

Comprehensive assessment of Somalia's health information system 2022



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Foreword

The Ministry of Health and Human Services of the Federal Government of Somalia is pleased to present this comprehensive assessment of Somalia's health information system 2022. The assessment provides a thorough evaluation of Somalia's national health information system and its components and is the result of a collaborative effort involving the Federal Ministry of Health and Human Services, Federal Member States, relevant government agencies, health care facilities and stakeholders who contributed their expertise and insights.

The assessment examines the status of Somalia's health information system, identifies strengths and weaknesses and proposes strategic recommendations for improvement. By reviewing health information system components at different levels, including data generation, collection, analysis, storage, dissemination and utilization, we assessed the system's effectiveness, efficiency, accessibility and overall performance.

The findings and recommendations presented in the assessment are based on in-depth consultations with key stakeholders and an examination of international health information system best practice. The report highlights the challenges faced by Somalia's Ministry of Health in obtaining reliable, up to date and comparable health data, and outlines opportunities for health information system strengthening. Addressing challenges will require building on the capacities of other institutions and partners and consolidating multiple data workstreams into a comprehensive national system.

By implementing the recommendations outlined in this assessment, Somalia can enhance the functionality and effectiveness of its national health information system and enable the generation of accurate and timely health information to inform evidence-based policy formulation, resource allocation and better monitoring and evaluation of health programmes, ultimately contributing to improved health outcomes. A strengthened health information system will also allow progress to be tracked towards national and global health targets, including health-related Sustainable Development Goals.

We would like to express gratitude to the individuals, organizations and stakeholders who actively participated in the assessment. We are especially grateful to the World Health Organization for providing funding and technical assistance. Special thanks go to the WHO Regional Office for the Eastern Mediterranean for its valuable contributions and expertise and for the commitment that made this assessment possible.

We are confident that the findings and recommendations presented in this assessment will inform the development and implementation of the national health information system strategy and serve as a roadmap for Somalia to strengthen its systems and improve the availability, accessibility and quality of health-related data. By collectively working towards this goal we can contribute to better health outcomes, evidence-based decision-making and the realization of our vision for a healthier Somalia.

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Preface

The role of health information systems in generating data for programme and performance monitoring, quality of care and planning and policy-making is widely acknowledged. To effectively monitor progress towards the health-related Sustainable Development Goals and universal health coverage (UHC), WHO supports countries to generate timely, country-owned and reliable data to inform decision-making. Consistent with *WHO's Thirteenth General Programme of Work 2019–2023* (extended to 2025), WHO collaborates with Member States to enhance their national health information systems, analytical capacities and measurement of UHC based on an index of effective health service coverage.

Since 2012, the WHO Regional Office for the Eastern Mediterranean has been working with Member States to agree on priority actions to strengthen health information systems. Through a consultative process and intensive work with Member States, the Regional Office has developed a framework: 91 core health indicators focus on three main components – monitoring health determinants and risks, assessing health status, including morbidity and cause-specific mortality, and assessing health system response.

Since 2016, as part of WHO's efforts to support Member States to meet national, regional and international obligations in reporting on health indicators and the triple billion targets, a number of comprehensive health information system assessments have been conducted in the Eastern Mediterranean Region to identify key gaps and ways to address them. The first was conducted in Jordan, followed by Libya, Pakistan, Afghanistan, Iraq, Lebanon, Oman, Sudan, Yemen and Djibouti, and now Somalia. The assessments have identified strengths and weaknesses of national health information systems and generated recommendations on priority actions to improve them.

We hope this report will guide decision-makers in the Ministry of Health and Human Services, state departments of health and development partners and stakeholders as they strengthen Somalia's national health information system. WHO expects the priority areas identified by the assessment team and ongoing strategies to improve the civil registration and vital statistics system, including the quality of cause-of-death data, to enhance efforts to monitor Somalia's health situation and its progress towards the health-related Sustainable Development Goals.

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The assessment was guided by Dr Arash Rashidian, Director of Science, Information and Dissemination, WHO Regional Office for the Eastern Mediterranean. Special thanks go to Dr Mamunur Malik, WHO Representative and Head of Mission, WHO Country Office in Somalia, for supporting this assessment, which is aligned with the *Country Cooperation Strategy for WHO and Somalia 2021–2025* and Somalia's national health and development agenda. We also acknowledge the efforts of H.E. Dr Jama Farah, Minister of Health of Puntland; Dr Abdirisak Xersi, Director of General Health, Puntland; Dr Abdiwali Mohamed Ahmed, Director of General Health, Galmudug; Abdi Ali Dogey, Director of General Health, South West and Dr Abdifatah Ahmed Mohamed, Director of Policy and Planning at the Federal Ministry of Health and Human Services.

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Acronyms and abbreviations

CRVS	Civil registration and vital statistics
DHIS2	District Health Information Software 2
EPHS	Essential Package of Health Services
EPI	Expanded Programme on Immunization
EWARN	Early Warning, Alert and Response Network
HeRAMS	Health resources and services availability monitoring system
HIS	Health information system
HMIS	Health management information system
HRIS	Human resources information system
ICD	International Classification of Diseases
ICT	Information and communication technology
IHR	International Health Regulations
PMTCT	Prevention of mother-to-child transmission
SARA	Service availability and readiness assessment
SDGs	Sustainable Development Goals
SIDRA	Somali Institute for Development Research and Analysis
SOPs	Standard operating procedures
SPIDER	The Swedish Program for ICT in Developing Regions
TB	Tuberculosis
UHC	Universal health coverage

Executive summary

Somalia has made tremendous progress in building its health information system (HIS). Between 2007 and 2016, Excel spreadsheets and Access files were used to manage health data. The files were sent by email from health facilities directly to the regions, leading to a cumbersome data aggregation process and version control issues. In January 2017, the District Health Information Software 2 (DHIS2) began to be implemented. District health management information system (HMIS) officers were introduced. They are responsible for entering data received from health facilities into DHIS2. In 2020–2021, DHIS2 tools were revised and more health programmes included.

Initially, surveillance was not included in the HMIS. It is now included in the DHIS2 tracker app which is being piloted.

Somalia's HIS continues to face challenges. They include the lack of a dedicated electronic laboratory information management system and system interoperability as DHIS2 implementation expands.

Improvements have taken place. In August 2021, data collection tools for malaria, immunization, maternal and child health and integrated disease surveillance and response were revised, a new electronic DHIS2 instance was launched to reflect the revised data collection tools and a server procured to house DHIS2. Health workers are becoming increasingly aware of the importance of reporting and an interoperability framework is being developed.

Training of trainers for district health information officers and health facility teams has been developed to include maps, data visualization and data validation rules to improve data quality and the HIS has expanded to include nutrition data.

Data use guidelines are being developed, together with a set of indicators for DHIS2 programmes, and the Ministry of Interior is coordinating the drafting of legislation regulating civil registration and vital statistics (CRVS). Reporting rates from facilities are high and the policy has been endorsed by the Cabinet.

HIV, tuberculosis (TB) and logistic data have been added to DHIS2 as part of the roll-out of integrated disease surveillance and response and there are logistic management information officers in each district in Somalia. In addition, ongoing readiness assessments for a case-based tracker are expected to be complete in 2023.

While the strong focus on routine facility-based data collection has resulted in improvements in recent years, insufficient attention is being paid to other components of HIS, and challenges with other types of data, e.g. supply chain and human resources data, remain.

Though HIS is a priority, funding remains a problem. Strengthening HIS, like all other areas of health in the public sector, is entirely dependent on donors. This causes fragmentation, weakens ministry leadership and is unsustainable.

Based on the HIS assessment and the national workshop, the following priorities were identified:

- ▶ improving data quality;
 - ▶ increasing use of data at all levels of decision-making;
 - ▶ institutionalizing data collection training;
 - ▶ including private sector data in DHIS2;
 - ▶ digitalizing data at the facility level given some nationwide projects need to be harmonized and taken to scale;
 - ▶ consolidating unified health information management system (DHIS2) to address fragmentation;
 - ▶ developing a portal with agreed indicators accessible to all stakeholders; and
 - ▶ moving from project-based infrastructure to institutionalizing infrastructure, e.g. IT equipment that will support digitalization efforts.
- ▶ Progress since the HIS assessment was conducted in September 2022 has included the piloting of integrated disease surveillance and response, which began in April 2023, the establishment of a dedicated monitoring and evaluation unit at the Ministry of Health in May 2023 (roles and responsibilities are being defined), the submission of a CRVS Act to Parliament for approval, and development of a Data Protection Act to cover issues such as data security.

1. Background

1.1 Overview of the health situation in Somalia

Somalia has a very young population and one of the lowest life expectancies in the world. A 2014 population estimation survey showed that 46% of the population was below age 15.¹ In 2019, life expectancy in Somalia was 54.0 years for men and 59.² years for women and healthy life expectancy 48.3 years for men and 51.3 years for women.³

The burden of disease in Somalia is driven by communicable, maternal, perinatal and nutritional conditions, noncommunicable diseases and injuries (Fig. 1). These affect population age-groups and males and females in different ways. Injuries, especially road traffic injuries, disproportionately affect men while maternal conditions are among the top six causes of death in women.

The top five causes of death in both males and females are all under-five related. In 2021, it was estimated that 112 children per 1000 live births in Somalia die before the age of five and 36 per 1000 born die in the neonatal period, between birth and 28 days.⁴

¹ United Nations Population Fund. Population estimation survey 2014. October 2014 (<https://somalia.un.org/sites/default/files/2020-02/Population-Estimation-Survey-of-Somalia-PESS-2013-2014.pdf>, accessed 2 October 2023).

² WHO. Global Health Observatory (<https://www.who.int/data/gho/data/indicators/indicator-details/GHO/life-expectancy-at-birth-years>, accessed 2 October 2023).

³ WHO. Global Health Observatory. (<https://www.who.int/data/gho/data/indicators/indicator-details/GHO/gho-gho-healthy-life-expectancy-at-birth>, accessed 2 October 2023).

⁴ United Nations Inter-Agency Group for Child Mortality. Levels and trends in child mortality: Report 2022; 2023 (<https://data.unicef.org/resources/levels-and-trends-in-child-mortality/>, accessed 19 September 2023).

1.2 Overview of the health information system

1.2.1 Development of the HIS

The Federal Ministry of Health HMIS structure was established between 2011 and 2012. Multiple data collection systems were in place to collect data from health care facilities managed by nongovernmental organizations. Microsoft Access Database was used to store data and Microsoft Excel for analysing the data and generating reports. The set up faced a number of problems, including inefficiencies and lack of interaction between different databases. While the health system, with the support of donors, was collecting large amounts of data, spending considerable amounts of time and money doing so, it was not able to effectively use the information collected for strategic planning and action.

The first step taken to address these challenges was to simplify the data collection process. With the support of its partners, the Ministry of Health and Human Services reduced the number of indicators health facilities were required to collect and simplified data collection forms. To improve the health information management system, in 2017 Oslo University was engaged by the Global Fund to Fight AIDS, Tuberculosis and Malaria to support the Federal Ministry of Health in implementing DHIS2.

Health data are largely captured at health facility or community level, depending on the point of contact between the health care provider and patient. The Federal Ministry of Health provides standardized data collection forms for hospitals, health centres and primary health units covering, among other elements, morbidity and mortality (outpatients/inpatients), malaria, prevention of mother-to-child transmission (PMTCT), tuberculosis (TB) screening, Expanded Programme on Immunization (EPI) and maternal, newborn and child health, including antenatal care, delivery, complications, postnatal care and family planning.

While DHIS2 allows health facilities to enter information directly into the national database

