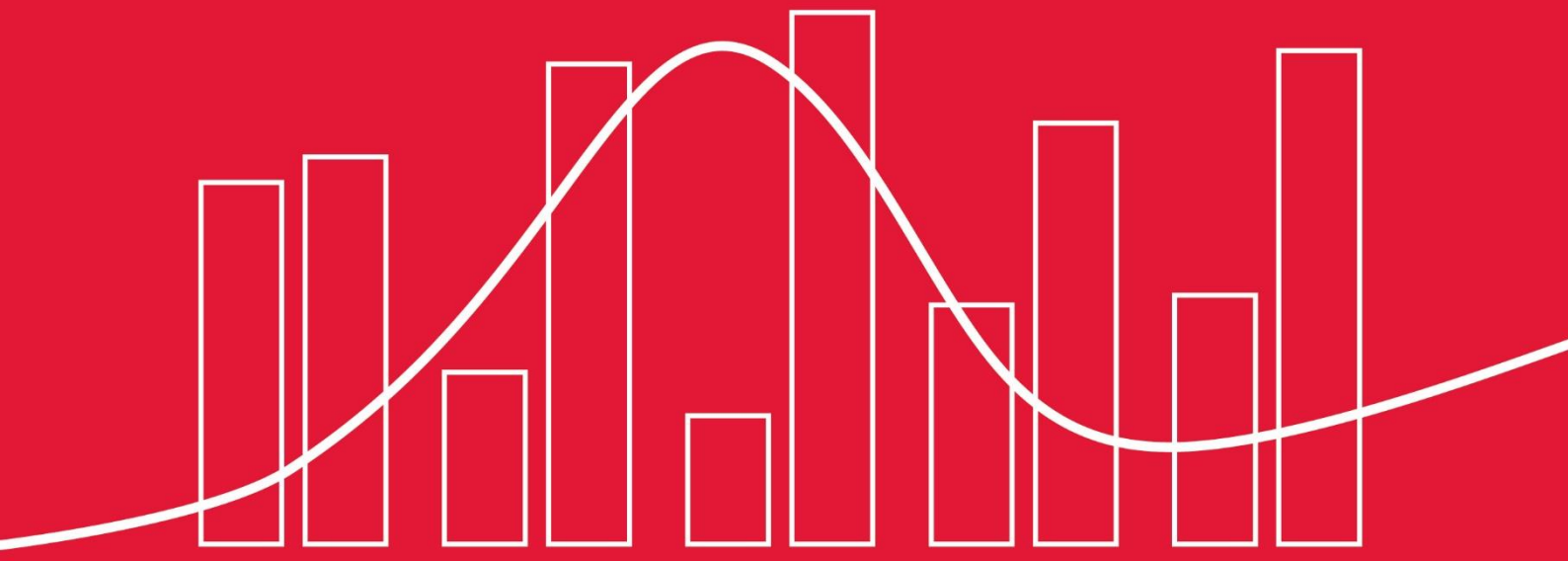
UNAIDS
EVALUATION REPORT

HEALTH SITUATION ROOM EVALUATION

Annex: Case studies and stocktakes



December 2020 | UNAIDS Evaluation Office

DISCLAIMER

This report has been authored by IOD PARC in partnership with IMC Worldwide. The views expressed in this report are those of the evaluators. They do not represent those of UNAIDS Secretariat or of any of the individuals and organizations referred to in the report.

This is an independent publication by the UNAIDS Evaluation Office. Any enquiries about this evaluation should be addressed to: Evaluation Office, UNAIDS; Email: evaluation@unaids.org

UNAIDS/JC2996

CONTENTS

LIST OF FIGURES

LIST OF TABLES

CASE STUDIES

KENYA

Introduction

The following case study presents findings from an inquiry into the Kenya HIV and Health Situation Room (formerly called the Kenya HIV Situation Room) as one of four deep-dive countries included in the overall UNAIDS Health Situation Room (HSR) evaluation. The study was based on desk review of over 50 documents provided by UNAIDS and by in-country stakeholders, alongside 27 key informant interviews (Annex 1).

Clarification over different HSR versions

Over the course of the programme, there have been three versions of the Kenya HIV and Health Situation Rooms (HHSR). To clearly distinguish the Kenya HHSRs in the case study, the following labels are provided which includes in parenthesis the name of the organization hosting the HHSR followed by the business intelligence and analytics platform vendor name:

- The first version of the Kenya HHSR with UNAIDS hosting the data warehouse and database and using the iVEDiX platform is labelled, 'Kenya HHSR (UNAIDS, iVEDiX)';
- The second version building from the UNAIDS investments and transitioning into a country-owned and operated Kenya HHSR hosting a local database with a derivative of the iVEDiX platform is labelled, 'Kenya HHSR (NACC, iVEDiX)'; and
- The third version of the Kenya HHSR with UNAIDS hosting the data warehouse and database using the SISENSE platform is labelled 'Kenya HHSR (UNAIDS, SISENSE)'.

Summary of research performed

As part of the desk review, the live Kenya HHSR (UNAIDS, SISENSE) business matrix was evaluated. The Kenya HHSR (NACC, iVEDiX) indicators were provided in a series of separate documents which have been consolidated by the evaluation team (Annex 2).

Access to Kenya HHSR (UNAIDS, SISENSE) was provided by UNAIDS and the dashboards were evaluated. Access to the Kenya HHSR (NACC, iVEDiX) was not provided. Requests were made for a demonstration of the Kenya HHSR (NACC, iVEDiX) version, as well as access to utilization data, and online/offline logs, but limited information was provided. There were also inconsistencies between country interviewees and UNAIDS interviewees as to whether or not the of Kenya HHSR (NACC, iVEDiX) version is currently online.

Due to low use of the Kenya HHSR (UNAIDS, SISENSE) version, most of the information gathered through the evaluation focused on learnings and momentum gained from the initial Kenya HHSR (UNAIDS, iVEDiX) version and the Kenya HHSR (NACC, iVEDiX) version.

History and Background

The HHSR concept in Kenya was developed in July 2014 in a high-level visit between Michel Sidibe, former Executive Director of UNAIDS, with H.E. Uhuru Kenyatta, President of Kenya, for the purpose of providing easy access to key HIV data in a user-friendly manner to inform decision-making, programming and investment.[1] In an October 2014 concept note, the following key objectives were outlined:[2]

- Utilize the existing data to present select indicators in an interactive and dynamic way to visualize the national and county situation of HIV and other related indicators.
- Monitor and map situation of ARVs, other commodities, stock-outs at service delivery points in order to ensure real-time information at local level by location and population and rapidly address service outages.
- Provide an interactive platform that end users can use to visualize the potential outcomes of programmatic and financial decisions.
- Provide simplified graphical tools to monitor new HIV infections and AIDS-related deaths for targeted interventions and strengthened quality of services.
- Monitor the implementation of national policies related to ART and key populations.
- Ensure uptake and use, and quality control of data through on-site supervision.

In September 2015, UNAIDS and the Government of Kenya, led by the NACC in the Ministry of Health (MoH), officially launched the Kenya HHSR (UNAIDS, iVEDiX) as a partnership to fast-track progress towards ending the AIDS epidemic by 2030. In a press release, President Kenyatta, said, "As we all know what gets measured gets done. I am pleased that today the Internet based dashboard, the Kenya HIV Situation Room has been unveiled. The use of ICT is a priority for my Government."[3]

The Government of Kenya contracted with vendor iVEDiX[4] in 2017 for the amount of US$109,700 for additional licenses and support services and since then has been working on a country-owned and operated version of the Kenya HHSR (NACC, iVEDiX) with a local data warehouse and database hosted by NACC. Interviewees provided conflicting information on the status of the Kenya HHSR (NACC, iVEDiX) version, and evaluators were unable to directly validate the current status.

UNAIDS has since ended its contract with vendor iVEDiX and began contracting with a new business intelligence software vendor, SISENSE to provide the Kenya HHSR (UNAIDS, SISENSE) version.

Below is a list of key dates for the HHSR programme in Kenya:

- **July 2014**: Conceptualized;
- **October 2014**: Concept note;
- **July 2015**: Training of 30 staff of NACC/Regional Offices focal points in Kenya;
- **September 2015**: Kenya HHSR (UNAIDS, iVEDiX) Presidential launch;
- **November 2015**: Two, 2-day training sessions for county data managers on use of Kenya HHSR (UNAIDS, iVEDiX). Total of 24 counties, 50 people trained;
- **June 2016**: Study tour to Kenya to learn from the Kenya experience and prepare country action plans. Visiting country representatives included Lesotho, Namibia, Uganda and Zimbabwe;
- **July 2017**: Consultation and planning session between UNAIDS and NACC on next steps for the Kenya HHSR (UNAIDS, iVEDiX);

[1] Draft Concept Note Kenya HIV Situation Room, October 8, 2014.
[2] Ibid.
[3] UNAIDS Press Release, UNAIDS and Kenya launch data and technology partnership to Fast-Track progress towards ending the AIDS epidemic by 2030, September 2015
[4] The business intelligence software vendor selected by UNAIDS for the Health Situation Room program in 2015.

- **November 2017**: UNAIDS Country Office conducted a train the trainer workshop funded by UNFPA. Note: UNAIDS HQ staff was not involved;
- **December 2017**: Government of Kenya contracts with iVEDiX vendor;
- **May 2018**: Government of Kenya transitions to a country-owned and operated Kenya HHSR (NACC, iVEDiX);
- **November 2018**: Meeting between UNAIDS and iVEDiX team with NACC in Kenya. Meeting activities included updating indicators, data, creating new reports, and developing a standard operating procedure for data updates and management;
- **December 2019**: Kenya HHSR (NACC, iVEDiX) offline for development and enhancements;
- **April 2019**: UNAIDS communication to Kenya about availability and benefits of switching to the SISENSE platform;
- **May 2019**: Kenya HHSR (NACC, iVEDiX) offline for development and enhancements;
- **June 2019**: Kenya HHSR (UNAIDS, iVEDiX) licenses expire; and
- **August 2019**: UNAIDS holds an Eastern and Southern Africa regional workshop to train countries, including Kenya, on use of Kenya HHSR (UNAIDS, SISENSE).

Kenya HHSR user groups

IT/system administrators

The administrators of the Kenya HHSR (NACC, iVEDiX) are NACC staff (i.e. information system managers or technicians) who administer the backend, including managing users and user groups, adding/editing data in the database, change indicators, add/edit dashboards.

Data analysts

The data analysts are NACC staff (i.e. Measure and Evaluation health programme staff). These individuals are staff who produce and manage programme-specific dashboards for analytical purposes for dashboard viewers.

Dashboard viewers

Dashboard viewers are individuals who will access, interpret and act on the data to improve national health programme activities. These users consist of two main groups – the national Government and regional government. Civil society, donors, and other partners do not currently have access, but have had opportunities to view and consume the data and dashboards shared by the Government through meetings and other communications.

Kenya HHSR resourcing

Selection of indicators/source of data

The Kenya HHSR (NACC, iVEDiX) sub-workgroup[5] oversees the change management processes, including selection, adding and removing of indicators and coordination with source system owners. While UNAIDS assisted with developing an initial change management standard operating procedure (SOP) in November 2018, it was noted in interviews with country stakeholders that more formal change management processes need to be documented and executed for managing connections to source systems and indicators. UNAIDS provided the change management SOP document to evaluators which included workflow diagrams for indicator change requests and indicator quality issues.

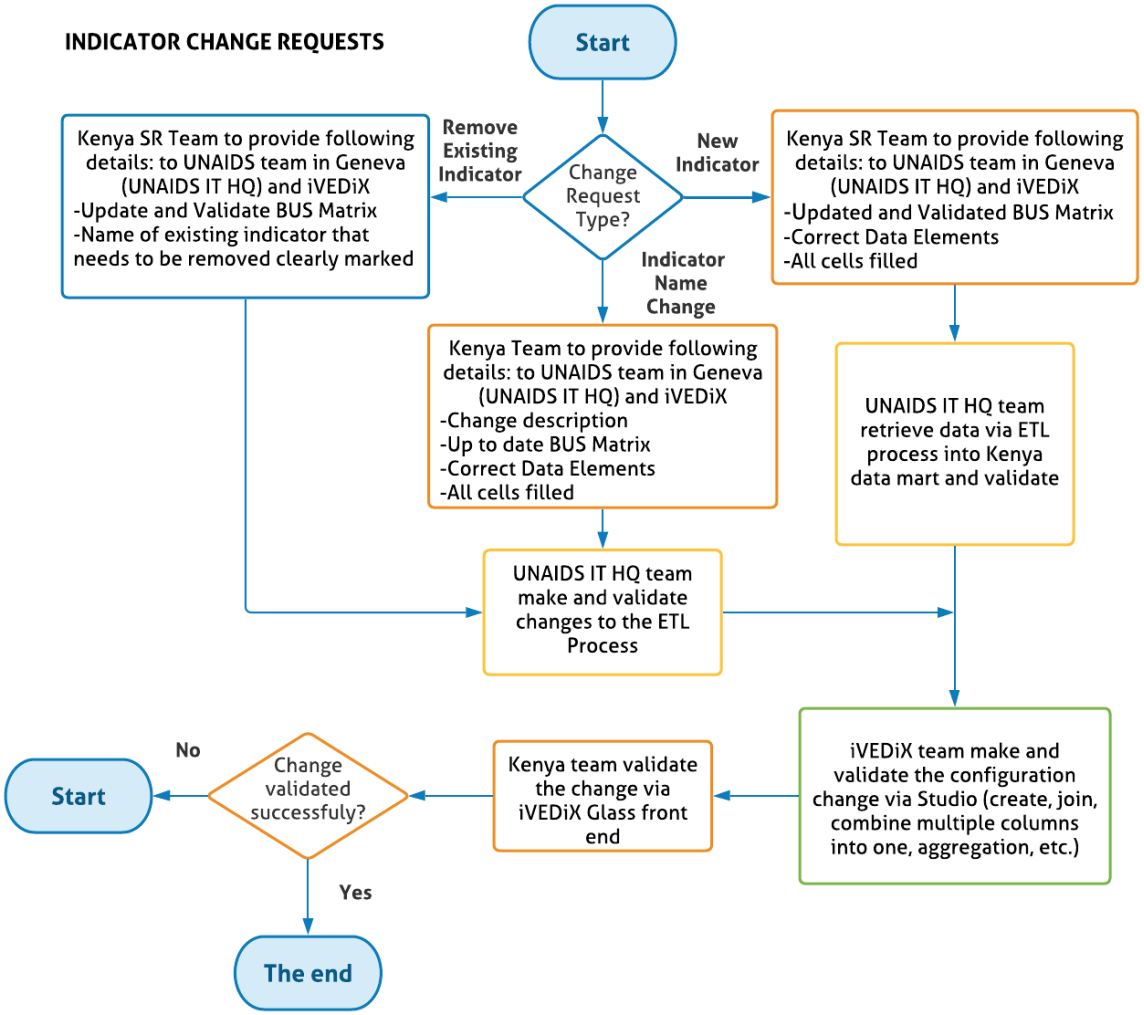
[5] Additional information on the sub-workgroup can be found on page 17 under governance.

After reviewing the change management SOP, the evaluation team identified the following:

- No version control table with version #, date or authors;
- More detailed information needed on the purpose/objective information of the change management SOP and how it is to be used;
- No scoping information for what is in scope and out of scope for the SOP;
- More detailed information on organizational and individual roles and responsibilities with contact information is needed;
- It is unclear if the UNAIDS Country Team has a role in the change management process; and
- No information on change management processes and policies for coordinating with system owners to track changes to application programming interfaces (APIs), data elements and/or indicators that would directly impact the availability, timeliness and quality of data in the Kenya HHSR.

A reproduction of the 'Indicator Change Request' diagram from the change management SOP is provided below.

Figure 1: Kenya HHSR Indicator Change Request Process Diagram



The following was identified with regard to the 'Indicator Change Request' Diagram:

- The diagram goes from 'start' to 'change request type'. There need to be steps prior to these to capture the governance activities of the individuals/organizations/ workgroups reviewing, prioritizing and approving indicator change requests;
- The diagram does not reflect the coordination with other Kenya system owners who need to be engaged in some way on indicators which depend on pulling data from their systems;
- The format by which the change requests are submitted is not made clear. Is there a form/template? Is the request sent via email? Does the request have to come from an appointed individual at NACC?
- It is unclear if there is a document repository or knowledge management tool where documentation should be submitted/uploaded and archived;
- Not all of the steps are clearly spelled out and defined. For example, 'Kenya team validates the change via iVEDiX Glass front end'. It is unclear who on the Kenya team is validating. It is unclear how they are documenting validation. The method for accessing the iVEDiX Glass front end is unclear. How much time they have to complete this step is also unclear. Who do they contact when they are done? and
- A more detailed table is needed to clarify the individual responsible for each step, the expected timeframe for the step, more clearly spelled out and well-defined steps, and any relevant information on format, supporting documentation requirements, etc.

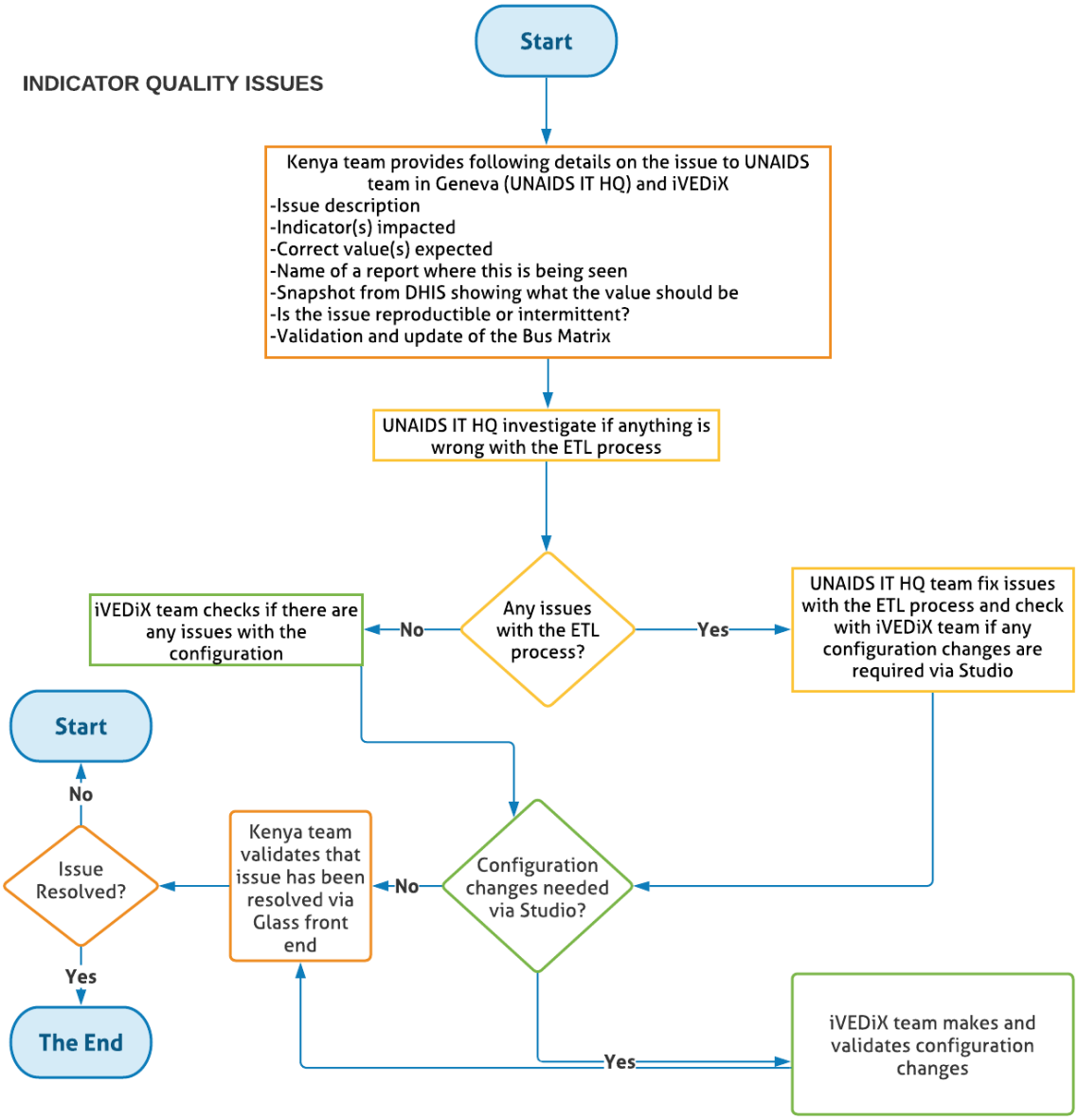
The following was identified with regard to the 'Indicator Quality Issues' Diagram:

- The diagram does not include a step for identification/reporting and review of the potential data quality issue before sending the information to UNAIDS;
- The diagram does not reflect the coordination with other Kenya system owners who need to be engaged in some way on indicators which depend on pulling data from their systems; and
- A more detailed table is needed to clarify the individual responsible for each step, the expected timeframe for the step, more clearly spelled out and well-defined steps, and any relevant information on format, supporting documentation requirements, etc.

The Kenya HHSR (NACC, iVEDiX) business matrices spreadsheets were provided in a series of separate documents which have been consolidated by the evaluation team (Annex 2).

A reproduction of the 'Indicator Quality Issues' diagram from the change management SOP is provided below.

Figure 2: Kenya HHSR Indicator Quality Issues Process Diagram



Day-to-day management

The President of Kenya and the NACC CEO are Executive Sponsors of the Kenya HHSR programme. Day-to-day operation of the Kenya HHSR (NACC, iVEDiX) is led by NACC's Management Information Systems Office, which manages the information technology (IT) operations, and the Measure and Evaluation Office, which manage programmatic activities. The Measure and Evaluation Office's Regional Data Officers play a key role in supporting counties by driving data use, developing dashboards, as well as training support.

Annex 3 provides additional details on the 20 NACC staff, their roles and responsibilities and estimated level of effort (LOE) where available with regard to management of the Kenya HHSR (NACC, iVEDiX).

Country Digital Health Enabling Environment

According to the ITU's 2017 Information and Communication Technology (ICT) Development Index, Kenya is ranked 138 out of 176 countries globally with 81 per cent of citizens owning a mobile phone and 22 per cent of households having access to the internet.[6]

Kenya is a leader in digital health in the sub-Sahara Africa region and has invested over many years in establishing digital infrastructures, digital health systems, developing policies and strategies, as well as building internal leadership and governance. Kenya's digital health policies and strategic plans are critical to creating an enabling environment that fosters the progress and scale of health information systems in-country. There are a number of supportive laws, policies, guidelines in place to support the use of health information systems and a data culture, including the Kenya National eHealth Strategy 2011–2017,[7] the Kenya National eHealth Policy 2016–2030,[8] the Kenya Health Information Systems Interoperability Framework (2015),[9] the Standards and Guidelines for Electronic Medical Record Systems in Kenya (2010),[10] and the Standards and Guidelines for mHealth Systems (2017).[11] In addition, the MoH has been working on the Kenya Health Enterprise Architecture, which is the vision and framework for aligning technology investments to standards guidance.

Regionally, in 2018, the East African Commission's East African Health Research Commission launched the Digital Regional East African Community Health (Digital REACH) Initiative to coordinate regionally on digital health infrastructure, standards, applications, workforce development and more. As part of the Digital REACH Initiative, USAID funded a country digital health landscape assessment.[12]

Findings from the Kenya digital health landscape assessment indicated that, despite supportive digital health policies and strategies, many health information subsystems remain siloed owing to some entities not adopting standards, and variable data quality that limits or prevents integration. In addition, there are gaps in digital health capacity at the county level, a need to strengthen the data sharing culture, as well as private sector engagement.

Demand and Usage Findings

User groups

Kenya HHSR (NACC, iVEDiX) users

Primary users of the Kenya HHSR (NACC, iVEDiX) are stakeholders in the national Government and regional government and there are a reported 152 licenses. Only government staff currently hold Kenya HHSR (NACC, iVEDiX) licenses, with civil society, donors or other partners interested in using the platform, but currently lacking access. Country stakeholders described challenges encountered around usage for civil society, donors and other partners as a result of the limited number of licenses available; it is unclear if there are other policies or guidelines that inhibited their access.

To manage the limited number of licenses, the NACC Measure and Evaluation team have developed a form to request access; for an individual to be granted access to the Kenya HHSR (NACC, iVEDiX) there has to be an available license and approval is needed from both the Head of the Measure and

[6] https://www.itu.int/net4/ITU-D/idi/2017/index.html
[7] http://publications.universalhealth2030.org/uploads/kenyanation_ehealth_strategy.pdf
[8] https://health.eac.int/publications/kenya-national-ehealth-policy-2016-2030#gsc.tab=0
[9] https://KenyaHealthInformationSystems.pdf
[10] https://StandardsandGuidelinesforElectronicMedicalRecordSystemInKenya.pdf
[11] https://www.health.go.ke/Revised-Guidelines-For-Mhealth-Systems-May-Version.pdf
[12] https://www.measureevaluation.org/resources/publications/tr-19-370

Evaluation office and the NACC CEO. Interviewees who lacked direct access to the Kenya HHSR (NACC, iVEDiX) did report NACC regularly utilized dashboards in meetings which presented opportunities to review and gain insights from the data and dashboards.

Both UNAIDS and NACC interviewees discussed robust investments in trainings regionally and in Kenya in the first few years of the programme. Several interviewees indicated that additional trainings and training resources are needed due to staff turnover, offline periods and irregular use.

