The Roadmap for Health Measurement and Accountability

June 2015

M·A4Health

Measurement and Accountability for Results in Health:
A Common Agenda for the Post-2015 Era

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Overview

The Roadmap articulates a shared strategic approach to support effective measurement and accountability systems for a country's health programs. The Roadmap outlines smart investments that countries can adopt to strengthen basic measurement systems and to align partners and donors around common priorities. It offers a platform for development partners, technical experts, implementers, civil society organizations, and decision makers to work together for health measurement in the post-2015 era.

Using inputs and technical papers developed by experts from international and national institutions,[1] the Roadmap was completed following a public consultation that received extensive contributions from a wide number of agencies and individuals from across the globe.

The Roadmap will be launched at the Summit on the Measurement and Accountability for Results in Health, June 9–11, 2015, which will be held at the World Bank headquarters in Washington, D.C.

Common Road Map Steering Committee http://ma4health.hsaccess.org/partners

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List of Abbreviations

CHW	community health worker
CRVS	civil registration and vital statistics
DHIS 2	District Health Information System 2
HIS	health information system
HMN	Health Metrics Network
HRIS	human resources information system
ICD	International Classification of Diseases
MDG	Millennium Development Goal
NSO	National Statistical Office
SDG	Sustainable Development Goal
SHA	System of Health Accounts
UNGA	United Nations General Assembly
UNGASS	United Nations General Assembly Special Session
USAID	United States Agency for International Development
WBG	World Bank Group
WHA	World Health Assembly
WHO	World Health Organization

Why a *Roadmap* is Needed

There is growing demand for timely and accurate health-related data at the global, country, and local levels. However, it is constrained by the many limitations influencing the ability of country information systems to supply the data required. This *Roadmap for Health Measurement and Accountability* outlines ways of redressing these supply-demand imbalances. It describes how low- and middle-income countries can harness the information they need to plan, manage, and account for the results of their health policies, to respond to inequities in health, and to measure progress in achieving subnational and national global health goals. It also shows how international support can best support these actions.

This *Roadmap* builds on the work of the Health Metrics Network (HMN),[i] the health care quality monitoring work of the Organisation for Economic Co-operation and Development (OECD),[ii] the International Health Partnership (IHP+),[iii] the 2010 global health agency leaders' call to action on health,[iv] and the Commission on Information and Accountability for Women and Children's Health.[v] To continue this momentum, the U.S. Agency for International Development (USAID), the World Bank Group (WBG), and the World Health Organization (WHO) have engaged country experts and partners to develop a shared approach to measurement and accountability for the post-2015 sustainable development agenda.

The *Roadmap* aims to provide a common vision, but recognizes that countries are at different stages. Prioritization of investments will be based on individual country circumstances. These must be properly sequenced and ensure that health information systems (HIS) optimally respond to national health needs.[vi] Following the endorsements at the Summit on the Measurement and Accountability for Results in Health, consultations and planning with countries will continue. Scaled-up support for national leadership will come through collaboration across development partners and a focus on country-led approaches to strengthening country data sources and systems.

Current challenges to improving measurement and accountability

The demand for timely and accurate data and statistics in the post-2015 era is a great opportunity to build stronger health information systems. However, considerable challenges continue to be reported.[vii] These can be summarized as:

- *Insufficient investment within countries:* There has not been adequate national and international financing directed toward building sustainable and comprehensive information systems. Often paper-based systems continue to be used, and are used only for reporting purposes, with the result that much data from national systems are of low quality. Ministry of Health officials and managers at lower levels—who, with increasing decentralization, should be the key champions for measurement and accountability—are often not sufficiently trained and incentivized to utilize data for responding to gaps in services or local inequities in health.
- *Inefficient investments in data collection and analysis*: Donor-specific programs have prioritized the production of quality data for their own indicators. Investments have been ad hoc, fragmented, and targeted at unsustainable pilots, stand-alone surveys,

and one-off impact evaluations. National institutions responsible for monitoring national health priorities are often frustrated by programs having different reporting systems and where funding is tied to specific diseases. Investments in information systems are often not responsive to local needs or geared to improving services.

- *Lack of country capacity to produce quality health data and statistics*: Ministries of health, National Statistical Offices (NSOs), and civil registries, the backbone of data production and management, lack the required capacity, tools, and resources. Low-quality data is used to make decisions without sufficient checks to verify completeness and accuracy. Opportunities are being missed, with the huge growth in data from digital sources and from contracts or grants not yet being adequately captured and used. Insufficient investments have been made to enable civil society to assess data and hold governments accountable. This is compounded by mistrust between government and non-state actors, poor coordination, and a lack of structures for independent and inclusive reviews of progress.
- *Limited access to and usability of data:* Available health information is often not available to those who are best placed to use it to improve performance of the health system. The lack of transparency and inadequate use of 'open data' by government means civil society actors cannot undertake the analysis to challenge or verify results produced by government. The introduction of information and communications technology (ICT) provides many opportunities, but too often results in data that is not used for improving clinical care and facility management. Conflict and emergency situations provide particular challenges.[viii]

Requirements in the post-2015 era

Lessons from the MDGs: The Millennium Development Goal (MDG) era increased attention on the need for improved measurement and accountability, particularly through better measures of in-country performance. It showed the value of having a small number of measures to track a larger group of health outcomes. This experience has led to a better understanding of what information is required, how this should be produced, and what it should be used for. Regular monitoring of MDG targets allowed for heightened transparency and accountability relating to the financial investments that were made. Additionally, important strides were made on the disaggregation of data to better capture data on marginalized and hard to reach populations. There has also been progress in more collaborative approaches with supporting countries, such as the WHO and World Bank framework for monitoring and evaluation of Universal Health Coverage.[ix]

The era of Sustainable Development Goals: These lessons and successes will continue to be built on in the SDG era while at the same time responding to persisting challenges and looking for new approaches. Accurate measurement and effective accountability in a country require strong health information systems driven by country needs and uses. The current supply-demand imbalances can be redressed with less reliance on data estimations to fill gaps. Another shift will be the increasing recognition of the role of non-health sectors in achieving health goals, and the importance of the social determinants of health and the need for 'Health in all policies'.[x] Health information systems can enhance accountability and promote the achievement of health-related SDGs as a national responsibility shared across multiple sectors. At the local level this translates into multisectoral data collection, where the health of vulnerable groups are dependent on services from several sectors, including social protection, water and sanitation, education, and transport, as well as health.

