Strengthening health information systems

This note provides an overview of health information systems. The note

- summarises why a well-functioning information system is important for achieving universal health coverage, and the health-related Sustainable Development Goals (SDGs);

- outlines the main attributes of a well-functioning health information system;

- synthesizes international experience relevant to low- and middle-income countries in strengthening health information systems.

Why is a well-functioning health information system important for UHC and the SDGs?

Good governance and leadership of a health system requires reliable, timely information. Decision-makers need to know, for example, whether or not people are getting the services they need and where resources are going. Information is used in a wide range of situations: when developing national strategies and plans; when monitoring progress against national priorities; or when responding to public health emergencies. Information is also needed for greater accountability for results[1].

The role of a health information system is to ensure the production, analysis, dissemination and use of reliable and timely data by decision-makers at all levels of the health system.

What are the main attributes of a well-functioning health information system?

A well-functioning health information system (HIS) has three main attributes[2]:

(1) Generation of individual-level, facility-based and population-based data from multiple sources: public health surveillance platforms, medical records, civil registration data, household surveys, censuses, health service coverage and health system input data (e.g. human resources, health infrastructure and financing).

(2) Capacity to detect, investigate, communicate and contain events that threaten public health security at the place they occur, and as soon as they occur.

(3) Ability to synthesize information and apply this knowledge. A good HIS improves both demand for and supply and use of data – in clinical management, financing, planning, and implementation.

The main data sources of a comprehensive national health information system that are

Table 1. Data sources and types of information produced

Data sources	Type of information produced
Household surveys and census	A multi-year programme of national health surveys identifies strategic priorities, periodicity and scope of data collection (e.g., Demographic and Health Survey, Multi-Indicator Cluster Survey). Quality censuses should be carried out on a regular 10-year cycle using international principles and standards.
Civil registration and vital statistics (CRVS)	Registration of births, deaths and other vital events occurrence and production of fertility and mortality statistics (using the latest International Classification of Diseases—ICD) to understand burden of disease on the population.
Health facility and community information system	Timely and reliable statistics from public and private health facilities and community health systems using standardized data, recording and reporting processes and platforms with regular data quality review.
Disease surveillance	Core surveillance and response capacities with standardized case definitions, regular updating of responsibilities for notification and investigation, active participation of communities and health workers and a supportive laboratory infrastructure (requirement of the International Health Regulations 2005)
Health systems data	Databases on health facilities and services (e.g., captured from a Service Availability and Readiness Assessment—SARA), health care finances, supply chain and logistics. A system of national health accounts and health workforce registry to track health workforce statistics.
Non-health sector sources	Sources of data and periodicity of reporting with statistics offices and ministries overseeing water and sanitation, indoor and outdoor air quality, education, agriculture and food security, transportation, and all other relevant sectors.

essential for measurement and accountability for results are shown in Table 1:

What are the main challenges to improved production and use of health information?

The strengths and weaknesses of many national information systems are well-recognised. Data that is collected may be incomplete or of poor quality; there may be duplication and fragmentation of data across reporting systems that have been developed by different users. This makes it difficult to connect – for example – the resources invested to results achieved. There has been much investment in information systems in recent years, but data needs and demands are changing with the rise in noncommunicable diseases, and

concerns about public health security. The SDGs emphasize the importance of monitoring equity. Most countries already have health facility registries and service-use reporting forms; they maintain medical record rooms and may have health information units overflowing with data. However, despite this, many are still challenged to ensure timely reporting; to produce disaggregated data and use it for policy and planning; and to monitor trends in health services and outcomes. More technical skills in key areas such as epidemiology, biostatistics, and database management are needed.

Another challenge is how to better share and analyse statistics across different programmes and sectors. Many current systems are ineffective, or encourage duplication. Standards and "best practice" in the use of information and communications technology (ICT) enabled solutions (eHealth and mHealth)

can enhance health information sharing, and need more consistent application. Appropriate use of new ICT developments is an opportunity that needs to be well-managed.

What are the main actions countries can take to strengthen their HIS?

Based on the international experience, seven *strategic areas for action* are recommended to strengthen the national health information system[3] towards better measurement and accountability for results:

- *Improve governance:* HIS strengthening requires an enabling environment and robust collaboration between health and other sectors, including ICT, across public and private spheres. A multisectoral coordination mechanism should coordinate and oversee activities and investments for HIS and eHealth. This can help build national institutional and human capacities through peer-to-peer networking and knowledge exchange.

- *Invest in data sources and capacities:* These investments will strengthen governance of HIS by national authorities, eHealth architecture, and data standards – allowing interoperability and improving health information workforce skills and capacities for using health statistics and data.

- *Align stakeholders in support of health information systems:* Development partners and national institutions should align their investments. Data, monitoring and accountability should be integrated into the one plan, one budget and one monitoring and evaluation (M&E) framework for the health sector with health SDGs and other monitoring obligations aligned to it.

- *Use the digital revolution:* The power of information and communication technology (ICT) innovation can help improve the availability, completeness, timeliness, quality, and use of data for decision-making in health. Minimizing the burden of data collection, analysis and reporting through eHealth strategies can improve health service delivery and management as well as facilitate the generation of accurate and timely data. Data should be secure and shared more freely, allowing rigorous comparison, and learning and building of the evidence base for scaling up interventions.

- *Strengthen the capacity for systems and applications to be reusable:* Promote the use of scalable, affordable, open access software systems and work with collaborations to develop and use common health information architecture, standards, guides, tools and solutions.

- *Use data to improve policy and service delivery:* With focus on equity, disaggregated data and access to need-based, good quality services, health information should be used by and provided to decision-makers at all levels for improving health policy, system and services.

- *Strengthen accountability and reporting of results:* There should be national oversight mechanisms for key indicators of national health targets and goals (including all three aspects of UHC: population coverage, service coverage and financial protection), and mechanisms of regular reviews and analyses to assess progress and performance against national health sector related priorities. These reviews should be transparent with mechanisms to share the analysis, discuss the implications, and identify remedial actions.

References

1. Health Measurement and Accountability Post-2015: Five-Point Call to Action, WHO, World Bank Group, and USAID.

2. Framework and standards for country health information systems, Health Metrics Network, WHO, 2008

3. The Roadmap for Health Measurement and Accountability 2015: A Common Agenda for the Post-2015 Era, WHO, World Bank Group, and USAID.