At the level of national Government, NACC's nine Regional Data Officers are trained as superusers who can create dashboards, utilize the data, as well as provide training and other support to the 47 counties of the region. NACC programme team members also utilize Kenya HHSR (NACC, iVEDiX) dashboards to inform policy, programming, resourcing and to inform financial planning activities. NACC has put Kenya HHSR (NACC, iVEDiX) dashboards on their website, but upon verification it was noted that the dashboards are dated 2014 and 2015.[13]

At the county level, initially 14 counties were trained in the 2015–2016 timeframe with UNAIDS HQ support and the Global Fund later provided finance to train the remaining 33 counties. County AIDS and sexually transmitted infection (STI) coordinators were given accounts and it has been reported that they use Kenya HHSR (NACC, iVEDiX) dashboards in county assembly meetings and quarterly reports for the county management meetings, as well as conferences.

Several interviewees considered the HSR to be straightforward, user-friendly and not complicated when using. Others, found that one needs strategic information and analytical skills to develop the dashboards and interpret them in meaningful ways to inform decision-making and programming.

Kenya HHSR (UNAIDS, SISENSE) users

Information in SISENSE appeared to indicate there are 232 licenses available for the Kenya HHSR (UNAIDS, SISENSE); this includes 100 designer accounts, 130 viewer accounts and 2 data designer accounts. The primary users of the Kenya HHSR (UNAIDS, SISENSE) are UNAIDS and national Government.

A training on the Kenya HHSR (UNAIDS, SISENSE), was held at the regional UNAIDS office in Johannesburg but it is unclear who from Kenya was in attendance and what additional training followed in-country.

Usage patterns

Usage of the Kenya HHSR (NACC, iVEDiX)

Despite requests for utilization data from Kenya HHSR (NACC, iVEDiX), limited information was provided by country interviewees. A file was provided by NACC that listed the county logins between an unknown date in 2018 and May 2019 with no further information on the number of accounts or information on what data or dashboards were utilized. The top five county logins are as follows:

- Busia: 225 logons
- Mombasa: 178 logons
- Kakamega: 157 logons
- Kisumu: 136 logons
- Nairobi: 105 logons.

The evaluation team sent follow-up questions to clarify the system status and utilization to four key country interviewees and received the following information from three individuals on the NACC team supporting the programme:

[13] https://nacc.or.ke/hiv-situation-room/

Table 1: Kenya Feedback on system status and utilization of HHSR (NACC, iVEDiX)

Question	Respondent 1	Respondent 2	Respondent 3
Can you please confirm if the country-owned Kenya HHSR is currently online as of today and available to end users to log in and use?	Yes	Yes, the Kenya HHSR (NACC, iVEDiX) is online and available to end users who can log in successfully.	Yes, it is online. I logged in to test it.
The country-owned and operated version of the HHSR is a derivative of the original iVEDiX platform and the data warehouse/databases and other system components are housed and managed in-house by NACC. Is that correct? Please provide any other necessary clarifications.	Yes	Yes, the country-owned and operated version of the Kenya HHSR is derivative of the original iVEDiX platform and it is managed by the NACC.	*Via phone said it is a derivative of the original iVEDiX platform and it is managed by the NACC
Please rate on average based on your understanding/knowledge of the level of institutionalization (i.e. routine/regular use in programmatic activities) of the HHSR (i.e. country-owned and operated version that is a derivative of iVEDiX) amongst national government and county government users from 1-5*	3	I give a rating of 3. Our M&E personnel at the Regional level log in on a monthly basis. They generate reports that are shared with the policy and decision-makers.	National – 1 (ad hoc utilization) Regional (NACC) – 3 (monthly) Regional (county) – 3 (monthly) NACC HQ – 4 (weekly)
Please rate your personal usage of the HHSR (i.e. country-owned and operated version that is a derivative of iVEDiX) dashboards from 1-5. Describe examples of your usage with the selected rate/frequency.	3 i.e. to track county-specific indicators	I give a rating of 4. I am using both the country owned and SISENSE platform on a weekly basis if not daily. This is included daily update of the COVID-19 country level data.	4 (weekly)

*Note: The 1-5 rating criteria is as follows: 1 limited/ad hoc usage or no usage, 2 log in and use HHSR on a quarterly basis, 3 log in and use HHSR on a monthly basis, 4 log in and use HHSR on a weekly basis, and 5 log in and use HHSR on a daily basis.

Usage of the Kenya HHSR (UNAIDS, SISENSE)

Through information gained in interviews and analysis of the SISENSE analytics reports limited use of the dashboards was indicated with the greatest interest being in the COVID-19 dashboards and data. Several interviewees indicated that the COVID-19 dashboard in particular was viewed frequently, including through the dashboard information shared via email. The evaluation team was unable to access information on who is receiving and reviewing the emailed Kenya HHSR (UNAIDS, SISENSE) dashboards.

Based on a SISENSE usage analytics report pulled on 22 October 2020 reflecting the prior 360 days there were 8 active users (excluding IOD PARC/IMC consultants). However, the evaluation team was not able to access or verify all of the 129 dashboards in the Kenya HHSR (UNAIDS, SISENSE); the analytics report may require further clarification. Of the 8 users there were 3 from UNAIDS, 1 from the National AIDS and STI Control Programme (NASCOP) and 4 from NACC. Additional details and screen shots from the SISENSE usage analytics report for the prior 360 days can be found in Annex 4.

Based on a SISENSE usage analytics report pulled on 22 October 2020 reflecting the prior 30 days, there were no users apart from IOD Parc and IMC Worldwide consultants. Notably, information appears to show active user visits to non-Kenya HHSR (UNAIDS, SISENSE) dashboards (e.g. Tanzania business matrix dashboards, Mozambique Epidemiological Burden dashboard, etc.), which points to confusion in the reporting and potential misrepresentations. Additional details and screen shots from the SISENSE usage analytics report for the prior 30 days can be found in Annex 4.

In the evaluation team's follow-up questions to four key country interviewees two questions were included on use of the Kenya HHSR (UNAIDS, SISENSE). Responses from the three country interviewees are provided below:

Table 2: Kenya Feedback on the use of HHSR (UNAIDS, SISENSE)

Question	Respondent 1	Respondent 2	Respondent 3
Please rate on average based on your understanding/knowledge of the level of institutionalization (i.e. routine/regular use in programmatic activities) of the HHSR (i.e. SISENSE version) amongst national government and regional government users from 1-5.* Please provide specific examples to support the selected number.	1	I give a rating of 3. Monthly reports are generated to inform programming. These reports are generated and shared with programme people. Monthly reports are generated by the Regional M&E personnel and shared with the programme teams for use.	1 (limited)
Please rate your personal usage of the HHSR (i.e. SISENSE version) dashboards from 1-5. Describe examples of your usage with the selected rate/frequency.	1	I give a rating of 4. Currently using it to show COVID-19 data. A dashboard is shared every day which I follow closely.	1 (limited)

*Note: The 1-5 rating criteria is as follows: 1 limited/ad hoc usage or no usage, 2 log in and use HHSR on a quarterly basis, 3 log in and use HHSR on a monthly basis, 4 log in and use HHSR on a weekly basis, and 5 log in and use HHSR on a daily basis.

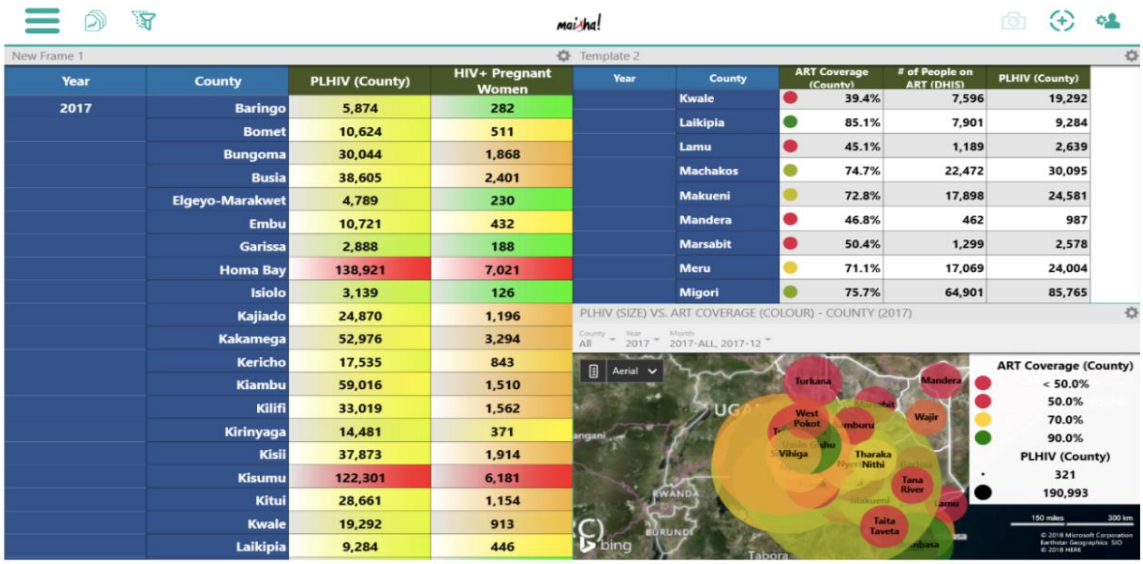
Kenya HHSR indicators and dashboards

According to country interviewees, the Kenya HHSR (NACC, iVEDiX) currently has the following seven dashboards:

- HIV Estimates
- Antenatal Care Cascades
- Prevention of Mother-to-Child Transmission (PMTCT) Cascades
- Maternal Cascade
- Trends of HIV
- Commodities-Month of Stockout
- Cervical Cancer

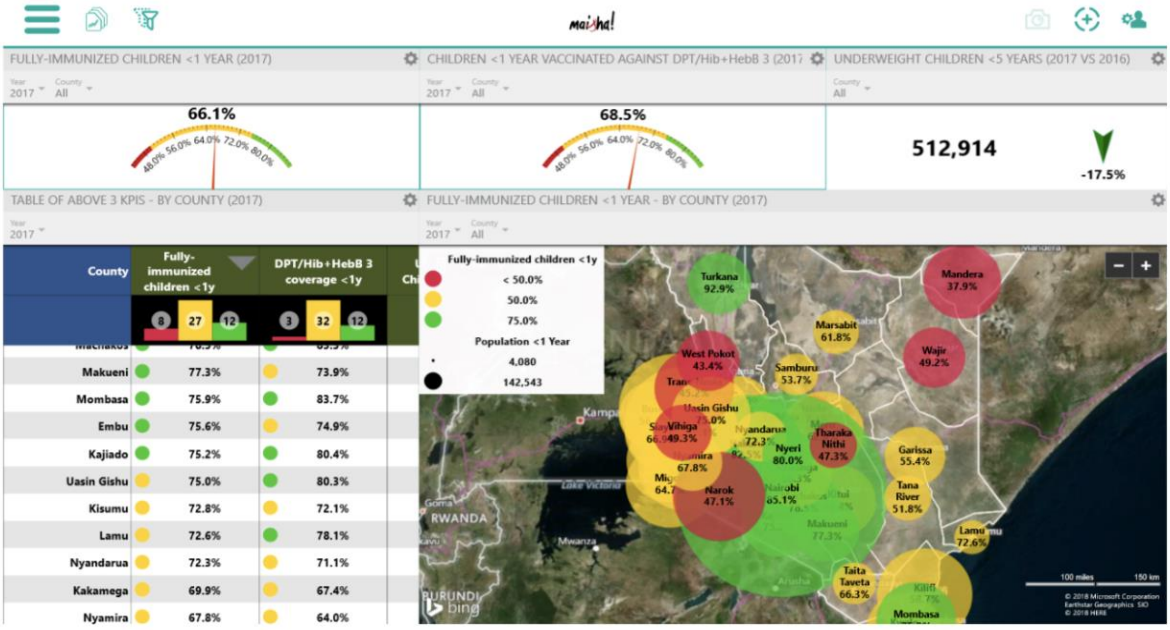
There are 52 indicators available in the Kenya HHSR (NACC, iVEDiX) and the detailed list is available in Annex 2. The evaluation team was unable to directly verify the information provided due to lack of access to the Kenya HHSR (NACC, iVEDiX) platform and supporting documentation.

Figure 3: Kenya HIV Estimates Dashboard HHSR (NACC, iVEDiX)



Year	County	PLHIV (County)	HIV+ Pregnant Women
2017	Baringo	5,874	282
	Bomet	10,624	511
	Bungoma	30,044	1,868
	Busia	38,605	2,401
	Elgeyo-Marakwet	4,789	230
	Embu	10,721	432
	Garissa	2,888	188
	Homa Bay	138,921	7,021
	Isiolo	3,139	126
	Kajiado	24,870	1,196
	Kakamega	52,976	3,294
	Kericho	17,535	843
	Kiambu	59,016	1,510
	Kilifi	33,019	1,562
	Kirinyaga	14,481	371
	Kisii	37,873	1,914
	Kisumu	122,301	6,181
	Kitui	28,661	1,154
	Kwale	19,292	913
	Laikipia	9,284	446

Year	County	ART Coverage (County)	# of People on ART (DHIS)	PLHIV (County)
	Kwale	39.4%	7,596	19,292
	Laikipia	85.1%	7,901	9,284
	Lamu	45.1%	1,189	2,639
	Machakos	74.7%	22,472	30,095
	Makueni	72.8%	17,898	24,581
	Mandera	46.8%	462	987
	Marsabit	50.4%	1,299	2,578
	Meru	71.1%	17,069	24,004
	Migori	75.7%	64,901	85,765



County	Fully-immunized children <1y	DPT/Hib+HebB 3 coverage <1y
Makueni	77.3%	73.9%
Mombasa	75.9%	83.7%
Embu	75.6%	74.9%
Kajiado	75.2%	80.4%
Uasin Gishu	75.0%	80.3%
Kisumu	72.8%	72.1%
Lamu	72.6%	78.1%
Nyandarua	72.3%	71.1%
Kakamega	69.9%	67.4%
Nyamira	67.8%	64.0%

As of 28 October 2020, on the Kenya HHSR (UNAIDS, SISENSE) platform the evaluation team was able to access two main folders with dashboards and sub-folders and a total of 22 dashboards which are as follows:

- [acc] Cholera cases
- [acc] Facilities without coordinates (no data or dashboard)
- [acc] People on ART
- [acc] Typhoid cases
- [drill] Deliveries by skilled personnel by county
- 01. Home Page
- 02. People on ART
- 03. Deliveries
- 04. RMNCAH

- 99. SR Status
- 999. All DHIS Measures
- COVID-19 Kenya (National)
- Z_1. COIVD-19 – Overview (under an archive folder)
- Z_2. COVID-19 – Overview (under an archive folder)
- Z_3. COVID-19 – Overview (under an archive folder)
- COVID-19 Kenya (National) (duplicate, but graphics and layout look different)
- COVID-19 Nairobi & Mombasa (Hotspots)
- COVID-19 – Overview (1)
- COVID-19 – Subcounties
- PLHIV Summary Regional SR Training
- VMMC
- KEN All DHIS Measures

In the 'KEN All DHIS Measures' live business matrices table 74 indicators are listed.

Figure 4: Kenya HHSR (UNAIDS, SISENSE) COVID-19 (National) Dashboard

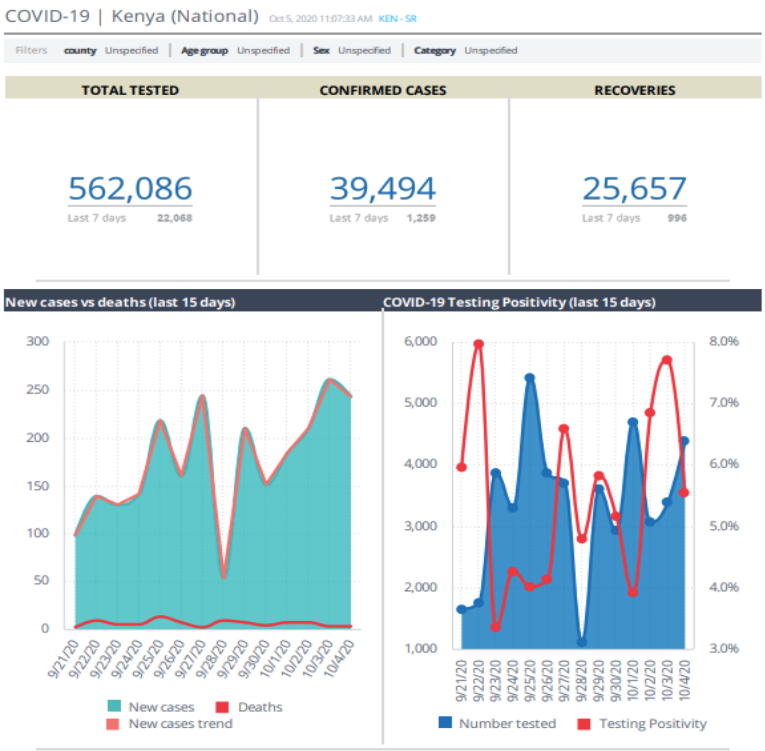
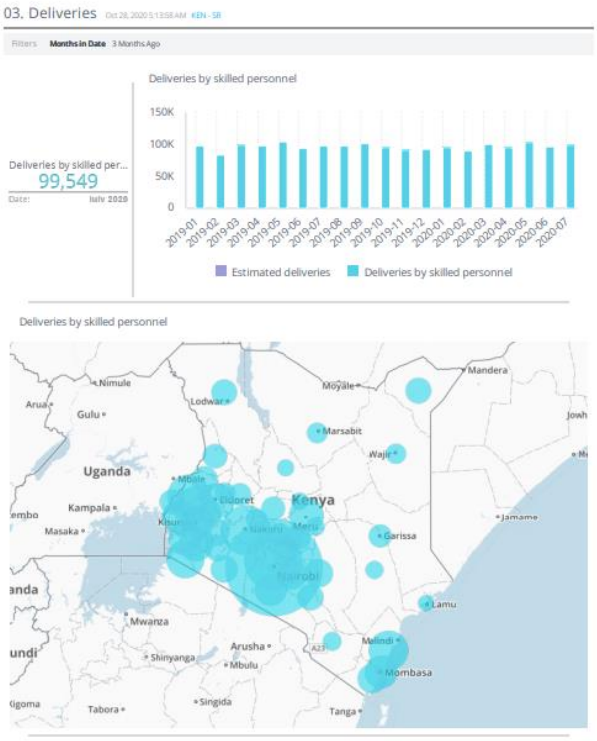


Figure 5: Kenya HHSR (UNAIDS, SISENSE) deliveries and skills attendants



Opportunities for adding Kenya HHSR indicators and dashboards

Country interviewees indicated that they have been in discussions with the Ministry of Education about potential access to the National Education Management Information System (NEMIS). NEMIS data includes tracking performance of education indicators that impact HIV and health (e.g. teenage pregnancy, transitioning to secondary school). In addition, the NACC programme team has developed a proposal to support national priorities for universal health coverage and track related indicators in the Kenya HHSR (NACC, iVEDiX).

Other indicators and dashboards that were recommended for consideration by interviewees include:

- Stockouts
- Care and treatment indicators
- Maternal care – broad range issues
- Prevention cascade on PREP
- Key populations
- Leverage the Integrated Human Resource Management System to understand doctor to patient ratios and workforce capacity.

Interviewees also described several opportunities for the future of the programme that includes tracking health affairs/children, child protection services and adolescents' and young people's sexual and reproductive health.

Kenya HHSR data sources

According to country interviewees, the Kenya HHSR (NACC, iVEDiX) has four data sources, which are the Kenya Health Information System (KHIS) (i.e. District Health Information System 2), the Logistics Management Information System (LMIS), the Viral Load Database, and AIDSInfo Estimates. Additional details on the data sources/source systems are provided below.

- KHIS

  - System owner: MoH/Health Informatics Division
  - National AIDS and STI Control Program (NASCOP) oversees data cleaning process
  - Monthly update
  - Data shared via API
- LMIS
  - System owner: Kenya Medical Supplies Authority (KEMSA)
  - Monthly update
  - Data shared via API
- Viral Load Database
  - System owner: NASCOP
  - Monthly update
  - Data shared via API
- AIDSInfo
  - Data provided by UNAIDS Kenya Estimates Team
  - Annual update
  - Data shared via Excel file

The Kenya HHSR (UNAIDS, SISENSE) currently has three data sources: the KHIS, COVID-19 spreadsheet and AIDSInfo Estimates. The European Commission provided support for a special integration of the COVID-19 data to synchronize from a Google spreadsheet into the HHSR. At this time the LMIS is not sharing data with the Kenya HHSR (UNAIDS, SISENSE) due to an issue with the API and access.

UNAIDS confirmed that a data sharing template was developed, but the template was not used with the Government of Kenya. The Kenya MoH also indicated that no formal inter-governmental data-sharing agreements are in place between the systems.

Kenya HHSR data quality

Most interviewees who discussed data quality felt that the data cleaning processes and quality checks are established primarily at the data source/source systems and are sufficient in catching and addressing issues. For example, NASCOP oversees and ensures data quality in KHIS, as well as adherence to the Data Protection Act. Some KHIS indicators are collected daily, others monthly and conjoined indicators do not all look the same; the interviews imply that there are nuances as to when to pull certain indicators and the types of analysis that can be conducted in the HHSR in a meaningful way. For the KHIS monthly reporting cycle, the facility and clinics electronic medical records push data to the KHIS. Counties then review, validate and approve the data which gets pushed to the national level. At the national level, NASCOP performs validation checks on the data; approval then makes it live in the KHIS and it is then available to be pulled into the HHSR.

It was noted that the Kenya HHSR helped identify missing data at a large facility in the Mombasa county and there was a similar scenario in Busia.

Sensitivity of the data

Many country interviewees indicated the aggregate, de-identified data in the HHSR is not considered sensitive at this time.

One interviewee said, “Not seen any sensitive data – we use aggregated data. Therefore, not at individual level. No challenges with it, but there was a proposal to include epidemic infection disease data where they may have been sensitive. But not for HIV/health disaggregated data already available in the other systems.”

Another interviewee indicated. “No (the data is not sensitive) – the system has some privacy and it cannot disclose names of patients and that is a good thing.”

Demand and usage learnings

In summary, based on interviews and the review of documentation there were several demand and use promising practices and observations on challenges and issues.

Promising practices include:

- The Kenya HHSR has gained a lot of momentum in-country over several years and facilitated data access and use at the national government and regional levels;
- Focus on regional government stakeholders to enable access and promote use of data at subnational levels;
- Dedicated NACC resources are trained as super-users and are available to provide support to regional government stakeholders;
- Help desk support processes are established to assist with platform and account issues; and
- Formal account request form and approval process include final approval by the NACC CEO demonstrating a formal process for documenting, reviewing and prioritizing licenses.

Observations include:

- Early on, there was confusion over physical room with TVs versus an online accessible IT platform. This issue appears to have been addressed;
- Discrepancies and inconsistencies across interviews as to whether or not the Kenya HHSR (NACC, iVEDiX) is currently online;
- Limited number of licenses/accounts;
- Need for additional trainings due to end user turnover, limited use, offline period, etc.;
- Viewed as primarily a government system;
- Overlap and confusion between the multiple iterations of the Kenya HHSR (i.e. Kenya HHSR (NACC, iVEDiX), Kenya HHSR (UNAIDS, SISENSE), Kenya HHSR (UNAIDS, iVEDiX); and
- No formal intergovernmental and other partner data-sharing agreements/ documentation.

Collaboration and transparency

Critical stakeholders

The key stakeholders for coordination and collaboration of the Kenya HHSR programme are NACC, NASCOP, MoH, KEMSA and UNAIDS. As described in the resourcing section, the day-to-day activities are managed by NACC IT and Measure and Evaluation staff.

Available information on funding and other support for the HHSR programme include:

- UNAIDS (US$179,000 from UNAIDS headquarters as of October 2018);
- Global Fund (about US$130,000 contract directly with iVEDiX in 2017);
- Bill and Melinda Gates Foundation through Georgetown University (new funding that has not been signed off yet);
- U.S. Centers for Disease Control and Prevention (CDC);
- U.S. Agency for International Development (USAID) Health Informatics Governance and Data Analytics contract with implementing partner Palladium (no longer active); and
- UNFPA (funding for the training in November 2017).

Governance body

Stakeholder engagement, governance activities and coordination for the Kenya HHSR (NACC, iVEDiX) occur through a sub-workgroup under the NACC Strategic Information Working Group. The Kenya HHSR (NACC, iVEDiX) sub-workgroup is reported to meet at least monthly and the last

meeting was held on 7 October 2020. Members of the sub-workgroup include 19 individuals from NACC, and one from each of the following institutions: NASCOP, KEMSA, University of Nairobi, Palladium, UNAIDS, Kenyatta University, NEPHAK (civil society) and two from MoH/Health Informatics Division.

Information on member participation and terms of reference documentation for the Kenya HHSR (NACC, iVEDiX) sub-workgroup was not provided.

While the HHSR is not directly referenced in the Kenya AIDS Strategic Framework 2014/2015–2018/2019, it does outline the need to "*Establish multi-sectoral and integrated real time HIV platform to provide updates on HIV epidemic response accountability at county and national level*."