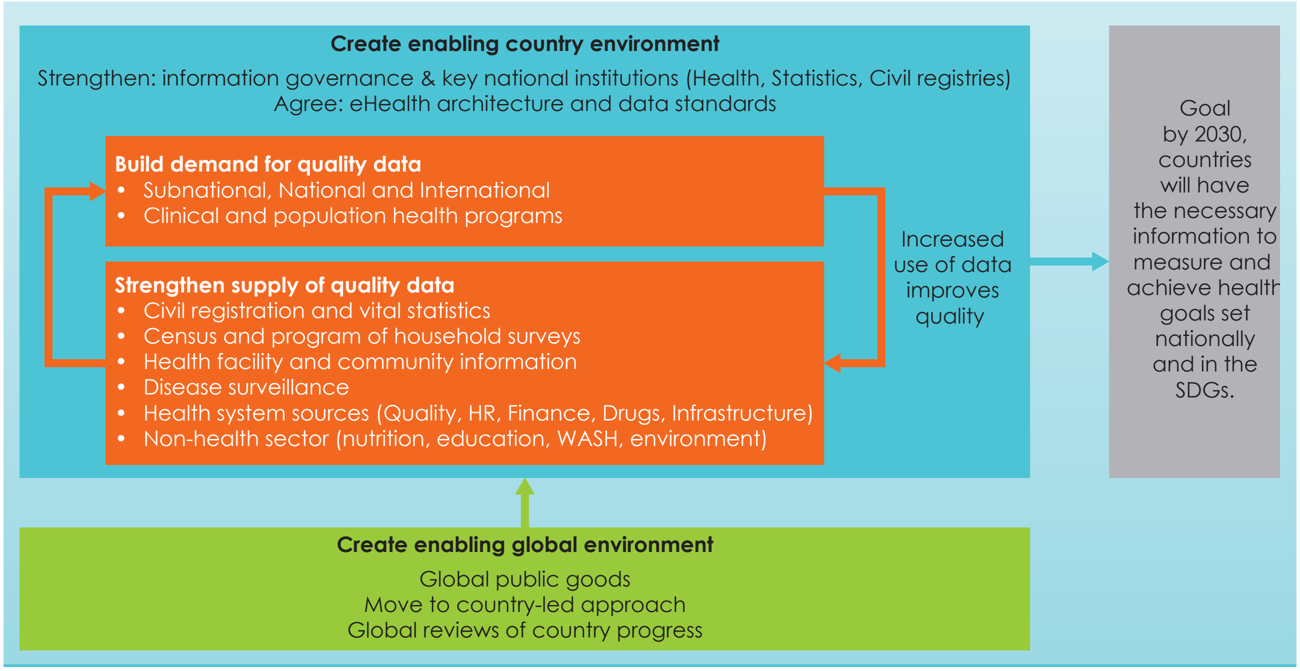
The imperative of global health security: Recent health emergencies such as the Ebola virus disease outbreak and the Nepal earthquake have shown the importance of health security across health and other sectors. Threats are multiple and complex, ranging from climate change, population growth and migration, environmental degradation, conflict, disasters, and chemical and radiological accidents, as well as infectious diseases and microbial resistance. Fragile countries, and those experiencing conflict, face particular challenges, and often have severely-reduced capacities to gather the information needed to mount a response. Health information systems need to be accessible to local communities and decision-makers to help them identify and prepare for potential hazards and threats, and to help support effective responses, resilience, and recovery.

Roadmap program logic: The logic of the *Roadmap* is based on the recognition that increasing use of data leads to improving its quality, which in turn leads to increasing use. This applies at all levels—whether using data in communities to improve outreach, in facilities to improve quality of services, or at the national level to resolve health system constraints in the workforce and in financing. As more use is made of data from country systems, the quality of data will improve, building international confidence and removing the need for separate, duplicating systems.

Civil registration and vital statistics (CRVS) systems

Civil registration is a critical source of data, particularly the continuous recording of birth, death, and cause of death. It increasingly relies on information systems in health facilities and the community. Sample vital registration can be used as an intermediate measure, but there is now a growing momentum on birth registration and on providing an identity for everyone.[xi] Death certification should be carried out according to International Classification of Diseases (ICD) standards; it is recognized that more accurate mortality data is essential to effectively

Figure 1: Roadmap to Improved Health Measurement Reporting and Status



plan and measure progress towards achieving health goals.[xii] When fully functional, civil registration provides reliable and up-to-date data at a national and subnational level that is universal and cost-effective. CRVS systems comprise the notification and registration of vital events, the issuance of certificates to individuals, the management of information flows into population registers and national statistical databases, and the production and dissemination of vital statistics. **Figure 2**, below, illustrates the process. Vital statistics provide a basis for assessing population size, mortality and causes of death, life expectancy, and fertility trends. Accurate statistics are essential for health policy and priority setting, planning, monitoring, and evaluation, and CRVS systems are of importance to many stakeholders beyond the health sector.

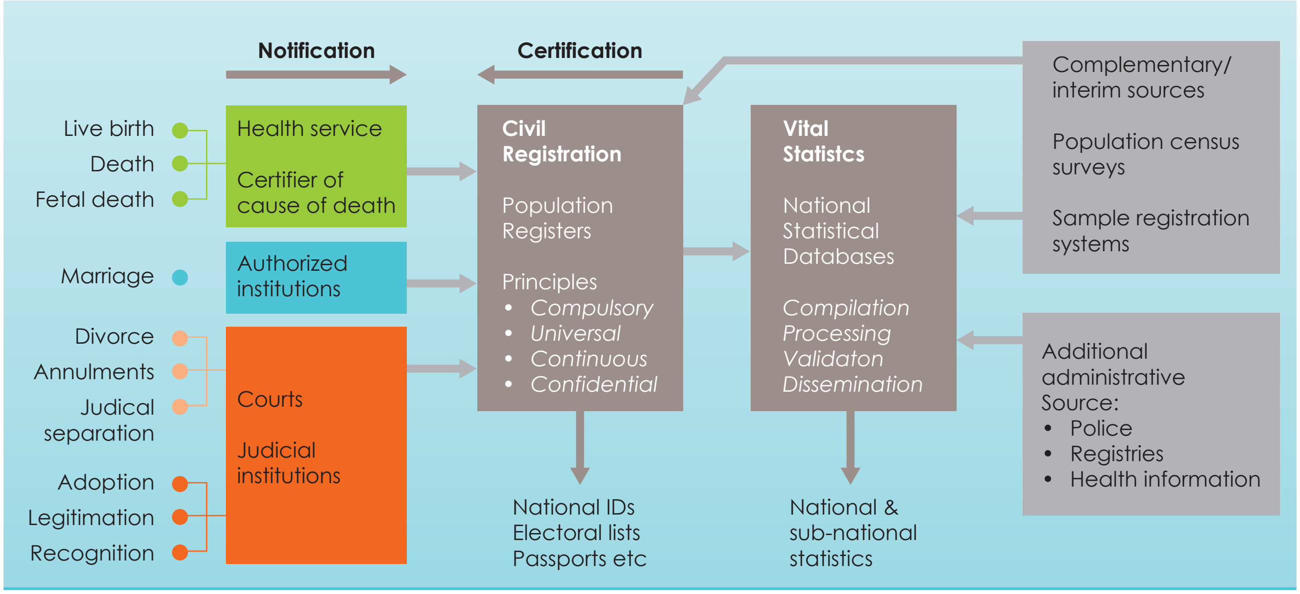
Censuses

All countries must have regular censuses using the principles outlined by the United Nations.[xiii] The information generated by a population and housing census—numbers of people, their distribution, living conditions, and other key data—is critical demographic data that is used in calculating health indicators. Censuses provide a denominator for the computation of vital statistics and many health indicators, especially in the absence of reliable information from the CRVS systems.

