined terms of reference and include members from health, statistics, civil registration and other key stakeholders. Countries are encouraged to develop clear reporting mechanisms to ensure that senior management, both within and beyond health, are kept informed of progress and challenges.
- 2) Conduct an assessment of the HIS and CRVS systems, if this has not occurred already. These assessments should be coordinated and implemented through the national committee to ensure involvement of all relevant stakeholders. Standardized tools and processes that have been developed for HIS and CRVS assessments should be used and, if needed, technical assistance provided.
- 3) Develop detailed, costed national HIS and CRVS strategic plans. These plans should build upon results from the assessments and contain a prioritized list of actions to guide countries and partners to coordinate and streamline investments. These plans will also allow partners to better coordinate and contribute technical assistance and support countries in a manner that best meets their identified needs.
- 4) Implement and monitor progress. The national committee should oversee implementation of the plan, including tracking progress.
- 5) Obtain high-level endorsement and support for the improvement plans. High-level support, coordination and leadership at the national and regional level are crucial for the success of any plan.

These actions, with technical support from regional networks and agencies, will allow PICs to work towards developing HIS and CRVS systems that provide sound evidence for policy-making, planning and evaluation that is critical in the Pacific given current health concerns. Commitment by all to develop a culture of information use across the Pacific is essential for ensuring the long-term sustainability of our healthy islands.



### **Pacific Health Information Network**

The Pacific Health Information Network (PHIN) is a regional network of health information systems (HIS) professionals that was established at the Health Metrics Network (HMN) meeting in Noumea, New Caledonia, in 2006. It was created to provide a mechanism for networking, support, information sharing and training for people working in health information systems in the region. Membership of PHIN is currently open to all Pacific island countries and areas (PICs). Members can attend PHIN meetings, participate in discussions and decision-making events and advocate for health information at important events within their country. Since its creation, various workshops and meetings have been held across the Pacific.

PHIN aims to support health outcomes and health systems through the strengthening of health information. To achieve these goals PHIN has a number of specific target outcomes across the region including:

- 1) To support the integration of HIS and to ensure that cost-effective, timely, reliable and relevant information is available and used to better inform health development policies
- 2) To provide a capacity-building mechanism for networking, support, information sharing and training for people working as health information professionals
- 3) To promote HIS in the broader health system strengthening agenda.

The vision of PHIN is for health in PICs to be enhanced through better use of quality and timely information.

### **The Pacific Vital Statistics Action Plan**

The *Pacific Vital Statistics Action Plan* was developed to assist Pacific countries to understand the critical importance of vital statistics on births, deaths and causes of death, and to improve their availability, accuracy and use. It also focuses on helping countries to improve the completeness of registration of births and deaths and to improve the quality and reliability of data on causes of death through a range of strategies and linked activities. The Action Plan was endorsed by the Pacific Islands Health Ministers at their 2011 meeting and sits under the framework of the *Ten Year Pacific Statistics Strategy*.

As part of this collaborative initiative to improve vital registration practices, the Action Plan identifies long-term goals and priority actions. Countries are encouraged to focus on five priority areas:

- 1) Improving data integration and sharing
- 2) Increasing data analytical skills among data producers
- 3) Strengthening strategies to advocate for HIS
- 4) Improving knowledge about the importance and use of vital statistics
- 5) Making better use of institution-based data.

As no single agency is responsible for vital statistics and civil registration in the Pacific, the Brisbane Accord Group (BAG) was established to coordinate, facilitate and support investments in the region through collaborative activities under this plan. The Group consists of United Nations agencies, universities and technical agencies.<sup>1</sup> Joint coordination and implementation of the plan is managed through the University of Queensland and SPC.