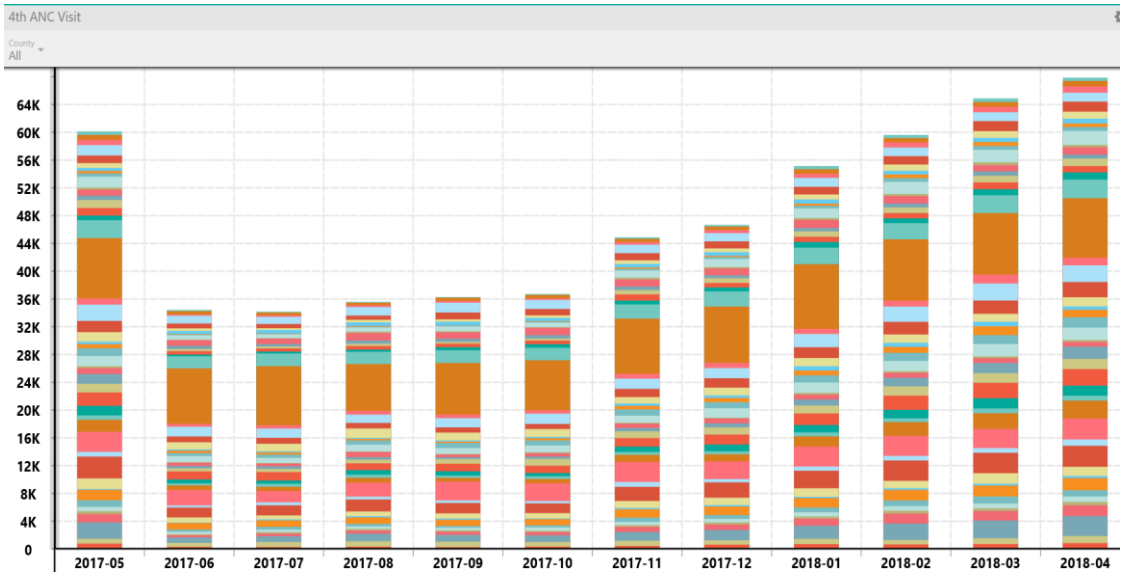
Information sharing and decision-making by partners

When asked for examples of how the HHSR data and dashboards have been used in programmatic planning and decision-making, several interviewees mentioned two key examples – Mombasa and the industrial action strike.

For Mombasa, the Kenya HHSR (the version/platform used to identify this issue is unclear) brought to the attention of the county that there were low numbers of pregnant women attending ANC visits and that the information was not being captured by one high volume facility in the KHIS. The county was then able to address the data gap directly with the facility.

Regarding the industrial action strike in 2018, there was a disruption in health services and information in the Kenya HHSR (UNAIDS, iVEDiX) was used to inform policy decisions and understand the impact. The Kenya HHSR (UNAIDS, iVEDiX) was able to show where county services were being received or not and the responsiveness of counties to the strike.

Figure 6: Kenya Dashboard used in 2018 industrial action strike provided by UNAIDS



Civil society, academia, donors, partners and other stakeholders can play a role in advancing the culture of data use and supporting and using the Kenya HHSR for decision-making as well, but currently do not have access. In July 2017, the Sexual and Reproductive Health Unit expressed keen interest in adopting the HHSR, and their data was included. However, the collaboration was not pursued further.

Public awareness

Several interviewees discussed the awareness of the Kenya HHSR programme at the highest levels of Government with the presidential launch and on-going political goodwill. However, the Kenya HHSR programme appears to be a government-focused system that is only used by government staff at this time. There were recommendations around raising public visibility and awareness of the Kenya HHSR programme and extending access to civil society, partners and more.

Collaboration and transparency learnings

While not specific to the Kenya HHSR programme day-to-day operations, country stakeholders shared that they have engaged in peer-to-peer country government learning and information sharing with other UNAIDS Health Situation Room Programmes, including South Africa, Uganda, and Zambia.

In summary, based on interviews and the review of documentation there were several promising practices and observations on challenges and issues regarding collaboration and transparency.

Promising practices include:

- Dedicated NACC resources to manage the IT platform and programmatic activities;
- NACC sub-workgroup for stakeholder engagement and coordination; and
- Political support and awareness, including the President's Office having access.
- Observations include:
- Opportunity to raise visibility and articulate the long-term vision;
- Limited civil society and academia engagement, access and use;
- Limited donor engagement, access and use; and
- Opportunities to strengthen advocacy and education around the HIV and Health Situation Room in other government workgroups/governance bodies.

Country ownership and sustainability

Current management of the Kenya HHSR

NACC manages the day-to-day activities associated with the Kenya HHSR (NACC, iVEDiX) IT platform and programmatic activities. UNAIDS manages the day-to-day activities associated with the Kenya HHSR (UNAIDS, SISENSE) IT platform, but is unclear who is responsible for the programmatic side and dashboard development.

A country interviewee indicated that prior to transitioning to the Kenya HHSR (NACC, iVEDiX) version, NACC was more of a middleman who would receive requests from end users and stakeholders and send them to UNAIDS HQ who then would either address the issue directly or send to the IT platform vendor. The interviewee noted there was a lag in getting assistance and making changes, such as adding a new user. This was a major driver for wanting to transition to a country-owned and operated HHSR platform offering authority and control over making decisions and changes which they expect should have a faster turnaround time.

It was noted in several interviews that a more formal change management process and supporting documentation is needed for the Kenya HHSR (NACC, iVEDiX) for those working on the data warehouse and database to manage changing source system indicators and APIs and related processes. The intent is to have stronger coordination and internal communication processes with source system owners to ensure they communicate when there are changes to their system that would impact the HHSR.

Ownership

According to country interviewees, the Kenya HHSR (NACC, iVEDiX) is currently country-owned and operated and views on what is country ownership include:

- Develop and host the HHSR IT platform in-country/locally;
- Not having to go through another non-government, non-vendor organization to make changes;
- Country government operations, management and custodianship of the HHSR;
- Government of Kenya investing in dedicated resources and stakeholder coordination and collaboration;
- Multi-sectoral stakeholder engagement and buy-in (e.g. Ministry of Education); and
- Alignment with national priorities (e.g. universal health coverage) and working in the interest of the Government.

There were discrepancies across interviews as to whether or not the iVEDiX vendor is still in business or is a failed, non-functioning company. Evaluators spoke with a former employee of iVEDiX who worked closely with UNAIDS when there was a contract. The individual indicated that iVEDiX as a company has not failed and is still in business and working with the Government of Kenya amongst other clients.

Sustainability

Country stakeholders provided the following insights on what is needed for sustainability of the Kenya HHSR (NACC, iVEDiX):

- Alignment with the sustainability framework and the eHealth strategy and Measure and Evaluation strategy;
- Government of Kenya financial contribution;
- Government of Kenya investment in additional human resources for training and IT management; and
- Government of Kenya as the custodian and expansion into other health areas and sectors.

One interviewee noted, “We are having challenges moving to the next level. Need more in-country capacity to manage the system. Government needs to invest in people in the country.”

Future state / vision

Country stakeholders envision the future state of the Kenya HHSR programme as taking HIV out of isolation and integrating it with other health areas and sectors (e.g. universal health coverage) for a more diverse set of indicators and a tool for decision-making. Several interviewees pointed to a desire to expand the reach of the HHSR programme, making it the one stop shop platform of choice for policy and decision-making used across the public sector. In addition, one interviewee discussed engaging those impacted by HIV for the conversation and make them fully included as part of the process.

Ownership and sustainability learnings

In summary, based on interviews and the review of documentation there were several promising practices and observations on challenges and issues for ownership and sustainability.

Promising practices include:

- Multi-sectoral stakeholder engagement and buy-in (e.g. Ministry of Education);
- Working towards alignment with national health priorities (e.g. universal health coverage); and
- According to country stakeholders, government ownership enabled more timely and agile operations on the platform (e.g. account management, API maintenance).
- Observations:

- Need for more government investment in dedicated resources;
- Opportunity to document, formalize and institutionalize change management processes (i.e. how to update/remove/add indicators, how to communicate changes in source system indicators and APIs) and establish a knowledge management approach: and
- Opportunity to explore who should be the custodian of the HHSR IT platform and programme as it expands into other health areas and sectors.

Conclusions and Considerations for the Future

The following table provides conclusions and recommendations for UNAIDS in considering support for the Kenya HHSR programme.

Table 3: Kenya Conclusions and Recommendations for UNAIDS support for the programme

Conclusions	Considerations for the future
Many discrepancies between key stakeholders indicates a lack of clear communication and collaboration on the use of an analytical HHSR tool for Kenya.	Hold a workshop between UNAIDS HQ, UNAIDS Country Office and NACC to discuss evaluation findings, identify key challenges and options to address them.
Lack of a coherent and agreed upon long-term vision and roadmap for the HHSR in Kenya.	Develop a vision and 5-year roadmap for the Kenya HHSR. It should be platform agnostic in order to address sustainability and ownership. Recommend the vision and roadmap are developed in partnership between UNAIDS and country government, taking into consideration country priorities/requirements, custodianship, indicators/source systems and engagement with other key stakeholders in the public and private sectors. Outcomes should include stakeholders having the information needed to make an informed decision on the software and vendor to use going forward.
Lack of formal data sharing agreements with source systems to document data ownership, data uses, and privacy and security protocols.	Establish inter-governmental data-sharing agreements to outline data ownership, data uses, privacy and security protocols, etc. for the Kenya HHSR (NACC, iVEDiX). Establish a UNAIDS and Government of Kenya formal data-sharing agreement for the Kenya HHSR (UNAIDS, SISENSE) platform.
Additional training resources are needed to promote the use of the Kenya HHSR.	Consider opportunities to provide self-service training resources and support to the Government of Kenya. Advocate for additional donor funding and country government funding to support development of self-service training materials and hosting of additional trainings.
An outreach and communications plan are needed to raise visibility and awareness across stakeholders.	Invest in helping the Government of Kenya develop an explicit outreach and communications plan to stakeholders to raise the visibility and awareness. Align the outreach and communications plan with the vision and roadmap.

Annex 1: Kenya Evaluation Interviewees

Name	Organization	Title
Taavi Erkkola	UNAIDS	Workstream Lead, Monitoring and Reporting
Alex Allouin	UNAIDS	IT team
Savjeet Brar	UNICEF	Statistics Officer
Jantine Jacobi	UNAIDS	
Medhin Tsehaiu	UNAIDS	Director
Henry Damisoni	UNAIDS	Senior Strategic Information Adviser
Peter Young	CDC	Epidemiologist
Davies Kumanga	CDC	CDC Kenya
Joe Barker	CDC	Division Chief
Joshua Gitonga	NACC	Strategic Information Manager
Nelly Egehiza	NACC	Regional Data Officer
George Onyango	NACC	Situation Room Manager
Alex Kariuki	NACC	Head, Management Information Systems
Dr Violet Oramisi	NASCOP	Programme Manager, Strategic Information Research Implementation (SIT)
Stephen Chege	MoH	Lamu County Health Records and Information Officer
Carol Ngunu	MoH	Nairobi County AIDS and STI Coordinator
Nelson Otuoma	NEPHAK	Director
Dr Winifred Mutuku	Kenyatta University	Lecturer
Margaret Ndubi		Global Fund, The National Treasury
Dorothy Onyango	WOFAK	CEO
Dr Rudolf Richard Eggers	WHO	Country Director
Dr Christine Kisia	WHO	
Nelson Otuoma	NEPHAK	Executive Director
Reuben Vellenga (in place of Siddharth Chatterjee)	UN	Resident Coordinator
Rose Nzioka	Palladium	Chief of Party
Allan Maleche	Kelin Kenya	Executive Director
Jeremiah Mumo	MoH	Health Information Officer

Annex 2: Kenya HHSR (NACC, iVEDiX) Indicators

The Kenya HHSR (NACC, iVEDiX) indicators were provided in a series of separate documents which have been consolidated by the evaluation team in the table below.

Category	Indicator Group Name / Sub-Category	Indicator Name	Data Source	Available on iVEDiX Dashboard(s)	iVEDiX Dashboard(s)	Notes
Commodities	Stock Status	Opening balance	LMIS			Listed in the Health Commodities Business Matrix
Commodities	Stock Status	Quantity received at facility	LMIS			Listed in the Health Commodities Business Matrix
Commodities	Stock Status	Quantity dispensed at facility	LMIS			Listed in the Health Commodities Business Matrix
Commodities	Stock Status	Damaged adjustment	LMIS			Listed in the Health Commodities Business Matrix
Commodities	Stock Status	Closing balance	LMIS			Listed in the Health Commodities Business Matrix
Commodities	Stock Status	Expired	LMIS			Listed in the Health Commodities Business Matrix
Commodities	Stock Status	Months of stock	LMIS			Listed in the Health Commodities Business Matrix
HIV	HIV Prevalence Rate		AIDS Info			Listed in the Business Matrix (dated June 2018)
HIV	HIV Incidence Rate		AIDS Info			Listed in the Business Matrix (dated June 2018)
HIV	HIV Mortality Rate	Proportion of people who have died from AIDS-related causes	Numerator: KHIS Denominator: AIDSInfo			Listed in the Business Matrix (dated June 2018)
HIV	HTS	Number of people tested	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	HTS	Proportion of those who turn positive among those tested	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	Care & Treatment	Percentage of persons with HIV infection currently receiving ARVs	Numerator: KHIS Denominator: AIDSInfo			Listed in the Business Matrix (dated June 2018)
HIV	Care & Treatment	Proportion of clients on ART with a viral suppression after 12 months	Numerator: NASCOP Viral Load Database Denominator: KHIS			Listed in the Business Matrix (dated June 2018)
HIV	PMTCT	Proportion of HIV exposed infants started on ARV prophylaxis within two months of life	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	PMTCT	Proportion of HIV infected pregnant women on HAART	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	PMTCT	Coverage of syphilis testing in women attending antenatal care services	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	PMTCT	Percentage of pregnant women attending antenatal	KHIS			Listed in the Business Matrix (dated June 2018)

Category	Indicator Group Name / Sub-Category	Indicator Name	Data Source	Available on iVEDiX Dashboard(s)	iVEDiX Dashboard(s)	Notes
		clinics with a positive (reactive) syphilis serology				
HIV	PMTCT	Proportion of pregnant women treated for syphilis	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	PMTCT	Number currently on PrEP	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	PMTCT	Percentage of women tested in PMTCT setting for HIV whose male partners were tested for HIV in the same setting	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	Care & Treatment	Percentage of HIV patients screened for TB	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	Care & Treatment	Proportion of TB/HIV co-infection	TIBU			Listed in the Business Matrix (dated June 2018)
HIV	Care & Treatment	Percentage of HIV positive clients who were assessed for nutrition status	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	Care & Treatment	Proportion of women in HIV care screened for cervical cancer	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	VMMC	Proportion of positive males circumcised as minimum package for HIV preventative services	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	PEP	Clients who had potential HIV exposure provided with PEP within 72 hours	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	Blood	Percentage of donated blood units screened for Transfusion Transmissible Infections in the Quality Assured Manner	KHIS			Listed in the Business Matrix (dated June 2018)
HIV	Blood	Percentage of blood units found positive for HIV by National Blood Transfusion Services Network	KHIS			Listed in the Business Matrix (dated June 2018)
TB	TB	Tuberculosis Treatment Success Rate (TSR)	TIBU	Proposed	Proposed	Listed in the Business Matrix (dated June 2018)
TB	TB	Proportion of people on successful IPT treatment	KHIS			Listed in the Business Matrix (dated June 2018)
RMNCAH	Maternal Health	Proportion of deliveries conducted by skilled health attendants	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Maternal Health	Pregnant women attending 1st ANC	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Maternal Health	Pregnant women attending 4th ANC	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Maternal Health	Maternal mortality rate (facility based)	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Maternal Health	Proportion of clients receiving postnatal care after delivery	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Newborn Health	Neonatal mortality rate (facility based)	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)

Category	Indicator Group Name / Sub-Category	Indicator Name	Data Source	Available on iVEDiX Dashboard(s)	iVEDiX Dashboard(s)	Notes
RMNCAH	Newborn Health	Low birth weight below 2500 grams	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Newborn Health	Proportion of perinatal death	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Newborn Health	Proportion pre-term births	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Adolescent Health	Proportion of teen age pregnancy	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Adolescent Health	Adolescent maternal mortality	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Family planning	% of women of reproductive age receiving family planning	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Sexual Gender-Based Violence	Total number of survivors seen	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Sexual Gender-Based Violence	No of rape cases initiating PEP	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Sexual Gender-Based Violence	No of rape cases reported within 72 hours	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Nutrition	% of children 6-59 months provided dose of Vitamin A	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Nutrition	Proportion of children under 5 years with severe malnutrition	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Nutrition	Breast-feeding	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Child Health	% of fully immunized children	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Child Health	% of children receiving Penta3	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Child Health	% of school children dewormed	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Child Health	% of children under 5 years treated for severe pneumonia	KHIS			Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Community Health	Proportion of children under 5 years with diarrhoea treated with ORS and zinc	KHIS	Proposed	Proposed	Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Community Health	Proportion of household certified ODF	KHIS	Proposed	Proposed	Listed in the RMNCAH Business Matrix (dated June 2018)
RMNCAH	Community Health	Proportion of households visited	KHIS	Proposed	Proposed	Listed in the RMNCAH Business Matrix (dated June 2018)
UHC	Financial Coverage	Self-reported insurance coverage		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)

Category	Indicator Group Name / Sub-Category	Indicator Name	Data Source	Available on iVEDiX Dashboard(s)	iVEDiX Dashboard(s)	Notes
UHC	Financial Coverage	Incidence of catastrophic health expenditure due to OOP payments		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Financial Coverage	Mean positive overshoot of catastrophic payments		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Financial Coverage	Poverty gap due to OOP payments		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Financial Coverage	OOP expenditures on health as a percentage of total health expenditure		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Births delivered in a health facility		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Births assisted by a skilled provider		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Women receiving ANC from a skilled provider		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Married women in reproductive age using modern family planning method		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Family planning needs satisfied		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Received all basic vaccines		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Received measles vaccine		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Received 3 doses of DPT vaccine		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Received BCG vaccine		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Received oral rehydration therapy (ORT) and continued feeding for diarrhea treatment		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Sought treatment for acute respiratory infection		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Received anti-malarial drugs		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage	Access to ART drugs		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage – Tracer Indicator	Households with at least one mosquito net		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage – Tracer Indicator	Children under 5 years sleeping under insecticide treated nets		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage – Tracer Indicator	Pregnant women sleeping under insecticide treated nets		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage – Tracer Indicator	TB treatment success rate under directly observed short course		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)
UHC	Service Coverage – Tracer Indicator	Percentage of women with serious problems in accessing health care		Proposed	Proposed	Listed in the UHC Indicator file (date unknown)

Abbreviations and acronyms: Abbreviations: ANC = antenatal clinic, ARV = antiretroviral, BCG = anti-tuberculosis - bacillus Calmette-Guérin vaccine, DPT = diphtheria/pertussis/tetanus - triple vaccine, HAART = highly active antiretroviral therapy, KHIS = Kenya Health Information Service, LMIS = Logistics Management Information System, NASCOP = National AIDS and STI Control Programme ODF = Outpatient Drug Free, OOP = out of pocket, ORT = oral rehydration therapy, PEP = post-exposure prophylaxis, PMTCT = • Prevention of Mother-to-Child Transmission, PrEP = pre-exposure prophylaxis, RMNCAH = reproductive, maternal, newborn, child and adolescent health, TB= tuberculosis, TIBU = Treatment Information from Basic Unit, UHC = universal health coverage

Annex 3: Kenya NACC HHSR Resources

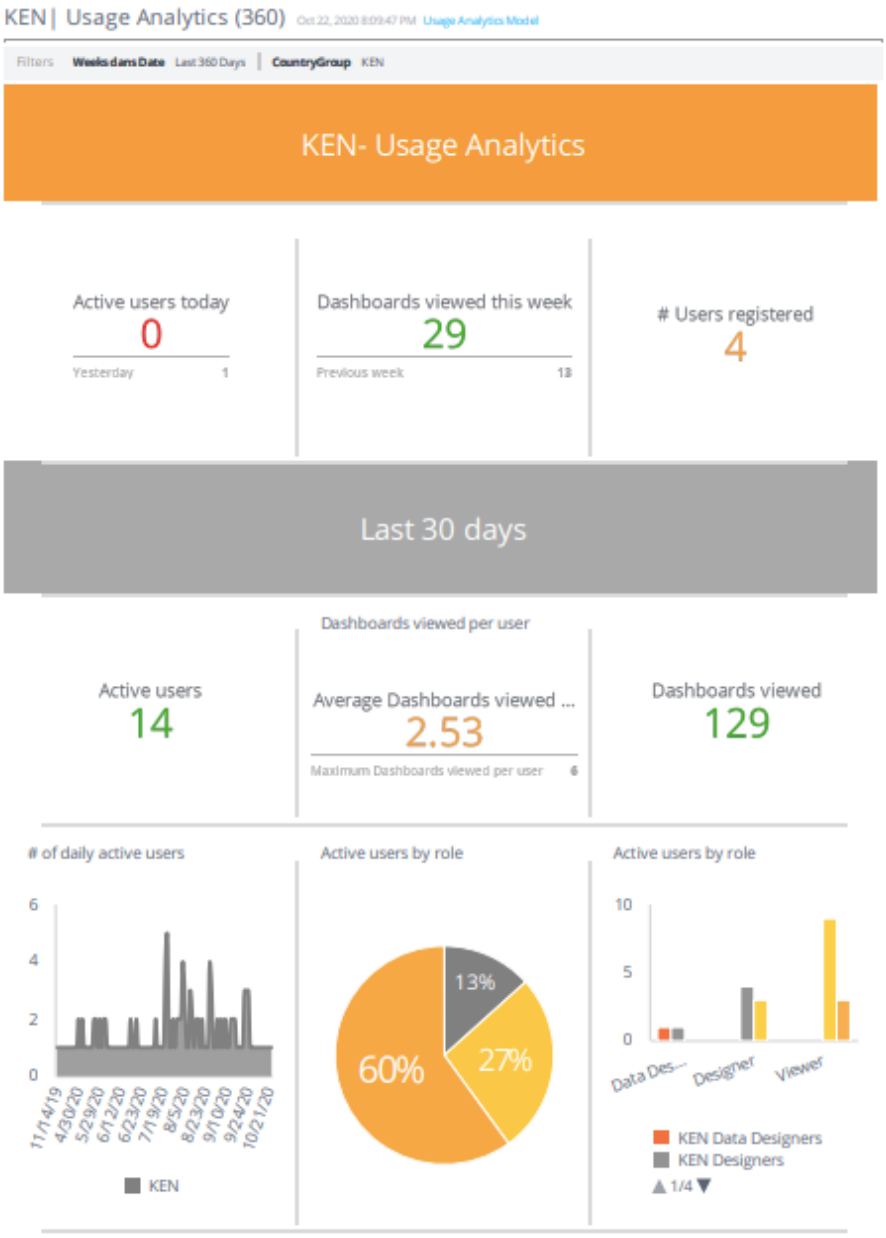
The table below provides the list of key human resources at NACC, their roles and responsibilities and estimated level of effort (LOE) where available with regard to management of the Kenya HHSR (NACC, iVEDiX).

NACC Department	Title	Roles and Responsibilities	Approximate LOE
Information Systems	Head, Management of Information Systems	Information systems management and oversight	100%
Information Systems	System Administrator	Manage IT platform Oversee server / hosting services Manage source system connections and maintenance (ex. APIs) Manage data-sharing agreements Manage IT platform help desk services Member of HHSR technical working group	100%
Monitoring and Evaluation	Head, Monitoring & Evaluation	Lead HHSR technical working group Manage indicator list and stakeholder requirements Oversee identification and approval of users Training	100%
Monitoring and Evaluation	Administrative Officer	Programme support	50%
Information Systems	IT Service Desk Officer	Manage backend IT platform Manage server / hosting services Manage source system connections and maintenance (ex. APIs) Manage data-sharing agreements Manage IT platform help desk services Member of HHSR technical working group Design and manage ETL protocols	100%
Policy Monitoring & Research	Deputy Director, Policy Monitoring & Research	Chair HHSR technical working group	N/A
County Support Division	Head, County Support	Oversight of support provided to the counties Member of HHSR room technical working group	N/A
Monitoring & Evaluation	Regional HIV Coordinator	Data user Member of the HHSR technical working group Support stakeholders Create demand for HHSR use at county level	N/A
Monitoring & Evaluation	Regional HIV Coordinator	Data user Member of the HHSR technical working group Support stakeholders Create demand for HSR use at county level	N/A
Procurement	Head, Procurement	Member of the HHSR technical working group	N/A
Monitoring & Evaluation	Data Officer (HQ)	Design dashboards Data user Member of the HHSR technical working group Support stakeholders Training Create demand for SR use at county level	N/A
Monitoring & Evaluation	Regional Data Officers (9 staff)	Design dashboards Data user Member of the HHSR technical working group Support stakeholders Training Create demand for HSR use at county level	N/A

Annex 4: Kenya HHSR (UNAIDS, SISENSE) Usage Analytics Report

Based on a SISENSE usage analytics report pulled on 22 October 2020 reflecting the prior 360 days there were 8 active users (excluding IODParc and IMC Worldwide consultants) that collectively viewed 129 dashboards.

Figure 7: Kenya Screenshot of SISENSE Usage Analytics Report (360 days) as of 22 October 2020

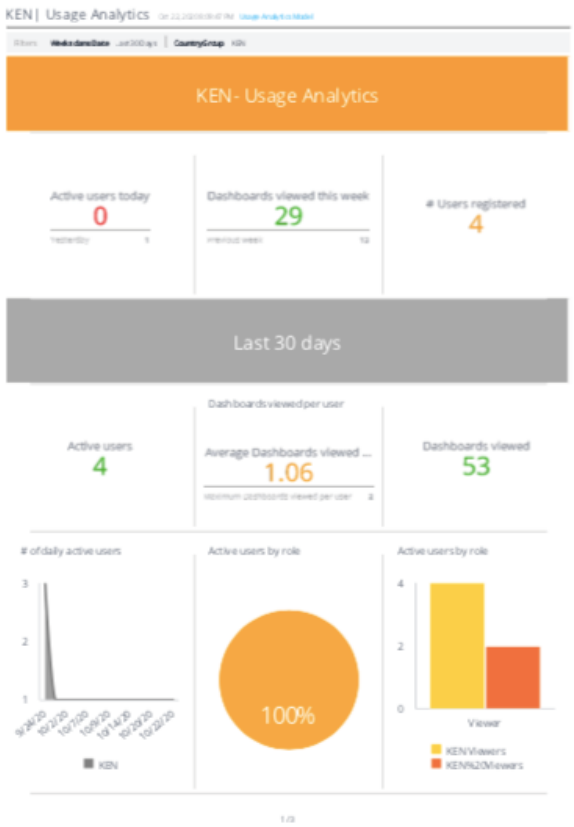


The most visited dashboards in the past 360 days are as follows:

Figure 8: Kenya Screenshot of SISENSE Usage Analytics Report (360 days) as of 22 October 2020

Based on a SISENSE usage analytics report pulled on 22 October 2020 reflecting the prior 30 days, there were no users apart from IOD Parc and IMC Worldwide consultants.