National household surveys

All countries require population-based household surveys to assess population health status, service coverage, health-related behaviors and risk factors, and out-of-pocket spending on health, including equity dimensions of health and service coverage. Household surveys are also an ideal vehicle for collecting biomarkers[1] using field-friendly, inexpensive tests. They can also be used to capture measures of mental health and well-being. However, many countries are currently over-burdened with various sorts of household surveys, and momentum is growing to harmonize approaches. For example, a collaborative group has recently been formed for the UNICEF-supported Multiple Indicator

Figure 2: **Civil Registration and Vital Statistics Systems**



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[1] Biomarkers include blood pressure, anemia, HIV, malaria, blood glucose, anthropometric measurements

Cluster Survey (MICS), the USAID-supported Demographic and Health Survey (DHS), and the World Bank-supported Living Standards Measurement Study (LSMS) to facilitate country collaboration, exploit potential synergies, and enhance the relevance of household surveys. In most low- and middle-income countries this would take the form of a national health survey program covering at least five years, linked to strategic planning and to monitoring and evaluation of national health plans.

Health facility and community health information systems

Health facility information systems include support for clinical care, facility management, disease surveillance, and commodity logistics. The data is also used for routine health sector planning, monitoring, and management. The systems need to take into account local information needs if they are to be used by local staff to improve the quality of services provided. Client-held personal health records, especially for mothers and children, can build ownership of health information as well as consistency of data over time and across different facilities. Routine facility health information systems should be transparent, apply data management standards,[xiv] and include data quality assurance processes and verification through periodic samples of health services assessments. Such assessments may capture information not routinely reported, such as the availability of essential equipment, human resources, compliance with clinical guidelines, client satisfaction, and the content and quality of health communication. With the advent of more community health workers (CHWs) as official cadres in the health sector, community information systems (for example, CHW registers) will be increasingly integrated into the national health information system.[2] Some basic support elements need to be in place for these community information systems to work, such as transport for volunteers, so they can collect and share information, stipends to support their transportation, and training for them to know how to fill in the data and use technology (via mobile phones) to collect and send data.

Disease surveillance

Disease surveillance systems detect, report, and respond to notifiable communicable diseases. Common problems include the lack of standard case definitions accommodated within local diagnostic systems, unclear responsibilities for notification and investigation, inadequate participation of communities and health workers in notifying medical officials about suspected cases and outbreaks, and the failure to analyze data, even in areas with frequent outbreaks. Data generated by notifications should lead to immediate action for outbreak control. However for this to happen, disease surveillance and response systems need to be part of routine data systems, as has been achieved in some countries through the District Health Information Software (DHIS2). Disease surveillance systems may also draw upon other sources of information, such as phone records and "big data", or special systems for specific surveillance purposes (for example, environmental surveillance involving testing sewage for the presence of poliovirus). Effective surveillance should improve detection and prediction of epidemics, as well as provide an objective assessment and efficient monitoring of intervention programs.[xv] A well-defined set of core functions and surveillance capacities is monitored by the WHO under the International Health Regulations (IHR). Strengthening of these capacities is taking place through a number of initiatives to address gaps and build capacity in low- and middle-income countries.[xvi]

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[2] For example, Open Smart Register Platform (OpenSRP) http://smartregister.org/.

Health systems data sources

All countries should have comprehensive databases and electronic tracking systems that support health service delivery. This information should be gained partly through routine facility information systems and partly from gathering and assessing data from other sources. There has been a huge growth in health systems data in recent years. Countries with different types of insurance programs have built additional sources of data on health issues, contracts, and services claimed. All these systems need to deter, detect, and prevent corruption and fraud with incentives to encourage collection and entry of good quality data. In addition, health systems need information to enable them to prepare for and respond to potential threats to health caused by natural catastrophes, industrial accidents, conflict, and other health security concerns. The following health system data are of particular importance:

Service delivery: To assess the quality of services being delivered, there needs to be regular measuring of compliance with service and outcome standards, such as those developed for maternal and neonatal services.[xvii] [xviii] Independent and peer reviews, self-assessments, and patient satisfaction should be linked to local problem solving and improving and maintaining the quality of services. This includes regular reviews of diagnostic support, in part because it is a major cost driver in health care. Health information systems should be integrated with implementation research to maintain an interactive process of learning and improvement.

Workforce: A functioning human resources information system (HRIS) allows a country to track, manage, and plan its health workforce so it can get the appropriate number of health workers in the right place at the right time. However, for the HRIS to be useful as a source of data, it needs to be designed to respond to the needs of managers, and not just focus on personnel functions. It can then be used for professional development and training as well as remuneration and performance assessment. Other sources, such as professional databases and data from the private sector, are important, although often difficult to access. The WHO, the World Bank, and their partners are promoting a minimum data-set to be required in national health workforce accounts in order to improve the tracking of health workforce statistics.[xix]

Finances: A system of health accounts (SHA) facilitates learning from past expenditures, informs planning and resource allocation to reduce inequities, helps protect against catastrophic health expenses, and increases systems of accountability. The SHA is usually overseen by ministries of health, and complements the routine expenditure reviews that most treasuries undertake. To be most useful, health accounts must be kept up to date and made routinely available in order to be able to undertake trend analysis, as well as to disaggregate data by program or geographical area. The results should be publicly available, in line with current discussions on aid and budget transparency.[xx]

Drugs and medical supplies: Reliable information systems for drugs, medical supplies, and vaccines are required to manage supply and demand, prevent stock-outs, and reduce circulation of unsafe products. Logistics data include both operational and performance data that are routinely reported from the lowest level of the supply chain to the highest levels in order to enable decision making to ensure that health commodities are available to patients and clients. This data gathering can help in predicting future stock-outs of life-saving drugs. Breakthroughs in data collection are being made, particularly in civil society and the private sector. These include the move from paper-based systems to electronic systems, bar-coding of products, and the use of mobile devices and web-based systems to provide real-time assessments of stocks of necessary supplies. Internationally, there is also a considerable focus on monitoring drug prices[xxi] to make national procurements more efficient, and on building pharmacovigilance to improve drug safety.[xxii]

Facility infrastructure: Access to health services remains a major challenge in many countries, especially in rural areas where transport and maintenance of facilities is poor, and where there are limited numbers of health workers, supplies, and equipment. Geographic information system (GIS) tools are being used increasingly to evaluate the distribution of health facilities. A census of facilities, with geocoding to provide a master facility list with unique identifiers, is now a critically important part of health sector planning to improve access to services.[xxiii] [xxiv] Medical Equipment Tracking Systems are a critical component of financial accountability of medical institutions' and are used to facilitate the status and performance of life-saving equipment (for example GeneXpert for Multidrug-resistant tuberculosis diagnosis). They can also help improve the value of investment in medical care by making equipment distribution more efficient across health facilities.

Non-health sector sources: Preventing major causes of the global burden of disease, and preparing to respond to threats to health security, requires obtaining some elements of health information from non-health sectors. Reducing childhood diarrhea requires monitoring of access to water and sanitation, and reducing childhood pneumonia requires periodic monitoring of indoor and external air pollution. Similarly important data must come from the education sector on services for de-worming, hand-washing, nutrition, and promotion of exercise. The agriculture sector and the food industry are important for tracking food security and food fortification, and the transport sector for monitoring progress in enforcing laws on safety belts, helmets, and drunk driving. Tracking progress in combatting noncommunicable diseases (NCD) includes monitoring progress with tobacco control and anti-smoking initiatives involving the tobacco industry. Tracking gender-based violence requires obtaining information from justice sectors and the police.