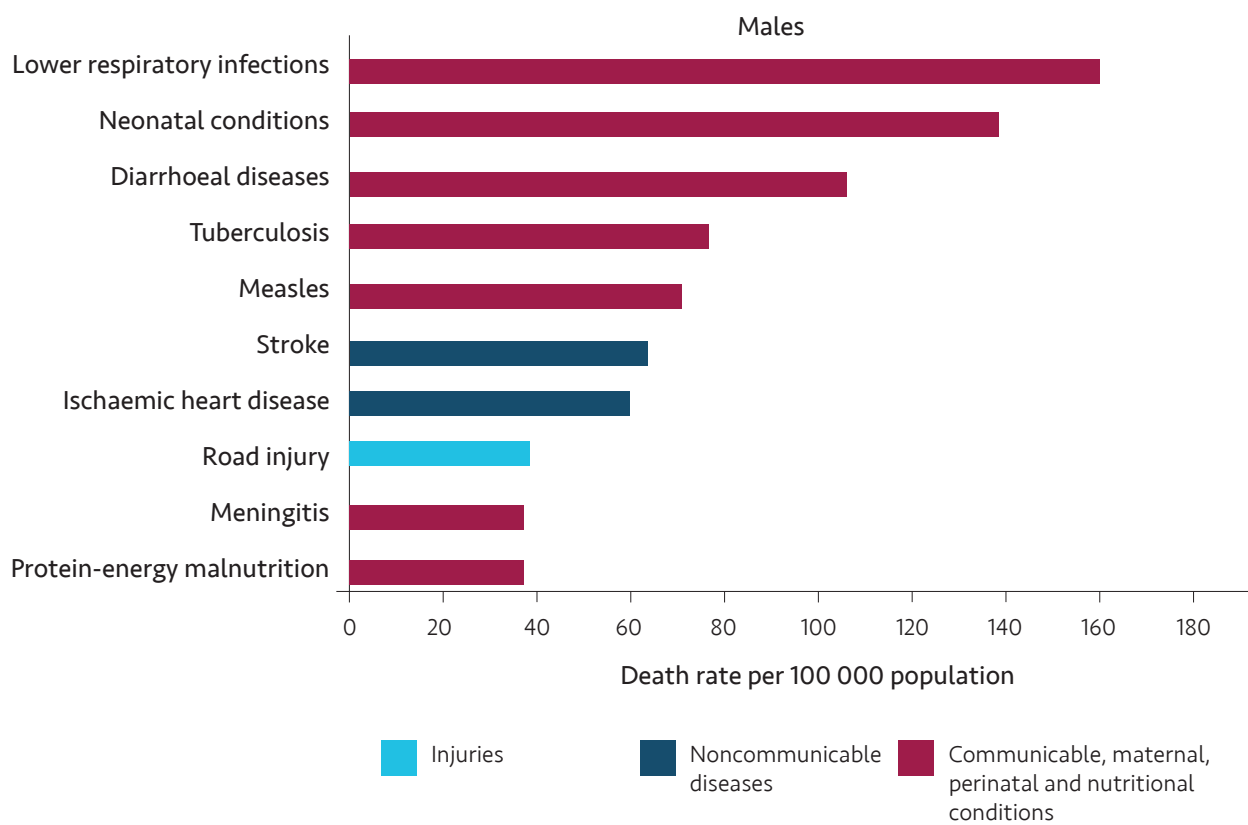
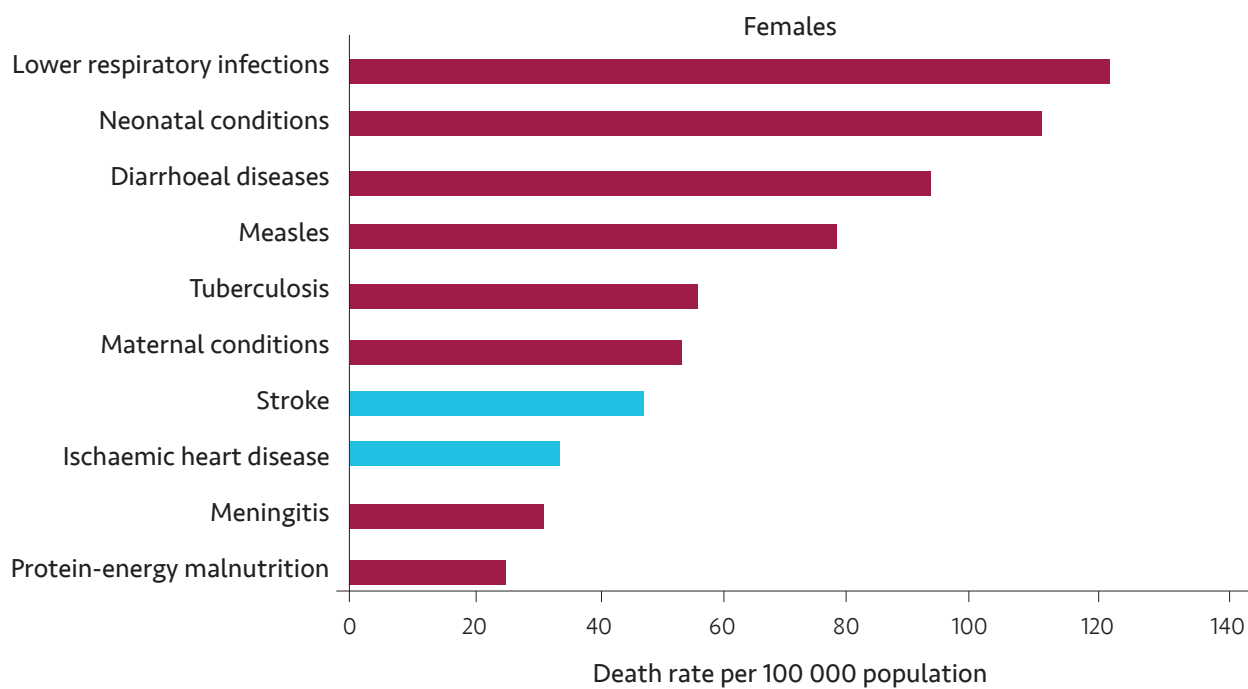


Fig. 1. Top 10 causes of death in Somalia by sex, 2019

using a computer or tablet, in practice most health facilities enter data in the paper registries provided by the Federal Ministry of Health. These are then aggregated into summary forms that are sent to the district HMIS officer who enters the data into DHIS2. The data are then further aggregated at the regional, state and national level.

By simplifying and automating monthly reporting the completeness of reporting increased from a national average of 62% in 2016 to 91% in 2022. As of September 2022, 641 health facilities, three national hospitals, 26 regional hospitals, 35 district hospitals, five private hospitals, 386 health centres, 140 primary health care units and 46 TB centres, were reporting to DHIS2. These numbers do not include Somaliland.

1.2.2 DHIS2 revision

In 2020 and 2021, the Federal Ministry of Health, in collaboration with relevant stakeholders and development partners, conducted an extensive review of DHIS2 to improve data access, analysis and integration. As part of the process data collection tools were updated, manuals developed,^{5,6,7} data gaps in EPI, malaria, HIV, female health worker and TB programmes were addressed and data for community health, nutrition and communicable diseases were integrated into the national HIS. Training of trainers sessions were conducted for the Ministry of Health, regional and district HMIS staff and nationwide for health facility staff, and a cloud-based server for the national HIS was launched by the Federal Ministry of Health.

1.2.3 Challenges

Efforts to rebuild the Somali health care system are largely dependent on donor support, which has led to HIS fragmentation. Donors and programmes have set up separate data collection and reporting systems (Annex 1). In 2017, DHIS2 became the main

HIMS for entering facility level data in Somalia. While some programmes have been integrated into DHIS2 (e.g. maternal, newborn and child health), other data collection systems, including the *Early Warning, Alert and Response Network* (EWARN),⁸ continue to operate in parallel and have yet to be integrated. Additional fragmentation is caused by the absence of a formal requirement for the private sector to report data. As a result, few private hospitals and clinics report even minimal data into DHIS2 and what data they do report are mostly on immunizations supported by partners (e.g. Gavi – the Vaccine Alliance) or notifiable diseases.

In the public sector, routine health data are collected at health facility level using standard paper registries provided by the Federal Ministry of Health. There are 12 such registries for different purposes, including on hospital inpatients, over-five outpatients, under-five outpatients and immunization. Data from the registries are aggregated and submitted monthly to the district HMIS officer who enters it into DHIS2. They are then aggregated at the regional and state level, and finally by the Federal Ministry of Health.

The process faces several challenges. Only 30–42% – there was some debate on the exact figure – of districts have an HMIS officer, and the DHIS2 system only covers the public sector. In the private sector a variety of health information management software is used. There are duplications in data entry: facilities have to report data twice for partner supported programmes, once into DHIS2 and again for partners supporting the programme. In Somalia, all public health facilities are supported by partners.

1.2.4 Opportunities

Somalia has conducted several surveys and assessments that provide a rich source of data. These include the 2018–2019 demographic and health survey, the 2022 household budget survey, the ongoing harmonized health facility assessment and the planned 2023–2024 multiple indicator cluster survey. The raw data could be leveraged for

⁵ HIMS, Standard operating procedures, Ministry of Health, February 2022.

⁶ DHIS registers and summary sheets. Users' and health facilities' manual, Ministry of Health, February 2022.

⁷ DHIS, Trainer's manual, Ministry of Health, February 2022.

⁸ As of April 2023, IDSR integration into DHIS2 is being piloted.

analysis beyond the descriptive results presented in survey and assessment reports. Somalia is also part of the geolocated health facility initiative, the aim of which is to develop up-to-date facility master lists with geolocation and a health resources and services availability monitoring system (HeRAMS). A census is also planned for 2025. Together, these will provide a wealth of data that Somalia can tap.

2. Objectives of the assessment

The Federal Ministry of Health has emphasized the need for reliable and timely health information.^{9,10,11,12} The Essential Package of Health Services (Somalia EPHS 2020) calls for an integrated HIS to capture data on health service delivery. The Health Sector Strategic Plan 2022–2026 highlights the need to establish an effective HIS that provides accurate and timely health data for evidence-based planning and implementation, supported by effective monitoring and evaluation and targeted research.

The Federal Ministry of Health intends to develop an HIS strategy to guide HIS improvement, reinforce informed decision-making, strengthen Somalia’s capacity to monitor national health development and the health status of the population, respond to data demands from partners and monitor the impact of *WHO’s Thirteenth General Programme of Work 2019–2025 (GPW13)*, which emphasizes the use of data for health policy development and implementation.

The *Comprehensive assessment of Somalia’s health information system 2022* is intended to inform the development of the HIS strategy and review the

health information available from different data sources and the way it is used.

The specific objectives of the assessment were to:

- ▶ review the different sources of data for HIS (population- and facility-based, surveys and routine data collection, special studies, service records, individual records, surveillance and community systems);
- ▶ increase understanding of, and identify areas for improvement, particularly on information flow and systems-level use of data;
- ▶ provide an understanding of data source content, the reporting burden, how these information systems are used and by whom;
- ▶ study existing governance structures, HIS functions, infrastructure and support mechanisms to sustain the generation of high-quality data;
- ▶ appraise data management and standard practices to enhance quality assurance and support data use in decision-making;
- ▶ assess the strengths and opportunities for improvement of HIS procedures with respect to management and governance, infrastructure, data management, collection and processing and data analysis, dissemination and use;
- ▶ indicate ways to strengthen Somalia’s integrated HIS in line with global and regional HIS standards, indicator frameworks and guidelines; and
- ▶ recommend strategies to build the capacity of the information management system, enabling it to produce core indicators on disease burden and surveillance, mortality, health access and utilization and human resources, including responding to the information requirements of the SDGs and UHC.

⁹ Federal Government of Somalia, Ministry of Health and Human Services, Health Information System Statistical Plan 2018–2022, March 2018 (<https://www.somalimedicalarchives.org/archive/publications/424-health-information-system-statistical-plan-2018-2022>, accessed 19 September 2023).

¹⁰ Somalia National Action Plan for Health Security 2020–2024.

¹¹ Federal Government of Somalia, Ministry of Health and Human Service. Essential Package of Health Services Somalia 2020.

¹² Federal Government of Somalia, Ministry of Health and Human Service. Somalia Health Sector Strategic Plan 2022–2026 (HSSP III), 22 December 2021.

3. Methodology

In June 2022, the Federal Ministry of Health and WHO undertook a joint fact-finding mission on national capacity for use of evidence for policy development and HIS strengthening. During the mission, the parties involved agreed to undertake a comprehensive HIS assessment that could inform the development of the HIS strategy.

The comprehensive HIS assessment was undertaken in September 2022. Methods used include document reviews, field visits and a national workshop with stakeholders. The assessment covered the components of an effective national HIS, including governance, data infrastructure, data sources, data management, standards, quality assurance and analysis, and use of data for decision-making and dissemination.

As part of the mission preparations, documents provided by the Ministry of Health, the national development plan, the draft CRVS policy of the Ministry of Interior, digital health assessments conducted by SPIDER and the Somali Health and Demographic Survey 2020 were reviewed, together with documents on interventions by development partners to improve the HIS (Annex 2).

Field visits were conducted to review HIS structures and processes at the state, district and facility level and identify key strengths, challenges and areas for improvement. A checklist including key discussion points from previous HIS assessments in the Eastern Mediterranean Region was used to guide the field visits (Annex 3). The checklist included specific discussion points for state level Ministry of Health and district HISs, civil registration authorities and the Ministry of Interior, vertical programmes, disease surveillance, the Bureau of Statistics and national, regional and district hospitals and health facilities.

Field visits were conducted by six teams between 12 and 13 September 2022 in the capitals of five federal states (Puntland, Galmudug, Hirshabelle, Jubaland, South-West) and the Banaadir Regional

Administration. In each state, the state ministry of health and selected facilities were visited, including:

- ▶ one general hospital, one district hospital and one health centre in Baidoa, South-West;
- ▶ the regional hospital, Hanano referral health centre and the Dayah health centre in Dusameren, Galmudug;
- ▶ Garawe Hospital, Gambool Health Centre and Israac Health Centre in Garowe, Puntland;
- ▶ Faanole health facility (Aid Vision), Jowhar maternity unit (IMC), Bula Sheakh and Jowhar regional hospital in Jowhar, Hirshabelle;
- ▶ Kismayo general hospital, two public health facilities, Daryeel private hospital and the Ministry of Planning and Bureau of Statistics and partners in Kismayo, Jubaland; and
- ▶ Erdogan Hospital and Waberi district primary health care facility in Mogadishu, Banaadir Regional Administration.

The assessment was followed by a national workshop at which representatives from different states discussed the findings and priority actions to address the gaps identified. The team used this information to formulate recommendations for HIS improvement. Assessment findings were shared with the health authorities and all stakeholders.

4. Key findings

4.1 Overview

A well-functioning HIS ensures that reliable, relevant and timely health and health-related information is available to health managers at every level of the health care system for use in decision-making, planning and evaluation, and enables planners to monitor service delivery and measure trends in health outcomes. Any evaluation of the effectiveness of health system performance and health status uses products from the national HIS.

The challenges faced by Somalia's HIS include limits on data available for key national health-related indicators, such as SDGs and limited staff capacity, ICT and internet availability at health facilities. There is also fragmentation between donor driven systems and between disease-specific programmes. Routine information systems are largely paper based, and standards are variable.

Unclear and fragmented governance mechanisms weaken the coordination of interventions to enhance operations. Overreliance on donor funding for HMIS and a lack of coordination between programmes supported by different partners perpetuates the weak and fragmented infrastructure, limiting HIS capacity to generate data for decision-making. Ad hoc, non-comprehensive, fragmented and sometimes redundant data sources reduce the amount of reliable data for use in planning and decision-making. Data analyses are impaired by unclear plans and restricted capacity. Information products often lack feedback and a clear purpose. The lack of data on vital events, especially births and cause of death, and the absence of a national identification system or other unique identifier mechanisms creates challenges in implementing an effective HIS. Evidence that decision-making is guided by data is sparse.

Despite these challenges, the Federal Ministry of Health and ministries of health of the Federal Member States are committed to building on recent HIS reforms to enhance the HMIS.