Figure 9: Kenya Screenshot of SISENSE Usage Analytics Report (30 days) as of 22 October 2020



The most visited dashboards in the past 30 days are as follows:

Figure 10: Kenya Screenshot of SISENSE Usage Analytics Report (30 days) as of 22 October 2020

MALAWI

Introduction

The Malawi Health Situation Room (HSR) was launched on 11 April 2019 by His Excellency President Professor Peter Mutharika and rolled out nationally by November 2019. The purpose of the HSR is to 'enable policymakers and programme managers at each level to access relevant health-related data easily and interactively.'[14]

Programmatic introduction

The HSR allows Malawi to pull together different data from a myriad of systems to enable analysis, though currently it works predominantly with the DHIS2. As stated in the launch presentation, the HSR supports Malawian government interventions in the following ways:

> *"By being able to look at them together in the Health Situation Room, we can ask the right questions, improve the quality, and start taking earlier action. By being able to show data from national, district, and facility levels, we can take decisions and note issues, at the level where those belong. Health Situation Room will help us in reaching the targets for Sustainable Development Goals for Health, striving for Universal Health Coverage"*[15]

Malawi HSR user groups

IT/system administrators

The administrators of the HSR are national Ministry of Health and Population (MoHP) project staff (i.e. information system managers or technicians within the Ministry) who administer the backend, including managing users and user groups, adding/editing data in the database, changing indicators, adding/editing dashboards.

Data analysts

The data analysts are national programme staff (i.e. monitoring and evaluation health programme staff). These individuals are staff who produce and manage programme-specific dashboards for analytical purposes for dashboard viewers.

Dashboard viewers

Dashboard viewers are individuals who will access, interpret, and act on the data to improve national health programme activities. As outlined in the Concept Note for Regional Roll Out, these users consist of three main groups – Government of Malawi staff; donors and other partners; and civil society organizations.

[14] Concept note on the regional roll out of Malawi HSR, November 11, 2019.
[15] Malawi HSR launch presentation, Slide 2 April 11, 2019.

Table 4: Malawi HSR dashboard viewers

Malawi HSR User Groups

- National data consumers are expected to act at different levels
  - Policymakers at cabinet level
  - Programme managers at different levels
- National (i.e. within different ministries and special programmes)
- Subnational (i.e. regions/provinces or counties/district)
- Facility level
- Partner agencies and other key stakeholders
  - UNAIDS and other UN agencies supporting health initiatives
  - Other development partners supporting health initiatives (i.e. USG, DfID, SIDA, Norad, JICA, CIDA, Global Fund, BMGF, Gavi etc.)
- Civil society organizations and networks

Acronyms; BMGF = Bill and Melinda Gates Foundation, CIDA = Canadian International Development Agency, DfID = Department for International Development, UK, GAVI = Global Alliance for Vaccines and Immunization, JICA = Japan International Cooperation Agency, Norad = Norwegian Agency for Development Cooperation, SIDA = Swedish International Development Cooperation Agency, USG = United States Government

Malawi HSR governance

Malawi's HSR is led by the MoHP, in the Quality Management and Digital Health Department. Key policies which influence the HSR include the Health Sector Strategic Plan, Monitoring and Evaluation (M&E) and Health Information Strategy (draft), Quality Management Policy for the Health Sector, and the Digital Health strategy (draft), National HIV and AIDS Strategic Plan, National Tuberculosis (TB) Strategic Plan.

Selection of indicators/source of data

The selection of indicators and dashboards for inclusion in the HSR was done by a working group identifying key indicators from the DHIS2, DHAMIS (the HIV database) and other systems, and then prioritizing the indicators. The current indicators in the HSR are based on the different areas of focus of the stakeholders – mainly MoHP, UNAIDS, National AIDS Commission (NAC), GIZ, Kuunika Data for Action. Some data comes from the DHIS2 and other indicator data was acquired from health registers at the facilities and entered into the system on a regular basis.

Day-to-day management

Day-to-day management is led by a technical working group (TWG) made up of MoHP staff and the UNAIDS Strategic Information (SI) Advisor. This team provides technical support to users, designs and improves dashboards, works with UNAIDS in Geneva to add more datasets and users, and manages the COVID-19 daily data updates. This team also works with different stakeholders on identifying new users, new datasets and dashboards, as well as ensuring it is integrated into general ministry policies.

Total cost of ownership

One of the key questions the evaluation team looked at was: what is the total cost of ownership by Malawi in having the HSR? To tackle this question, the evaluation team used the following approach:

1. Identified pre-conditions for a country to have an HSR;
2. Captured all the inputs and resources used specifically for the HSR; and
3. Estimated level of effort (LOE) by key roles in the HSR.

Preconditions and key requirements

Foundational documents (trainings, briefing reports) as well as interviews, outlined some key expectations and requirements for the HSR to work effectively, some of which is still to be developed or addressed.

Table 5: Malawi key expectations and requirements for HSR

HSR Key Requirements
▪ Automated/frequently updated with quality data; ▪ Mobile/accessible visualisations (maps, tables, charts); ▪ Different users have different views/types of data; ▪ Capacity of local users to use data for decision-making; and ▪ Capacity of local designers to create/manage dashboards and data for users.

The points above translate into the need for centralized data sources, such as a DHIS2, that can automatically be fed into the HSR. The data from these sources must be of sufficient frequency and accuracy to populate the HSR.

In addition, the HSR requires commitment from at least one Government of Malawi IT employee to configure and manage the HSR, as well as sufficient capacity within the country to be able to give direction on indicators, data quality and data usage. Finally, the HSR requires that users, especially admin and designers must have ICT devices and basic ICT literacy to be able to access and use the HSR. The design does not include provision of ICT devices or data to users outside trainings and specific events.

Inputs and resources

The following were identified as key inputs and resources currently required to run the HSR. At present, the Malawian HSR is managed by UNAIDS HQ in Geneva, who cover the costs of the SISENSE server, license and ICT labour. However, the plan is for each country to eventually take over the management of their own HSR, meaning they will need to pay the license (approximately US$25,000), a server, a data centre with bandwidth and electricity, as well as labour to maintain it.

Table 6: Malawi key inputs and resources for the HSR

Cost	Approximate amount	Source
TWG labour	See TWG table	Government of Malawi / partner
User labour	3-5 days of training	Government of Malawi / partner
Devices	--	Government of Malawi /Project/BYOD
Technical support	See TWG table	Government of Malawi /Project
Airtime (training)	US$50/ 30 individuals	UNAIDS Country office for year 1
Airtime (access)	US$50 30 individuals	UNAIDS Country office for year 1
Trainer labour	3-5 days of training, plus 3-5 days of prep time. Most trainings had 2 to 3 trainers	UNAIDS Regional Staff / Government of Malawi team
Training facilities	5 days room rental, plus catering, internet	UNAIDS Country Office & Government of Malawi
Training travel	Flights, DSA per trainer	UNAIDS HQ
SISENSE license	US$25,000 per year	UNAIDS HQ Strategic Information team for 1 year, then transition to Government of Malawi
SISENSE server	Unknown cost. However, according to SISENSE documentation, a server and peripherals costing approximately US$3,000 would be sufficient to host the software	UNAIDS HQ ICT team
SISENSE server room/internet	Unknown	UNAIDS HQ ICT team
SISENSE server labour	Approximately 30% of 1 year LOE to configure & 10% to maintain LOE	UNAIDS HQ ICT Team

Technical Working Group Labour

The following table outlines the current make-up of the TWG.

Table 7: Malawi approximate level of effort (LOE) covers start-up vs annual maintenance (start-up %/maintenance %)

Role	Main tasks	Skills required	Approximate LOE
Focal point, programme leadership and support	Coordination of stakeholders, link with programmes, quality management	Data & M&E experience, health informatics experience (MPH or similar degree + experience) SENIOR level	--- / 30%
ICT management	Architecture design and set up, high level oversight of technical delivery, user management, identification and ingestion of indicators, coordinate with UNAIDS HQ ICT team, represent	IT project management, database management, server management (IT degree + experience) SENIOR level	50% / 30%

Role	Main tasks	Skills required	Approximate LOE
	technical requirements for HSR at HMIS TWG		
Programme leadership/support	Coordination & implementation, training of users, user support, support ingestion/QA of data	IT project management, database management, server management (IT degree + experience) senior level	50% / 20%
ICT management	Coordination & implementation, design and ingestion of data, training of users, user support, support ingestion/QA of data	IT project management, database management, server management (IT degree + experience) mid-level	50% / 30%
Data quality, programme leadership	Coordination & Implementation, QA	Data & M&E experience, health informatics experience (MPH or similar degree + experience) SENIOR level	25%
Programme leadership, support	Provide funding, access to system, support coordination efforts	Data & M&E experience, Health informatics experience (MPH or similar degree + experience) SENIOR level	25%

Data Ecosystem

Governance: Government focus on digital health

Over the past decade, Malawi with support from a broad range of donors and partners, has focused on digital health investments to help achieve the national goal of universal health coverage. The MoHP and the Ministry of ICT are the key government leaders on the eHealth investments. Multiple strategies, directorates, and development projects have been designed and implemented to address Digital health, with the most recent development being the 2019–2023 Digital Health Strategy. As stated in the executive summary,

> *Among others, the key benefits for digital health include: Improved visibility into health data and health programme performance to inform managerial action; Greater opportunity to improve patient-focused healthcare provision; Increased space to inform resource allocation and prioritisation with evidence in the face of increasing pressure and competing needs; Greater opportunity to integrate patient data and allow informed patient health care from any service delivery point; Improved capacity to plan, deliver, and manage high-quality healthcare service. (Digital Health Strategy, page 12).*

Information management systems

Malawi has invested in a range of information management systems to track and manage disparate parts of the health ecosystem, including:

- Service delivery (e.g. healthcare, labs, pharmaceuticals, and non-durable medical supplies);
- Human resources, budgets, and other assets (buildings, medical equipment, and other durable supplies);
- Performance and data quality assessment results;
- Vital statistics; and
- Demographic information (age, gender, income, disability, etc.).[4]

Table 8: Malawi health information system subsystems

Data Source	Scope
HMIS	Complete information on preventive, promotive, curative, and rehabilitative health services.
LIMS	Complete information on medical laboratory and diagnostic services.
LMIS	Complete information on medicine and medical supplies.
IHRMIS	Complete information on human resource planning, production, recruitment and administration.
IFMIS	Complete information on budget, expenditure, revenue by major programme component and cost centres.
PAMIS	Complete information on building, medical equipment, vehicles and all other durable supplies and their management.
Rapid Assessments	Information on providers and consumers satisfaction. Data quality assessment and adjustment.
Annual Health Facility Census	All detailed data that are not captured by any of the routine data systems will be captured in the annual health facility census. Age and gender disaggregated data will also be captured in the census.
Surveys	Surveys (such as MDHS MICS, SPA) will cover information on all impact indicators.
Vital Registration	Complete information on births and deaths.
Census	Complete population data with a breakdown of target group for various health programmes.

Source: Malawi National Health Information System Policy

Data standards/interoperability

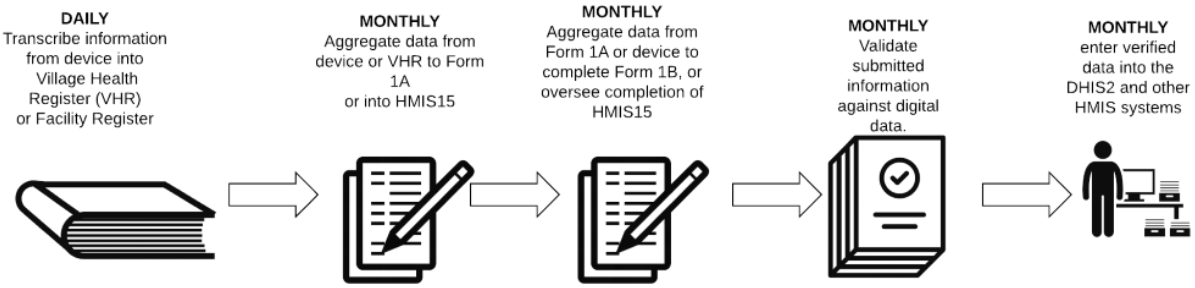
One of the major benefits of digital health systems – and one core underlying requirement for the HSR – is the ability to bring data together across time and location, including across sectors and topics. For example, being able to compare birth delivery outcomes to number of trained providers over a few years can provide insights that would not have been possible if one were to look at each piece of data independently. In order to have this interoperable data, the MoHP has focused on developing and sharing common standards and procedures around indicators, definitions of diagnoses (based on ICD-10 coding), quality management and interoperability of databases. In addition, as digital health opens new potential vectors of privacy and security risks, the MoHP has published standard operating procedures (SOPs) around data security and disaster recovery and breach.

Digital health challenges impacting the HSR

Malawi still faces many significant limitations which potentially impact the success of the HSR or any visualisation. Malawian health systems still strongly **rely on paper-based systems,** especially at the facility/patient level. One factor is the lack of a national comprehensive Electronic Medical Record (EMR) system outside the HIV/AIDS facilities. While there are some facilities using EMRs (for example, according to PEPFAR, all antiretroviral treatment (ART) clinics in Malawi use EMRs), they are not widespread. More importantly, as illustrated by the PEPFAR example, these EMRs are often disease specific (especially for HIV, antenatal clinics (ANC) and out-patient departments (OPD), leading to situations where some facilities will only have digital records for some of their patients, and paper records for others, or have a mix of paper and digital records for the same patient, depending on what disease they have been diagnosed with.

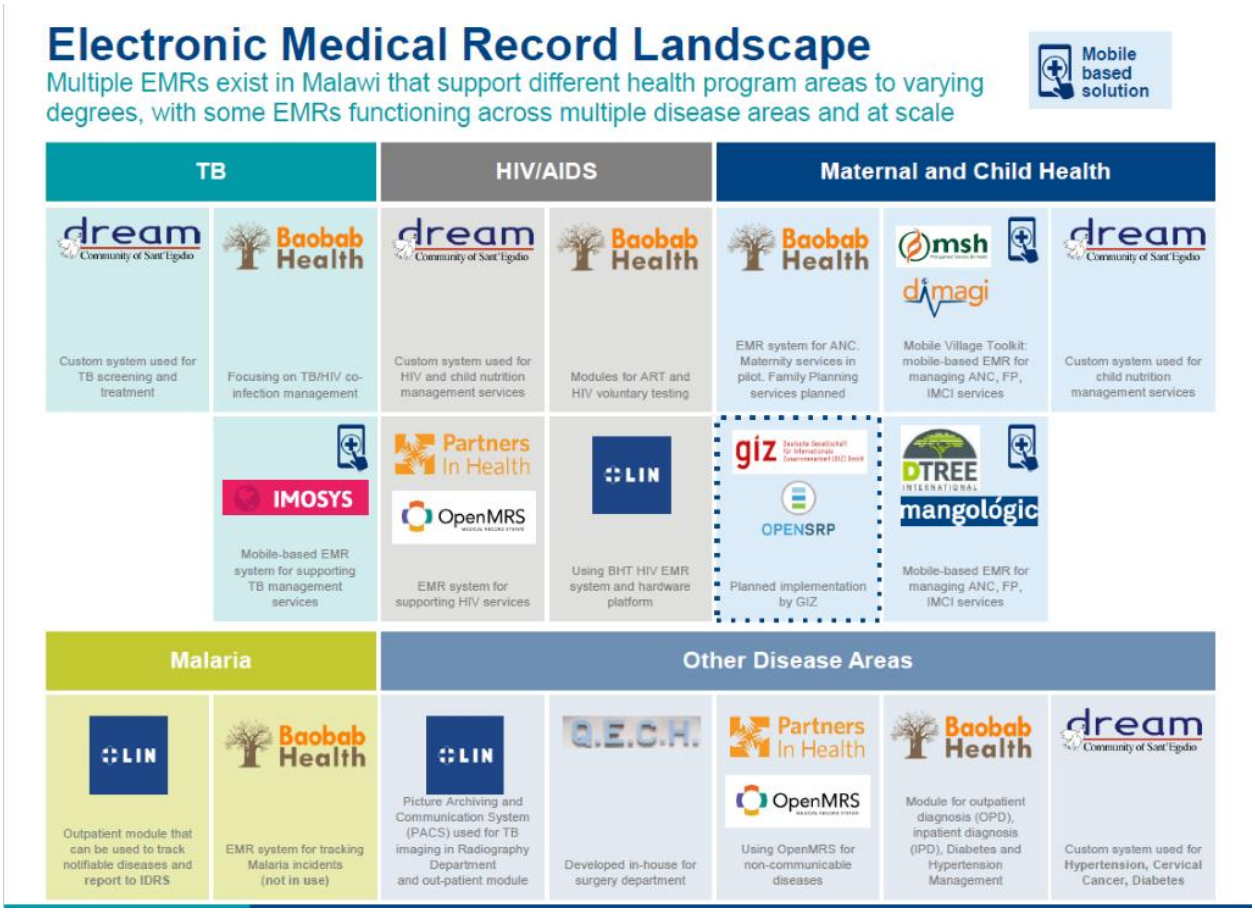
This reliance on paper systems causes backlog in reporting, requires registers to be removed from service delivery, opens up opportunities for errors, and it is hard to perform quality checks without local visits, something that is increasingly challenging due to COVID-19.

Figure 11: Malawi Kuunika Project: 360 mHealth analysis technical deep dive



Secondly, the reliance on donor resources (especially on a disease basis) has led to a lack of sustainability and interoperability of ICT investments in Malawi. Multiple assessments have documented the proliferation of ICT tools in Malawi, resulting in fragmented data and systems.

Figure 12: Malawi Electronic health information landscape (HIS) for HIV and AIDS in Malawi: Vital Wave Assessment 2019, as quoted in the Digital Health Strategy



Other challenges facing digital health in Malawi include connectivity and power issues, especially in rural areas.

Finally, a major issue in Malawi is the lack of integration with non-health activities where there is a health component. For example, the UN-supported Spotlight Initiative was launched in Malawi in 2018. This programme has as one of its goals the improvement of data on sexual and gender-based violence (SGBV) and access to sexual and reproductive health and rights (SRHR) for women and girls. A major initiative includes building of an observation hub at the National Statistics Office to visualise

and present this data in usable formats for different users across Malawi. UNDP hired a team to perform a mapping of different data sources and systems by different ministries (Gender, Malawi Police Commission, MoHP) on sexual and gender-based violence (SGBV) and sexual and reproductive health rights (SRHR) data for decision-making. Neither the UNAIDS team nor the UNDP team were aware of the other programme before this assessment.

Interviewees also mentioned other stakeholders working in health data management in Malawi, including Lighthouse, Luke International, UNFPA, WHO and UNICEF. Several interviewees stated that these other stakeholders should also be involved with the HSR.

Malawi HSR Demand and Usage

Users

As of 12 September 2020, the HSR had 82[16] unique users in the past 360 days. Those users represented the user groups outlined below.

Table 9: Malawi users by role/organizational affiliation

National data consumers (MoHP)	Civil society organizations and networks	Partner agencies
TB programme	Health Improvement Systems Programme (Kuunika)	UNAIDS
Research directorate	Malawi-Liverpool Welcome Trust	PEPFAR (State)
Quality Management Directorate	NAPHAM	Malawi German Health Programme (GIZ)
Central Monitoring and Evaluation Division (CMED)	Right to Care	
Diagnostic Services Unit		
District Health offices (M&E staff, IT staff)		

[16] 87 total users minus 5 users from the UNAIDS Evaluation team. From SISENSE Malawi Usage Analytics (360) dashboard, accessed 13 September 2020.

Demand: most popular dashboards

According to SISENSE user analytics, the most popular dashboards fell into the following topics.

Table 10: Malawi popular dashboards by theme

Dashboard themes	# of dashboards	# users
HIV	65	440
COVID	43	259
SRHMNCAH	24	213
Community health	2	84
Supply chain / commodities	4	71
Home	7	56
Usage	13	23
SGBV	4	12
Facility	2	5
Cholera	2	4
Typhoid	1	3
TB	2	2

Note: the above dashboards are not available to the evaluation team to validate directly.

The HIV/AIDS and – most recently – COVID-19 are the most frequently visited dashboards, based on the user analytics from SISENSE.[17] As can be seen by the side-by-side comparisons of year-to-date vs month-to-date, COVID-19 is the current top-viewed set of dashboards with HIV also viewed very frequently.

Several respondents commented that the HSR has brought in real-time and accurate data access due to frequent updates, especially for COVID-19. Users receive daily email alerts for COVID-19 dashboards which both share the latest numbers in the email, plus prompts users to log into the HSR, which may account for its strong usage over the last few months.

[17] SISENSE usage statistics accessed on 13 September 2020. Note that usage statistics are interpretive as the data pulled from the system included non-Malawi dashboards (such as for other countries), as well as test and individual user dashboards.

Figure 13: Malawi screenshot of usage analytics (360 days) most visited dashboards

Dashboard	# of users
HIV Testing	53
HIV Epidemiological Burden	50
HIV Epidemiological Burden (1)	50
Launch 1: HIV testing	49
Deliveries and Facility Matern...	47
extra 5. MWI | Deliveries (1) (1)	47
Community Health	42
Launch 6: Community Health	42
Cervical Cancer	40
Launch 4: Cervical Cancer	40
3. MWI | PMTCT and EID	38
PMTCT and EID	38
Supply Chain Facilities (Mixed)	33
COVID-19 | Overview	32
HIV Treatment and Gap	32

Most visited dashboards

Dashboard	# of users
_drill_1. COVID-19 - Overview	7
COVID-19 | Overview	7
z_1. COVID-19 - Overview	7
COVID-19 | Overview (1) (1) (1)	5
COVID-19 | Overview (3)	5
HIV Epidemiological Burden	5
HIV Epidemiological Burden (1)	5
z_2. COVID-19 - Overview	5
z_3. COVID-19 - Overview	5
_drill_1. COVID-19 - Overview (3)	3
_drill_2. COVID-19 - Overview	3
_drill_3. COVID-19 - Overview	3
COVID-19 | Overview (1) (1) (1)...	3
COVID-19 | Overview (5)	3
HIV Testing	3

As outlined above, HIV dashboards had the most users over the entire year. However, in the last 30 days, COVID-19-related dashboards (which were added in April 2020) have had the most users, with HIV dashboards second. From the dashboard screen shots seen below, these dashboards present multiple elements of information – total cases, deaths, and case fatality rate in Malawi, and then comparison to other countries in the region. For HIV testing, the dashboard shows number of tests done with percentage change from the previous year, results, and percent positivity, broken out by sex.

Figure 14: Malawi screenshot COVID-19 overview dashboard

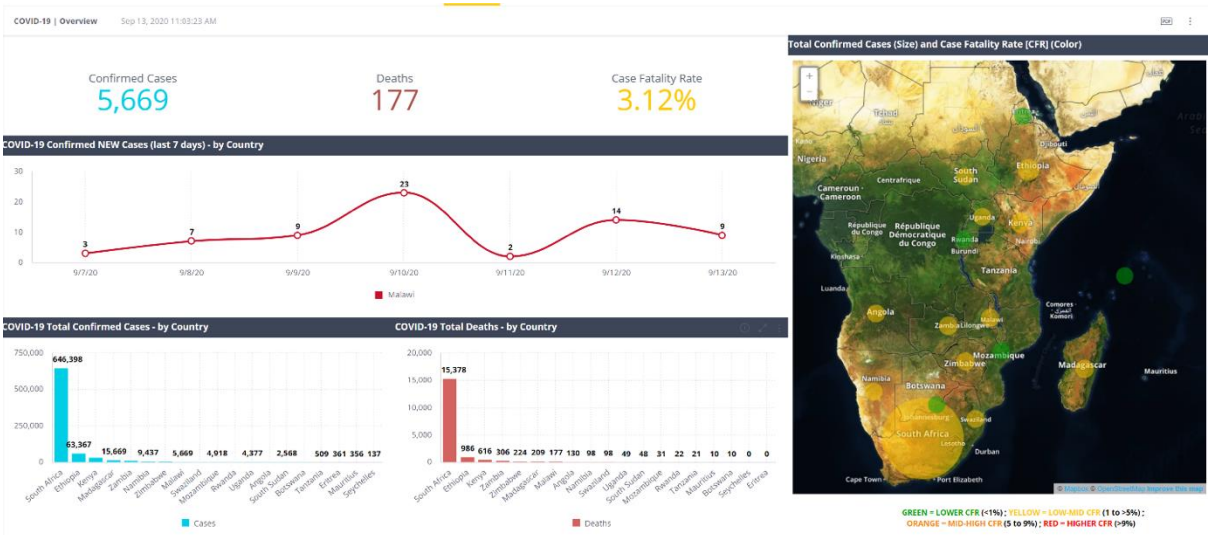


Figure 15: Malawi screenshot HIV testing dashboard (14 September 2020)

Indicators in the Malawi HSR

As of 14 September 2020, there were 64 indicators, most of which were disaggregated by gender (where relevant), age group/adults vs children, and multiple years. The majority of the data is sourced from the DHIS2. Malawi-specific indicators include information on HIV (29) as well as 33 non-HIV indicators on acute respiratory infection (ARI), cholera, dysentery, diarrhoea, malaria, malnutrition, maternity and reproductive health, traffic accidents, and TB deaths. COVID-19 Indicators are captured in a different business matrix and added daily. There are also indicators on usage, such as active users, dashboards visited, number of users registered. This data is displayed in two dashboards (30 days and 360 days). A full list of all indicators and cross reference to the dashboards is available in Annex 1.