System investments and approaches

Governance and institutional capacities: Strong governance of health information systems is critically important for successful investments in them. This includes adoption of definitions and data standards for all aspects of monitoring the health sector, both public and private, and at health facility and community levels. Legal safeguards and internationally accepted ethical and privacy standards are increasingly important. For strengthening the CRVS, a high level, cross-sector oversight body is required, often at the cabinet level. To obtain adequate institutional and human resource capacities, investments are frequently required in ministries of health, National Statistical Offices (NSOs), civil registries, and national public health and academic institutions. NSOs require a degree of independence from political decision making to be able to carry out their functions.

eHealth.[3] The introduction of ICT and ehealth initiatives is dramatically changing health information systems. Many countries still need to learn from their and other's experiences, but knowledge is growing on how to implement these new information systems.[xxv] [xxvi] A national consensus on data architecture with clear standards is a key starting point for ICT solutions in the sector. With this in place, eHealth interventions have the potential to empower front-line workers and

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[3] eHealth is "*use of information and communication technologies (ICT) in support of health and health-related fields*" Source: World Health Assembly Resolution on eHealth 58.28

individual citizens in a person-centered health care system. They can be critical to maximizing performance monitoring and accountability at all levels. In order to allow broad integration and to bring synergy across multiple health information systems, countries need eHealth systems to be interoperable with other national systems, such as DHIS2 and national data warehouses, where they exist.

Improving engagement between government and civil society: Accountability for health requires openly available, credible statistics at a number of levels. Regular independent analyses and reviews will strengthen accountability and should galvanize remedial actions. This requires transparent, inclusive mechanisms that foster discussion of findings on a regular basis and can help identify follow-up remedial actions. Routine representation of civil society members in accountability mechanisms at all levels, including in national health sector reviews, is important. The media, parliamentarians, professional associations, academics, and faith leaders where appropriate, are important stakeholders.

Data sharing and communications: Data collected should be disseminated and shared with those who use the information to strengthen the health system, as well as with users who have a right to know how well it is functioning. The way in which the data is shared is also important; it should be both accessible and relevant to the data users, who should have a say on how the information is fed back to them. A supportive legal and administrative framework enables sharing if it is in accordance with agreed standards for confidentiality and data security. Freedom of information legislation can support civil society access to important information. Data sharing is greatly facilitated by the existence of a data warehouse, a central repository of current and past data from diverse sources, and by web access for the public. Moreover, having common data standards in place facilitates integration and analysis of the data. Skills in data interpretation, presentation, and delivery are as important as the skills required to collect them.[4] Local press and media also need to be educated and supported in the interpretation of different indicators so that they can accurately report on health information and help make it understandable to the public.

New Approaches to Health Measurement

New technologies, measurement priorities, and national and international commitments to strengthening sustainable health information systems in a country present a major opportunity. The strategic actions required are summarized below:

Strategic action 1: Invest in strengthening data sources and capacities: These investments will strengthen national information governance, eHealth architecture, and data standards. These improvements in turn allow interoperability, and improve capacities for using health statistics and data for clinical and population health program decision making. Key components of the country HIS and accountability platform outlined in this *Roadmap* will be strengthened in line with international standards and commitments. Particular attention will be given to a national architecture and to building skills at local levels where the capacity is most lacking.

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[4] See Communicating Data for Impact website http://communicatingdata.org/#

Strategic action 2: Align stakeholders in support of country health information systems: Development partners and national-level institutions will align investments through collective channels of support. Data, monitoring and accountability will be integrated into the one plan, one budget and one Monitoring and Evaluation (M&E) framework in each country. Mechanisms for countries to bring together the various agencies, state and non-state, that "supply" data or subsystems will be created or reinvigorated. Agreements will build on existing arrangements, and will require that objective reviews be undertaken of health sector performance, of the results of different health investments, and of the capacity to analyze and share health statistics.

Strategic action 3: Use the digital revolution[5] to scale-up health interventions and engage civil society: Countries and global partners will seize the power of innovation to improve the availability, quality, and use of data for decision making in health. Data will be shared more freely, which will in turn allow more rigorous comparing, learning and building of the evidence base for scaling up interventions in different subnational contexts. Open access to data will reinforce domestic accountability, improve quality of data, and open the door to innovation. Better access to data will also promote citizen engagement, as well as citizen oversight of government, and help overcome corruption and poor performance in the sector.

Strategic action 4: Strengthen public goods for health information and accountability: Open access software systems will continue to expand in response to country demands, and global programs of implementation research will be used to overcome obstacles and strengthen global health information system (HIS) standards, guides, and tools. Collaborations with the private sector will help mobilize expertise to develop public goods in interoperability, data architecture, system administration, data visualization, web technologies, algorithmic data analysis, and confidentiality.

Strategic action 5: Use data throughout all levels to improve policy, systems and delivery: Decision makers, senior managers, district-level officials, and service providers will regularly use and be provided relevant health information to improve public health policy, health system management, and clinical services. A key focus of this effort must be on equity, disaggregated data, and better access to good quality services based on need. A culture of data use will come from clearly defining processes and procedures for regular monitoring with incentives linked to performance improvement. Experience with performance-based funding will continue to be documented and disseminated. This will require investments in improving capacity, and mandates for Ministries of Health and their partners, such as local universities, to undertake implementation research, improve use of data, and create platforms for data and knowledge sharing.

Strategic action 6: Capture data on determinants of health as part of the country health information system. Knowledge of health will require information gathered by other sectors, such as on water and sanitation, nutrition, and road safety. Data on the determinants of health must be captured alongside traditional HIS data. This will include longitudinal measurement of behavior change, such as hand washing, exercise, and safe sexual practices, as part of regular data-collection efforts. Measures of mental health and quality of life will require new approaches and use of new data sources.

Strategic action 7: Strengthen accountability and reporting of results: National-level stakeholders are central to both country and global accountability in health. In addition to monitoring progress nationally, the *Roadmap* will also

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[5] The *digital revolution* is the change from analog, mechanical, and electronic technology to digital technology. Wikipedia, "Digital Revolution," http://en.wikipedia.org/wiki/Digital_Revolution

be reviewed globally, ideally through the World Health Assembly, and by making data available for public review. Regular progress reviews of the health-related SDGs will be complemented by regular "Countdown" reports covering each country's progress toward reaching the health-related SDGs annually and implementing the *Roadmap* every two years. The latter will focus on monitoring the *use of information* (for example, maternal, perinatal, and child death audits and reviews), the state of the *enabling environment* (for example governance, data standards, and institutional capacities), and the *sources of information* in the country HIS platforms.[6]

The Way Forward

Implementation of the strategic action areas in the *Roadmap* requires specific activities by relevant country and international stakeholders. Country action will be summarized in national or subnational plans, with global action responding to country needs. Donors will need to change from funding disease- or program-specific data systems to this more holistic and cost-effective approach.