4.2 Policy and governance

The mission of the Federal Ministry of Health is to provide quality essential health and nutrition services for all people in Somalia, with a focus on women, children and other vulnerable groups, and to strengthen the national and local capacity to deliver evidence-based and cost-effective services based on the EPHS and primary health care approach.¹³ In several documents, including the Health Information System Statistical Plan

¹³ Our mission: The Ministry of Health in Somalia (<https://moh.nomadilab.org/ministry/>, accessed 7 October 2022).

2018–2022¹⁴ and the Somalia National Action Plan for Health Security 2020–2024, the Ministry has emphasized the need for adequate, reliable and timely health information. Somalia EPHS 2020¹⁵ calls for a fully integrated HIS to capture data on health service delivery. The Health Sector Strategic Plan 2022–2026 highlights the need for accurate and timely health data for evidence-based planning and implementation, supported by effective monitoring and evaluation and targeted research.

Strengths

- ▶ The commitment of the Federal Ministry of Health to enhance the HIS in the investment case plan.
- ▶ Ongoing reforms to strengthen the national HIS with a focus on enhancing routine data sources.
- ▶ Existence of a policy and planning unit in the Ministry with plans to coordinate HIS activities.
- ▶ Establishment of a national HIS technical working group.
- ▶ Donor-funded data platforms that can be built upon.
- ▶ National Statistics Act passed in February 2020.
- ▶ Draft CRVS Act to improve registration of vital events such as births and deaths.
- ▶ Availability of SDG monitoring dashboard at the Bureau of Statistics.
- ▶ The Somalia Health Sector Strategic Plan (HSSP III) contains a monitoring and evaluation framework section with a list of indicators and

¹⁴ Federal Government of Somalia. Ministry of Health and Human Services. Health Information System Statistical Plan 2018–2022 (<https://www.somalimedicalarchives.org/media/attachments/2021/09/18/hissp-2018.pdf>; accessed 19 September 2023).

¹⁵ Federal Government of Somalia, Ministry of Health and Human Service, Essential Package of Health Services (EPHS) Somalia 2020 (<https://reliefweb.int/report/somalia/essential-package-health-services-ephs-somalia-2020>, accessed 19 September 2023).

data sources. While not all indicators are clearly specified, the list can serve as a starting point to develop a monitoring and evaluation plan.

- ▶ A list of indicators has already been identified to measure progress in the strategic priorities of the Country Cooperation Strategy for WHO and Somalia 2020–2025. The list includes baseline values and targets for 2023 and 2025 and is aligned with the GPW, the UHC roadmap, the EPHS and the National Development Plan. Together with indicators collected in DHIS2, the list can be leveraged to identify indicators for the monitoring and evaluation plan, reducing the reporting burden.
- ▶ Expressed demand from policy-makers for use of evidence and data for policy-making.

Weaknesses

- ▶ Overreliance on donor funding for HMIS weakens Government leadership and exacerbates coordination difficulties between programmes supported by different partners.
- ▶ The monitoring and evaluation plan has not been updated to ensure it is in line with the Third Health Sector Strategic Plan 2022–2026. The plan needs to be costed, with clear baselines and targets, including frequency of measurement for the health sector strategy.
- ▶ Lack of a monitoring and evaluation task force.¹⁶
- ▶ Lack of disease- and programme-specific monitoring and evaluation systems, e.g. for HIV/AIDS, TB and surveillance.
- ▶ Lack of agreed indicators for monitoring and evaluation of health-related SDGs.
- ▶ Absence of a national identification system or other unique identifier mechanism.

¹⁶ As of May 2023, there is a dedicated monitoring and evaluation unit at the Federal Ministry of Health. Roles and responsibilities are being defined.

- ▶ The absence of a unified HIS strategic plan prevents mobilization of development partners.
- ▶ Lack of an e-health strategy.
- ▶ Inadequate governance and coordination mechanisms for monitoring and evaluation and little involvement of relevant stakeholders.
- ▶ No legislation or detailed regulations for private health sector reporting of data.
- ▶ The national HIS technical working group is not fully functional.¹⁷

4.3 Infrastructure and support

Innovative information technologies play a key role in strengthening the availability of data and its use in decision-making. Infrastructure and technologies should support electronic patient and facility records and the use of handheld devices for data collection and data sharing and exchange through interoperable databases irrespective of their location at the facility, district, regional or national level.

To effectively improve the flow of information and support health service delivery through ICT, countries should implement effective governance mechanisms, invest in infrastructure and utilize global standards for information systems (e.g. ICD-11) at all levels of care.

Strengths

- ▶ Availability of a data centre at the Ministry of Health with a cloud-based server for the national HMIS.
- ▶ Adequate capacity at national level of HMIS staff.
- ▶ Use, to varying degrees, of electronic platforms for the collection and reporting of data at the national level.

¹⁷ As of May 2023, the national HIS technical working group has become fully functional.

- ▶ Supportive supervision at the national and subnational levels, though it does not cover all health facilities.
- ▶ Standard operating procedures (SOPs) for HMIS.
- ▶ Availability of HMIS training manuals at health facility level.

Weaknesses

- ▶ Limited data management skills and capacity to provide support among ICT and DHIS2 server management staff, especially at the subnational level.
- ▶ Limited pre- and in-service training for HMIS staff.
- ▶ High turnover of trained staff necessitates repeated training.
- ▶ Limited infrastructure and staffing for effective information management in some health facilities and provinces.
- ▶ Limited internet connectivity in rural areas.
- ▶ Many health facilities lack reliable access to electricity.
- ▶ Absence of designated space for HMIS teams, including storage facilities.
- ▶ Absence of a national innovation, knowledge and learning centre.
- ▶ Limited coordination and feedback mechanisms.
- ▶ Supportive supervision lacks harmonized tools and covers only 10% of facilities per quarter.
- ▶ Absence of a supportive supervision checklist integrated into DHIS2 to enable real time data entry.

4.4 Data sources

National HISs draw data from multiple sources and apply global standards for collection, compilation, sharing, analysis, synthesis, communication and use of results. An effective HIS uses data from various sources, which can include population-based surveys and assessments, CRVS systems, routine facility information systems, facility surveys, administrative data such as national health accounts and health workforce registries, logistical information systems, disease and public health surveillance and research studies.

Strengths

- ▶ Simplification of the number of tools/indicators needed from facilities, focusing on the most important data points, has led to standardized registries at the health facility, district, regional, state and national levels.
- ▶ Expanding use of DHIS2 to support data collection and processing from health facilities.
- ▶ National level data are accessed through electronic and manual systems, with DHIS2 playing a key role in providing electronic records.
- ▶ Other sources of data – see 4.1.1.1 to 4.4.1.8 – are being enhanced to support decision-making.

Weaknesses

- ▶ The ability to provide denominators to calculate service coverage compromised by unreliable data.
- ▶ Duplication of data collection systems (Annex 1).
- ▶ Absence of data from the private sector.
- ▶ Disaggregated demographic estimates not available at state level.

4.4.1 Population-based data sources

4.4.1.1 Population-based surveys

Population-based household surveys provide opportunities to assess population health status,

service coverage, health-related behaviours and risk factors, mental health and well-being and out-of-pocket spending on health. Development of an integrated national health survey plan is a critical step to support the monitoring and evaluation of national health plans.

Strengths

- ▶ The Demographic and Health Survey, a major source of health data conducted in 2018 to 2019, includes some equity stratifiers.
- ▶ A household budget survey was conducted in 2022.
- ▶ A harmonized health facility assessment (census of all health facilities)¹⁸ is ongoing.
- ▶ A service availability and readiness assessment (SARA) survey was conducted in 2016. Despite sampling limitations affecting data quality – only a subset of health facilities was included – the results have been widely cited, indicating a clear demand for such data.
- ▶ Preparations for a multiple indicator cluster survey have begun and the survey is expected to be implemented in 2023.

Weaknesses

- ▶ Lack of a harmonized national survey plan to increase coordination and national ownership.
- ▶ Lack of a coordination mechanism for the national census and national surveys.
- ▶ Shortage of trained staff to lead and support analytical capacities. This can be addressed by enhancing the training of statisticians, demographers and other cadres in postgraduate training programmes.
- ▶ Limited number of workshops on analysis and use of survey data at the national and subnational levels.

¹⁸ As of April 2023, the HFFA had been conducted in four States and the Banadir Regional Administration.

4.4.1.2 Census

Censuses are a key source of data to determine the size and distribution of a population and its demographic and socioeconomic characteristics. Censuses provide a denominator to calculate vital statistics and many health indicators, especially in countries with dysfunctional CRVS systems. The United Nations recommends that a national census be taken at least every 10 years. In Somalia, the last information available on population is from the 1975 census, though a population-enumeration survey was carried out by the Somali authorities from October 2013 to March 2014.¹⁹ Results from the population census conducted between 1985 and 1986 were never made public.

Strengths

- ▶ Plans are in place to conduct a census in 2025.

Weaknesses

- ▶ Security challenges and limited resources to conduct the census.
- ▶ Staff shortages and limited capacity at the National Bureau of Statistics for census data collection, analysis, report writing and dissemination.
- ▶ No population projections by district at the National Bureau of Statistics data repository.

4.4.1.3 Civil registration and vital statistics system

All countries should have CRVS systems that record births, deaths and other vital events to produce fertility and mortality statistics. Countries generate statistics on causes of death from the certification of cause of death according to standards set out in the International Classification of Diseases (ICD). CRVS development has evolved in Somalia in recent years.

¹⁹ Population Estimation Survey 2014: For the 18 pre-war regions of Somalia (<https://somalia.unfpa.org/sites/default/files/pub-pdf/Population-Estimation-Survey-of-Somalia-PESS-2013-2014.pdf>, accessed 2 October 2023).

Strengths

- ▶ Federal Government commitment to establish public registration services, identify key vital events and publish official statistics consistent with global standards.
- ▶ A national CRVS policy and implementation framework was published by the Ministry of Interior in January 2021, and a CRVS Act has been developed with the requirement to register births and deaths within a specific time period.
- ▶ A comprehensive assessment of CRVS led by national stakeholders with the support of WHO was conducted in 2015 and a stakeholder national consultation was held in 2018.
- ▶ A study on the development of a national identification system was conducted in 2016 with the support of the World Bank, United Nations Development Programme (UNDP) and the International Organization for Migration (IOM)²⁰ and a review of CRVS with the support of United Nations Population Fund (UNFPA) has been undertaken.²¹
- ▶ There is a national ID unit within the Ministry of Interior.
- ▶ A multisectoral coordination committee for CRVS has been established.
- ▶ In November 2018, the Council of Ministers approved the Somali Population Registration and Identity Policy, which guides the implementation and administration of civil registration and national identity through the use of modern technology.
- ▶ Some hospitals maintain death records with causes of death coded using ICD-10.

²⁰ Toward a Somali Identification System: ID4D Diagnostic Public (<https://pubdocs.worldbank.org/en/185701524689472792/Somalia-ID4D-Diagnostic-Web040418.pdf>, accessed 19 September 2023).

²¹ Civil registration and vital statistics. Somalia country profile, December 2021 (https://somalia.unfpa.org/sites/default/files/pub-pdf/crvs_report.pdf, accessed 19 September 2023).

Weaknesses

- ▶ Limited functionality of the multisectoral coordination committee for CRVS.
- ▶ The Ministry of Public Security includes a department that collects information on deaths caused by accidents, suicide and explosions and crime-related deaths. The Ministry of Interior, Federal Affairs and Reconciliation is responsible for policy development. It chairs the interagency working group on CRVS, has recently established a CRVS unit and is in the process of building the CRVS system in the country.
- ▶ Currently, the civil registration system is completely decentralized and the implementation of interventions uneven. The new unit in the Ministry of Interior aims to reduce fragmentation by establishing a central register of vital events.
- ▶ Limited infrastructure for entering information about the deceased, including the cause of death, on individual records.
- ▶ Verbal autopsies are not conducted.
- ▶ Lack of clear regulations for the process for registration, the use of standard forms and the time period for reporting births and marriages.
- ▶ Civil registration systems are fragmented and coordination between them needs to be improved. The 2019–2020 Somalia Demographic and Health Survey found only 4% of children under two years had been registered, and less than 1% had birth certificates.
- ▶ Limited and poorly functioning civil registry, and no population register or national ID system.²²
- ▶ No routine collection and compilation of vital statistics. Somalia has not submitted any statistical reports on vital events to the United Nations annual demographic yearbook series, or to the WHO mortality database.

²² Parliament approved the National ID and Registration Law and it was passed in March 2023.

- ▶ ICD-10 is not implemented at the national level. There is no requirement to report deaths or causes of death except in the case of death from injury.
- ▶ Lack of ICD coding capacity-building for doctors and other coders.
- ▶ ICD coding is not included in the medical curriculum.

4.4.2 Institution-based

4.4.2.1 Routine health information system data sources

Timely and reliable statistics should be produced by public and private health facilities and communities to monitor health system inputs, disease patterns, health service provision and outcomes, including facility-based mortality and cause of death. Where possible, electronic recording and web-based reporting systems should be used. Such data should be analysed and used for planning, reviews and evidence-based decision-making. Routine HISs should include facility assessment verification to monitor the quality of service delivery, care provision and data.²³

The HMIS structure was established in 2011–2012. The software used to house most of the data gathered from health facilities was not web-based. The country had multiple systems to gather data from health services managed by nongovernmental organizations. The systems used to aggregate and analyse health data were weak and lacked integration. None of the databases could interact. With support from donors, the health system was collecting significant volumes of data and spending considerable time and financial resources to do so but use of the information for strategic planning and immediate action was ineffective.