Usage of the HSR

Different users accessed dashboards that were useful for their work. HIV organizations (both non-governmental organizations (NGOs) and government) were heavily represented in user groups, unsurprisingly, as they were the first group targeted by the HSR team, along with the high demand for data by HIV programmes. However, different user groups, notably those related to COVID-19 and maternal health, have also used the data for different purposes.

Figure 16: Malawi copy of email received 13 September on 2020 Covid Overview

Programmatic decision-making

HIV

Many users of HIV dashboards stated that they used the data for their programme designs, planning and tracking, as well as collaboration with partners. A government staff member mentioned that HIV indicators are used by top-level staff to implement HIV-related projects. The NAC mentioned that the data from the HSR has been used for cross analysis and that they are currently developing their own HSR dashboard of HIV indicators specifically for its own data needs. A district health officer focused on ART mentioned using the HSR to look at the retention rate with high numbers of defaulters. As a result of the HSR dashboard, this officer consulted the district's working partner to devise joint interventions to track people on ART who transferred to new locations but did not disclose their status and are able to track defaulters.

NGOs also use HSR for programmatic decisions. An HIV-related NGO stated the dashboard information has been helpful in framing its campaign messages with statistical evidence for members. An NGO staff person stated the updated statistical data from the HSR is very necessary in their programming as it helps them determine priorities in their design. Another interviewee suggested that everyone working with HIV and other health topics ought to have at least a basic understanding of the HSR in order to use it in their decision-making.

Other health topics

COVID-19 is an emerging topic that is highly popular, measured by the number of users of dashboards as well as interviewees' comments on the topics. Several interviewees across different health topics mentioned that they need COVID-19 data daily as responses to this fast-moving epidemic require real-time data for different actors to be able to respond, and mentioned how they appreciate the fact that HSR users receive daily email updates from the SISENSE system.

Specific dashboards were also useful for particular user groups on specific topics. For example, members of district nursing and midwifery teams mentioned they have found the maternity dashboard useful on addressing issues of increased pregnancies in young women and girls at the district level. In one case, district staff were able to reach out to youth with sexual and reproductive health (SRH) services to prevent teen pregnancies, which is intended to support the empowerment of the girl-child to ensure that her rights are respected. Interviewees mentioned that the nursing and midwifery teams have also benefitted from the information provided by the HSR as they get updated on the trends of maternal and neonatal deaths.

Proposals and advocacy

An HIV-focused NGO stated that the HSR is very necessary to their organization as it provides statistical data that strengthen their proposals to funders/donors and also help in their advocacy work, rather than making claims that are simply qualitative and may seem unfounded. Another mentioned they use the statistics from the HSR in writing a proposal on a TB-related project.

COVID-19 impact

COVID-19 has had two major impacts on the usage of HSR. Concerns about COVID-19 slowed/changed roll-out and the process of capturing user requirements, both of which have been delayed until October or later. However, at the same time, COVID-19 has increased demand by users for real-time updates on new cases and deaths, and the HSR has provided an easy way to present updates to key users. COVID-19 has also reinforced the need for tools that allow for rapid pivoting and new indicators/dashboards for emerging issues.

Sensitivity of data

All users were asked if the data in the HSR could be considered sensitive (i.e. potentially politically or culturally) or could lead to the harm of populations. Across all respondents, the data is currently not considered sensitive as it is highly aggregated (and not personally identifiable) and cannot identify subpopulations that are stigmatized. A couple of interviewees agreed that if the HSR captured data on SGBV or key populations, this data would have to be reviewed for potential sensitivity.

What other data sources do users utilise outside (or before) HSR?

Before the HSR was introduced, many interviewees mentioned that their access to indicator data (stored in the DHIS2 or DHAMIS) depended on access to hard copy documents and web-based MoHP sources. These data sources, however, lacked online visualizations with real-time data (i.e. when the data is submitted to DHIS2 or other central systems and analytics). One interviewee shared that they had to visit MoHP offices to get access to hard copy documents, (e.g. Malawi Population-Based HIV Impact Assessment (M-PHIA) Reports, and reports from HIV/Department in the MoHP and NAC). Several interviewees mentioned they liked the HSR because it was a ‘one-stop data source’ for much of the data they needed to access frequently, such as ART retention and testing results.

Without the HSR, district health offices shared that they would access some data from quarterly cohort reports from ART clinics, or from the systems of implementing partners [e.g. Luke

International or Elisabeth Glaser Paediatric AIDS Foundation (EGPAF)], though these systems do not analyze or visualize the data like the HSR does. However, some interviewees mentioned that they did not like relying on information provider data as sometimes it was hard to verify or track over time.

Even with the HSR, some interviewees stated they used other online data systems such as the UNAIDS-HIV Financial Aid Dashboard and the amfAR – PEPFAR Country/Regional Operational Plans Database. Other data sources use DHIS2 and the Logistics Management Information System (LMIS). Most said they use these other systems as the data they need is not currently in the HSR, either at all or in a format required.

Apart from relying on DHIS2, the districts reported that they obtain critical information through the health registers at each facility using traditional data collection methods (i.e. collecting aggregated data from health registers on a monthly basis). One example given was data on maternity issues which help them to address cases of neonatal deaths. Health facilities will also report to the districts before the data is entered into DHIS2.

Collaboration and Transparency

Critical stakeholders

Some of the critical stakeholders mentioned during interviews and within the document review library include the Baylor College of Medicine which supports the MoHP on system strengthening in issues of ART/HIV. Stakeholders in the areas of maternal, newborn and child health, thus safe motherhood in general, are USAID Organized Network of Services for Everyone (ONSE), IN-Path, Malawi Red Cross Society, and World Vision International. Key stakeholders for the HSR include the Global Fund, PEPFAR, and the World Bank. I-Tech is also a partner and for its source of data relies on DHIS2.

One of the challenges in Malawi across the entire development field has been stakeholder coordination. As mentioned earlier, often there are multiple projects addressing similar issues, and these project teams are not always aware of each other, especially if they are funded by different donors or work across different sectors or themes. The main methods of collaboration across these different stakeholders usually involve face-to-face meetings where different organizations present their work and accomplishments for discussion and approval. Paper copies of presentations and data reports are the normal form of information exchange.

At the district level, officials may require partners working in their district to register and attend monthly or quarterly meetings with government counterparts and other stakeholders (such as donors, traditional leaders and elected officials). At the national level, TWGs are meant to address these collaboration requirements. All of these collaboration approaches require independently validated data on the current situation, progress against targets, and other forms of accountability.

Information-sharing and decision-making by partners

One NGO interviewee noted that the data from the HSR has been useful in terms of their proposal writings and the advocacy that they take to their various members throughout Malawi as his organization has countrywide membership. The data from the HSR is used during various meetings it conducts with members to inform on status, planning and programming.

One TWG member stated that HSR data is analyzed for senior management, such as policymakers and programme implementers through reports. Dashboards for HIV/AIDS, COVID-19, and pharmaceutical commodities have been of great interest to many stakeholders like the Global Fund

and PEPFAR in terms of planning for stock (drug) ordering in terms of quantities and distributions to facilities.

One district health staff person mentioned that all ART Coordinators, Health Centre In-Charges and Heads of Departments have access to the shared reports from the HSR data which are pulled from the system instead of the previous process of manually compiled documents for sharing quarterly at district meetings. This member of staff mentioned that ideally, this information could be shared with the community members when interventions are to be made, for instance when the statistics show increased malaria cases, or an outbreak of cholera, allowing the health personnel to visit the area with interventions.[18]

Demand for transparency

COVID-19 has increased data demand as many stakeholders (districts, NGOs, donors, national government staff) must stay apprised on the patterns of spread and figures in terms of deaths, new infections and recoveries, and to make critical decisions around precautions and guidance to communities. The district health offices also share this information with their staff at different levels such as with community leaders and chiefs.

Country Ownership and Sustainability

Country ownership

Current management of the HSR

Currently, as the HSR software and hardware is fully managed out of Geneva by the UNAIDS ICT team, Malawi does not have permission to manage the HSR directly. For example, adding new datasets or adding/editing users must be done by Geneva or the UNAIDS regional support person on behalf of Malawi. Creating dashboards by existing users is something that each country is able to do without UNAIDS' support. In addition, for the ICT team in Geneva, limiting to UNAIDS employees the administration management of the software and hardware housed on UNAIDS' servers and network is essential for security and management practices. As a result, Malawi's data is stored in Geneva and managed by UNAIDS employees on behalf of the Government of Malawi.

The reason for this arrangement is due to a combination of historical and programmatic decisions; while transitioning the HSR to local host governments was always a long-term ambition, there has been a lack of concrete planning. The UNAIDS HQ team did provide information to their Malawi counterparts and the UNAIDS country office on what is required for the IT team and equipment to take the HSR forward independently. However, the TWG mentioned that they did not have a roadmap for this transition and were unsure how to proceed. In addition, the UNAIDS HQ team mentioned that SISENSE offers additional ability for Malawi ICT staff to add data to the Malawi HSR; however, the TWG seemed unaware or unfamiliar with this process.

Ownership means full control

Unsurprisingly, a common theme from key informants about country ownership is related to having full access and control over the HSR data, software and hardware. Many key informants felt that Malawi has the ICT capacity to host and manage a system such as SISENSE. For example, the Government of Malawi manages the DHIS2 and other data systems which feed the HSR at a MoHP data centre. One interviewee mentioned that the key members of the TWG already have the skills required to manage the system; a review of the education and background of the TWG seemed to confirm this belief. In addition, it was felt that adding/editing indicators and new data sets would be

[18] Note that the evaluation team did not see data in the HSR capturing this information at the time of the assessment.

a lot easier if the HSR is locally managed; due to the small number of ICT staff at the MoHP, the HSR is likely to be managed by teams that manage the source data systems.

A common definition of country ownership is that the HSR is wholly managed by Malawi personnel within the relevant institutions without restrictions. While the UNAIDS team is acknowledged to be responsive and helpful, many of the HSR managers in Malawi felt they needed to manage the HSR themselves in order to 'own' the system. There was a sense that having the data system managed by UNAIDS creates an uneven relationship with the Government of Malawi which is 'just a user'. As one interviewee pointed out, 'if we can't control functionality unless we seek permission from someone elsewhere, then we aren't owners'.

Other definitions of ownership included exclusive/unlimited responsibilities from framing indicators, data collection, sharing and utilization of the data. For example, one interviewee suggested that institutions such as the National Youth Council of Malawi (NYCOM) should have their own dashboards in the HSR with their own youth-related indicators. The interviewee suggested that different organizations should all have their own indicators (e.g. NAC with indicators on HIV/AIDS, Ministry of Gender with indicators on Gender, etc.).

Intellectual property

The final point made was a growing but uneven concern about data sovereignty related to the location of the data. One member of the TWG identified his concerns about intellectual property and ownership of the data, mentioning growing concerns within the Government of Malawi about data sovereignty on how the HSR provides access to and storage of Malawian data outside Malawi, raising questions about who really 'owns' the data.

Other interviewees outside the TWG, however, did not express concerns about data ownership. One interviewee from the Government of Malawi says he considers that Malawi owns the data as most functions such as setting up indicators and data collection analyses are done by Malawians for the sake of influencing the Government of Malawi's policies. One health professional said they consider that Malawi owns the data by having control over it whilst in its raw form until it is processed and used for planning purposes.

Sustainability

Sustainability intertwined with ownership

Sustainability and ownership were closely linked by many interviewees. Several stated that the two were intertwined as sustainability is commonly defined as continuity of the existing HSR functionalities without donor support. This continuity requires ownership of the programme by the Government of Malawi, including the software and hardware costs.

Continuation without donor support

One interviewee defined sustainability as the smooth running of the health data system without the support of donors once the donors withdraw their funding. He noted that Malawi has problems with data compilation and sharing with different stakeholders as there are only a few known data hubs that all heath stakeholders can easily go to and access. The sustainability of data systems should also take into account the human and technical capacities to meet in-country needs. The HSR cannot be sustainable until there is reduced reliance on partners.

Government of Malawi digital health strategy

Many saw the HSR as part of the larger government movement towards a more centralized digital health strategy, which involves sustainability of the data systems, along with interoperability, and improved usage. Much of the data that could be displayed in the HSR is currently being translated

into digital tools (such as the E-Mastercard EMR system mentioned by one interviewee). Having this digital data automatically generated and shared via an application programming interface (API) or similar to DHIS2 and/or HSR would help build sustainability of the data systems.

Adaptability and management (software and data)

One interviewee defined a sustainable data system as one that allows for modifications to meet existing needs/demands and contains quality and comprehensive data. Another mentioned that they would define the HSR as sustainable if it could be fully managed within Malawi without having limited access to it. Another commented was that there will be a need for new dashboards to be created and new data sets to be added as and when new medical conditions arise (such as COVID-19).

Awareness raising

One interviewee suggested that the media should be an integral partner in promoting awareness of the Health Situation Room and its benefit among not only stakeholders working in the health sector but also the general public. Multiple interviewees mentioned that by raising awareness of the HSR among the general public, the Government is more likely to see the value of investing in it. Others commented that widespread usage and high responsiveness of the system to the needs of Malawi would lead to advocacy and sustainability in the Government.

Metrics of sustainability

Some metrics of sustainability mentioned by stakeholders included ease of access and being used by almost all health stakeholders working on different issues.

Ideal system

Many users had clear ideas on what an ideal HSR system would look like. Key themes included ease of use (including access by mobile phone) to manipulate data and generate reports. Suggestions on more dashboards and email alerts on common diseases was another common theme. Many reiterated the need for real time data from different data sources and no limitations on access, reflecting all health data realities on the ground to properly guide health workers devise the most suitable projects for interventions.

Another theme was data literacy. A perfect data system should also have people with high data literacy to manage the system, generating dashboards that will be accessible and understandable to users who will need to apply the data for key decisions. There was a strong recommendation for training in data literacy capacity to make the most use of the data from the Health Situation Room.

Challenges and Limitations

Missing data/missing dashboards

Several key informants expressed the desire to see more data in the system, and several mentioned they were advocating for additional indicators to be added to the HSR.

HIV indicators

Some examples included HIV indicators on key populations,[19] adolescent youths and young women, which are not currently in the system (although there are gender and age disaggregations for HIV

[19] UNAIDS considers men who have sex with men, sex workers, transgender people, people who inject drugs, and prisoners and other incarcerated people as the five main key population groups that are particularly vulnerable to HIV and frequently lack adequate access to services.
See: https://www.unaids.org/en/topic/key-populations#:~:text=Topics,lack%20adequate%20access%20to%20services.

tests and new HIV infections). There were also requests for additional data on viral load, number of HIV tests undertaken at health facilities, number of youths with access to ARTs, and number of ART defaulters.

For HIV, one district health office staff member suggested that the HSR could track skin conditions as a proxy indicator as skin conditions appear in almost 12 per cent of all HIV/AIDS cases.

Non-HIV indicators

Key informants also noted that malaria and TB dashboards that give real-time updates on cases at district or community levels would be useful. The SISENSE system does list indicators for malaria and TB in-patient deaths, but there does not seem to be data for these indicators in the system and there are no dashboards that the evaluation team could find.[20]

Currently, according to the TB team, the HSR data does not inform TB programming because of this lack of data/dashboards. Lack of TB data in the HSR is a problem considering the high correlation that exists between TB and HIV/AIDS. There have been some meetings of senior staff including supervisors from the Central Monitoring and Evaluation Division (CMED), the Quality Management Department (QMD), and Kuunika to strategize on incorporating a TB dashboard in the HSR.

Several interviewees mentioned that the Ministry of Gender should be contacted so that they can also include additional indicators for vulnerable groups, especially women and girls. While much of the data is already disaggregated by gender and there are female-specific dashboards (cervical cancer, maternal deliveries), several interviewees mentioned that there could be other indicators on SGBV (including child marriage and traditional harmful practices such as sexual initiation rituals which are common in certain parts of Malawi).[21] Other interviewees mentioned that the HSR can also be extended to other ministries whose work has health-related indicators.

Data quality

There are many programmes in Malawi to address data quality (defined as accuracy, completeness, and timeliness), headed by the National M&E TWG. There are meant to be routine checks on the data that is entered into DHIS2 along with clear guidelines and SOPs on when and how to collect and enter this information. However, as this system is still very paper based, delays and errors occur.

Accuracy

Common accuracy issues are: duplication of records/patients; discrepancies between DHIS2 and the health registers; lack of validation/checks for data entry errors; and different instructions on how to calculate some indicators.

A quick review of Malawi HSR dashboards by the evaluation team revealed some data quality issues:

- The HIV Epidemiological Burden Dashboard reports 940,000 people living with HIV (PLHIV) who know their status (2018). The HIV Treatment and Gap Dashboard states that there are 1,058,159 PLHIV (2018). There are no details on how these two figures differ, such as whether these are different indicators or come from different sources;
- The HIV Epidemiological Burden Dashboard reports 810,000 PLHIV on ART (2018) however the HIV Treatment and Gap dashboard states that there are 805,232 PLHIV on ART (2018). There are no details on where these figures are pulled from nor how or why they differ.
- The prevention of mother-to-child transmission (PMTCT) and early infant diagnosis (EID) Dashboard displays percentages of early infant diagnosis among HIV-exposed infants (2018) for

[20] A review of the Malawi business matrix on 13 September 2020 showed that there were three indicators for Malaria (under and over 5s) and TB in-patient deaths, but zeros were listed in 2019 and 2020, with null for all other fields.
[21] The team lead for this assessment was also the team lead for the Spotlight Initiative data mapping assessment on SGBV data.

several districts but another widget in the same dashboard listing the same indicator name states the indicator is "#N/A".

- The Cervical Cancer Dashboard displays the screening positivity rate by district (2019). For Machinga, the dashboard states that 1,840 per cent of HIV+ women screened positive.

Figure 17: Malawi screenshot from cervical cancer dashboard

SCREENING POSITIVITY RATE BY DISTRICT (2019)

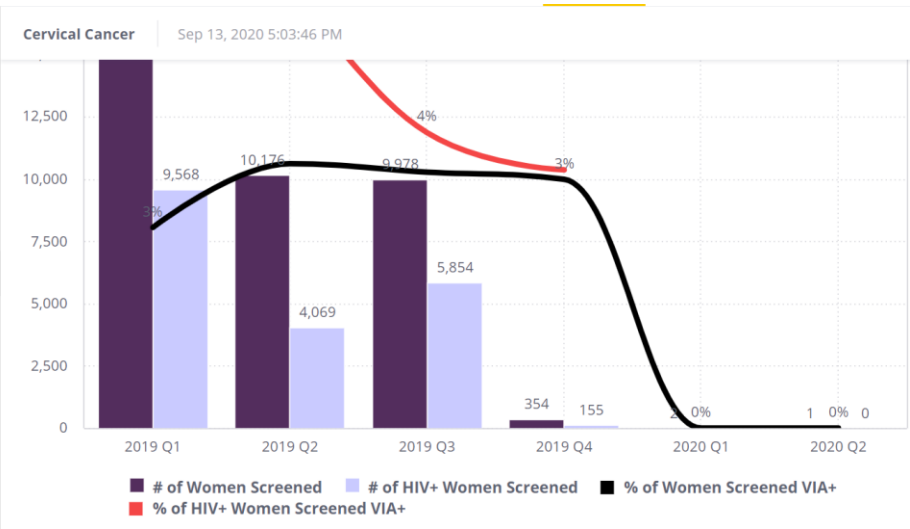
District name	% of Women Screened Positive	% of HIV+ Women Screened Positive
Balaka	0.0%	0.0%
Blantyre	1.8%	6.1%
Chikwawa	0.0%	0.0%
Chiradzulu	1.2%	1.4%
Chitipa	1.3%	2.6%
Dedza	4.6%	3.5%
Dowa	2.2%	1.3%
Karonga	1.5%	2.3%
Likoma	0.7%	1.1%
Lilongwe	3.2%	2.7%
Machinga	9.1%	1,840.0%
Mangochi	3.7%	5.2%
Mulanje	3.4%	10.4%
Mwanza	4.5%	5.5%
Mzimba-Nor...	5.5%	12.1%
Mzimba-Sou...	2.1%	11.7%
Neno	2.3%	3.6%
Nkhotakota	3.2%	4.7%
Nsanje	4.0%	25.0%
Ntcheu	2.7%	4.0%
Ntchisi	2.7%	0.0%
Phalombe	0.0%	0.0%
Rumphi	4.6%	
Salima	7.4%	387.5%

Last Reporting Date
July 2020

Completeness and timeliness

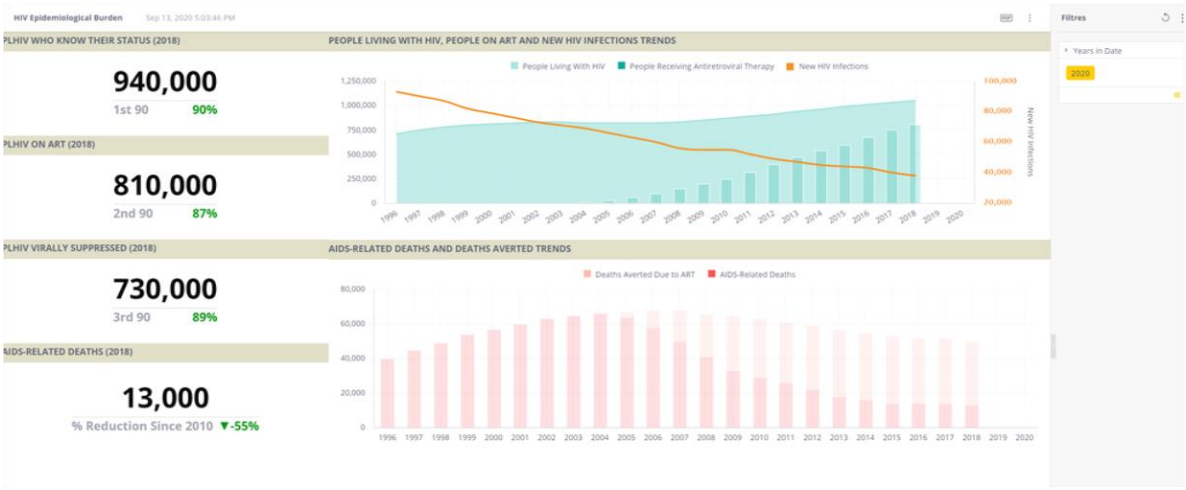
Many of the indicators pulled into the Malawi business matrix have no data for 2020. For example, cervical cancer screening drops off for Q4, despite the page reporting data updated as of July 2020. In addition, some data, like community health, is updated annually and HIV/AIDS is updated quarterly.

Figure 18: Malawi screenshot of cervical cancer visualisation



Finally, many of the visualizations do not clearly indicate which year(s) are being included in the report, or the year indicated is incorrect. In the example below, the titles for each of the numbers include (2018) as the year, but the filter is for 2020. This fact, plus lack of a source of the data, makes it difficult for a user to determine quality of the data.

Figure 19: Malawi screenshot of HIV epidemiological burden



Finally, there was also some confusion among interviewees about the source of COVID-19 data, as it does not come from DHIS2. The business matrix for Malawi was shared with the team via SISENSE; however, it did not list a data source for COVID-19 indicators.

Access to the HSR

Due to current licensing restrictions,[22] Malawi only has 140 licenses. Therefore, as of the time of the evaluation, the TWG provides group accounts for each district and key institution and tries to avoid giving unique user accounts to non-admin or dashboard designer users. In addition, many of the

[22] The Geneva ICT Team has a maximum of 1,000 licenses they can share across all 9 countries and global users. They limit the number of licenses per country as a result.

users of the data do not have direct access to the system (i.e. no username/password) but they receive soft or hard copy versions of the visualizations on a regular basis. Whenever approached for technical assistance on issues such account creation and reactivations, the HSR TWG has to contact UNAIDS Geneva,[23] which controls all of the user management, thus delaying technical support to the district.

Direct users

Many of the interviewees with usernames in the system stated that they do not have challenges with accessing the HSR. Several mentioned that they get emails daily which link to the HSR if they click on it for more information on their phones. One interviewee stated that while he considers the HSR to be user-friendly and not complicated to use, he felt users ought to be tech-savvy to be able to fully engage with the HSR (i.e. to filter and pull more complex reporting).

There is a mobile app but not many people said they used it (the evaluation team ran into issues when trying to access the dashboards via the mobile app). The mobile app requires users to be online in order to log in and access dashboards.[24]

The challenges encountered revolve around lack of internet connectivity at the districts and at facilities. One district health office staff member stated that although their team had received an orientation on the HSR, they have not personally logged in at the district level due to lack of internet connectivity. Difficulties faced by another district included a damaged network receiver and lack of laptops; the desktop machines they have access to do not have Wi-Fi modems, so they cannot even use their own personal internet bundles to overcome the lack of internet provided by the district. Another interviewee mentioned that in their district, there are only two desktop computers within the district health information management section and there is a great deal of competition for access to these.