Country Action

One plan, one monitoring and evaluation framework

The *Roadmap* will be implemented through national or, in larger countries, subnational plans for the health sector that will include a monitoring and evaluation framework. In this way, data will be used to improve the national response

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[6] See *Roadmap* monitoring and evaluation framework

Figure 3: Examples of Possible Health-Related Sdg Indicators and Their Sources

Indicators: possible health-related SDGs	HIS Platform components
Mortality by age and sex Levels: life expectancy, mortality before age 70, child and neonatal mortality Causes: materal, HIV, TB, malaria, leading non-communicable diseases, road traffic accidents	CRVS (birth, death, cause of death Household surveys and census Health facility information
Morbidty New cases of HIV, TB, nalaria, hepatitis	Household surveys Health facility information Disease surveillance
Coverage and quality of interventions *Prevention:* Family planning, immunization, non-use of tobacco etc; *Treatment:* Skilled birth attendence, anti-retroviral therapy, tuberculosis, diabetes, hypertension etc; *Protection:* Catastrophic/impoverishing health spending	Household surveys Health facility and community information
Other International Health Regulations core surveillance capacity Drinking water sources, sanitary facilities Government spending on health, health workforce density and distribution, access to essential medicines and technologies	Household system sources Disease surveillance systems Census Non-health sectors

to priority health problems through an evidence-based policy cycle that responds to national priorities and inequities in service delivery and population health. Increased national and local accountability will drive the development of a country health information and accountability platform with demand for data and its analysis, as shown in **Figure 4** below. The platform will not be a large stand-alone platform, but a series of information sources with, at the center, a well-trained set of users in the Ministry of Health that understand what data are needed and how to obtain them from the various systems. Participatory and independent reviews of progress by MoH and national stakeholders, including development partners and civil society, will help verify reported results. This will complement managers using their own data both to track performance and to make corrective decisions as required. A key incentive for this is managers being able to make changes, based on their evidence-base.

Strengthening data sources and information and accountability platforms

Building skills and capacity is key. National health sector stakeholders will need to be able to access and assess data regularly to harness the benefits of the data revolution.[xxvii] Statistical literacy is essential at national, subnational, and district levels alike. This must be accompanied by computer and mobile device literacy among health care providers and community workers to harness the potential of new technologies. District officials can aggregate facility and community health services data to identify data gaps in health care provision, track health status, display trends, assess performance, and identify solutions

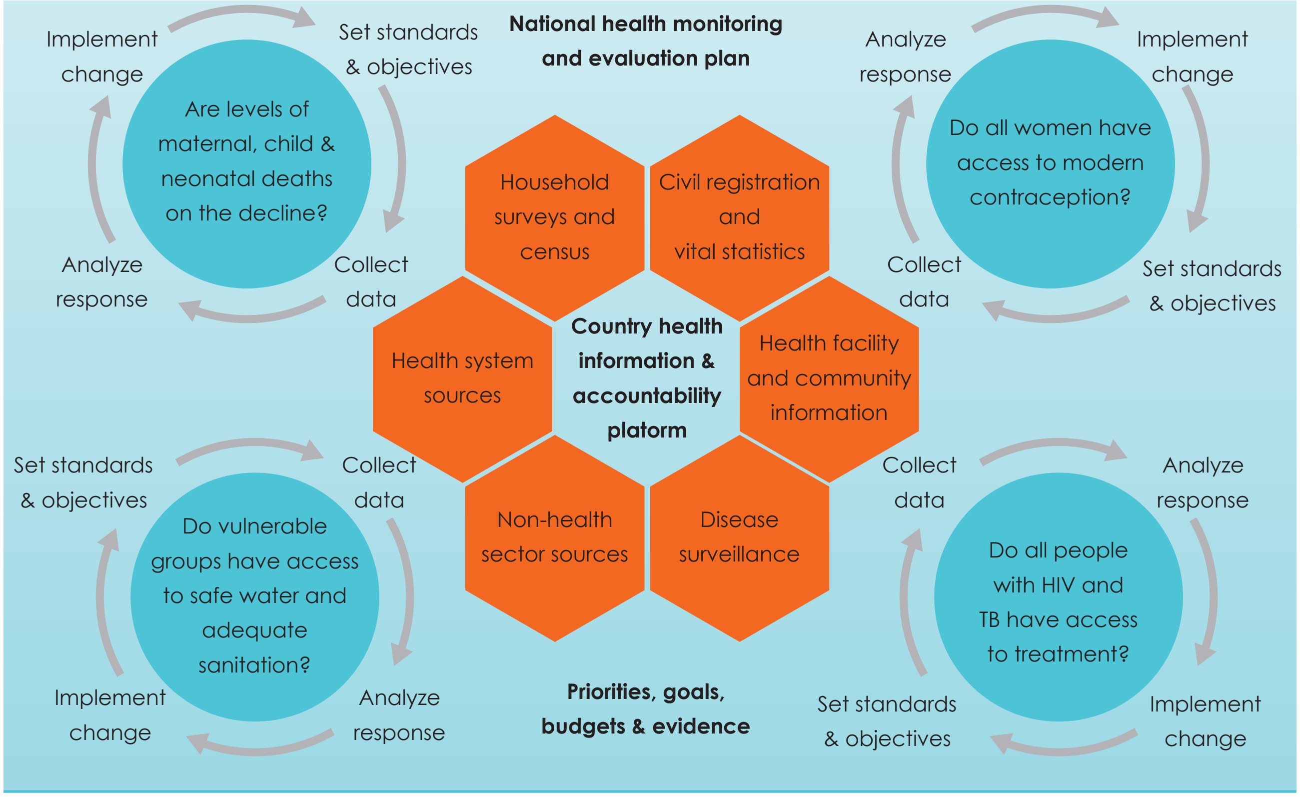

Figure 4: The Role of the Country Health Information and Accountability Platform

to improving services and programs across communities, facilities, or districts.[xxviii] External donors can contribute by piloting new approaches, as agreed with MoH and national stakeholders that will also include rigorous evaluation of results. However this must be done with a view to future handover to and management by national institutions. A good starting point for strengthening the health information system is undertaking joint stocktaking and readiness assessments with national partners as part of a longer term hand-over strategy. Some priority actions are provided here.

Establishing accountability mechanisms

- *Transparency of health data:* disseminate data on coverage and outcomes, health systems, and health financing in a manner that makes it accessible to different types of stakeholders according to their needs.
- *Regular analyses at all levels:* assess progress and performance in reviews, with transparent, inclusive, and independent mechanisms to analyze, share, and discuss available information and identify remedial actions.
- *Accountability of international institutions:* National monitoring and evaluation groups include international partners to contribute and report on their support of the host country.

Creating the enabling environment – governance, institutions and eHealth

- *Oversight of country health information and accountability platform:* generate timely, quality data for key indicators, and serve as the basis for reporting on national and international goals.
- *Adequate institutional capacity: provide* for health data collection, compilation, and sharing; data quality assurance, analysis, and synthesis using all relevant data sources; and for communication and use of results.
- *Uniform architectural and functional standards for each new ICT solution:* cover hospital, primary care, or community ICT systems, with central standards for integration and data exchange.
- *Innovation and eHealth: use* within a national framework to improve data availability and quality, increase transparency and accessibility of data.

Strengthening civil registration and vital statistics

- *Registration of births, deaths, and other vital events:* build skills and capacities and improving infrastructure for the continuing recording of occurrences and characteristics to produce fertility and mortality statistics.
- *Sample vital registration systems:* use as an intermediate measure to generate representative vital statistics using innovative methods and verbal autopsies.
- *Medical certification of cause of death:* build skills to certify according to standards in the International Classification of Diseases (ICD).

Establishing regular census and program of household surveys

- *Quality censuses carried out on a regular ten-year cycle:* conducted using international principles and standards.
- *Multiyear program of national health surveys:* identify strategic priorities, periodicity, and scope of data collection, in response to the needs of multisector stakeholders.
- *Ensure locally appropriate international standards and comparability of results between populations and over time:* enforce

quality assurance, ethical practices, transparency, and data sharing in accordance with stringent confidentiality protocols and international standards

Strengthening health facility data and community health information systems

- *Data use:* use data in combination with other sources to support decision-making for patient care, with respect to confidentiality, for improving quality of services, and for population health program planning, reviews, and action.
- *Timely and reliable statistics from health facilities and community health workers:* build skills and infrastructure for public and private facilities to use electronic recording and reporting systems such as with DHIS2, and open source mobile health systems, such as OpenSRP.[xxix]
- *Regular verification:* provide incentives for checking data in a transparent manner on facility and community information systems using periodic health services assessments.
- *Community engagement and feedback:* have information synthesized and provided to the beneficiaries and community to promote demand and accountability.