Microsoft Access Database was used to store data, and Microsoft Excel was the sole option for data analysis and to generate reports. The first

step taken to improve the health sector's ability to generate and use information was to simplify the data collection process. With the support of all its partners, the Federal Ministry of Health tried to simplify the number of tools/indicators needed from facilities, focusing on the most important data points. To provide a better system for entering, storing and aggregating data and a user-friendly way for health facilities to view and analyse information in real time onsite, the Global Fund contracted the University of Oslo for support in building a HMIS, which was rolled out nationally in 2017.

Using DHIS2, a free and customizable web-based software platform, health centres are able to enter information directly into the national database as long as basic devices are provided to health facility staff. With the click of a mouse, health facility staff, managers and policy-makers are able to view charts and graphs showing data trends over time. Health data are mainly captured at the health facility or community level, depending on the point of contact between health workers and patients, using standardized data collection tools and then aggregated at health facility, district, regional, state and national level. Data at the national level are accessed through both electronic and manual systems, with DHIS2 playing a key role in providing electronic records.

DHIS2 implementation began in 2017, with data on morbidity and mortality (outpatient and inpatient), malaria, PMTCT and TB screening, immunization and maternal, newborn and child health (antenatal care, delivery, complications, postnatal care and family planning) collected from hospitals, health centres and primary health care units. A total of 641 health facilities are registered, including 641 health facilities, 3 national hospitals, 26 regional hospitals, 35 district hospitals, 5 private hospitals, 386 health centres, 140 primary health care units and 46 TB centres (these numbers do not include health facilities in Somaliland). By simplifying and automating monthly reporting of service data, reporting increased from a national average of 62% in 2016 to 91% in 2022. A summary of data flow is displayed in Fig. 2.

²³ Schmets G, Rajan D, Kadandale S, editors. Strategizing national health in the 21st century: a handbook. Geneva: World Health Organization; 2016.

In Puntland, a health app (OGOW)²⁴ is being deployed to improve vaccination coverage, and there are plans to roll out the app in more states. Implementing health facilities have been provided with tablets to register child and mother data and send automatic reminders by SMS – voice reminders are under development – for routine vaccination. The system will be linked with DHIS2 so that the data collected feeds directly into the routine HIS, and there is potential for the app to cover more areas of child and mother health and beyond.

Strengths

- ▶ Strong commitment and leadership of the Federal Ministry of Health to develop a unified health facility reporting system across all programmes.

- ▶ Government commitment to prioritize HIS in the Investment Case Plan.
- ▶ Well trained HMIS staff at the subnational and national level.
- ▶ Supportive supervision at the state level.
- ▶ Internet and ICT infrastructure available at the national level.
- ▶ HMIS structure (organogram) in place at different levels (connecting at district, region, state and federal levels).
- ▶ The Federal Ministry of Health has its own data centre with a cloud-based server for the national HIS.

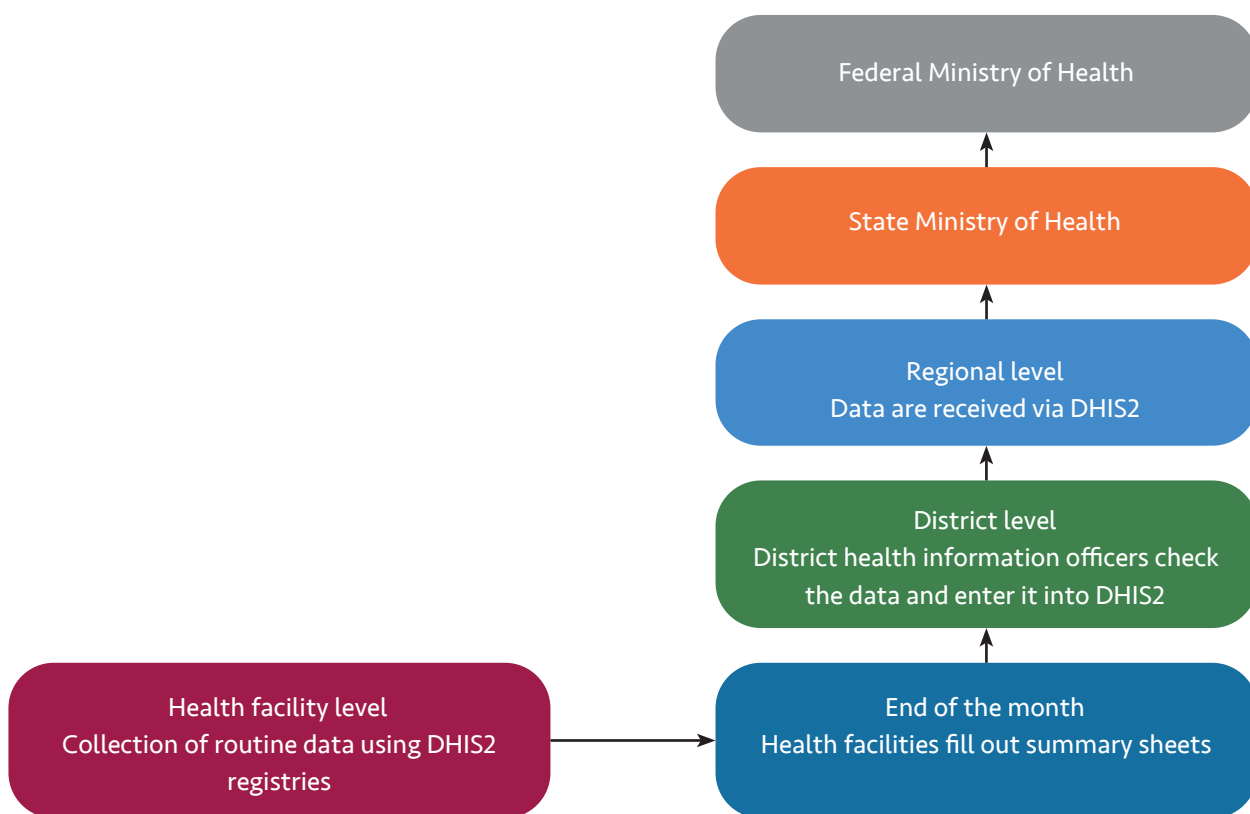


Fig. 2. Data flow into DHIS2 in Somalia

²⁴ <https://ogowhealth.com/en/>

- ▶ DHIS2 was rolled out in 2017 and upgraded in 2021 with new advanced features. It is used in public facilities across the country.
 - ▶ Some existing electronic systems (e.g. disease surveillance systems [pilot ongoing], ONA) have been successfully integrated with the DHIS2 platform.
 - ▶ An ongoing health facility census will soon provide a list of the geocoordinates of all health facilities in the country.
 - ▶ Standard HMIS recording and reporting has been updated.
 - ▶ SOPs for HMIS have been developed.
 - ▶ HMIS training manuals at health facility level are available.
 - ▶ Monitoring and evaluation units are in place in each facility.
 - ▶ An monitoring and evaluation framework and costed plan of action is in place but needs updating in line with HSSP-III 2022–2026.
 - ▶ Digitalization of data entry is being piloted at selected health facilities.
 - ▶ Completeness of reporting in public health facilities has improved from a national average of 62% in 2016 to 91% in 2022.
- Weaknesses**
- ▶ Lack of reliable population estimates to serve as a denominator to support the calculation of indices.
 - ▶ Almost no data analysis conducted at facility level.
 - ▶ Limited capacity of programme staff at facility level to analyse data in DHIS2.
 - ▶ Limited incentive mechanisms to improve data quality, including data quality review assessments.
 - ▶ Only one module on quality of care is available.
 - ▶ No involvement of local decision-makers and community members in data analysis to identify critical trends.
 - ▶ Uncoordinated training of community health workers, though a standardized curriculum for female health care workers has been organized.
 - ▶ Despite recent feedback from the national HMIS team to its state and regional counterparts, coordination and feedback mechanisms for health facilities remain limited.
 - ▶ About 95% of data are collected by people who have other responsibilities.
 - ▶ No guidelines to support data collection for health facility staff.
 - ▶ Limited infrastructure (electricity, connectivity and computers/laptops) in some localities, and non-availability of m-health or e-health.
 - ▶ Timeliness and completeness of reporting remains a challenge in some facilities.
 - ▶ Low staff capacities at governorate level.
 - ▶ Lack of ICD coding.
 - ▶ No electronic medical records system.
 - ▶ Although SOPs for HMIS have been developed, they had not been distributed to health facilities at the time of the assessment and staff had not been trained.
 - ▶ Names of facilities in the master health facilities list are not properly coded.

4.4.2.2 Sentinel surveillance system

Disease surveillance systems detect, report and respond to notifiable communicable diseases and other health events. Data generated by notifications should lead to immediate action to control outbreaks. Disease surveillance and response systems should be linked to routine facility and community information systems whenever possible. Effective surveillance should improve detection and prediction of epidemics and provide objective assessment and efficient monitoring of intervention programmes. Well-defined sets of core functions and surveillance capacities are monitored by WHO under the International Health Regulations (IHR).

In early 2021, the Federal Ministry of Health and the Somalia National Institute of Health (NIH) made a strategic decision to adapt and implement IDSR as the main framework for strengthening surveillance and response and achieving IHR core capacities.²⁵ Subsequently, and with technical support from WHO Country Office for Somalia and other partners, the Federal Ministry of Health and NIH convened a week-long multi-stakeholder workshop on IDSR in Naivasha, Kenya, to develop timelines towards the implementation of the IDSR strategy in Somalia. Stakeholders developed a draft IDSR operational plan. A team commissioned by the national IDSR TWG reviewed and further developed the three year – 2021–2023 – operational plan with technical support from WHO Somalia Country Office. IDSR began functioning in some states in Somalia, including Jubaland where almost 98% of public health facilities report data. Roll out of IDSR will include training cascaded to all levels and the provision of supplies to enable immediate weekly reporting and other surveillance functions, including data analysis and use, alert management and outbreak investigation.

The assessment of IDSR during the HIS assessment mission aimed to review progress since the strategic decision to adapt and implement IDSR was made.

²⁵ This is in line with recommendations of the 2016 joint external evaluation of International Health Regulations (IHR 2005) core capacities.

Strengths

- ▶ The Federal Ministry of Health established a TWG involving different stakeholders. It oversees IDSR implementation nationwide and meets bi-weekly.
- ▶ Development of the IDSR operational plan, technical guidelines and IT platform to support IDSR implementation.
- ▶ Development of a readiness assessment tool by the TWG to assess states' readiness to implement IDSR.
- ▶ Official reporting on IDSR by some states, and Jubaland has started to develop a weekly surveillance summary report on a number of priority conditions.
- ▶ Training on IDSR was ongoing at the time of the assessment, as was training in field epidemiology (FETP) with the support of WHO. Forty-four health workers had completed training and a third group began in September 2022, with 28 participants enrolled.
- ▶ HMIS focal points at the district level check for outliers and get back to the health facilities for verification. Supervisory visits also take place.
- ▶ For some programmes, data checking and cleaning is regularly done by partners, and to a lesser extent for national Federal Ministry of Health programmes.
- ▶ Planning is in place for the IDSR system to include community-based surveillance. Currently, 79 districts are engaged in community-based surveillance for COVID-19 and six other priority epidemic prone diseases, and will be aligned with IDSR. There is a plan to expand community-based surveillance to 117 districts.
- ▶ A list of 20 priority diseases for immediate reporting in the IDSR reporting format has been agreed and registers that feed into the electronic data aggregation form are standardized in all public health facilities.

- ▶ Lists of conditions for both immediate and weekly reporting, the majority epidemic prone conditions, are available.
- ▶ Unified paper-based registers are used in all health facilities.
- ▶ Data are shared on a weekly basis with the surveillance focal points at the district level (HMIS focal point) who then enter the data to the IDSR data set on DHIS2.
- ▶ Tracker modules for diseases that require case-based reporting such as HIV and TB are under development in collaboration with the University of Oslo and will be launched soon after training scheduled for October 2022.²⁶
- ▶ Laboratory strengthening is ongoing and benefits from support provided for the COVID-19 response. Polymerase chain reaction (PCR) testing capacity has been strengthened and new generation sequencing machines provided to three laboratories in Somalia. A specimen referral system is in place, though not in all regions.
- ▶ Although the laboratory data management system under DHIS2 provides information on tests for a number of priority diseases, including poliomyelitis (polio), measles, rabies, cholera, malaria, HIV, Hb and hepatitis C (HCV), it is not yet linked to the IDSR.
- ▶ Standard case definitions for health events under surveillance have been developed but not disseminated to health facilities.
- ▶ The IDSR system is totally donor dependent, with no alternative strategies in place should donor support stop.
- ▶ Turnover of trained staff makes it challenging to expand the system.
- ▶ Insufficient ICT equipment to support system expansion.
- ▶ Data analysis is weak. Despite the ability of the system to provide dashboards of analysis that can be tailored according to needs and priorities, capacity to do so needs building at state, region and district level and to a lesser extent centrally.
- ▶ Many health facilities fail to fill in laboratory data sets.
- ▶ Monitoring has yet to be fully implemented as per IDSR technical guidelines and data quality remains an issue.
- ▶ The system has not yet been fully rolled out so apart from Jubaland and Galmudug, completeness and timeliness of reporting is far from optimal.
- ▶ Historical data have not been migrated into IDSR.

Weaknesses

- ▶ The private sector, which provides 70% of health services in Somalia, is not engaged in IDSR.
- ▶ Fragmentation in surveillance exists (e.g. acute flaccid paralysis (AFP), EWARN, fever and rash), with no clarity on how and when these parallel surveillance systems will be exited and integrated with IDSR.

- ▶ Financial resources for the capacity-building needed to cover staff turnover for both reporting and response is limited.

For additional information on the performance of IDSR, see Annex 4.

4.4.2.3 Community-based health information system

The community health system is a critical component of the health care delivery system, particularly in low-resource settings like Somalia. A community-based information system involves data collection, management and analysis of health services that exist within a community outside health facilities. These services can be

²⁶ As of November 2023, this has been completed.

delivered through community organizations, nongovernmental organizations, faith-based organizations and other groups, either working alongside formal health services or in places where there are no health facilities.²⁷ Data collection and reporting mechanisms for community-based health activities, however, are often fragmented and poorly coordinated.