Several users also stated that they require frequent usage of the system to familiarize themselves with it and to retain their training. Having intermittent access because of lack of internet or devices made it more difficult for them to remember their logins or what the system can do. Data literacy is still growing in Malawi, especially in the districts, and not all health staff have confidence or experience in data. Some interviewed were concerned that the users may not be engaging the data critically (i.e. seeing when there are errors or confusing presentations), but taking the data as is.

Indirect users

Other users said that their access to the data was only via other staff in their offices, primarily the Health Management Information System Officer (HMISO) or M&E officers within their offices. The HMIS staff share the data which they access via printouts from the HSR to all departments at the district level.

One staff member at the district level mentioned that the HMIS Department has computers but staff from other departments – such as nursing – need to be provided with usernames if they are to access the HSR. These potential users may not be aware that the HSR has data that is useful to them if the HMIS doesn't let them know.

The most frequent users of the HSR are the HMISO, the District Health Officer (DHO) and the District Environmental Health Officer (DEHO). This pattern was also seen within civil society organizations, where an M&E or ICT officer was the intermediary for other staff to use the HSR.

[23] Due to licensing restrictions, the Geneva ICT team has said they cannot delegate user account creation to the countries.

[24] The full global report includes an in-depth speed and download test analysis as well as minimum specifications for the mobile applications.

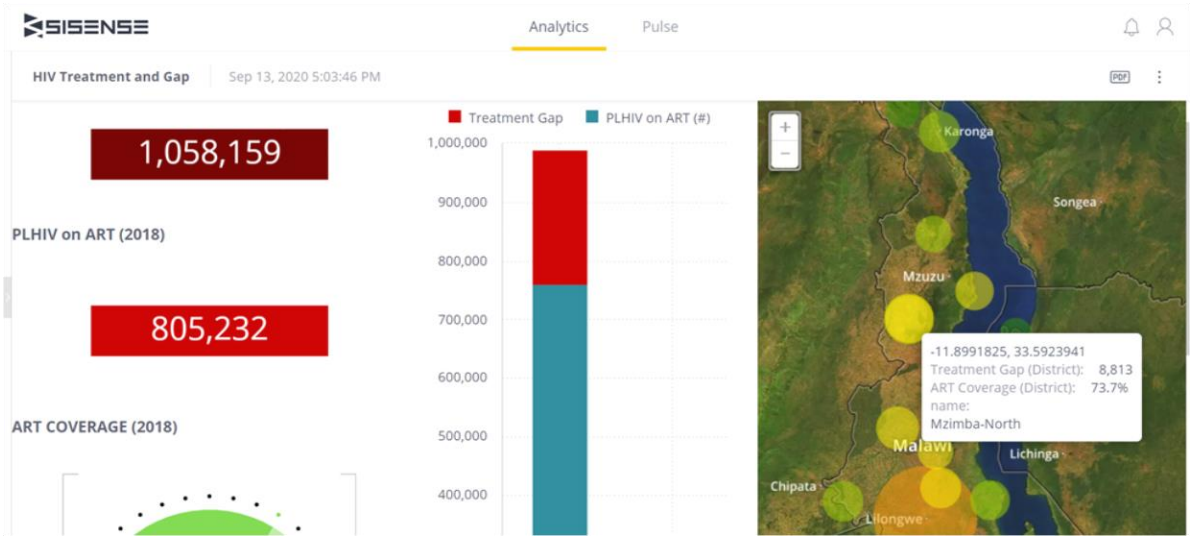
In addition to other access issues, the costs of printing reports from HSR can be a barrier to access when these are to be shared among many concerned stakeholders. While copies can be shared digitally, Malawi is still traditionally paper-based and most sharing is done in hard copy.

Challenges related to indirect access

One district programme staff member said all of his access to the data comes from HMISO who is very helpful, but he would rather have his own access to the data for his own needs. Other users commented that the interactivity of the data –the ability to filter and engage with it for a specific purpose – is lost when someone else prints out the data for you. There is a worry that relying on printouts further exacerbates the lack of critical engagement with the data.

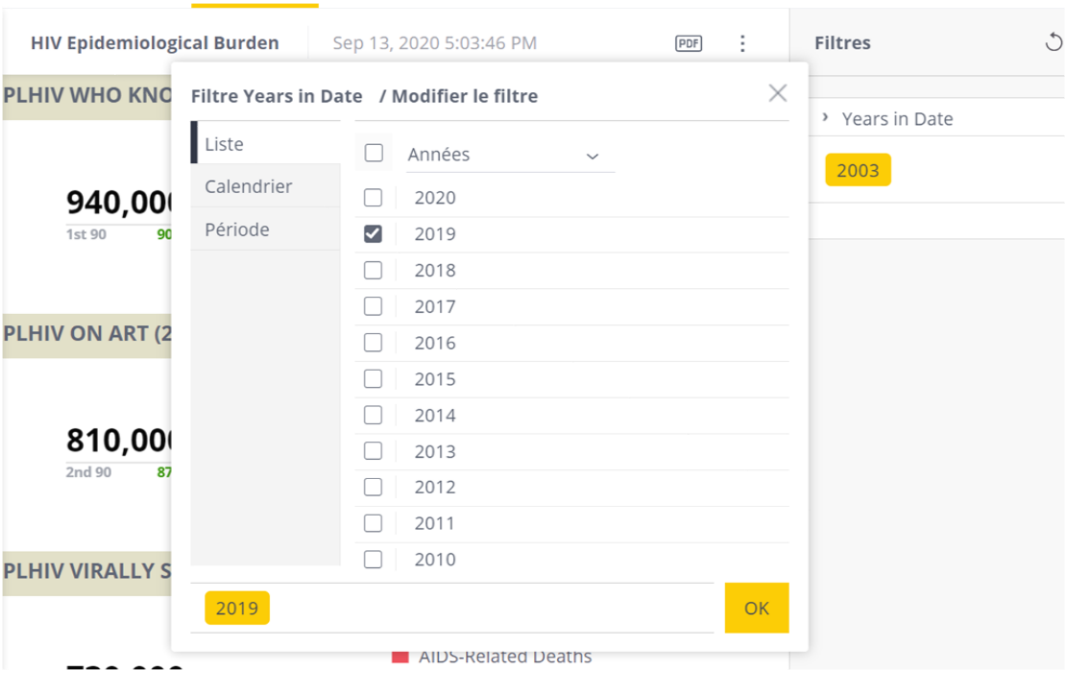
Further to this observation, the team noted that based on a review of the HSR functionality, much of the data is more accessible if a user can engage with the dashboard directly and filter and sort some of the information based on their own needs. As the screenshot below shows, some critical information is hidden until a user hovers over the map.

Figure 20: Malawi screenshot of HIV treatment and gap, with hover-over for Mzimba-North



In addition, much of the data is filterable so that a user can create different reports based on the precise nature of their needs. As the screenshot below shows, the dashboard can show one or multiple years in the data. This interactivity means that much of the richness in the data that the HSR contains is lost when translated into a two-dimensional printout.

Figure 21: Malawi Screenshot of HIV epidemiological burden with filters available by date



Collaboration and transparency

New users and expanding access for improved collaboration

Several individuals interviewed recommended that awareness and usage of the HSR can be increased by outreach to HIV and other health organizations. For example, one interviewed organization is an umbrella body with access to the HSR. However, its member groupings do not have access to the HSR due to limited licenses as well as a lack of equipment such as computers and services such as internet and electricity at district levels where the member and community-based organizations, operate from. Assuming that barriers around devices, internet, and electricity can be overcome, these members would benefit from direct access to the data in the HSR.

Transparency

Several individuals mentioned that the HSR is not well known and therefore there is a lack of transparency around who gets access to this system. Stakeholders expressed that the HSR was too exclusive and hindered transparency as it required usernames and passwords to access data which they felt were not sensitive in nature.

Public awareness

There are concerns that much of the data in the HSR should be made available to the broader community for different purposes, such as sensitization or public awareness. Several interviewees called to create public awareness of the HSR – and the data contained in it – as most of the population is unaware or does not have the ability to access data in the HSR. One interviewee mentioned that students, including academic health institutions, should also have access to it.

Several respondents mentioned that increased publicity around HSR data (which should also be in vernacular) could be shared via newspapers, radio advertisements, or create a free application which ordinary citizens can download, install, and access from their phones for free. Several interviewees suggested that grass-roots-level access to the HSR in rural health centres should be part of long-term planning so that members of the community could access information on the health status and the performance of their community health systems.

Sustainability and country ownership

Data sustainability

Several respondents mentioned that they believed the HSR will be fully sustainable if all other systems such as the DHIS2 and the Logistics MIS are integrated and fed directly into the HSR. A perfect HSR will be one that is empowered from the district levels so that the district focal personnel of the HSR can enter data at district level (if not automated by EMRs) and is immediately reflected in the HSR. Streamlining the data collection processes in the country will also help with the sustainability of the HSR.

One interviewee mentioned that some of the data currently in the HSR is entered directly and is not stored in DHIS2, which is a concern for sustainability of the data. Therefore, if the HSR ceases to exist, certain maternal, neonatal and child health data would no longer be available alongside the DHIS2. Another interviewee mentioned that HSR cannot be sustainable until there are technical users with (especially in the districts) accessible ICT devices and uninterrupted internet connections.

Software licensing

Many interviewees mentioned concerns about the hosting and licensing costs, as currently these are completely covered by UNAIDS. Several were concerned that the Government of Malawi may be unable or unwilling to cover these costs once UNAIDS no longer pays for them. Many agreed that the MoHP may reorient priorities towards clinical care vs paying for the license costs. However, one interviewee mentioned that different donors may decide it is in their best interests to continue to support the HSR by contributing the licensing fees and maintaining the infrastructure together with the Government of Malawi to make the system sustainable.

Another interviewee stated that these data systems must not only be developed by foreign consultants who are only employed for the trials, adoption and implementation by the Government of Malawi. He said that the Government of Malawi must groom experts to work on these data systems as there is already a pool of young and skilled graduates available in the country. One interviewee commented that if the Government of Malawi funded the development of a software system, they would retain intellectual property rights for the software, which would lead to greater sustainability due to lower licensing costs. However, there was no mention by interviewees of a cost-benefit analysis of building vs buying a proprietary system or using an open-source platform.

Conclusions

The following are the key conclusions from the Malawi case study which lead to recommendations for the Government of Malawi (especially the HSR Technical Working Group), UNAIDS, and other stakeholders.

Addresses a Major Issue in Malawi – Proliferation of MIS

The HSR is well timed for Malawi as the country is also in the process of streamlining and centrally managing its digital health systems (a key component of the success of any data visualization tool). The HSR meets a need currently identified by different stakeholders – a way to pull data from different systems together into a unified and easy-to-access tool that helps make the information more accessible and understandable to different users.

Wide level of buy-in to the HSR

Malawi has seen much enthusiasm for the HSR since the presidential launch in April 2019. Senior leadership has approved the activity and there has been participation across the different levels of decision-making (from policymakers to district level implementers). Civil society organizations,

especially the PLHIV groups, have been involved from the start and are actively using the data from the HSR for their programmatic goals. Enthusiasm has slowed due to COVID-19 which has led to the delay of a widespread training and information gathering session, however the system has also gained traction as it produces specific COVID-19 reporting for all users.

HSR infrastructure is well developed after a year

Despite COVID-19, the Malawi team has a well-developed infrastructure for the HSR, including governance working group, established a core set of dashboards, technical support to users for their accounts, and active users. The team has plans for expanding the number of indicators and dashboards as well as adding new users to the group.

No metrics, theory of change, or broader strategy approach

Currently there are no metrics for the HSR, no official theory of change, nor is a broader strategic approach envisaged for the HSR in Malawi.

Small but active user base

While the absolute numbers are not high, the HSR is being used by a wide group of users looking at multiple dashboards on an ongoing basis. Unsurprisingly, HIV and COVID-19 are the top two dashboard topics used but other dashboards are also well used. More dashboards and more indicators are sought by these users to inform decision-making. Three major barriers to expanding access are: limited numbers of licenses; limited number of ICT devices available to district staff; and poor internet connectivity.

HSR usability and literacy challenges

Interviewees and the team both noted concerns about data quality and data use. None of the users interviewed mentioned data quality as a barrier to their usage, despite the team finding obvious errors in several of the reports. The team also expressed concern that some of the visualizations were misleading or hard to understand, as they did not provide sources or correct dates for the data.

HSR supports collaboration and transparency

Collaboration and transparency are seen as highly important across all interviewees. There is strong support for the use of the HSR to promote both (especially accountability of partners and facilities for service delivery). However, both are curtailed by the access limitations outlined above.

Public access to and awareness of the HSR data was widely supported

Many interviewees strongly supported some level of public access to the HSR or at least the data within it for public accountability. Access to information on COVID-19 was given as an example of increased demand for data by communities and traditional leaders.

Country ownership means full management of the HSR

Many interviewees do not feel that Malawi has full 'ownership' of the HSR due to their limited ability to manage it at an administrative level. The consensus is that Malawi has the ICT capacity to manage software/hosting, but perhaps not the financial ability. This lack of ownership is seen as hindering sustainability. However, full ownership (including covering the licensing costs) is also seen as a challenge to sustainability as Malawi may not be able to afford the costs in the long term.

Sustainability means continuity without UNAIDS

As part of the transition plan of the HSR to the Government of Malawi, it is expected that UNAIDS eventually will stop paying or providing for the HSR, and therefore the definition used by many interviewees is continuity of the system without UNAIDS support. Interviewees expressed that sustainability is primarily achieved by the Government agreeing to pay for the license, though other options of developing software locally or getting other donors to fund the software were also discussed. As noted above, some interviewees acknowledged that the Government's ability to pay for hard costs (i.e. foreign currency) vs local currency or labour was not strong, meaning that donor support for host costs may be required to build sustainability.

It is important to note that interviewees did not mention other sustainability elements, including data governance, the ability to identify usability and user groups, and design complex data transforms. They also did not mention whether there were sufficient staff within the MoHP to manage the HSR. These elements will need to be taken into account in any transition plan.

Considerations for the future

Create a long-term plan for the HSR

It is recommended that the Malawi team should develop a long-term (such as a five-year) plan for a Malawi visualization programme such as the HSR. It should be platform-agnostic (but take into account the current HSR) in order to address sustainability and ownership. Ideally, one of the outcomes of the long-term plan will be a platform similar to the situation room hosted and managed by the Government of Malawi. The plan should include the roadmap and key indicators for success for this transition.

While five years may seem long for an information technology plan, most of the elements for a successful ICT implementation will take time – such as improved data quality, data interoperability standards, and data literacy training. Having the plan be platform-agnostic allows it flexibility and the ability to change based on the technology requirements.

Create a theory of change and metrics

As part of the five-year plan, Malawi needs to establish a theory of change and associated metrics around the HSR. Notably, the programme should address how the HSR will lead (directly or indirectly) to improved health outcomes. Key metrics sourced from a combination of user logs and perception surveys should be used to track day-to-day performance as well as long-term impact.

Improve literacy and usability

The five-year plan should explicitly address data literacy and usability, and include capacity building in human-centred design of the visualizations and reports. The core team needs a better understanding of how users interpret data, formats that are conducive for understanding, and ways to make the data engaging and easier to understand.

Link with other digital health strategy programmes

Malawi has a plethora of digital health programmes at the moment, including those focused on quality performance improvement, data quality improvement, and so on. By integrating and linking with these other programmes, the HSR can benefit from their work. For example, there are programs targeting improved usage of data in health facilities and districts; using the HSR as part of that initiative would allow them to leverage the HSR's capacity as well as provide the HSR with crucial feedback and usage for improvement of data and presentation of data. This recommendation

includes both policy elements as well as implementation elements, as often these programs are managed by different parts of the Ministry of Health and Population, implemented by different partners, and funded by different donors.

Create an outreach and promotion plan

As part of the five-year plan, the HSR needs an explicit outreach and promotion plan, including how to link the HSR with the general population outreach programmes. In addition, building user communities around the HSR to support transparency and collaboration can be an explicit part of the plan.

Annex 1: Malawi Dashboards

Available Folders and Dashboards

The evaluation team was given permission to view the following folders and dashboards of the Health Situation Room in Malawi:[25]

Table 11: Malawi available folders and dashboards[26]

Folder	Dashboard	Created	Last Modified
Community Health	Community Health	8 April 2020	8 September 2020
COVID-19	COVID-19 | Overview	28 April 2020	8 September 2020
COVID-19	z_1. COVID-19 – Overview	28 April 2020	8 September 2020
COVID-19	z_2. COVID-19 – Overview	28 April 2020	30 July 2020
COVID-19	z_3. COVID-19 – Overview	28 April 2020	2 August 2020
HIV/AIDS	HIV Epidemiological Burden	24 October 2019	8 September 2020
HIV/AIDS	HIV Testing	5 April 2019	8 September 2020
HIV/AIDS	HIV Treatment and Gap	5 April 2019	8 September 2020
HIV/AIDS	PMTCT and EID	27 June 2019	8 September 2020
SRMNCAH	Cervical Cancer	8 April 2019	8 September 2020
SRMNCAH	Deliveries and Facility Maternal Mortality Rate	26 September 2019	8 September 2020
Supply Chain/ Commodities	Supply Chain Facilities (Mix)	9 April 2019	18 August 2020

Acronyms: EID = early infant diagnois, PMTCT = prevention of mother-to-child transmission, SRMNCAH = sexual, reproductive, maternal, newborn, child and adolescent health

An accounting of all dashboard indicators for which the evaluation team had access is available below.

Data regarding dashboards visited was also made available to the evaluation team and revealed several dashboards that were unavailable to the evaluation team on SISENSE during the period of the evaluation. These included:

- 90-90-90 HIV Treatments
- COVID-19
- COVID-19
- COVID-19 | Overview (1) (1) (1)
- COVID-19 | Overview (3)
- COVID-19 overview
- DS-TB
- extra 5. MWI | Deliveries (1) (1)

[25] Due to the way permissions are managed, it is not possible for the evaluation team to get a complete list of all dashboards. However, the user analysis performed by the Team identified what we assume are the majority of them.

[26] Information presented as of 12 September 2020. In addition, the created and last modified dates are based on information presented in the SISENSE system. The team has subsequently learned that sometimes "creation and modification" dates are shifted when ownership of a dashboard is changed, which is often done for access management.

- HIV Epidemiological Burden (1)
- HIV Test
- HIV Test By Age Group (1)
- HIV test by age group
- HIV test by age group (1)
- HIV Testing (1)
- InnoToT
- Launch 0: MWI HSR Homepage
- Launch 1: HIV testing
- Launch 2: HIV Treatment and Gap
- Launch 4: Cervical Cancer
- Launch 6: Community Health
- Launch 8: Supply Chain Facilities (Mixed)
- MWI – COVID-19 by districts
- MWI delegation test
- MWI delegation test – ART
- MWI delegation test – Logistics
- MWI Homepage (% size)
- MWI-Covid19- Overview
- N/A
- Sample – Healthcare
- Sample – Healthcare (1)
- SR usage – This week
- TOT test (1)
- ToTTest

A full use and user analysis is provided in the body of the Malawi case study, however, this annex offers an overview of usage in table format:

Table 12: Malawi usage by dashboard[27]

Folder	Dashboard	No. of visits	No. of unique visitors	User group
Community Health	Community Health	9	4	MWI DHO viewers, MWI data designers, MWI viewers
COVID-19	COVID-19 | Overview	46	18	MWI DHO viewers, MWI data designers, MWI viewers, MWI partners viewers
COVID-19	z_1. COVID-19 – Overview	13	9	MWI DHO viewers, MWI data designers, MWI designers, MWI viewers
COVID-19	z_2. COVID-19 – Overview	9	7	MWI DHO viewers, MWI data designers, MWI designers, MWI viewers
COVID-19	z_3. COVID-19 – Overview	6	5	MWI DHO viewers, MWI data designers, MWI designers, MWI viewers
HIV/AIDS	HIV Epidemiological Burden	4	4	MWI designers, MWI viewers, MWI partners viewers
HIV/AIDS	HIV Testing	13	8	MWI DHO viewers, MWI data designers, MWI viewers
HIV/AIDS	HIV Treatment and Gap	2	2	MWI designers, MWI viewers
HIV/AIDS	PMTCT and EID	4	3	MWI data designers, MWI designers, MWI viewers
SRMNCAH	Cervical Cancer	6	4	MWI DHO viewers, MWI data designers, MWI viewers

[27] Note that this data covers 1 May 2020 through 12 August 2020.

SRMNCAH	Deliveries and Facility Maternal Mortality Rate	10	6	MWI DHO viewers, MWI data designers, MWI viewers
Supply Chain/ Commodities	Supply Chain Facilities (Mix)	6	4	MWI DHO viewers, MWI data designers, MWI viewers

Acronyms: DHO = District Health Officer, EID = early infant diagnois, MWI = Malawi, PMTCT = prevention of mother-to-child transmission, SRMNCAH = sexual, reproductive, maternal, newborn, child and adolescent health

Dashboard Data Review

The evaluation team performed an in-depth review of the data available on the two most-visited dashboards (COVID-19 | Overview and HIV Testing[28]) between 1 May 2020 and 12 August 2020, with an eye to raise any data quality concerns based on information available in the dashboards.

The COVID-19 | Overview (with 46 views and 18 unique visitors) and the HIV Testing (with 13 views and 8 unique visitors) did not exhibit any obvious data quality issues (based on data available to evaluation team).

Dashboard Indicators

Dashboard indicators[29] were gathered in two ways: by reviewing each dashboard that the evaluation team had access to and by pulling indicators included in the live business matrix dashboard for Malawi in SISENSE.

[28] Note that the HIV testing dashboard tied with z_1. COVID-19 – overview dashboard. The evaluation team chose to perform an in-depth review of the HIV testing dashboard so that two different folders within the situation room were represented.
[29] These indicators were pulled from the live business matrix available on SISENSE on 18 August 2020.

Table 13: Malawi list of indicators, data source and location

Indicator available on Sisense dashboard(s) **and** listed in live business matrix in SISENSE

Indicator **only** available on SISENSE Dashboard(s)

Indicator **only** available in live business matrix on SISENSE

Indicator Name	Dashboard	Data Source	Available on SISENSE Dashboard(s)[30]	Listed in live Business Matrix in SISENSE[31]
Population to HSA Ratio	Community Health	Data source not listed on SISENSE.	✓	
HSAs Living in Catchment Area	Community Health	Data source not listed on SISENSE.	✓	
HSAs with Functional Pushbikes	Community Health	Data source not listed on SISENSE.	✓	
HCMCs Formed & Oriented	Community Health	Data source not listed on SISENSE.	✓	
COVID-19 TOTAL Confirmed Cases – by Country (DAILY TREND OVER TIME)	COVID-19| Overview	Data source not listed on SISENSE.	✓	
COVID-19 Deaths – by Country (WEEKLY TREND OVER TIME)	COVID-19| Overview	Data source not listed on SISENSE.	✓	
COVID-19 Case Fatality Rate [CFR] – by Country (WEEKLY TREND OVER TIME)	COVID-19| Overview	Data source not listed on SISENSE.	✓	
COVID-19 Confirmed NEW Cases (last 7 days) – by Country	COVID-19| Overview	Data source not listed on SISENSE.	✓	
COVID-19 Total Confirmed Cases – COVID-19 Total Deaths – by Country	COVID-19| Overview	Data source not listed on SISENSE.	✓	
COVID-19 TOTAL Confirmed Cases – by Country (DAILY TREND OVER TIME)	z_1. COVID-19 – Overview	Data source not listed on SISENSE.	✓	
COVID-19 Deaths – by Country (WEEKLY TREND OVER TIME)	z_2. COVID-19 – Overview	Data source not listed on SISENSE.	✓	
COVID-19 Case Fatality Rate [CFR] – by Country (WEEKLY TREND OVER TIME)	z_3. COVID-19 – Overview	Data source not listed on SISENSE.	✓	
Acute respiratory infections – in-patient deaths (U5)	Not present in Malawi SISENSE dashboards.	DHIS		✓
Cholera – in-patients deaths	Not present in Malawi SISENSE dashboards.	DHIS		✓
Diarrhoea non -bloody (under 5) – in-patient deaths	Not present in Malawi SISENSE dashboards.	DHIS		✓
Dysentery- in-patients deaths	Not present in Malawi SISENSE dashboards.	DHIS		✓
TB – in-patient deaths	Not present in Malawi SISENSE dashboards.	DHIS		✓

[30] These are indicators shown in the dashboards for which the evaluation team was given access.
[31] These are indicators listed in the MWI | business matrix last updated 12 September 2020, available on SISENSE.