Strengthening disease surveillance

- *Core surveillance and response capacities:* bring in line with IHR core capacities, standardized case definitions, and regular updating of responsibilities for notification and investigation.
- *Outbreak disease surveillance systems:* improve by participation of communities and health workers in notifying of suspected cases and outbreaks, analysis of data in areas with frequent outbreaks, and a supportive laboratory infrastructure.

Strengthening health system data sources

- *Monitoring service quality standards:* implement for community, primary, and hospital facilities, with regular assessments available to local communities.
- *Drugs and logistics:* use electronic tracking systems on logistics including commodities, medicines, equipment, and supplies
- *System of health accounts:* improve, using international standards, and institutionalized with data made publicly available.
- *Electronic health workforce registry:* use to track health workforce statistics and provide information for health workforce accounts
- *Health facility and major equipment registries:* develop using GIS codes for planning and maintenance schedules.

Global Action

Global public goods

- *Health indicator registry:* WHO will continue to build consensus on standard definitions and taxonomy of indicators that can be used at the community and facility level to allow for programs to collect data on the same terms which can then be fed into the national and global level indicators. This will unify the types of data collected and will respond to country demands for a more rational approach to monitoring global health goals. It builds on the global reference list of 100 core indicators that has already been developed.[xxx.]
- *Donor behavior and coordination:* At the global and regional level, no new bodies will be established. The WHO, the World Bank and contributing partners will form collaborations to share information, collate country reports on progress and lessons learned, and

to coordinate response to the demands for technical assistance coming from countries. These groups will be responsible for 'reaching out' to other health groups to synergize efforts (for example, existing regional forums for CRVS), and to new entities as they arise, to ensure they do not unnecessarily duplicate systems.

- *Standardized HIS assessments, guides, and tools:* International agencies will continue to coordinate communities of experts to rationalize approaches and build common toolkits for strengthening the different components of country health information outlined in the Roadmap. This will build on what has already been started in individual areas, such as CRVS, household survey instruments, health facility assessment, disease surveillance, and some areas of eHealth. The work will respond to new demands as they arise, such as an 'ethics' framework for collection of biomarkers, GIS information, and other personally-identifying health information.

- *Open access software:* Software and related tools will continue to be made available for national institutions to adapt and use for their own purposes. A considerable number of options are already available, such as for web-based integrated health information (for example, DHIS 2[xxxxi] and OpenHIE[xxxii]), for workforce information (iHRS), for Census survey processing (CSPro)[xxxiii], and for new innovations in citizen reporting and accountability systems [xxxiv] [xxxv].

- *Research and learning on HIS:* Many countries have not yet targeted national HIS for research and development. HIS strengthening and innovation will be the subject of global and regional research efforts so that *Roadmap* implementation in a country stays innovative and cost-effective. This will include qualitative and experiential knowledge, and knowledge management and sharing initiatives, to capture and cycle lessons across and within countries. HIS and implementation research will also interact better to provide relevant local knowledge for learning about and improving system performance.

- *Public-private collaborations:* Frequent conferences and web-based platforms sponsored by the private sector will showcase and compare new technology and new approaches. This is already happening with initiatives aimed at empowering managers, users, and health workers through the use of mobile devices to collect or share data.[7] [8] [xxxvi]

Global reviews of country progress

- *Global monitoring of the health goals:* Monitoring of progress towards achieving the health-related SDG will involve a large number of stakeholders in numerous countries, regionally and globally. The focus will be on many areas such as maternal, newborn, and child health, universal health coverage, and NCDs, often in line with global resolutions and action plans. An SDG UN Interagency and Expert group will synthesize the information for a wide range of health targets and link it to the broader SDG agenda. Formal reporting of progress may be through WHA resolutions. This will be accompanied by social accountability mechanisms that provide a direct avenue for people's voices. The health related SDG data process must build on the lessons from the MDG era, including further development of disaggregated data collection and reporting mechanisms. A key principle will be that information shared globally on country

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[7] For example, mHealth Summit website http://www.mhealthsummit.org/about-summit/overview

[8] See GSMA Pan African mHealth Initiative website http://www.gsma.com/mobilefordevelopment/programmes/mhealth/pan-african-mhealth-initiative

progress should be routinely actively disseminated to relevant stakeholders in- country.

- *Monitoring country HIS strengthening:* The strength of country HIS will be monitored and reported on a regular basis as part of the monitoring and evaluation of *Roadmap* implementation. This will cover the enabling institutional environmental and national capacities, with documentation of progress, sharing of lessons learned, and targeting of investments.
- *Identifying and sharing the quick wins:* Positive actions identified in countries should be shared to bring quick results elsewhere. This has already been shown to be useful in certain areas, such as documenting data sources, geo-referencing existing data, analyzing and visualizing existing data more creatively, linking survey and administrative data, enhancing the usability of existing data sources, and making small area estimates of marginalized or uncounted groups.[xxxvii]

Implementation Arrangements

Moving to a country-led approach

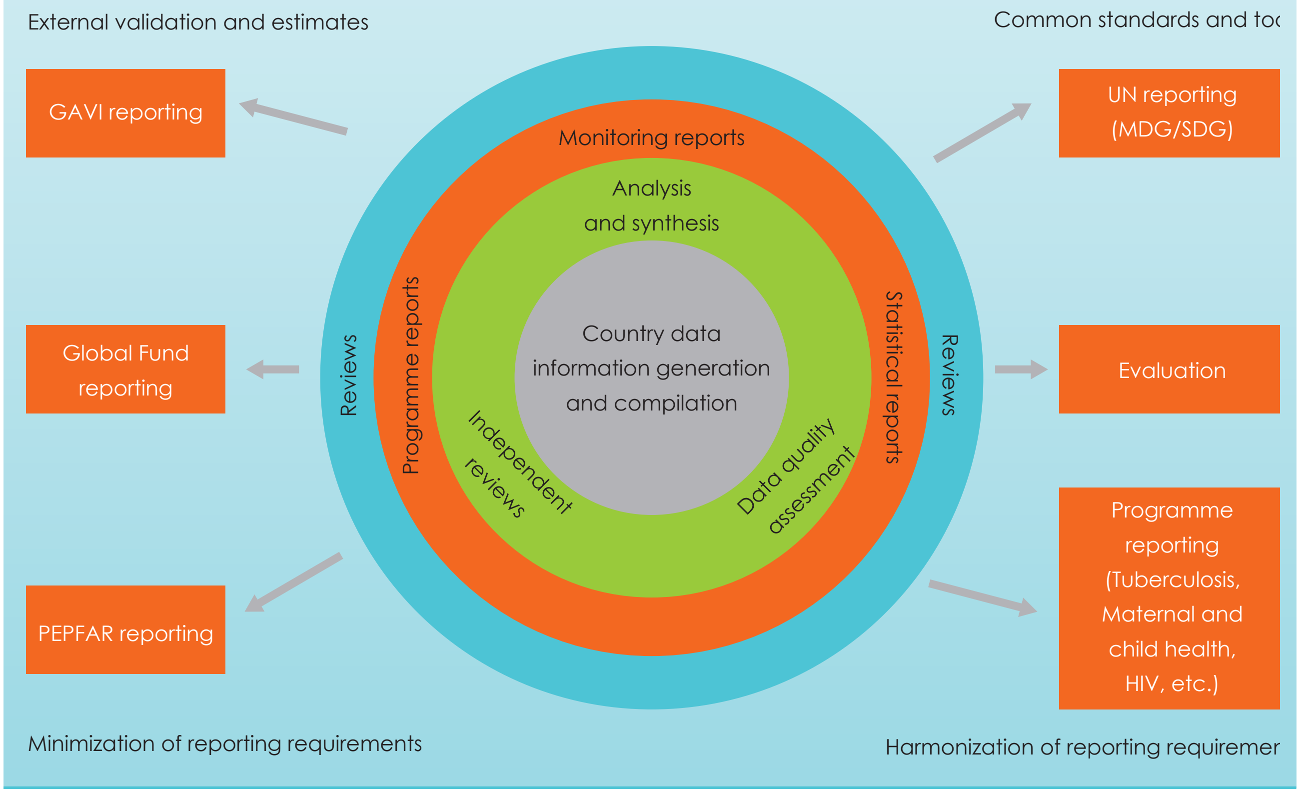
As the quality of country data improves, and as country health information systems become more comprehensive, the international community will increasingly rely on country systems to monitor all aspects of health, health systems, and the determinants of health. Country plans will detail the phasing-in of this move to nationally defined data, building country ownership and self-reliance. Specific actions will include:

- Country-led assessments of the different sub-components of the HIS platform, many of which are already completed, to inform national plans to strengthen and use country HIS.
- National health sector coordination mechanisms for monitoring and evaluation will facilitate joint planning and timing of international and national HIS investments. The groups responsible for this will need to link with cross-sectoral efforts, such as for CRVS and Poverty Reduction.
- The level of investments will be agreed on by country stakeholders, using a proportion of national and international development funds, and be based on in-country costing of the agreed approach and a timetable for implementation.
- Cross-sector coordination mechanisms, led by senior levels of government, will align efforts to strengthen CRVS and to undertake censuses and household surveys. Data platforms and warehouses will be led by national institutions to ensure sustainability.
- The country platform for information and accountability will become the basis for global reporting, see **Figure 5**.

Facilitating the international response

A global collaboration involving WHO, the World Bank, and investing partners will be responsible for facilitating international support for implementation of the *Roadmap* in countries, under the leadership of Ministries of Health and national statistical offices. Each country will require an oversight group responsible for strengthening HIS in the health sector, building upon existing mechanisms. If such a body already exists then it will oversee implementation of the *Roadmap*-related activities in each country. Global and regional partners should strengthen such

Figure 5: Global Reporting Using Country Systems



mechanisms and contribute to *Roadmap* implementation in line with national priorities. These mechanisms provide an important vehicle for mutual accountability.

Strengthening the role and capacity of country institutions

All countries should have strong accountability mechanisms managed by country institutions not directly responsible for financing or implementing national programs or services. These mechanisms should be both within the government—through sector performance reviews and audits overseen by treasuries and the central government—and outside of government—through public health institutions, academia, and civil society. The national institutions will have access to support to be able to undertake key activities in support of the HIS and accountability, such as:

- Reviews of overall health sector performance, based on the health sector monitoring and evaluation plan;
- Reviews of results of government and donor investments in specific programs and interventions;
- Assessment of and strategic planning for national capacities for monitoring, evaluation, and health information, based on international standard tools and frameworks;
- Evaluation of the impact of results-based funding approaches and other innovative approaches; and

- Enhancement of the country capacity to conduct implementation research integrated with HIS.

These assessments will need to be undertaken in the context of longer-term plans and strategies to build national monitoring and evaluation capacity for producing, analyzing, and using data in the health sector. The specifics will be worked out on a country-by-country basis, accompanied by implementation research to incorporate lesson learning.

Investment required for *Roadmap* implementation

Some countries have already completed an assessment of the costs of implementing the *Roadmap* in their settings. This information has been used to develop a global investment plan on resources required for implementation at the global and country level. This will be updated as more information on costs is obtained.[9]

Five year operational plan for implementation of the *Roadmap*

The plans developed in-country will be collated and will form the basis for a detailed five year implementation plan. This will be developed collaboratively, and provide clarity on roles and responsibilities, milestones for implementation, and strategies to assess and mitigate risks. Initial assessments of roles and of risks are provided in **Annexes** to this *Roadmap*.

Monitoring progress

Once the *Roadmap* has been endorsed, a global framework for monitoring and evaluation will be finalized that will include a full definition of terms, clarification of sources of information, and responsibilities for measurement. Engagement by countries will be according to the decisions and demands from within countries. The phasing of work will be determined by levels of readiness and a timetable agreed to at the country level. A draft outline is provided in **Table 1**.

Table 1: Draft Monitoring Framework for *Roadmap*

Goal: By 2030, all low and middle countries have the necessary information to improve health and health services and achieve national and global health-related Sustainable Development Goals
Core objectives
1. Data from national health information systems used at all levels to improve health, inform decision making, and strengthen accountability *Indicators* • Use of data at districts/facilities (e.g. maternal, perinatal, and child death audits and reviews) • Use of data nationally/subnationally (e.g. reallocation of resources based on national M&E results) • Use of data at global/regional levels (e.g. country peer review of progress toward common health goals)
2. Governments and development partners align investments to enable governance and development of health information and accountability platforms *Indicators* • Countries with functioning HIS governance mechanisms that include civil society • National Statistics Office with core capacities

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[9] The global investment plan for the *Roadmap* is being prepared for the Summit as a separate publication

Table 1: Draft Monitoring Framework for *Roadmap* *(continued)*

Goal: By 2030, all low and middle countries have the necessary information to improve health and health services and achieve national and global health-related Sustainable Development Goals
• Countries with national architecture and eHealth standards defined and agreed • Alignment of HIS investments in national health system development and M&E plans
3. Country health information and accountability platforms strengthened through building components in line with international standards and assessments
3.1 Universal registration of births, deaths, including reporting cause of death *Indicators* • Birth registration coverage • Death registration coverage • Cause of death (COD) coverage and quality
3.2 Regular census and household survey program using international standards *Indicators* • Census coverage for 2020 round • Percentage of countries with national health survey program
3.3 National health facility data and community information with regular data quality assurance *Indicators* • Percentage of countries with national oversight body for routine HIS and community information systems • Number of countries with web-based systems that produce quality data and statistics • Regular quality assurance
3.4 Disease outbreak surveillance and response capacity compliant with IHR *Indicators* • Compliance with International Health Regulations • Effective real-time outbreak disease surveillance systems, supported by laboratory infrastructure
3.5 Health system resource information providing regular national data *Indicators* • System of Health Accounts data up to date and publicly available • National Workforce Accounts up to date and publicly available • Coverage of real-time, electronic reporting of stock supplies
4. Global accountability on health reporting strengthened *Indicators* • Use of data from country systems to monitor health-related SDGs • Global public goods for HIS • Access to, and use of, data by civil society