In Somalia, community-based health activities include community health workers, village polio volunteers and outreach teams deployed by multiple partners. Each partner typically has its own data collection system, resulting in a lack of standardization and challenges in assessing impact at the national level.

There is a need for a more coordinated and standardized approach to community health data collection and reporting. Such an approach will require collaboration among stakeholders, including the Government and non-governmental and community-based organizations, to develop a national reporting system that captures data from all community-based health activity. This system should be designed to track health indicators and outcomes from the bottom-up, starting with the community and feeding up to the national level. The IDSR system intends to include community-based surveillance: this will require a community-based information system to be established and community health workers to be trained in both service delivery and data recording.

Strengths

- ▶ Willingness to implement community-based HIS solutions.

Weaknesses

- ▶ The system is very fragmented.
- ▶ No community-based health HIS.

4.4.2.4 Regular system to monitor service availability, quality and effectiveness

HeRAMS is an important source of data to measure service availability. It aims to ensure that core information on essential health resources and services is readily available to decision makers at country, regional and global levels. It does so by supporting countries in collecting, analysing and disseminating information on the availability of essential health services and resources, down to the point of service delivery, and contributes to maintaining an up-to-date master list of health facilities. Rapidly deployable and scalable to support emergency response and fragile states, HeRAMS can also be expanded to – or directly implemented as – a component of routine HIS.²⁸

HeRAMS was introduced in Somalia in 2020 and currently covers 488 public health facilities. The frequency of updates is suboptimal – it should be quarterly but in practice is less. Including more facilities and improving the quality of information and its use are priorities. There are also plans to integrate HeRAMS into DHIS2, and to utilise ReportHub, an online reporting tool which collects reports from cluster partners.

While routine health information systems provide regular information on the utilization of services and are critical to programme managers, they contain self-reported data. A system of independent verification is required to determine whether facilities offer the needed services, have equipment and provide quality care. This independent review could take the form of health facility surveys or an accreditation system. Some national health facility surveys, including a service availability and readiness assessment, have been conducted in Somalia.

The Harmonized Health Facility Assessment developed by WHO integrates key indicators from health facility surveys.²⁹ An Harmonized Health

²⁷ Walker, D. Community-based Health Information System Guide: Approaches and Tools for Development. Chapel Hill, NC: MEASURE Evaluation, 2019 (<https://measureevaluation.org/resources/publications/ms-19-161/index.html>, accessed 19 September 2023).

²⁸ Health Resources and Services Availability Monitoring System (<https://www.who.int/initiatives/herams>, accessed 19 September 2023).

²⁹ Harmonized Health Facility Assessment - Introduction (<https://www.who.int/data/data-collection-tools/harmonized-health-facility-assessment/introduction>, accessed 19 September 2023).

Facility Assessment census was being conducted at the time of the assessment.

The 2016 SARA represented a milestone for Somalia. It appraised the health infrastructure, service delivery and health resources available, including human resources, medicines and supplies and technologies. While it was supposed to be a census of all public health facilities, incompleteness of the master health facility list led to a large number of public health facilities being excluded from the assessment. Overall, the capacity of health facilities to provide general health services where readiness is defined as the availability of components required to provide services, was found to be 39%.

There is no standardized hospital information management system in place. Private hospitals use different software and only some of them report data on immunization and notifiable diseases. Information on patient volumes would be useful in developing a referral system. Hospitals perform high-cost interventions and data generated by the hospital information system would allow the impact of these procedures to be assessed. Fragmentation is also prevalent in public hospitals where a combination of paper, Excel and DHIS2 is used to record data and no uniform information management system is in place for data management.

Strengths

- ▶ HeRAMS is in place, ReportHub is being utilized and an Harmonized Health Facility Assessment census is being conducted.
- ▶ There is capacity to implement health facility assessments, albeit in a fragmented manner.
- ▶ The Federal Ministry of Health recognizes the value of conducting an independent health facility assessment to furnish a cross-sectional baseline of the health care landscape.

Weaknesses

- ▶ Limited and fragmented facility surveys.

- ▶ Low use of facility survey results at national and subnational levels.
- ▶ Information provided by private health facilities is restricted to donor supported immunization programmes and notifiable diseases. No information is provided on the burden of disease, services offered and patients served, and there are no incentives in place to report this data.

4.2.4.5 Health resource tracking

Health resource tracking compiles data from different sources to track the flow of expenditure in the health system, providing planners and decision-makers with key information on resource allocation. It is a key data source on health financing. Regular health accounting ensures that policy decisions are based on up-to-date spending information, promotes the use of data and contributes to strengthening analytical capacity.

Strengths

- ▶ Willingness to implement the System of Health Accounts (SHA 2011).
- ▶ The landscape health workforce analysis conducted by the World Bank revealed an underutilized workforce.

Weaknesses

- ▶ Weak financial management information system.
- ▶ No system to track private health expenditure.
- ▶ New health accounts following SHA 2011 methodology yet to be implemented.

4.2.4.6 Human resources for health information systems

A functioning human resources information system (HRIS) allows countries to track, manage and allocate health workers according to need.

Strengths

- ▶ Willingness to implement a functional HRIS as part of an integrated national HIS.

Weaknesses

- ▶ No system is in place to record full information for individual health workers.

4.2.4.7 Logistics management information system

A reliable logistic management information system (LMIS) is needed to manage supply and demand, prevent stock-outs and reduce the circulation of unsafe products. Logistics data include operational and performance information routinely reported from the lowest to the highest level of the supply chain to enable decision-making. At the time of the assessment, data on supplies was being collected in paper form at the facility level and entered into DHIS2 at the regional level. There are, however, limitations in using DHIS2 as an LMIS.³⁰

Strengths

- ▶ There is a functioning paper based LMIS in place. Each facility has an LMIS registry and Excel summary forms are available.
- ▶ Dedicated LMIS staff at the regional, state and federal levels.

Weaknesses

- ▶ Lack of an electronic LMIS.

4.2.4.8 Laboratory information system

The laboratory information management system needs to be developed. While some states have dedicated systems, others have a hybrid paper and Excel system. Fragmentation is compounded by the existence of different systems for different diseases.

Strengths

- ▶ High demand for a well-functioning laboratory information system.
- ▶ Field epidemiology training could be leveraged to strengthen training on a laboratory information system.

³⁰ Resource mobilization is ongoing to develop an e-LMIS system at district level.

Weaknesses

- ▶ No standardized nationwide laboratory information system in place.
- ▶ Fragmentation caused by different systems being used by states.
- ▶ Inadequate technical support for states.
- ▶ Capacity issues at health facility level.

4.5 Institutional capacities for data management and standards, analyses, data review, use and action

4.5.1 Data management and standards

Timely, reliable and actionable data are essential to support the implementation of interventions to improve the health of populations. Using data for decision-making requires investment in mechanisms that transform the data into information that can be used to formulate policy. Such mechanisms can include dedicated units within ministries, processes that ensure access to data and promote data sharing such as national health data observatories, and country-led governance of data, including policies and regulations to guide the management and use of data, none of which are well established in Somalia.

4.5.2 Analytical capacity and dissemination of data

Strong institutional analytical capacities are required for routine programme monitoring and regular analytical reviews at the national and subnational level. Programmatic reviews are broad in scope and require the synthesizing of data from different sources to allow a description of the overall health situation which can then be used to improve patient care and planning. They also require the empowerment of monitoring and evaluation systems at all levels. Improving the tracking of indicator data will strengthen capacity to develop transparent and regular performance and progress reviews. Capacity-building in operational

and implementation research also needs to be considered.

During discussions on data sources, key challenges to data validation and quality checks emerged. Some analyses had no focus and were task- rather than competency-driven, and at health facility level staff had limited analytical capacity.

4.5.3 Data use

Data use needs strengthening at all levels. WHO has a package of standards for analysis of routine facility data, implemented in DHIS2, that includes minimum core indicators, the data-quality app and dashboards and visualizations that support the programmatic use of data. Use of data at the lower administrative levels can be improved through providing training on the WHO package. Training should be jointly conducted by programme experts and staff working in HMIS/DHIS2.

Building the review function of teams at state level, especially in terms of planning, will improve the use of routine health facility data. Inclusion of academic institutions in the process can provide additional opportunities for training programmes. Beyond training programmes, regular review meetings which bring together facilities, and during which data issues can be discussed and addressed, can improve data use.

Strengths

- ▶ There is commitment and some capacity at the national and state level, though not enough to meet Somalia's analytical needs.
- ▶ Availability of some dashboards, particularly for donor-funded projects.
- ▶ Performance reviews are well developed for vertical programmes (further funding depends on positive reviews).
- ▶ The National Bureau of Statistics publishes data on its website.
- ▶ Available survey data from demographic and health surveys (DHS), multiple indicator cluster

surveys (MICS), household budget surveys and HFFA could be leveraged beyond the descriptive analyses presented in final reports.

Gaps

- ▶ Regular and joint discussions on analytical review processes need to be strengthened to promote data use.
- ▶ Limited access/availability of data and analytics impedes regular reviews and compromises interpretation capacity.
- ▶ Demand for evidence to support decision-making is low.
- ▶ Capacity severely limited or absent at the district level.
- ▶ Performance reviews do not exist outside vertical programmes.
- ▶ No annual health statistics report. Equity analyses are not conducted though there is potential to conduct them using DHIS2 (disaggregation by gender and geography).
- ▶ The Federal Ministry of Health does not publish reports on its website.
- ▶ There are no multistakeholder collaborative approaches to synthesize and analyse national data.
- ▶ Health facilities generally do not use the data they collect to monitor their performance, identify gaps and drive action to address them. Health facility use of data will help identify gaps and increase data quality.
- ▶ Districts must make greater use of data. Currently, their main function is to enter data.

4.6 Scoring health information system attributes: results from working group sessions

The assessment tool was presented in a plenary session after which participants were divided into four working groups to score the 71 item checklist.

Group 1 assessed the policy and institutional environment and effectiveness of country mechanisms for review and action.

Group 2 assessed data sources related to the routine HIS.

Group 3 assessed data sources for household surveys, censuses and CRVS and institutional capacity for data collection, management, analysis, use and dissemination.

Group 4 assessed data sources related to disease surveillance and health systems.

Fig. 3 presents the results of the scoring of the 71 attributes in percentages, with the number of attributes for each category presented in

parentheses. The results of the assessment show that 31% ($n = 22$) of the attributes need a lot of strengthening and almost 16% ($n = 11$) need some strengthening. About 4% ($n = 3$) of attributes are already present, with further improvement possible. Almost 49% ($n = 35$) of total attributes are absent and need to be developed.

Summary scores by working groups are provided in Annex 5. Summary scores by attribute and component of the monitoring and evaluation platform are presented in Annex 6. The priorities that emerged from the field visits, meetings and the national workshop are included in the roadmap (Section 6).

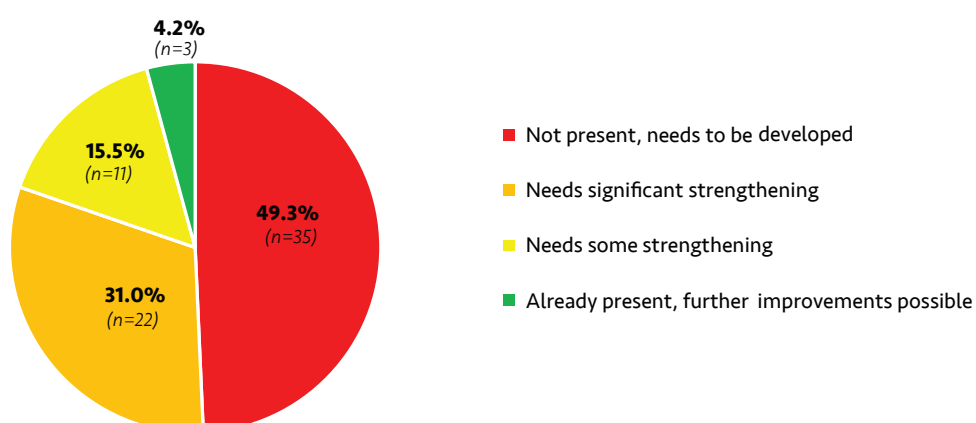


Fig. 3. Summary of scores from the assessment and planning tool

5. Conclusions

A strong health information system that supports measurement and tracking of inequalities is essential in supporting planning and implementation of health interventions to achieve national health targets, health-related SDGs and UHC. The assessment provides a detailed overview of the HIS landscape in Somalia and identifies areas that need urgent attention to enhance the functionality of the national HIS. They include:

- ▶ **Unclear, fragmented governance**
Existing donor-driven programmes lead to limited national ownership. Sustainability of these programmes requires close collaboration and planning with national stakeholders.
- ▶ **Limited and fragmented infrastructure**
There is limited availability of IT infrastructure at the subnational level. Internet access is a challenge and, where it does exist, is erratic. The HIS also suffers from fragmentation. Staffing capacity across programmes is limited.
- ▶ **Non-comprehensive and fragmented data sources**
While existing data sources provide some insights and opportunities to identify key health data gaps, information on the status on key indicators, including on cause-specific mortality and laboratory functions, is lacking.
- ▶ **Data analysis is limited and non-collaborative**
While DHIS2 provides data from the HMIS, the capacity to analyse the data is very limited, especially at the subnational level.
- ▶ **Limited information products for feedback**
Access to information is limited – the Federal Ministry of Health does not publish any of its reports on its website – making the understanding of health trends more challenging.
- ▶ **Limited evidence that action is guided by data**
The ultimate goal of data collection is for use in decision-making. There was limited evidence that key decisions were based on collected data.