Indicator Name	Dashboard	Data Source	Available on SISENSE Dashboard(s)30	Listed in live Business Matrix in SISENSE31
Total number of in-patient deaths from all causes (excluding maternity)	Not present in Malawi SISENSE dashboards.	DHIS		✓
Malaria – in-patient deaths under 5	Not present in Malawi SISENSE dashboards.	DHIS		✓
Malaria – in-patient deaths (5 & over)	Not present in Malawi SISENSE dashboards.	DHIS		✓
Malnutrition – in-patient deaths (under 5)	Not present in Malawi SISENSE dashboards.	DHIS		✓
No . of road traffic accidents – in-patient deaths	Not present in Malawi SISENSE dashboards.	DHIS		✓
Number of direct obstetric deaths in facility	Not present in Malawi SISENSE dashboards.	DHIS		✓
Deliveries by skilled attendants (2019)	Deliveries and Facility Maternal Mortality Ratio	Data source not listed on SISENSE.	✓	
% skilled deliveries (2019)	Deliveries and Facility Maternal Mortality Ratio	Data source not listed on SISENSE.	✓	
Facility maternal mortality ratio (2019)	Deliveries and Facility Maternal Mortality Ratio	Data source not listed on SISENSE.	✓	
RMNCAH - # deliveries in health facilities	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNACH - # delivery place this facility	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # expected deliveries	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # fresh still births	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # maternal deaths	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # obstetric complications	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # staff conducting delivery	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # total live births	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # total population	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # ANC 1st Visit ART Status of mother	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # ANC New Women Registered	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # ANC Visits per Woman (4+visits)	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # ANC Visits per Woman All	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNACH - # ANC week of first ANC visit	Not present in Malawi SISENSE dashboards.	DHIS		✓

Indicator Name	Dashboard	Data Source	Available on SISENSE Dashboard(s)30	Listed in live Business Matrix in SISENSE31
RMNCAH - # women antenatal care visits	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # breastfeeding initiated	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # newborn survival/PMTCT alive still/fresh	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # reason for visit initial VIA	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # results initial VIA positive	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # VIA results suspect cancer	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # women on ART	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # women screened for cervical cancer	Cervical Cancer	DHIS	✓	✓
RMNCAH - # women tested VIA positive	Cervical Cancer	DHIS	✓	✓
Cervical cancer screening coverage among all women (2019)	Cervical Cancer	Data source not listed on SISENSE.	✓	
Cervical cancer screening coverage among HIV+ women (2019)	Cervical Cancer	Data source not listed on SISENSE.	✓	
Screening positivity rate by district (2019)	Cervical Cancer	Data source not listed on SISENSE.	✓	
# of HIV+ women screened	Cervical Cancer	Data source not listed on SISENSE.	✓	
% of women screened VIA positive	Cervical Cancer	Data source not listed on SISENSE.	✓	
% of HIV+ women screened VIA+	Cervical Cancer	Data source not listed on SISENSE.	✓	
RMNCAH - # women who received three doses of IPT	Not present in Malawi SISENSE dashboards.	DHIS		✓
RMNCAH - # women with suspect cancer	Not present in Malawi SISENSE dashboards.	DHIS		✓
AIDS Orphans	Not present in Malawi SISENSE dashboards.	Estimates		✓
HEI - # Alive on ART	Not present in Malawi SISENSE dashboards.	DHIS		✓
HIV - # HIV Status 1st Visit	Not present in Malawi SISENSE dashboards.	DHIS		✓
HIV tests done (including % change from past year)	HIV Testing	Data source not listed on SISENSE.	✓	
HIV - # HIV tests done by age group	HIV Testing	DHIS	✓	✓
HIV - # HIV tests done by sex	HIV Testing	DHIS	✓	✓

Indicator Name	Dashboard	Data Source	Available on SISENSE Dashboard(s)30	Listed in live Business Matrix in SISENSE31
HIV testing positivity (including % change from past year)	HIV Testing	Data source not listed on SISENSE.	✓	
HIV - # HTC positive samples	Not present in Malawi SISENSE dashboards.	DHIS		✓
HIV+ test results	HIV Testing	Data source not listed on SISENSE.	✓	
HIV - # HTC Result Given To Client	Not present in Malawi SISENSE dashboards.	DHIS		✓
AIDS-related deaths	HIV Epidemiological Burden	Estimates	✓	✓
Deaths among people living with HIV (all causes)	HIV Epidemiological Burden	Estimates	✓	✓
Deaths averted due to ART	HIV Epidemiological Burden	Estimates	✓	✓
Early infant diagnosis	Not present in Malawi SISENSE dashboards.	Estimates		✓
Early infant diagnosis among HIV-exposed infants	PMTCT and EID	Data source not listed on SISENSE.	✓	
Gap to reaching the target number of people receiving ART	Not present in Malawi SISENSE dashboards.	Estimates		✓
Gap to reaching the target number of people who know their status	Not present in Malawi SISENSE dashboards.	Estimates		✓
Gap to reaching the target number of people with viral suppression	Not present in Malawi SISENSE dashboards.	Estimates		✓
Mother-to-child transmission rate	Not present in Malawi SISENSE dashboards.	Estimates		✓
ART Coverage	HIV Treatment and Gap	Data source not listed on SISENSE.	✓	
ART Coverage by Adult vs Child	HIV Treatment and Gap	Data source not listed on SISENSE.	✓	
New HIV Infections	HIV Epidemiological Burden	Estimates	✓	✓
New HIV Infections averted due to PMTCT	Not present in Malawi SISENSE dashboards.	Estimates		✓
People living with HIV	HIV Epidemiological Burden AND HIV Treatment and Gap	Estimates	✓	✓
People living with HIV who have suppressed viral loads	HIV Epidemiological Burden	Estimates	✓	✓
People living with HIV who know their status	HIV Epidemiological Burden	Estimates	✓	✓
People newly-initiating ART		Estimates		✓
People receiving antiretroviral therapy (business matrix)	HIV Epidemiological Burden	Estimates	✓	✓

Indicator Name	Dashboard	Data Source	Available on SISENSE Dashboard(s)30	Listed in live Business Matrix in SISENSE31
(listed as 'People living with HIV on ART' in the SISENSE dashboard.				
HIV+ pregnant women needing ART (2018)	PMTCT and EID	Data source not listed on SISENSE.	✓	
Pregnant women needing ARV for preventing MTCT	Not present in Malawi SISENSE dashboards.	Estimates		✓
Pregnant women who received ARV for preventing MTCT	Not present in Malawi SISENSE dashboards.	Estimates		✓
ART coverage among HIV+ pregnant women (2018)	PMTCT and EID	Data source not listed on SISENSE.	✓	
Twelve month retention on antiretroviral therapy	Not present in Malawi SISENSE dashboards.	Estimates		✓
HIV test kits - # of stockout days by districts and facilities	Supply Chain Facilities (Mixed)	DHIS	✓	✓
# HIV determine HIV ½ rapitt kit stock out days	Not present in Malawi SISENSE dashboards.	DHIS		✓
# HIV determine syphilis stock out days	Not present in Malawi SISENSE dashboards.	DHIS		✓

Annex 2: Malawi Evaluation Interviewees

Name	Organization/Affiliation	Department	Position
Nuha Ceesay	UNAIDS	UNAIDS, Malawi	Country Director
Boaz Cheluget	UNAIDS	SI advisor/project manager, Malawi	Strategic Information Adviser
Kennedy Kanyimbo	GoM	Ministry of Health	Situation Room focal point, Quality Management Directorate
Maganizo Monawe	GoM	Ministry of Health	Digital Health TA, Quality Management Directorate
Jacob Kawonga	GoM	Ministry of Health	TA, CMED
Dan Namarika	GoM	Ministry of Health	Secretary for Health
Tiwonge Chimpandule	GoM	Ministry of Health	M&E Officer - DHA
Blessings Kamanga	GoM	Ministry of Health	DHIS2 Programmer, Central M&E Division (CMED), MoHP
Grace Banda	GoM	Ministry of Health	ICT Systems Analyst, MoHP
Simion Manda	GoM	Ministry of Health	ART Coordinator-Rumphi DHO
Innocent Mwaluka	GoM	Ministry of Health	M&E Officer-TB Programme
Mercy Chinkhunda	GoM	Ministry of Health	District Nursing Officer-Mzimba South DHO
Dr Yonasi Chise	GoM	Ministry of Health	Director of Health and Social Services-Salima DHO
Vincent Masoo	GoM	Mzuzu Central Hospital	HMIS Officer
Dr Malangizo Mbewe	GoM	Ministry of Health	Deputy Director-Dept. of Quality Management
James Chirombo	Malawi-Liverpool Wellcome Trust		Biostatistician
Yon Antonio	MANASO		Project coordinator for Manaso
Lawrence Khonyongwa	MANET+		Executive Director
Paul Manyamba	NAPHAM		Programmes manager
Emanual Zenengeya	National AIDS Commision		Head of M&E
Chimango Munthali	Right to Care		Senior Strategic Information Technical Adviser

Uganda

Introduction

The following case study presents findings from an inquiry into the Uganda Health Situation Room (HSR). The study was based on desk review of documents provided by UNAIDS and by in-country stakeholders, alongside key informant interviews (Annex 2). The analysis also included existing HSR dashboards and Business Matrix; however, due to a lack of usage, the usage data was not analyzed.

Uganda Health Situation Room History and Background

Preparations for Launch

Discussions started in 2016/2017 for a health situation room in Uganda, especially after the creation of the Kenyan Health Situation room. Called the 'Presidential Fast-Track HIV Situation Room', the HSR was conceived as a platform to "steer action at the community level and support real-time monitoring of the implementation of the Presidential Fast-Track Initiative to end AIDS in Uganda, that was launched by HE President Museveni on 12 March 2018".[32]

However, one major challenge was to gain approval for hosting Ugandan health data outside the country, as the national policy defaults to requiring in-country hosting and storage. A compromise was made whereby UNAIDS Country Office would support the acquisition of servers to enhance the existing Central Public Health Laboratories (CPHL) servers for eventual local hosting. Placement of a TV screen and laptop for viewing at Parliament and the President's office were delayed until the data was hosted in country. High-level approval was required before the project could move ahead.

The first training and roll-out took place in 2017. A multi-stakeholder group, including the technical working group, identified key indicators from different sources (including the Ugandan District Health Information System/DHIS2 and CPHL as well as country HIV estimates from Spectrum).

Table 14: Uganda HSR Platform Business Matrix May 2017

Measure Group	Indicator	Disc Short Name (application)	Source
Estimates	# of new HIV infections	New HIV infections by age	Country HIV estimates, Spectrum
Estimates	# of people living with HIV and AIDS (cumulative)	# of People living with HIV and AIDS by age	Country HIV estimates, Spectrum
Estimates	Estimated annual number of AIDS-related deaths per 100,000 population	# of AIDS deaths	Country HIV estimates, Spectrum
Estimates	# of HIV positive pregnant women needing ARV for preventing MTCT (estimate)	# of HIV+ pregnant women	Country HIV estimates, Spectrum
PMTCT	# of HIV positive pregnant women who received ARVs to reduce the risk of MTCT (B+)	# of HIV+ pregnant women who received ARVs to reduce the risk of MTCT	DHIS2
PMTCT	No of HIV exposed infants that received prophylaxis	PMTCT positivity infants	DHIS2/HMIS012
PMTCT	No of HIV exposed infants that received 1st DNA PCR (6–8 weeks)		DHIS2/HMIS105

[32] https://www.unaids.org/en/resources/presscentre/featurestories/2018/march/20180308_uganda

PMTCT	No of HIV exposed infants that received 2nd DNA PCR (9 months)	PMTCT/HIV positivity infants after 9 months	DHIS2/HMIS105
PMTCT	Deliveries in facilities	Deliveries in facilities	DHIS2
PMTCT	# deliveries to HIV-positive women in unit	# of women delivering in the reporting year (estimated number of births)	DHIS2
PMTCT	PMTCT /HIV positivity infants after 18 months	PMTCT /HIV positivity infants after 18 months	CPHL
PMTCT	Number of women attending antenatal care services who were tested for syphilis at any visit	Number of women attending antenatal care services who were tested for syphilis during the first prenatal visit (<13 weeks gestation)	DHIS
Prevention	# of tests carried out for HIV (all types)	# of tests carried out for HIV (all types)	DHIS2
Prevention	% of people tested HIV positive	% of people tested HIV+	DHIS2
Prevention	# of males circumcised as part of the minimum package for male circumcision for HIV prevention services	# of males circumcised (minimum package)	DHIS2
Prevention	# of people receiving PEP	# of people receiving PEP	DHIS2/HMIS 106
Prevention	# of people who tested HIV+ and know status	# of people who tested HIV+	DHIS2
Prevention	# of people receiving PrEP	# of people receiving PrEP	DHIS2
Prevention	# of women - 1st visit to ANC	# of women - 1st visit to ANC	DHIS
Prevention	# of women - 4th visit to ANC	# of women - 4th visit to ANC	DHIS
Treatment	# of people newly enrolled in care	# of people newly enrolled in care	DHIS2
Treatment	# of people in care	# of people in care	DHIS2
Treatment	# of people newly initiated on ART	# of people newly initiated on ART	DHIS2
Treatment	# of people on ART (DHIS) (current)	# of people on ART (DHIS)	DHIS2
Laboratory	proportion of people on ART virally suppressed	# of people virally suppressed	CPHL

Launch

In January 2018, the Uganda HSR team held national training in preparation for the March 2018 official joint launch by HE President Museveni and the UNAIDS Executive Director. This high-level involvement created a large amount of momentum and excitement for the HSR. As part of the launch and roll out, the iVEDiX based system was used to generate automated screenshots of priority dashboards for display on TV monitors (purchased by UNAIDS Country Office) in high profile locations, such as the offices of the President, Minister of Health, and the Uganda AIDS commission.

From March 2018 to May 2019, the Uganda HSR Technical Working Group, led by the Uganda AIDS Commission (UAC) and the Ministry of Health (MoH), and in close partnership with the UNAIDS Country Office, worked together to build the HSR infrastructure. Teams worked with UNAIDS HQ, regional staff, and iVEDiX staff to configure the HSR, including building the systems, preparation of training, identifying the priority dashboards, etc.

> To move forward, we need to bring back confidence [in the HSR] by donors, partners and leadership. – Government of Uganda HSR team

Migration to Sisense

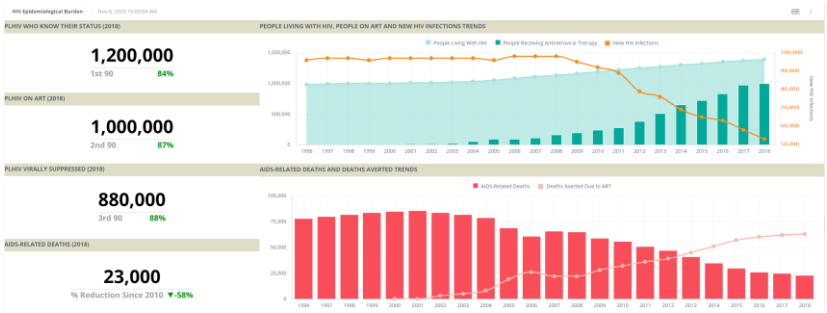
In May 2019, the Uganda HSR Technical Working Group (TWG) and UNAIDS Country office planned another round of trainings in Uganda for different users and dashboard developers. Issues with access to the platform caused the Uganda team to reach out to UNAIDS HQ for additional support.

Concurrently, over the previous few months, UNAIDS HQ had been performing an analysis on new platforms and had started the process to migrate from the iVEDiX vendor to Sisense, a modern analytics platform that offered additional functionality. The challenges with the platform faced by Uganda and other countries accelerated the decision by UNAIDS HQ to switch to Sisense. At the time, the decision on switching away from iVEDiX was left up to the Uganda HSR team.

In June 2019, UAC asked for continued access and support for iVEDiX, as the cost of switching and the new license were seen as significant barriers. UAC explored other options to continue to use iVEDiX, looking at how Kenya was planning to continue to use iVEDiX as their model. However, due to contractual factors between iVEDiX and UNAIDS HQ, iVEDiX no longer provided access to the HSR platform around this period. To overcome this barrier, UNAIDS HQ migrated dashboards and users to Sisense and offered, in July 2019, an introductory Sisense training to country teams. In August 2019, Uganda TWG staff attended a 5-day Sisense training in Johannesburg, SA.

At the time, Uganda also wanted to amend the indicator set and the refresh the data, which created additional complications in showcasing the existing dashboards with data that was no longer adequate or refreshed as needed. Uganda moved to the Sisense platform due to the UNAIDS HQ offer and inaccessibility of the old platform iVEDiX.

Figure 22: Uganda Screenshot of Sisense dashboard of HIV Indicators



Transition Challenges

Starting in July 2019, the Sisense version of the Uganda HSR faced challenges with the transition, resulting in a loss of momentum, interest, and confidence in the system. Internal concerns were expressed by different parts of the Government of Uganda due to their lack of participation in the selection of Sisense. Many expressed they felt not fully informed as to why the change was required

or what the impact would have on their programmes, especially as the change was very rapid and there was a sudden lack of access to the iVEDiX platform. There was a sense that a significant amount of time and energy had been invested in iVEDiX trainings. The automated platform updates to the Office of the President, Ministry of Health, and UAC ended, resulting in out-of-date information being shown to senior level administrators. Finally, the selection of a platform that still did not provide local hosting in country was seen as a violation of the compromise made at the beginning of the project.

Impact of COVID-19

In March 2020, the entire country was under strict lock down orders until May, cancelling all face-to-face trainings and meetings. While staff were still working virtually, the overwhelming focus on COVID-19 by the MoH and Government meant that many staff were unavailable – for most of 2020 – to focus on the Ugandan HSR.

Results

As of the time of this assessment (July 2020–October 2020), the Sisense version of the Uganda HSR was stalled. There were minimal updates to the data, the dashboards were outdated, and therefore the usage was extremely low, as is evident from the number of users (approximately six) logging into the system. Many of the staff interviewed said they were unsure of the direction about the next steps. As a result of the slowness, there was a de-obligation of some IrishAid funds to the UAC, and a sense that there was a loss of political capital among key partnerships with regard to this project.

Data Ecosystem

Digital Capacity in Uganda

Digital capacity in Uganda has grown rapidly in the last few years, but still lags behind most of the world, rated at 121 out of 139 on the Global Network Readiness Index, and 128 out of 193 on the E-Government Development Index. The country has a rapidly growing ICT industry (nearly 20 per cent a year growth[33]) but many parts of Uganda still wrestle with challenges with power and consistency of internet connection in rural areas. Mobile phone penetration is at 60 per cent (2017) and internet penetration is still only at 23 per cent (2017). Uganda has low smartphone ownership and high digital illiteracy among the population.

Uganda Digital Health Challenges

Uganda faces many challenges in digital health, including the limitations of the ICT infrastructure. Existing eHealth systems are siloed/not interoperable, and many are donor supported. There is growing but still insufficient coordination for implementation of eHealth programmes, across ministries, departments and agencies, with uneven integration of private sector, internet providers and other health sector partners.

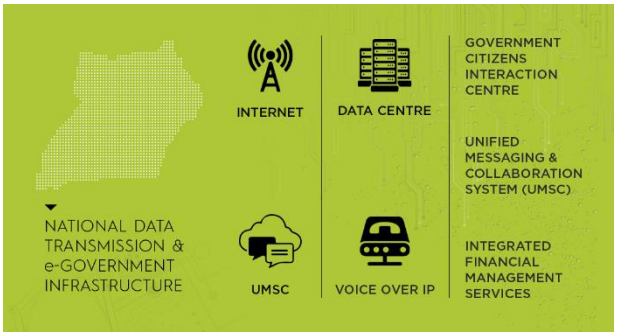
The Government also faces challenges in hiring IT staff; while there is an increasing number of IT graduates from university and private sector firms providing services, existing bureaucracy around human resources policies and limited budgets makes hiring slow and labour intensive. Retraining IT staff can also take a long time, with limitations on training budgets. Many donor-funded IT systems

[33]https://www.intracen.org/news/ICT-helps-drive-Ugandas-growth-but-sector-faces-challenges-says-top-official/
https://www.newvision.co.ug/news/1517233/-uganda-population-connected-internet
https://researchictafrica.net/wp/wp-content/uploads/2019/05/2019_After-Access-The-State-of-ICT-in-Uganda.pdf
https://data.worldbank.org/indicator/IT.NET.USER.ZS?end=2017&locations=UG&start=1995&view=chart

have implementing partners to provide the staff and infrastructure support that the Government does not have budget resources for.

National Health Information Strategies and ICT Support

Figure 23: Uganda Elements of the NBI/EGI



In response to many of these challenges, the Government of Uganda has invested in the ICT sector, via the National Data Transmission Backbone Infrastructure and the e-Government Infrastructure Project (NBI/EGI), Government Enterprise Architecture (GEA), and the E-Government Interoperability Framework (E-GIF).

The government has made similar investments in data hosting, such as the Government National Data Centre and the Central Public Health Laboratory as the main MoH data centre.[34]

Uganda also has a National eHealth Strategy (2017–2021) that focuses on the fragmentation of donor investments and eHealth. This strategy is implemented via the MoH eHealth TWG and guides eHealth using developments driven by enterprise architecture (EA). All eHealth investments rolled out by the national Government must be approved by the eHealth working group.

Key Elements from the eHealth Strategy

- Establish eHealth foundations, standards and building blocks;
- Identify specific computing systems and tools for implementation;
- Manage change and adoption of systems (usage); and
- Focus on overall governance and management.

Stakeholders in Ugandan eHealth

The following are the key stakeholders in Ugandan eHealth who are potentially the broader stakeholder community for the Ugandan HSR:

- The Ministry of Health (MoH)
- Health Service Commission (HSC)
- Public Service Commission (PSC)
- Ministry of Local Government (MoLG)
- National Drug Authority (NDA)
- National Medical Stores (NMS)
- Uganda Aids Commission (UAC)
- Pharmacy Board
- Uganda Nurses and Midwives Council (UNMC)
- Allied Health Professionals Council (AHPC)
- Pharmaceutical Society of Uganda
- Health Committee of Parliament
- ICT Committee of Parliament
- ICT Association of Uganda

[34]https://www.intracen.org/uploadedFiles/intracenorg/Content/Redesign/Projects/SITA/Uganda%20ICT%20booklet_final_web_page.pdf

- Uganda National Health Research Organisation (UNHRO)
- Central Public Health Laboratory (CPHL)
- Uganda Blood Transfusion Services (UBTS)
- Uganda Virus Research Institute (UVRI)
- Natural Chemotherapeutics Research Laboratory
- Uganda Medical and Dental Practitioners Council (UMDPC)
- Uganda Manufacturers Association
- World Health Organization (WHO)
- UNICEF
- USAID
- Centres for Disease Control (CDC) - Uganda

Governance

Uganda HSR is led by the Uganda AIDS Commission and the Ministry of Health, with strong support from the UNAIDS Strategic Information Adviser. The Uganda HSR leadership is shared between the MoH and Uganda AIDS Commission. The table below gives the composition of the oversight team, their roles and level of effort (LoE) with regard to the HSR management.

Table 15: Uganda Overview of Oversight Team for HSR

Org	Role for HSR	Main tasks	Skills required	Approx LoE Startup/Now
UAC, Director General	Leadership	Direction and vision for the HSR, work on collaboration across government.	Senior management leadership, ability to build coalitions with other government agencies and stakeholders.	30%/0%
MoH/ACP, M&E Officer	MoH/ACP indicator and user needs	Esstablish identifiers and dashboard usage.	M&E experience, HIV expertise	50%/0%
UAC, M&E Officer	UAC indicator and user needs	Establish identifiers and dashboard usage.	M&E experience, HIV expertise	50%/5%
MoH, Data Warehouse Admin	Data & ICT Administrator	Connect DHIS2 to HSR, build dashboards, technical support	Database administrator, IT degree and experience	25%/0%
MoH, Data Warehouse Admin	Data & ICT Administrator	Connect DHIS2 to HSR, build dashboards, technical support	Database administrator, IT degree and experience	25%/0%
UNAIDS SI Adviser	Donor support and coordination	Country support from UNAIDS, capacity-building and coordination, documentation of the processes, convening initial meetings and engagements, review of data elements and data quality	M&E experience, HIV expertise	60%/5%

Acronyms: M&E = monitoring and evaluation, SI = strategic information

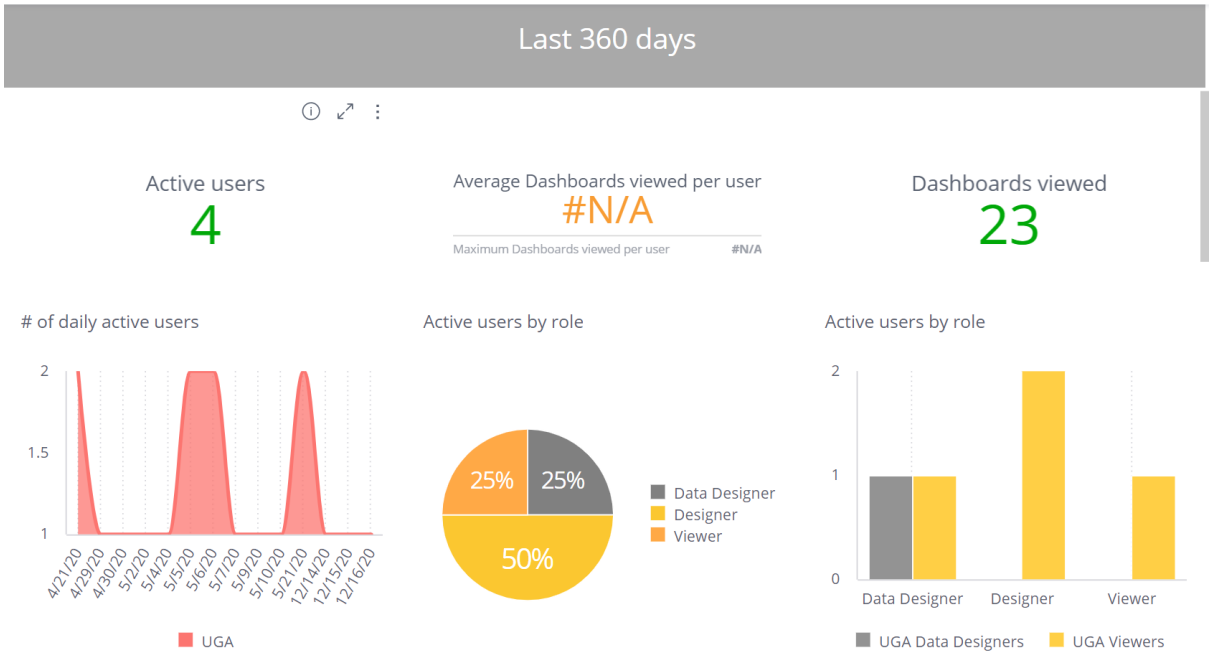
Other key stakeholders in the HSR include the Government of Ireland who has invested in the UAC. Other active donors involved with HIV and health informatics include PEPFAR (USAID and CDC), WHO, Global Fund, and international non-profits organizations.