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<sup>1</sup> Secretariat of the Pacific Community (SPC), United Nations Population Fund (UNFPA), United Nations Children's Fund (UNICEF), University of Queensland Health Information Systems Knowledge Hub (UQ HIS Hub), Queensland University of Technology (QUT), Australian Bureau of Statistics (ABS), Fiji National University (FNU), World Health Organization (WHO)

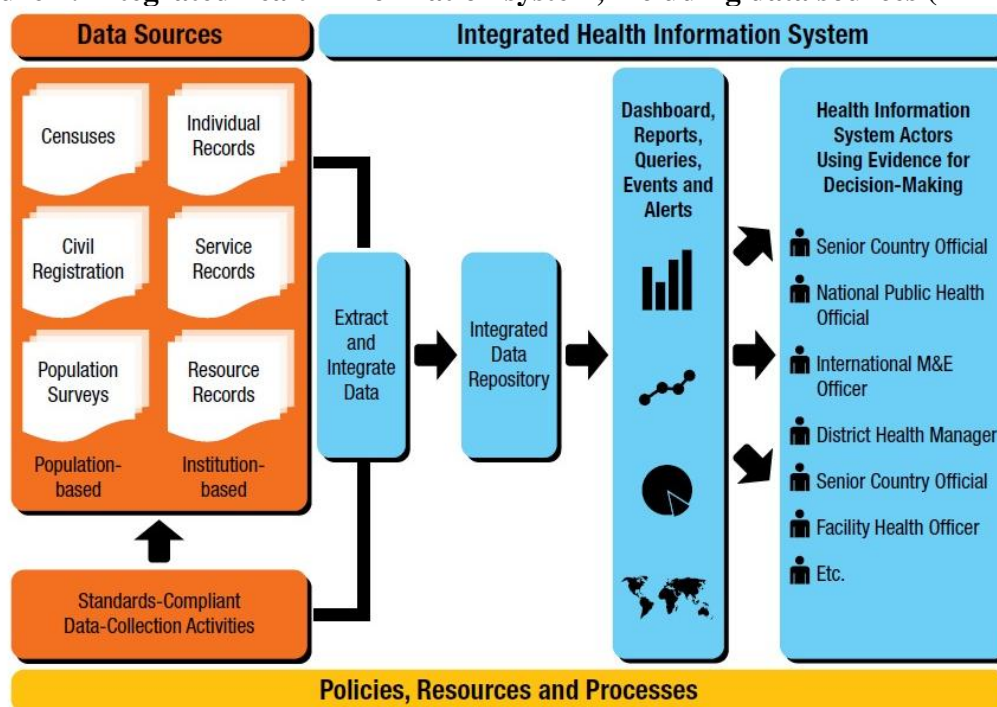
### Health information systems

The World Health Organization (WHO) defines a health information system (HIS) as “an integrated effort to collect, process, report and use health information and knowledge to influence policy making, program action and research”. What is important to note from this definition is that the HIS is as much about using information as it is about collecting, storing and analysing it. HIS also stretch well beyond specific diseases and programmes to embrace the health system and its component parts in its entirety as the basis for effective use of resources.

A country’s health information system includes all the data and records about the health of the population (see Figure 1). Sources of data include:

- 1) Civil and vital registration (e.g. births, deaths and cause-of- death)
- 2) Census and surveys
- 3) Medical and health facility service records
- 4) Financial and resource tracking information.

**Figure 1: Integrated health information system, including data sources (HMN 2008)**



Annex 3

The goal of HIS is to produce relevant and quality information that stakeholders can use for making transparent and evidence-based decisions for health. The performance of a health information system is measured not only on the quantity and quality of data produced, but on evidence of the continued use of data to improve health system performance, to respond to emergent threats and to enhance public health.

Routine HIS, such as those operated through health information departments or national statistics offices, provide information on:

- 1) Health problems
- 2) Risk factors associated with disease
- 3) Mortality and morbidity
- 4) Health service coverage
- 5) Health system resources
- 6) Public health emergencies
- 7) Implementation and evaluation of interventions.

Governments in the Pacific rely on HIS to provide them with information about:

- 1) The health of the community
- 2) The use and need of health services
- 3) Formulating, monitoring and evaluating health policies
- 4) Measuring progress made in the provision of health services
- 5) Reporting on international targets such as the Millennium Development Goals
- 6) The emerging epidemic of noncommunicable diseases
- 7) The increasing impact on health from natural disasters
- 8) Ongoing major health concerns from infectious diseases including HIV, tuberculosis and malaria.