6. Roadmap of key priority actions

A list of priority actions was compiled following field visits, discussions with key informants and development partners and document reviews. Priority actions, including timelines, responsible actors and other actors needed for implementation are presented in Table 1. Priority actions should be implemented while taking into consideration the following overarching recommendations:

- ▶ **Develop a comprehensive and costed HIS strategy**
This can be achieved by clarifying priority areas, mapping partners and assigning roles and responsibilities to effectively monitor implementation of HIS interventions.
- ▶ **Mobilize domestic and external resources and align investments with national HIS priorities**
This can be achieved by organizing national stakeholder meetings to mobilize resources and make the investment case for HIS. The HIS TWG should be central to this process.
- ▶ **Facilitate partner collaboration to support data collection systems and infrastructure**
At the global level, WHO and other partners use the Health Data Collaborative Initiative (HDC) to align technical and financial resources for countries. HDC's goal is to support countries develop strategies for the collection, storage, analysis and use of data to improve health outcomes with a specific focus on SDG targets and communities that are left behind.
- ▶ **Formulate guidelines for data collection exercises**
The national HIS plan needs to consolidate/optimize the collection of routine data, registries and integrated national surveys.
- ▶ **Identify gaps in skills and build capacity**
Capacity-building in core areas such as ICD coding is needed to improve the availability and quality of data on cause of death.

► **Guidelines, plans, tools and training**
need to be developed to support the analysis and generation of automated reports at the national and subnational level.

► **Monitoring and evaluation of the health situation**
Information use needs to be linked with targets and monitoring and evaluation plans. This can be done by conducting joint annual health reviews, establishing feedback mechanisms and arranging meetings with all data users to discuss results.

► **Debrief decision-makers to create demand for data.**

Based on the HIS assessment and the national workshop, the following priorities were identified.

1. Improve data quality.
2. Increase the use of data at all levels of decision-making. Data managers and other stakeholders should use locally available data to reduce excessive reliance on global health estimates.
3. Institutionalize data collection training.
4. Digitalize data at the facility level with a view to harmonizing and taking ongoing projects to scale.
5. Consolidate a unified health information management system (DHIS2) to address fragmentation.
6. Include private sector data in DHIS2. A reporting requirement could be introduced as part of the licensing process and summary tools and treatment guidelines provided to the private sector. Private sector facilities should also be invited to capacity-building workshops.
7. Develop a portal with agreed indicators accessible to all stakeholders.

Table 1. Key priority interventions to enhance HIS in Somalia

Roadmap of key priority actions		Chronogram				
Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027
1. Policy, governance and institutional environment	Develop terms of reference for an HIS coordination committee to include all relevant HIS stakeholders	X				
	Conduct regular HIS technical working group meetings for improved coordination and strengthening of HIS integration	X	X	X	X	X
	Develop an HIS strategy based on the results of the HIS assessment	X				
	Develop an e-health strategy and data security and privacy laws		X			
	Establish a governance structure to reinforce digital health standards and interoperability	X	X			
	Improve financing levels for HIS by establishing a funding facility and developing a resource mobilization strategic plan	X	X	X	X	X
	Develop terms of reference and feedback mechanisms for a HIS monitoring and evaluation task force as part of a supportive supervision package	X				
	Launch the HIS monitoring and evaluation task force	X	X			
	Conduct a monitoring and evaluation workshop at national level to harmonize current indicators with regional/global indicators	X	X			
	Develop a monitoring and evaluation plan for health sector strategy that covers key indicators, baselines, targets and data sources (aligned with programmes)	X	X			
	Develop and approve SOPs, including data management, storing and dissemination of data	X	X			
	Develop a metadata dictionary to permit interoperability					
	Enact CRVS legislation	X	X	X	X	
	Enact legislation and detailed regulations to enhance private health sector data reporting	X	X	X	X	
	Develop a centralized data repository to facilitate data access and sharing		X	X	X	X

Roadmap of key priority actions		Chronogram				
Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027
2. Infrastructure and support	Ensure adequate capacity and skills for HIS at different levels (especially HMIS focal points at the facility level, HMIS officers at district and regional levels and health data management professionals at the state and federal level)	X	X	X	X	X
	Provide digital literacy training to health facility staff		X	X	X	X
	Conduct an HIS training needs assessment and develop competency-based training curricula		X	X	X	
	Develop an HMIS curriculum focused on capacity-building and strengthening of regional and district health teams to ensure sustainable deployment of digital health platforms		X	X	X	X
3. Household surveys and censuses	Develop an integrated national health survey plan to enhance coordination and country ownership	X	X			
	Institute regular meetings with the National Bureau of Statistics and other stakeholders to coordinate survey and census implementation activities	X	X	X	X	X
	Build National Bureau of Statistics and health ministries (at all levels) staff capacities in data analysis		X	X	X	X
	Prepare population projections by district and include in the national data repository	X	X	X	X	X
	Review human resource needs to ensure the National Bureau of Statistics recruits sufficient staff for census data collection, analysis, report writing and dissemination		X	X	X	X
	Organize workshops on analysis and use of survey data at the national and subnational levels		X	X	X	X
	Enhance training of statisticians, demographers and other cadres in postgraduate training programmes			X	X	X

Roadmap of key priority actions

Chronogram

Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027
4. Civil registration and vital statistics systems	Develop/update a multisectoral CRVS strengthening plan	X	X			
	Advocate for the enactment of the CRVS Act	X	X	X	X	
	Enhance the functionality of the multisectoral coordination committee for CRVS	X	X			
	Review existing structures and functions of civil registration offices to ensure key CRVS functions are implemented	X	X	X		
	Agree on a unified national electronic identification system to support data linkage and the recording/reporting of vital events		X	X		
	Conduct awareness campaigns to promote birth registration and require the submission of birth certificates to obtain national identity documents		X	X	X	X
	Create demand for birth certificates by making them a requirement for school enrolment		X	X	X	X
	Regulate so clan elders and leaders of nomadic communities have the legal status notify local registration offices about births and deaths		X	X	X	X
	Instruct health facilities to report births and deaths directly to registration offices		X	X	X	X
	Assess staffing needs and build staff capacity where needed		X			
	Mobilize and allocate resources to CRVS priorities to ensure adequate supplies and infrastructure, including computers, tablets and electricity to support registration processes	X	X	X	X	X
	Train physicians on ICD compliant certification of death		X	X	X	X
	Include ICD coding in the medical curriculum			X		
	Integrate morbidity and mortality module in DHIS2			X	X	
	Provide training on mortality data coding		X	X	X	X
	Train Ministry of Health (at all levels) statisticians on the analysis of cause of death using tools such as ANACoD3		X	X	X	X
Train Ministry of Health statisticians on the use of verbal autopsy tools	X	X	X			

Roadmap of key priority actions		Chronogram				
Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027
5. Routine health information system – DHIS2	Review the DHIS2 implementation plan and scale-up to improve reporting of information	X	X			
	Develop a pre-service and in-service training curriculum for HMIS	X	X			
	Train staff to analyse DHIS2 data, especially at the facility level			X	X	
	Improve the review process for data use at the national and subnational levels by involving key stakeholders and community leaders		X			
	Institute an annual HMIS review meeting with representatives from governorates, localities, facilities and disease programme coordinators		X	X	X	X
	Increase and improve supportive supervision of health facilities	X	X	X	X	X
	Integrate the supportive supervision checklist into DHIS2 to enable real time data entry	X	X			
	Establish a national innovation, knowledge and learning centre				X	X
	Plan for adequate supplies – printing and distribution – of updated source documents, including registers and reporting forms for facilities and localities	X	X			
	Distribute data use guidelines at all data collection points	X				
	Mobilize and allocate resources to ensure adequate supplies and infrastructure – computers, tablets and electricity – are available where needed	X	X	X	X	X
	Allocate designated spaces for HMIS teams, including storage facilities	X	X			
	Design, pilot and implement an electronic medical records system		X	X	X	X

Roadmap of key priority actions

Chronogram

Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027	
6. Routine HIS – sentinel surveillance	Map available HR and ICT resources, identify gaps in HR and ICT and develop an action plan to address gaps	X	X				
	Mobilize resources to cover ICT gap	X	X	X	X	X	
	Mobilize resources for capacity building to cover reporting and response staff turnover		X	X	X	X	
	Define the list of diseases and syndromes to be under surveillance	X					
	Prioritize diseases and conditions – keeping their number to a minimum – to be reported immediately and weekly	X					
	Develop and disseminate standardized case definitions for health events under surveillance		X	X			
	Define reporting timeframes at all levels	X					
	Define the timeframe to verify events	X					
	Define alert/action thresholds for priority diseases and syndromes		X	X			
	Expand the IDSR TWG to include other relevant ministries, departments and agencies	X					
	As IDSR rolls out to states, establish state level TWGs with the same functions as the federal level TWG		X	X			
	Establish a partnership with the private sector and explore incentives for private sector engagement in IDSR and reporting of other routine data				X	X	X
	Promote the stewardship role of Federal Ministry of Health through capacity-building in data analysis, interpretation, dissemination and use	X	X				
	Develop a plan to guide data analysis	X					
	Develop an exit strategy for parallel surveillance systems (e.g. EWARN)	X					
	Develop disease tracker modules in DHIS2		X	X			
	Integrate public health surveillance across all programmes	X	X				
Develop a plan to include community-based surveillance within IDSR		X	X				

Roadmap of key priority actions

Chronogram

Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027
6. Routine HIS – sentinel surveillance	Support development of tracker modules connecting individual disease reports in IDSR with laboratory information (in process with support from the University of Oslo)	X	X	X		
	Ensure laboratory data are linked with IDSR and other disease specific data sets (TB, HIV) as the tracker module is developed	X				
	Build staff capacity on the use of the tracker modules at the peripheral level		X			
	Integrate and expand sample collection and transportation for all priority diseases	X	X			
	Pilot the tracker module in two regions		X			
	Advocate for allocation of domestic resources to support IDSR functions with an agreed annual increase to ensure system sustainability	X	X	X		
	Develop and implement a plan to retrieve or migrate historical data into IDSR to establish trends and thresholds for future analysis	X	X			
	Build capacity in data analysis, interpretation and reporting at the federal, state, region and district level		X	X		
	Involve all programmes to improve the analysis of IDSR dashboards and develop analyses needed for decision-making	X	X	X	X	X
	Develop a monitoring and evaluation plan for IDSR	X	X			
7. Routine community-based HIS	Establish a community-based HIS		X	X		
	Train community health workers in service delivery and data recording and reporting			X		

Roadmap of key priority actions		Chronogram				
Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027
8.Regular system to monitor availability, readiness and quality	Develop a health facility assessment plan with programmes that take their information needs into account		X			
	Generate demand for use of data from facility surveys to support decision-making and improve availability and quality of data		X	X		
	Mobilize resources and scale-up implementation of SARA in all states	X	X			
9. Health resource tracking	Conduct a health expenditure survey that includes disaggregation by state, or implement a module on health expenditures in a nationwide household survey			X		
	Innovate outreach to private providers to increase their participation in health accounts guided by resolution EM/RC/65/R.3 on private sector engagement for advancing UHC		X			
	Conduct health accounts training subnationally to increase state level capacity for health accounts production and use			X	X	
	Implement a regular system of health-related household surveys and System of Health Accounts (SHA 2011)			X	X	X
10. Human resources HIS	Develop a human resources information system at the national level			X	X	X
11. Logistics management information system	Develop/enhance a computerized logistics management information system			X	X	X

Roadmap of key priority actions		Chronogram				
Strategic dimensions	Key priority actions	2023	2024	2025	2026	2027
12. Analysis, data review, use and action	Develop data sharing mechanisms and protocols		X			
	Develop terms of reference for joint annual reviews	X				
	Train planning staff in the conduct of analytical reviews		X			
	Hold regular data analysis and performance review meetings that use data collected at national and subnational levels		X	X	X	X
	Incorporate findings from specific reviews into the health sector review			X	X	X
	Conduct quarterly health sector coordination meetings engaging civil society and other stakeholders	X	X	X	X	X
	Develop a plan for collaborative approaches to synthesize and analyse national data from all relevant sources		X			
	Prepare an annual health statistics report using existing data to identify key gaps and areas for improvement, including decision-making		X	X	X	X
	Strengthen feedback mechanisms to promote data use for local decision-making		X	X	X	X
	Disseminate existing and future reports on the Ministry website		X	X	X	X

Annex 1. Overview of health information data systems in Somalia

System (date established)	Domain / field	Funding source	Source data	Database structure (Individual/ aggregated)	Time cycle	Source data system	Automated analytics/dashboards	Server/backup	Data links	Comments (e.g. plans for integration into DHIS2)
DHIS2 (2017)	Health services provided as part of the EPHS	Global Fund/ UNICEF	Paper entered at the district or regional level	Aggregated	Monthly (with delays in districts without HIMS officer)	DHIS2	Yes	Somaliland has a separate DHIS2 instance from other states	https://hmis.moh.gov.so/dhis-web-commons/security/login.action#/	
Logistic management information system (2021)	Supply chain system for essential medicines, vaccines, diagnostics, other medicines and medical devices	Global Fund, UNICEF, UNFPA	Paper entered at the district or regional level	Aggregated	Monthly (with delays in districts without HIMS officer)	DHIS2	Yes	Two are three DHIS2 central data warehouses in Somalia: Federal Ministry of Health, Puntland Ministry of Health and Somaliland Ministry of Health	https://hmis.moh.gov.so/dhis-web-data-visualizer/index.html#/	
Early Warning, Alert and Response Network (2010)	Disease surveillance for epidemic-prone diseases	WHO	Events captured in HIMS registers	Aggregated	Weekly	EWARN system	No dashboard but auto-generated bulletin	WHO Regional Office for the Eastern Mediterranean. One EWARN in the country	Discontinued	Since beginning of 2023, IDSR has replaced EWARN
Nyssi ¹	Community-based surveillance	International Committee of the Red Cross and Norwegian Red Cross Society	Communities served by the Somali Red Crescent Society	Aggregated	Weekly/monthly	Health facilities community	Excel	Excel		
Nutrition reporting system (ONA)	Nutrition	UNICEF	Health facilities	Aggregated	Monthly	ONA system	No	UNICEF server	https://ona.io/login	
TB surveillance system	TB	WHO	TB centres using Excel and e-TB manager	Excel	Quarterly reports	Excel	No	WHO	Excel	

¹ Community-based surveillance and Nyssi in Somalia: <https://www.cbsrc.org/somalia>, accessed 20 November 2023.