Critical Path: Milestones for 2015–2030

Key events and timetable

The *Roadmap* signals a major change in the way the international community works with countries to deliver more accurate and sustainable measurement and accountability for the health-related SDGs. This process will evolve in three phases over the next fifteen years:

PHASE 1, 2015–2017: Endorsement and consensus

- Participating low- and middle-income countries to complete assessments and identify priorities for strengthening their health information systems, leveraging international norms and guidance
- Nationally-set timetables to be created for stakeholders and investors to define country-specific commitments to national plans and accountability mechanisms.
- Health related SDGs, targets, indicators, and measures to be agreed upon and endorsed by all member states through the governance mechanisms of WHO and the United Nations General Assembly (UNGA).
- Completion of a global five year *Roadmap* implementation plan, with milestones, priority national and international investments, accountability mechanisms, and implementation arrangements.
- The UN, World Bank, USG and other partners to establish communities of practices and technical working groups, building on existing MDG monitoring mechanisms.
- Launch of collaborative global program of public goods to support country health information and accountability platforms.
- Launch of Global Financing Facility for reproductive, maternal, newborn, and child health (RMNCH), including window on CRVS investments

PHASE 2, 2018–2024: Investments in plans for country health information and accountability platforms

- Major donors lead efforts to transition from program-specific investments in information and reporting to country reporting using a national health information system.
- Based on individual country assessments, CRVS systems will be aligned with international standards; regular census schedules will be established; household surveys will be conducted according to a regular program; national health facilities will build information capacities to include surveillance and response; data and interoperability standards for eHealth systems will be established and disseminated; and relevant government institutions and international partners will have access to basic health system data, such as annual national health accounts, and a minimum dataset for the workforce.

PHASE 3, 2025–2030: Sustainable measurement and accountability

- Countries to transition away from international development assistance, with sufficient support for strengthening and sustaining robust health information systems.

Table 2: ***Roadmap* for Information and Accountability**

	Country	Roadmap	Global/Regional
Endorsement and concensus	5 countries completed HIS investment plan	**2015**	Glion consensus M4H Summit
	Agree health related SDGs 12 countries completed HIS investment plan Joint health sector review	**2016**	Launch of Global Financing Facility UNGA finalize SDGs Establish UN health monitoring sub-group Expert and social accountability review WHA endorse roadmap Final MDG report
	25 countries completed HIS investment plan Joint health sector review	**2017**	SDG progress report **Baseline “Countdown” progress report** WHA health-related SDG review
Investments in country health information and accountability plans	35 countries completed HIS investment plan Joint health sector review	**2018**	SDG progress report
	45 countries completed HIS investment plan Joint health sector review	**2019**	SDG progress report Expert and social accountability review
	55 countries completed HIS investment plan Joint health sector review	**2020**	SDG progress report **1st “Countdown” progress report** WHA health-related SDG review
	62 countries completed HIS investment plan Joint health sector review	**2021**	SDG progress report
	68 countries completed HIS investment plan Joint health sector review	**2022**	SDG progress report Expert and social accountability review
	75 countries completed HIS investment plan Joint health sector review	**2023**	SDG progress report **2nd “Countdown” progress report** WHA health-related SDG review
	81 countries completed HIS investment plan Joint health sector review	**2024**	SDG progress report WHA health-related SDG review
	Joint health sector review	**2025**	SDG progress report Expert and social accountability review

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Table 2: ***Roadmap* for Information and Accountability** *(continued)*

	Country	Roadmap	Global/Regional
Sustainable measurement and accountability	Joint health sector review	**2026**	SDG progress report **3rd “Countdown” progress report**
	Joint health sector review	**2027**	Expert and social accountability review
	Joint health sector review	**2028**	SDG progress report **4th “Countdown” progress report** WHA health-related SDG review
	Joint health sector review	**2029**	Final SDG progress report Expert and social accountability review
	Joint health sector review	**2030**	UNGA review progress of SDGs **Final “Countdown” progress report** WHA health-related SDG review

Annex

Annex A: Key stakeholders in implementation of the Roadmap

Stakeholders	Role	Forums
Ministries of Health	Accountability for national health goals and health related SDGs; governance of national health information systems; and champion for health sector engagement with national statistical systems, including CRVS; key responsibility for cause of death ascertainment and facility-based information systems	WHO/World & Regional Health Assemblies
National Statistical Offices	Data quality enhancement by aligning activities to UN principles of official statistics; coordinated analysis of national surveys and vital statistics; contribution to data reconciliation; objective review of data quality	UNSD/Regional Statistical Offices & Paris21
Ministries of Finance	Demand for high quality data on financial expenditure on health and on reports on the national health results delivered; sustained investments in national HIS and statistical systems	WBG/Spring Meetings
Ministries of Foreign Affairs	International reporting on health related SDGs, allowing comparison with peers	UNGA
Regional forums	Regional UN, political and technical institutions provide regional oversight and technical support to strengthening country platforms	Regional health assemblies; regional political forums
Development partners	Alignment of all health information and national M&E support with national plans	National M&E coordination groups
Civil society	Social accountability mechanisms; providing a voice of vulnerable groups; holding government and international partners to account	North-south and south-south networks; representation in international, national and local health platforms
Academia and expert agencies	Building global knowledge on effective and efficient national health information systems; development of methodologies and technology; building demographic, epidemiological and analytical skills and capacities	International and national research conferences
Private sector	As health providers, provision of data according to national requirements; PPPs for social enterprise; expertise in interoperability, data architecture, system administration, data visualization, web technologies, algorithmic data analysis and confidentiality.	International and national technology conferences; philanthropic networks

Annex B: Risks Analysis for Implementation of the Roadmap

Risk	Level	Mitigation	Effect
1. Major international programs (e.g. PEPFAR, GF, GAVI) not engaging in the country platform development.	Mid	The *Roadmap* is developed in an inclusive manner, with major international programs providing core guidance on engagement by country- based partners and staff.	High
2. Ministries of Health and National Statistical Offices receive insufficient national support to develop core components of the country platform.	High	International peer review of *Roadmap* progress will accompany reviews of health- related SDGs and be reported to heads of state and finance ministries.	High
3. Countries do not receive adequate support to build core competencies of staff for data compilation, synthesis, interpretation, and application.	Mid	Country assessments of needs that inform national and international investments, including the human resource development costs.	Mid
4. The time needed to build these functioning systems could lead to shortfalls in the ability to monitor progress according to needs of finance ministries and international partners	Mid	National agreements in M&E groups will cater to all national and international donors on their monitoring needs in the health sector. International advocacy for the *Roadmap* will include messages on the inefficiency of additional surveys and parallel systems that undermine the comprehensive country-led HIS process.	High
5. Investments in ICT are fragmented and poorly coordinated, leading to multiple systems that cannot be integrated, and national initiatives that do not deliver	High	National approaches to ICT investments for HIS and cross-sectoral linking of systems must be preceded by high-level governance mechanisms, ehealth standards, and detailed review of implementation management arrangements.	Mid
6. Increases in quality and availability of data not seen or used by local communities.	Mid	Development of country health information and accountability platforms to be accompanied by a national communications strategy.	Mid

The *Roadmap for Health Measurement and Accountability* was developed by a team of dedicated staff at the World Bank, USAID and WHO. We are grateful to our many colleagues who made the report a robust and timely document. The hard work and dedication have also resulted in the first-ever *Measurement and Accountability for Results in Health Summit* held on June 9–11, 2015.

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