Annex 1. Overview of health information data systems in Somalia

System (date established)	Domain / field	Funding source	Source data	Database structure (Individual/ aggregated)	Time cycle	Source data system	Automated analytics/dashboards	Server/backup	Data links	Comments (e.g. plans for integration into DHIS2)
Electronic medical records in private clinics and hospitals	Patient level data		Electronic					NA		
HeRAMS 2021	Health services availability	WHO	Paper based	Aggregated	Quarterly	Cluster partners	Yes	WHO Regional Office for the Eastern Mediterranean	https://herams.org/	
ReportHub	Health response data	Health Cluster	Paper-based	Aggregated	Monthly	Report-Hub	No	IMMAP	https://reporthub.immap.org/	
AFP 2017	Polio surveillance	WHO	Paper-based	Aggregated	Daily	IF4 system	No	IF4 system	Offline	
Measles surveillance 2017	Measles case-based	WHO	Paper-based	Aggregated	Monthly	Register/Excel	No	No	Excel	
Laboratory information management system 2021	Laboratory data	Ministry of Health	Paper-based	Aggregated	Monthly	DHIS2	No	No	Excel	
HIV 2017	Laboratory data	Global funds/ UNICEF	Paper-based	Aggregated	Monthly	Register/Excel	No	No	Excel	
Malaria surveillance system 2015	Malaria cases	Global Fund/ UNICEF	Paper-based	Aggregated	Monthly	DHIS2	No	No	Offline: they extract from DHIS2	Malaria module DHIS2 is ongoing, funded by WHO

Annex 2. List of documents reviewed for the assessment

- ▶ Federal Government of Somalia, Ministry of Health and Human Services, Health Information System Statistical Plan 2018–2022
- ▶ Federal Government of Somalia, Ministry of Health and Human Service, Essential Package of Health Services (EPHS) 2020
- ▶ Federal Government of Somalia, National Civil Registration and Vital Statistics Policy, Ministry of Interior, Federal Affairs and Reconciliation, January 2021
- ▶ Civil Registration and Vital Statistics, Somalia Country Profile, United Nations Population Fund, Centre of Excellence for CRVS Systems and the Federal Government of Somalia, December 2021
- ▶ Somali Institute for Development Research and Analysis (SIDRA) and the Swedish Programme for ICT in Developing Regions (SPIDER), Health System Strengthening through the Digitalization of Somalia Health Management Information System: Baseline and Capacity Needs Assessment Report, Health Alliance for Digital Development and Action (HADDA) in collaboration with Ministries of Health, Federal Government of Somalia, Galmudug State of Somalia and Puntland State of Somalia, May 2021
- ▶ KasmODEV and the Swedish Programme for ICT in Developing Regions (SPIDER) in collaboration with Ministries of Health, Federal Government of Somalia, Galmudug State of Somalia and Puntland State of Somalia, HMIS Technical Assessment Report in Banaadir, Galmudug and Puntland of Somalia, June 2021
- ▶ Swedish Programme for ICT in Developing Regions (SPIDER) and KasmODEV, Health Information System Strategic Document and Operation Plan, Draft Inception Report

Annex 3. Checklist for field visits

Background

The general checklist of key discussion points for the field visits centred around the key components of a functional HIS and the WHO monitoring and evaluation Assessment and Planning Tool, the institutional and policy environment, data sources, analytical capacities and mechanisms for data use, review and action. Means of verification, documents and samples for each category were viewed whenever possible.

The key objectives of the field visits were:

- ▶ to review the existing HIS at the provincial/district/facility level, including
- ▶ the process of data capturing, analysis and use of data for decision-making;
- ▶ to identify key strengths of the health information system; and
- ▶ to identify existing challenges/areas for improvement for each system.

Notes

Establishments visited were agreed with the Federal Ministry of Health. The checklist contains key sites expected to be visited during the assessment.

This is a standard country assessment checklist. The names of departments/institutions may not always coincide with those used in Somalia.

1. Where visits involve the district HMIS, review availability and practices related to the following:

- ▶ comprehensive monitoring and evaluation plan specifying indicators with well-defined baselines, targets and frequency of measurement;
- ▶ agreed indicators, means of measurement and targets for monitoring and evaluation of health-related SDGs (using international standards);
- ▶ governance and coordination mechanisms for monitoring and evaluation and involvement of relevant stakeholders;
- ▶ data standards, architecture and policies agreed by all partners and provincial ministries of health;
- ▶ reliable and transparent systems to track human resource availability;
- ▶ integration of health systems information into the HMIS;
- ▶ types of electronic platform used for collecting, processing, analysis and use of data for decision-making;
- ▶ indicators collected and those that are missing or have not yet been collected;
- ▶ analytical capacity and dissemination mechanisms;
- ▶ periodic performance reviews using analyses of health data;
- ▶ involvement of civil society in reviews of progress and performance; and
- ▶ preparations at the provincial level to prepare the systems to report on health-related SDG indicators.

2. Where visits involve the civil registration authority or Ministry of Interior review the availability and practices related to the following CRVS operations:

- ▶ functional multisectoral coordination committee (e.g. involving MoH, National Centre for Statistics and Information);
- ▶ legislation and regulations that enhance registration;

-
- ▶ hospitals reporting deaths that are medically certified using ICD-10 (or plans to transition to the new ICD-11);
 - ▶ IT infrastructure and automated causes of death; and
 - ▶ strategies to enhance birth and death notification and medical certification of causes of death.

3. Where visits involve vertical programmes, including MNCH, nutrition and EPI, assess the availability and practices related to the following:

- ▶ infrastructure and staffing for a functional information system;
- ▶ the presence of supportive supervision;
- ▶ feedback provided to sub-reporting units;
- ▶ evidence-based decision-making by local community members and leaders using collected data to develop interventions;
- ▶ staff training and capacity-building for HIS activities;
- ▶ comprehensive list of health facilities or service points with identifiers and geocodes;
- ▶ use of web-based electronic data collection systems;
- ▶ integration of disease- and programme-specific data into a common national data repository;
- ▶ data quality audit and quality of care assessments; and
- ▶ accessibility of HIS data (dashboards and other web applications).

4. For disease surveillance:

- ▶ list of priority diseases and syndromes under surveillance;
- ▶ standard case definitions for all diseases and syndromes under surveillance;
- ▶ capacity to diagnose and notify diseases;
- ▶ whether data are analysed regularly to detect events and identify emerging patterns;
- ▶ integration of all disease surveillance programmes;
- ▶ availability of surveillance staff and equipment to perform expected functions; and
- ▶ a functional laboratory and logistics information system.

Also take note of WHO regional plans to support countries implement an integrated disease surveillance system and the preparedness of the country to do so.

5. Where visits involve bureau of statistics, assess availability and practices related to the following:

- ▶ coordination mechanisms for national census and surveys plans, with a focus on mechanisms at the provincial level;
- ▶ national survey plan and research agenda in line with monitoring and evaluation and national health strategy;
- ▶ regular household surveys to monitor progress in key health indicators;
- ▶ availability of disaggregated demographic estimates (e.g. live births, women of reproductive age by district) to monitor inequities; and
- ▶ capacities for the processing and dissemination of data.

6. Where visits involve a hospital or health facility, the following should be taken into consideration:

- ▶ the focus should be on dimensions of data quality assurance using WHO approved standards, with assessments of accuracy, reliability, completeness, timeliness, integrity, data linkages and confidentiality;
- ▶ a one hour of facility visit is ideal, subject to logistics/security;
- ▶ when time is a key constraint, the focus should be on the assessment of data management and reporting systems that inform the policy and institutional environment, data sources and standards, including data linkages (e.g. patient tracking), analytical capacities and mechanisms for data use, review and action.

The purpose of facility visits is to identify potential challenges to data quality posed by data collection methods, management and reporting systems.

Annex 4. Assessment of IDSR implementation in reference to WHO Eastern Mediterranean regional integrated disease surveillance strategy, Somalia

Domains/topics	Strategic directions	Expected country outcomes	Status	Indicators	Way forward
Governance	Adoption of governance mechanisms (Ministry of Health and non-Ministry of Health)	A functional IDSR coordination mechanism established Advocacy for IDSR conducted	<p>A TWG involving different stakeholders is in place</p> <p>Partners agreed to support the implementation of IDSR</p> <p>The IDSR TWG has provided oversight and guidance to develop the IDSR operational plan, IDSR technical guidelines, the IT platform for supporting IDSR implementation and the plan for piloting IDSR</p> <p>Readiness assessment tool has been developed</p> <p>Coordination meetings are being held biweekly with all stakeholders</p> <p>No representation of animal health and some other sectors in the TWG</p>	<p>Expand the IDSR TWG to include other relevant ministries, departments and agencies</p> <p>Establish a partnership with the private sector and explore incentives for private sector engagement in IDSR</p> <p>As IDSR rolls out to the states, state level IDSR TWGs should be established with the same functions as the federal level IDSR TWG</p> <p>Promote the stewardship role of Federal Ministry of Health through capacity-building in data analysis, interpretation, dissemination and use.</p>	
Operations	Technical guidance Consolidated guidance for event based-surveillance (EBS) and indicator-based surveillance, including the private sector and animal health	IDSR guidelines and training materials developed and disseminated to all levels of the health system	<p>IDSR SOPs, training materials and IDSR readiness assessment tool are in place</p> <p>So far, 286 public health facilities have been recruited.</p> <p>Around 98% of the health facilities of Jubaland are recruited</p> <p>Other states have the capacity to report but only Jubaland is officially reporting on IDSR Some states have started training in IDSR, more training needs to be conducted to cover all areas in the country</p> <p>Private sector still not engaged in IDSR</p> <p>Fragmentation in surveillance continues (AFP, EWARN, fever and rash)</p>	<p>Support the Federal Ministry of Health to develop an exit strategy from parallel surveillance system (EWARN, AFP, fever and rash)</p> <p>Support the process of developing the tracker modules till implemented</p> <p>Support the Federal Ministry of Health to retrieve or migrate historical data into IDSR to establish trends and thresholds for future analyses</p> <p>Continue to provide technical support to develop the roll out plan with cascaded IDSR training at targeting all health facilities, the public, PNFP and PFP if resources allow</p> <p>Develop a plan for linking community-based surveillance to facility-based surveillance</p>	

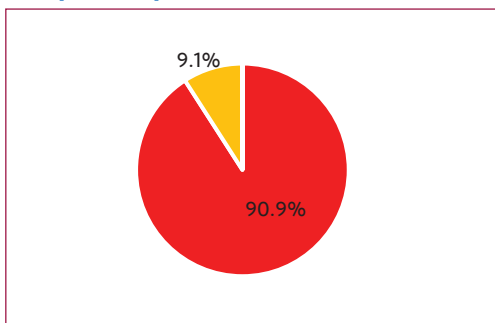
Domains/topics	Strategic directions	Expected country outcomes	Status	Indicators	Way forward
Information technology	Progressive convergence of systems, starting with interoperability (e.g. data exchange between electronic medical records, laboratory data, mortality registration and surveillance) and aiming at consolidation	eIDSR and DHIS2 completely integrated	<p>DHIS2 adopted for IDSR in Somalia</p> <p>Somalia has developed lists of conditions for immediate and weekly reporting, mainly epidemic prone conditions</p> <p>The system at the peripheral level is paper based with unified registers in all health facilities</p> <p>Data are entered at the district level on IDSR data sets on DHIS2</p> <p>Malaria data are recorded via the outpatient services data set</p> <p>For HIV and TB, different data sets are available to report on both diseases within the same DHIS2 platform</p> <p>Tracker modules for diseases that require case-based reporting (e.g HIV, TB) are under development and will be included in DHIS2</p>	<p>Ensure laboratory data are linked with the IDSR and other disease specific data sets (TB, HIV) as the tracker module is developed</p> <p>Build the capacity of staff at peripheral level on the use of the tracker modules</p> <p>Support the development and deployment of the DHIS2 tracker application to initiate automated direct reporting by participating facilities and automated alert notification</p>	
Resources: financing	Identification of sustainable financing	<p>Mapping of existing resources for surveillance</p> <p>Needs estimates for comprehensive IDS</p> <p>Appropriate proportion of national budget allocated for surveillance</p> <p>Pooling of financial resources</p>	<p>Support for IDSR is provided mainly through WHO and UNICEF</p> <p>The system is wholly donor dependent and subject to collapse if donor support stops</p>	<p>Advocate for allocation of domestic resources to support IDSR functions with an agreed annual increase to prevent collapse of the system in the long term</p> <p>Mobilize financial resources for the capacity-building needed to cover staff turnover for both reporting and response</p> <p>The current training budget is US\$ 100 000 and restricted field epidemiology training programmes</p>	
Resources: Infrastructure	Strengthening/development of needed infrastructure	Establishment of required infrastructure at all levels of the surveillance system	Insufficient ICT equipment: more ICT equipment support needed for system expansion	<p>Map available ICT resources, identify gaps and develop a plan of action to cover them</p> <p>Mobilize resources to cover ICT gaps</p>	

Domains/topics	Strategic directions	Expected country outcomes	Status	Indicators	Way forward
Resources: Human	Human resources plan	<p>Mapping of available human resources for surveillance</p> <p>Estimates of human resource needs for IDS</p> <p>Adoption of a human resources plan (qualitative and quantitative)</p>	<p>Surveillance is supported by national and state surveillance and emergency officers and by newly recruited regional and district surveillance officers</p> <p>High turnover of trained staff makes it challenging to expand the system</p> <p>Training in field epidemiology is ongoing</p>	<p>Map available human resources, identify gaps and develop a plan of action to cover them</p> <p>Mobilize financial resources for the capacity-building needed to cover staff turnover for both reporting and response</p>	
Tools and forms	Consolidation of data tools and forms to minimize load on health care workers	<p>Tools and forms mapped, revised and simplified/ harmonized</p> <p>Appropriate data collection tools in health care facilities</p>	Register and forms are already unified for IDSR.		
Data analysis and dissemination	Timely analysis of data at all levels for action feedback	<p>Data analysis training at all levels of the surveillance system</p> <p>Regular analysis and communication of surveillance data through reports, dashboards and bulletins</p>	<p>Recognized weakness in data analysis at the Federal Ministry of Health and lower levels</p> <p>Jubaland recently began to develop IDSR summary report for some priority diseases</p> <p>The Federal Ministry of Health and other states requested support on data analysis and developing the IDSR weekly bulletin</p>	<p>Build Ministry of Health capacities in data analysis, interpretation and reporting at federal, state, region and district level</p> <p>Support the Federal Ministry of Health in data analysis and interpretation with gradual transfer of this function to the Federal Ministry of Health</p> <p>Involve all programmes to improve IDS analysis dashboards and develop the analyses needed for decision-making</p>	
Laboratory support	Laboratory services supporting the surveillance system through data exchange	<p>National guidelines for laboratory procedures</p> <p>Selected laboratories with the capacity to conduct confirmatory diagnosis of priority diseases</p>	<p>Laboratory strengthening is ongoing and benefits from support provided for the COVID-19 response</p> <p>Specimen referral system in some regions</p> <p>Available laboratory data set under DHIS2 provides information on a number of priority diseases, including polio, measles, rabies, cholera, malaria, HIV, HBs, HCV, but has yet to be linked to IDSR</p> <p>When developed, the tracker module is expected to link with laboratory information</p>	<p>Support the development of the tracker module to connect individual disease reports in IDSR with laboratory information (in process with support from Oslo University)</p> <p>Integrate and expand sample transportation system to serve sample collection and transportation for all priority diseases.</p>	

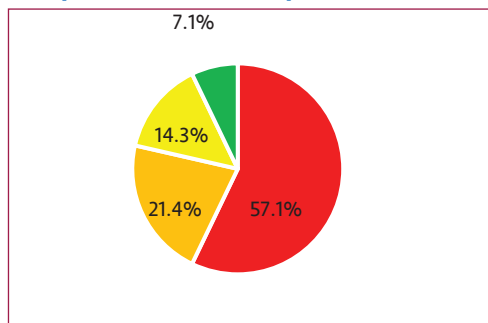
Domains/topics	Strategic directions	Expected country outcomes	Status	Indicators
Quality assurance and monitoring and evaluation	Monitoring and evaluation for quality improvement	Evaluation of the national surveillance system Regular monitoring of surveillance activities Supervisory mechanisms in place	Data checking for verification and feedback is in place Supervisory visits take place Data quality continues to be an issue Completeness and timeliness of reporting is not far from optimal in some states For some programmes, data checking and cleaning is regularly done by partners but less so for Ministry of Health national programmes	Support the implementation of technical guidelines for IDSR, including modules for system monitoring and evaluation Support the Federal Ministry of Health in monitoring the quality and completeness of data and timeliness of reporting Plan for a review of IDSR implementation by the end of 2022 engaging all stakeholders as per the technical guidelines

Annex 5. Summary scores of health information system attributes by working group

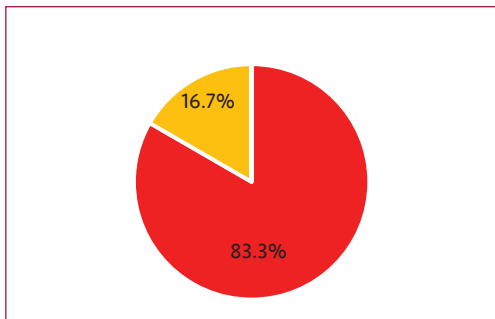
Group 1. Policy and institutional environment



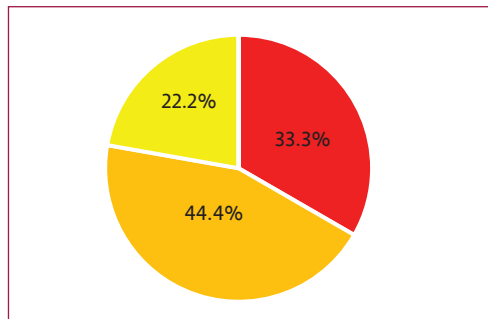
Group 3. Household surveys, censuses, CRVS



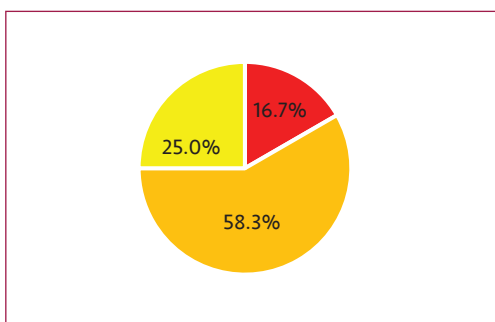
Group 1. Effective country mechanisms for review and action



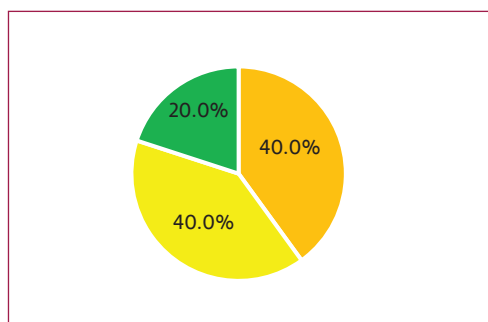
Group 3. Strong institutional capacities



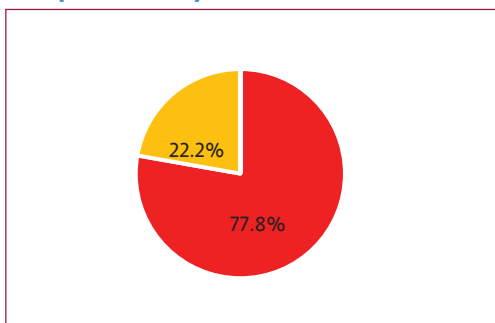
Group 2. Routine health information systems



Group 4. Disease surveillance



Group 4. Health systems



Key

- Not present, needs to be developed
- Needs some strengthening
- Needs significant strengthening
- Already present, no action needed

Annex 6. Results of the scoring exercise distributed by component and attribute


Component	Not present, needs to be developed	Needs significant strengthening	Needs some strengthening	Already present, further improvement possible
Policy and institutional environment	<p>A comprehensive costed monitoring and evaluation plan for the national health sector strategy.</p> <p>A balanced set of core indicators with well-defined baselines, targets, frequency of measurement and data sources.</p> <p>Disease and programme-specific monitoring and evaluation mechanisms, including indicators, aligned with the monitoring and evaluation plan.</p> <p>Agreed indicators, means of measurement and targets developed collaboratively by relevant ministries and agencies for monitoring and evaluation of health-related SDGs.</p> <p>Effective country-led coordination mechanism for monitoring and evaluation and reviews with the active involvement and support of relevant development partners, civil society and other actors.</p> <p>Up-to-date legislation and detailed regulations for health information covering all data sources.</p> <p>A national policy/strategy for e-health and ICT development and use, including governance and legal frameworks, enterprise architecture, standardization and interoperability and research on, and evaluation of, e-health.</p> <p>Standard operating procedures that define roles and responsibilities for collecting, managing and disseminating health data, including confidentiality.</p> <p>An overall unifying health data architecture and health data collection standards.</p>	<p>Common investment framework used as the basis for partner and domestic support.</p>		

Component	Not present, needs to be developed	Needs significant strengthening	Needs some strengthening	Already present, further improvement possible
Routine health information systems	<p>System for the collection and use of patient management data at the point of service.</p> <p>Regular and independent institutionalized data quality assessments.</p>	<p>Infrastructure and staffing for a functional routine health information system.</p> <p>Effective supervision, up-to-date checklists and resources.</p> <p>Use and analysis of facility and community-based information by local level decision-makers and community members to develop responsive and appropriate service delivery strategies and community-based interventions.</p> <p>Systematic provision of feedback to all sub-reporting units.</p> <p>Training and capacity-building for a functional routine HIS.</p> <p>Easy to access data on community-based health programmes linked to facility-based databases.</p>	<p>Comprehensive list of health facilities, with unique facility identifier and geocodes.</p> <p>Facility reporting systems use web-based systems (eg. DHIS2) when feasible</p> <p>Disease- and programme-specific data elements and indicators are integrated into the national common data repository.</p> <p>There is a harmonized system of facility assessments to verify service delivery and quality of care.</p>	

Component	Not present, needs to be developed	Needs significant strengthening	Needs some strengthening	Already present, further improvement possible
Household surveys, censuses, CRVS	<p>Hospital reporting of cause of death, using ICD.</p> <p>IT infrastructure for entering information on the deceased, including cause of death.</p> <p>Use of automated coding for cause of death.</p> <p>Trained cadres to conduct verbal autopsies.</p> <p>Use of verbal autopsies to generate nationally representative cause of death statistics.</p> <p>Strategies and resources to strengthen notification of births and deaths and medical certification of cause of death.</p> <p>Coordination mechanisms for national censuses and surveys.</p> <p>A national survey plan and research agenda for household surveys detailing content, sequencing, periodicity and funding, aligned with the monitoring and evaluation plan and the National Health Strategy.</p> <p>National Bureau of Statistics publishing of timely and reliable annual population estimates for various demographic and geographic groups (e.g. live births, surviving infants, women of reproductive age by district).</p>	<p>Multisectoral coordination (NBS, Federal Ministry of Health).</p> <p>Legislation and regulations for CRVS.</p>	<p>Household surveys are conducted every 2–3 years to monitor progress on key health indicators of the national health strategic plan.</p> <p>There is adequate country level capacity for census and survey data collection, analysis, report writing and dissemination.</p>	<p>A comprehensive assessment of current CRVS performance.</p>
Disease surveillance		<p>Contribution of public and private health care facilities, laboratories and communities to routine case detection.</p> <p>Regular analysis of data to detect cases or deaths above expected levels.</p> <p>Deployment of equipment and logistics (forms and registers, computers, telephones, communication – including internet connectivity – and vehicles) to conduct public health surveillance activities.</p> <p>Staff to conduct public health surveillance and response at all levels.</p>	<p>Standard case definitions are available for all diseases and syndromes under surveillance.</p> <p>The country has adequate capacity to diagnose and record cases of notifiable diseases.</p> <p>Timeframe to verify an event and report weekly aggregated data are defined at all levels.</p> <p>Alert/action thresholds have been defined for priority diseases and syndromes.</p> <p>There is integration of all disease surveillance programmes.</p>	<p>List of priority diseases and syndromes under current national surveillance is defined.</p>

Component	Not present, needs to be developed	Needs significant strengthening	Needs some strengthening	Already present, further improvement possible
Health systems	<p>Annual health expenditure tracking using the SHA 2011.</p> <p>Public financial management system tracking government budgets, disbursements, and expenditures from facility to central level.</p> <p>Routine recording system for tracking private health expenditure (e.g. by NGOs, enterprises, private insurances) to replace health accounts annual surveys.</p> <p>Use of health accounts results for policy planning and evaluation, from overall health system policies to health system financing policy.</p> <p>Functional laboratory information system.</p> <p>Inteoperable health information sub-systems integrated into the HMIS.</p>	<p>Logistics information system for tracking commodities, medicines, equipment and supplies.</p>		
Strong institutional capacities	<p>Annual progress and performance reports covering objectives and targets, equity and efficiency.</p> <p>Dissemination strategies for health information, censuses and vital statistics, including reports, policy-briefs and web-based dissemination.</p> <p>National public health and academic institutions, advocacy groups, and media engagement by Federal Ministry of Health and NBS to disseminate key health information.</p>	<p>Strong analytical institutional capacity for supporting synthesis of data.</p> <p>Synthesis and analysis of national data from all relevant sources conducted using a collaborative approach involving health ministries, national statistics offices, technical experts and both the public and private sector.</p> <p>International standards followed for analysis and presentation of key indicators to ensure comparability of results between populations and over time.</p> <p>Effective processes to support analysis and use at subnational level.</p>	<p>At national level, there are periodic performance reviews/ analytic reviews based on robust analysis of health data from all sources including contextual and qualitative information.</p> <p>Health data are transparent and accessible.</p>	

Component	Not present, needs to be developed	Needs significant strengthening	Needs some strengthening	Already present, further improvement possible
Effective mechanisms for review and action	<p>Regular and transparent system of reviews of progress and performance against national and locally defined priorities with broad involvement of key stakeholders.</p> <p>Regular independent reviews of strategically important programme data such as maternal, child and perinatal deaths.</p> <p>Systematic linkages between health sector reviews and disease- and programme-specific reviews.</p> <p>Active participation of civil society organizations in reviews of progress and performance at all levels.</p> <p>Incorporation of review results into decision-making, including resource allocation and financial disbursements.</p>	<p>Health information flows, including regular feedback and use of data locally, to improve services and programmes.</p>		



This report presents the findings of a comprehensive assessment of Somalia's health information system undertaken by WHO in 2022 at the request of Federal Ministry of Health and Human Services. Health information systems, including civil registration and vital statistics systems, provide health information data for programme and performance monitoring, quality of care, planning and policy-making. The assessment resulted in a set of recommendations for the Ministry and other stakeholders to develop comprehensive and efficient systems to: monitor health risks and determinants; track health status and outcomes, including cause-specific mortality; and assess health system performance. The recommendations also provide an opportunity for the country to respond to the growing demands for health data to measure progress towards the health-related Sustainable Development Goals.