Demand and Usage

Usage

As of the end of the evaluation period (December 2020), Sisense is currently not used at all beyond the working group. As stated earlier, the data and the dashboards are outdated and not maintained by local staff, which makes the platform less relevant. Therefore, the evaluation team did not analyse actual usage of the platform but rather the intended usage by different audiences.

Figure 24: Uganda Screenshot of 360 Days Usage Statistics of Sisense (December 2020)



Intended Purpose of the HSR

Many interviewees mentioned that currently, data is not well used in Uganda for a range of reasons. Data is often buried in books and reports and hard to access in engaging and interactive ways. Data is also not easily understood as data literacy continues to be a problem in Uganda. Finally, data is not prioritized for general usage but rather for reporting to senior administrators or donors.

The HSR was meant to allow the Government to improve access by different user groups (outlined below) to data for different purposes. The HSR is also meant to improve understanding of data via the use of visualizations. Finally, the HSR is meant to allow the MoH and UAC to integrate data usage into standard policy design and implementation workflows and generate easy-to-access reports for accountability and advocacy.

Intended Users

The Uganda HSR is intended to serve three main audiences: policy makers, implementers, and advocates.

Policymakers

A major purpose of the Uganda HSR is to influence and support policymakers within the Ugandan Government. These policymakers include parliamentarians and the Office of President, Cabinet Ministers and Permanent Secretaries in central government. Another targeted policymaking group is that of the District Government Leadership, such as District and City Councils.

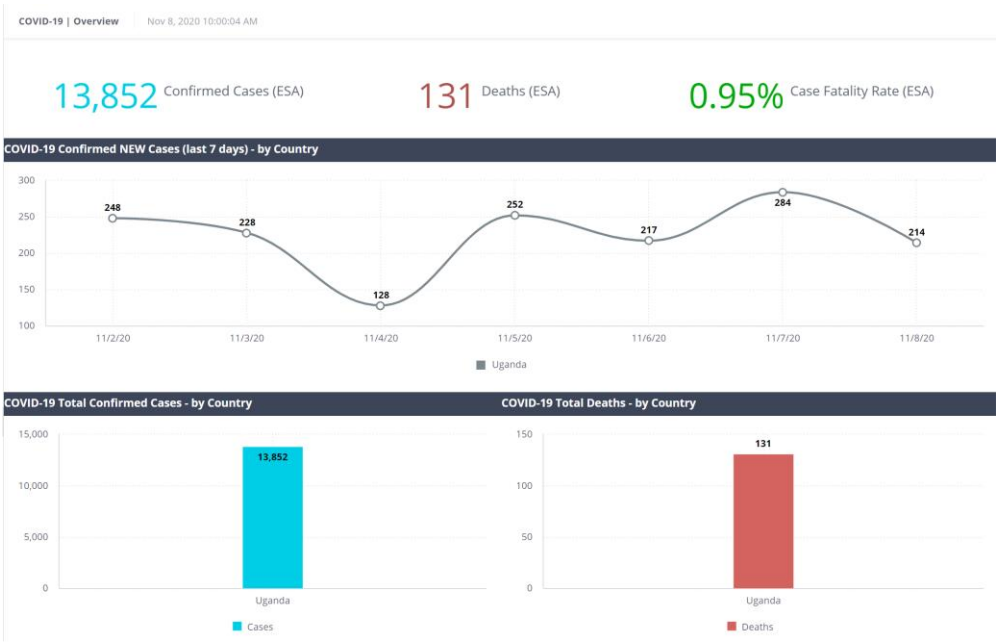
Implementers

Another major purpose of the HSR is to support implementers of these policies and to track and monitor progress. Included in this group are district administrative units (such as District Health Officers, biostatisticians and M&E staff, and district development planners). Staff of facilities and referral hospitals, faith-based organizations, and international non-governmental organizations providing health services are intended users. Community support organizations, the private sector, and other community groups who support HIV and community health programmes are also target user groups.

Advocacy and Sensitization Actors

The final group of users are intended to be those involved with advocacy and community sensitization around health policies and messages. This includes the above two groups, as well as artists, press and other media, academics, and cultural institutions. These actors can galvanize and rally influential stakeholders as well as create a culture of accountability. Finally, the purpose of advocacy and sensitization would be to improve data usage by implementers.

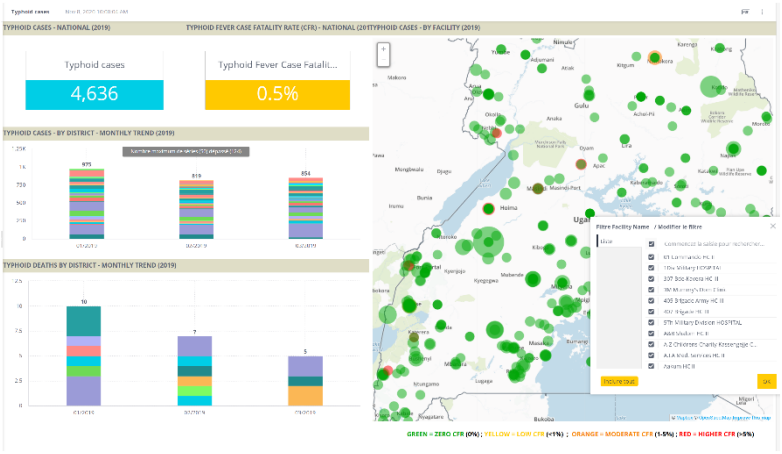
Figure 25: Uganda Screenshot of Uganda's COVID-19 data in the Sisense HSR (November 2020)



Existing Dashboards

Uganda has the following dashboards, breaking down information by month, quarter or year, as well as by facility and district. All dashboards were transitioned from the previous iVEDiX system into Sisense between July and October 2019. A voluntary medical male circumcision (VMMC) v2 data dashboard was created in March 2020 and COVID-19 dashboards were added in April 2020. The following are the dashboard topics.

Figure 26: Uganda Screenshot of Typhoid Cases: November 2020



- COVID-19[35]
- HIV/AIDS
  - Epi Burden
  - Testing
  - Test and Treat
  - VMMC (V1/V2)
- Infectious Diseases
  - Cholera
  - Typhoid
- SRMNCAH* *sexual, reproductive, maternal, newborn, child and adolescent health
  - Adolescent pregnancies

Intended Approach to Dashboards

The TWG members outlined their intended scale-up plan (developed before the move to Sisense) for the dashboard development. The TWG plan for scale-up was to help build a multi-dimensional lens for health data, starting with HIV (including orphans and vulnerable children) but expanding to other health areas. The intention is to build dashboards that break down health data by gender, and include data on prevention of mother-to-child transmission (PMTCT) and laboratory data from Central Public Health Laboratories (CPHL).

Data Sources for the HSR

The business matrix in Sisense currently has the following indicators for a range of years between 2015 and 2020, broken down by quarter, gender and then age, when relevant. This list overlaps with, but is not the same as, the indicator list on page 1, showing both the consistency and the evolution of the HSR.

Indicator
Cholera-related deaths
Clients who complete isoniazid preventive therapy
Condoms distributed
Deliveries in facilities by demography

[35] As of January 2021, the COVID-19 dashboards are offline. It is unclear if this is a temporary issue or long term.

Deliveries to HIV-positive women in unit
Health facilities reporting stockout of ARVs
Health facilities reporting stockout of HIV test kits
HIV exposed infants that received 1st DNA PCR
HIV exposed infants that received prophylaxis
HIV-positive pregnant women who received ARVs to reduce the risk of MTCT (B+)
Individual tested
Individual tested HIV positive
Males circumcised as part of the minimum package for male circumcision for HIV prevention services
New clients with TB/HIV co-infection
of cases of cholera
# of cases of typhoid fever
People newly initiated on ART
People on ART
PMTCT HIV positivity infants after 18 months
Total deliveries in facilities
Typhoid-related deaths
Women attending 1st ANC visit
Women attending antenatal care services who were tested for syphilis at any visit
Women with a known HIV Status

This data seems to come predominantly from the DHIS2, with some from logistics, CPHL and Spectrum.

Figure 27: Uganda Screen shot of business matrix from Sisense

Name_en	2015	2016	2017
# cholera related deaths	910	68	5
# Clients who completes Isoniazid preventive therapy	516	1,474	2,170
# Condoms distributed	31,309,747	22,392,968	37,899,452
# Deliveries in facilities by demography	1,109,594	997,751	1,063,078
# Deliveries to HIV+ve women in unit	50,322	53,717	55,792
# Health facilities reporting stockout of ARVs	18,192		
# Health facilities reporting stockout of HIV test kits	43,722		
# HIV exposed infants that received 1st DNA PCR	472	33,520	46,702

Data Quality

Several interviewees mentioned a number of barriers to data quality (defined as accuracy, completeness and timeliness). Slow data access is common due to the mostly paper-based data collection systems and few electronic medical records. Health facilities and biostatisticians spend a lot of time on data collection and cleaning. There are also significant challenges around the interoperability of data; many data collected are in different formats, and there is insufficient capacity to check and prepare data for interoperability. The siloed nature of existing data systems, as well as the support from different donors, result in different regulations which guide different players.

Collaboration and Transparency

Intended Approach for Collaboration and Transparency

As part of the overall strategic approach to the Uganda HSR, several interviewees mentioned its potential role in collaboration and transparency between different stakeholders. The HSR could play the role of neutral data host to help avoid political fights over different numbers, supporting clear accountability and triangulation of data. It would also allow for improved data access by different stakeholders who may not have access to the DHIS2 or other tools.

Some interviewees mentioned, however, that for the HSR to be a success, it needs sufficient engagement by districts and political leadership to support accountability. These actors can push back if they feel the data stigmatizes or embarrasses them. Therefore, for success in collaboration and transparency, senior leadership will need to promote accountability at all levels.

Country Ownership and Sustainability

Interviewees in Uganda had clear definitions of country ownership and sustainability. These definitions and concepts reinforced each other.

Ownership Definitions

Ugandan interviewees approached country ownership on two levels – strategic and tactical. At a strategic level, country ownership would mean that key stakeholders understand why HSR is important and valuable, and that these different stakeholders use the data to inform decisions. Demand for data will increase at all levels within the health system. Ownership is defined by broad stakeholder usage as well as government management of the HSR. This management includes sufficient budget and planning for the HSR, ICT and data staff and expertise to manage the HSR, as well as the IT server, platform and data warehouse.

Sustainability Definitions

The definitions of sustainability are closely linked to the concepts of ownership, as sustainability requires that stakeholders see enough value to invest in the HSR. Sustainability also includes the ability for the Government of Uganda to manage the HSR with minimal support from donors.

Sustainability also includes integration of the HSR with government strategies and systems for eGovernment/eHealth. Data must be stored in Uganda and be aligned with MoH/Government investments, as well as human resource availability.

Another sign of sustainability will include proactive monitoring of usage/impact, potentially via a partnership with local academic institutions to use the data for different types of analysis.

Finally, Uganda interviewees from the Government included the need for Ugandan staff to be able to troubleshoot their own ICT and data problems and add/edit their own data and dashboards. Local context around these dashboards will make them more useful for different users. Several commented that they have found that relying on Geneva UNAIDS HQ slows down the design process.

Barriers to Ownership and Sustainability

Several elements were identified as common barriers to ownership and sustainability, including data quality, ICT barriers and lack of technical expertise in the Sisense platform, concerns about data sovereignty, data mindsets, and lack of integration with other tools and investments.

Data Quality

The data quality issues raised earlier were mentioned as a barrier for several reasons. First, lack of trust in the data undermines the value of the HSR. Second, lack of interoperability of the data makes it hard to combine and layer data across different sectors. Finally, the slowness in data updates makes it more difficult to rely on data for decision-making and for accountability.

Technology

A few interviewees mentioned that they found the Sisense platform slow to access in Uganda and were concerned about lag in areas outside major cities where internet can be very slow. Also, local technology resources, including devices, power, and other IT services, can be expensive for Government to support, despite the prices continuing to decrease. Finally, as pointed out earlier, the challenge of hiring specific IT expertise – and the insufficient numbers of ICT staff within the Government – can also hinder sustainability and ownership.

Data Sovereignty

As mentioned earlier, the Government of Uganda has a formal policy that all government data must be hosted in-country, especially granular or sensitive data. There is an increasing awareness of data sovereignty issues, with unclear rules over sharing and access. As much of the data is funded or supported by different donors, data sharing can sometimes require negotiations across multiple entities.

Data Mindset

Several interviewees mentioned the ongoing work of building data and ICT literacy across health staff and other stakeholders. While there are data scientists, M&E experts, and epidemiologists within the MoH/UAC, there are too few to meet the demand, especially to build dashboards and visualizations with appropriate analysis. Increasingly, areas that have not traditionally required data are now needing to integrate data into their decision-making and into workflows.

Integration with Other Tools and Investments

Senior level interviewees mentioned the need to integrate the HSR into other tools and investments being made in Uganda; without this integration, these additional investments may compete with the HSR for scarce resources. Some interviewees mentioned that donor software decisions can also cause challenges as it makes it more difficult to integrate these systems.

The Design of an Ideal HSR

Interviewees were asked to design an ideal HSR system and identify the key elements. There was remarkable consistency across interviewees on what this HSR looked like.

Key factors include that the system is fully managed by the Government to control the business matrix and to add more data. The Government would therefore be able to build dashboards for different audiences and purposes and the data would be highly trusted by users for decision-making.

The HSR would pull data from different sources across the country, and hold the related meta data (format, quality, timeline). The HSR would be accessible to different audiences with close to real-time updates (i.e. pulled from data systems when updated), accessible on phones, and easy to access and understand.

Conclusions

The following are the key conclusions from the Ugandan analysis.

1. The Ugandan HSR had high expectations at its launch

Ranging from the involvement of the President in the launch to the displays of dashboard updates in the Presidential and parliamentary offices, the HSR was able to capture high-level interest in Uganda. While there were delays in roll-out, the UAC/MOH was poised to roll out the HSR to stakeholders in May 2019.

2. Transition to Sisense was fast and disruptive

Several interviewees mentioned that while transition to a new software platform should not be inherently challenging, the way that the UNAIDS HSR platform was migrated from iVEDiX to Sisense was rapid and disruptive, in ways that created significant issues with the roll-out of the HSR. The programme lost momentum, burned political capital, and made several programme staff feel that they had to restart from scratch.

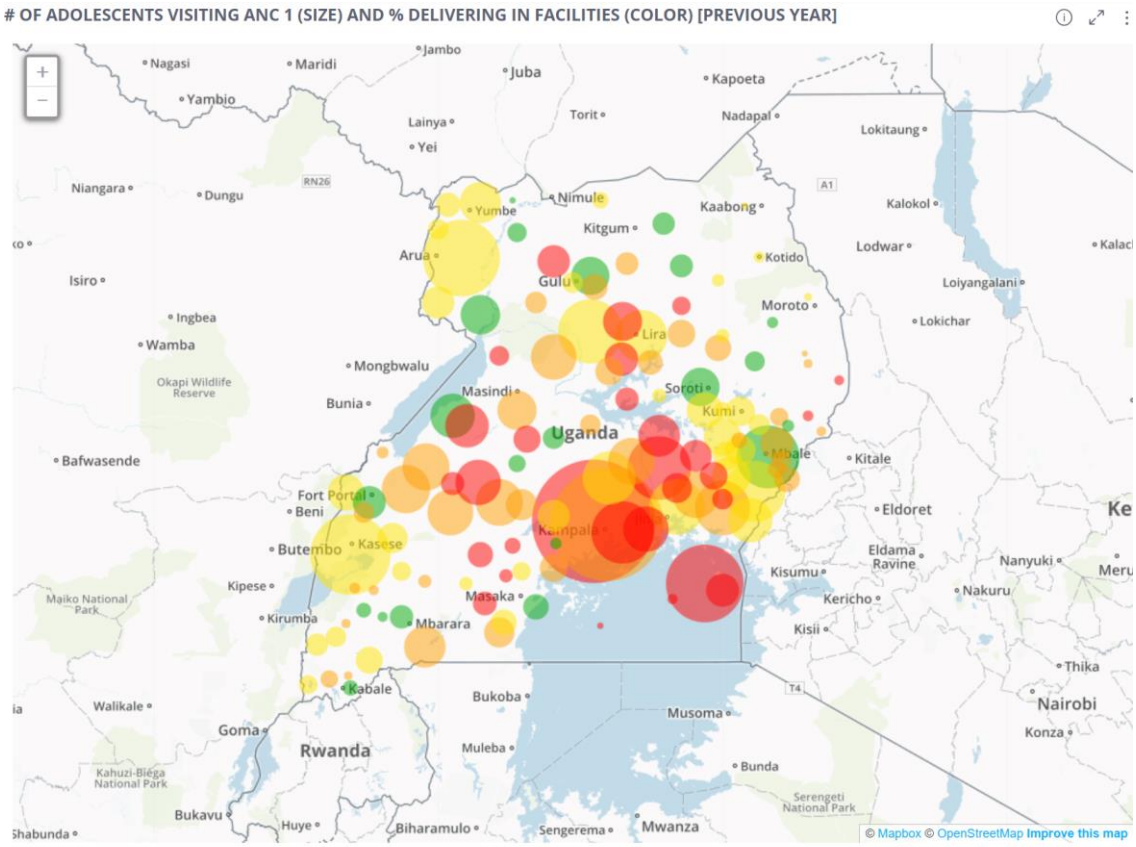
3. HSR remains relevant to existing challenges

The Uganda HSR programme was designed from the beginning to address core existing challenges within Uganda, including data quality, access and interoperability of data, ownership via the server hosted in country, and data literacy and usage. The goals of the HSR are still valid and need to be achieved.

4. There is still high demand for a data analytics platform from key stakeholders

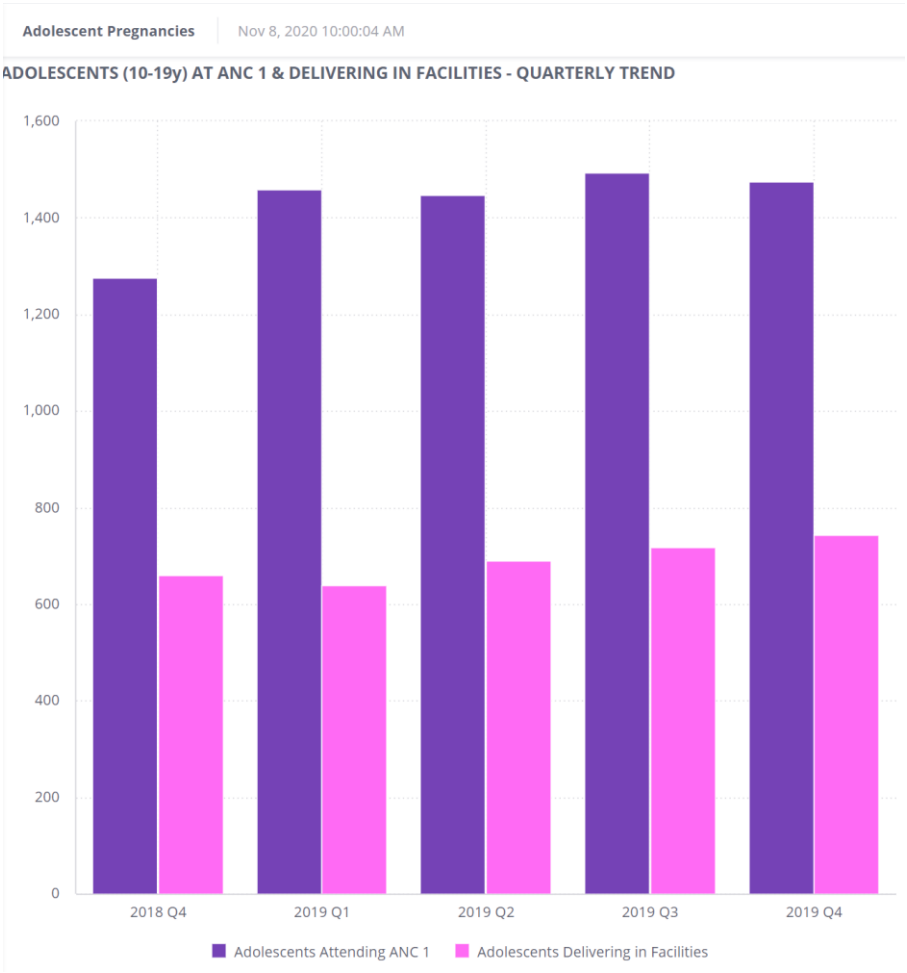
Despite the challenges related to the transition to Sisense, the majority of the Ugandan interviewees reiterated that data analytics across multiple systems is still much needed. Donors are highly interested in data usage and the Government of Uganda continues to invest in eHealth and eGovernment. The following diagram demonstrates the type of visualization provided by the HSR.

Figure 28: Uganda Screenshot of heatmap of adolescents visiting ante-natal clinics and delivering in attended facilities (Sisense November 2020)



RED = LOWER ADOLESCENT FACILITY DELIVERY RATE (<50%) ; ORANGE = LOW-MIDDLE RATE (50% to 65%) ;
YELLOW = MIDDLE-HIGH RATE (65% to 80%) ; GREEN = HIGHER ADOLESCENT FACILITY DELIVERY RATE (>80%)

Figure 29: Uganda Screenshot of a data visualization from the Sisense Platform



Considerations for the future

The following are key learnings and recommendations of the Uganda HSR.

Rebuild Demand, Usage, Collaboration and Transparency

Uganda needs a platform like the HSR to perform data analysis across different HIV and health-related systems and sectors. A suitable platform will pull data from different systems into one tool that can be used to produce different types of analysis for different audiences.

As a result, it is important to rebuild and reinvigorate the HSR programme. While the Sisense system may not meet all the requirements of the Government, it is currently available for immediate usage and rapid roll-out. Regardless of the platform decision, it is recommended that the Government and UNAIDS take this opportunity to rediscuss the strategic approach to data analytics with the key stakeholders. One approach would be a stakeholder meeting to define next steps for the potential usage of UNAIDS HSR in alignment with the larger strategic approach of the Government's data analytics needs.

The strategic approach needs to be in alignment with eHealth/eGovernment strategy and other investments being made in Uganda. This approach may include a temporary usage of the platform as it currently stands, with an explicit plan for its migration to local management or the selection of a new tool that can be fully managed by the Government of Uganda.

A potential agenda for a strategy meeting would include a review of the lessons from the UNAIDS HSR experience as well as confirmation of government and other stakeholder commitment to building and expanding Uganda's central data analytics capacity. Assuming it is agreed that there is a role for the Uganda UNAIDS HSR, this meeting should identify the leadership and governance structure as well as identify and confirm objectives, metrics of success, and priority indicators for the Uganda UNAIDS HSR programme.

Design for Ownership and Sustainability

Once the strategic approach has been designed, a platform needs to be selected which is in alignment with government investments and strategies in digital health. Existing platforms, servers, and IT staff capacity need to be taken into account.

It is also recommended that the HSR programme should adopt an agile development approach which builds user feedback sessions into the design process. The programme should include building local capacity in human-centered design to develop the dashboards for ease of access and usage, including the design of usage metrics. In addition, the programme should include building local capacity in data analytics/data science to create context-appropriate dashboards.

In addition to building this capacity, the programme must create an outreach strategy to promote awareness and usage of HSR and proactively monitor, track and improve its relevance and impact.

Annex 1. Uganda Data Sources

Uganda Evaluation Interviewees

Name	Organization	Title
Karusa Kiragu	UNAIDS	Country Director
Jotham Mubangizi	UNAIDS	SI Adviser/Project Manager
Dr. Nelson Musoba	Uganda AIDS Programme	Director General, UAC
Vincent Bagambe	Uganda AIDS Programme	Director, UAC M&E
Peter Wakooba	Uganda AIDS Programme	Head M&E
Charles Otai	Uganda AIDS Programme	M&E Officer
Carol Kamasaka	Ministry of Health	DHIS2 Administrator
Andrew Prince Babigaisa	Ministry of Health	Data Warehouse Officer
Paul Mbaka	Ministry of Health	Director Health Informatics
Jackie Kataana	Embassy of Ireland	Senior HIV Manager
Dr. Eddie Mukooyo	Uganda AIDS Programme	Chairman of Board, UAC
Brian Annechino	iVEDiX	(former) Product Manager

Documents

- Launch and Training Materials and Presentations (multiple)
- UGA Business Matrix
- Country Progress Report – Uganda, Global AIDS Monitoring 2017
- Uganda HIV Situation Room – Concept Note
- Internal emails between UNAIDS and Government of Uganda staff (multiple)
- Sisense Platform (Uganda Folders)

Zimbabwe

Introduction

The following case study presents findings from an inquiry into the Zimbabwe Health Situation Room (HSR). The study was based on desk review of documents provided by UNAIDS and by in-country stakeholders, alongside twenty-two key informant interviews including one informal telephone conversation (Annex 2). Although an up-to-date business matrix was not available at the time of the evaluation, the existing dashboards and business matrix were analysed to inform the evaluation.

History and Background

Discussions about the HSR began in Zimbabwe in May 2016 when the Minister of Health and Child Care sent a formal request of support to the UNAIDS Executive Director following their meeting and discussions at the World Health Assembly. Three officers from the Ministry of Health and Child Care (MoHCC) and National AIDS Council (NAC) were inducted into the HSR during a study visit to Kenya in June 2016. Subsequently, training was provided to three IT specialists in software management, and in indicator and business matrix development under the iVEDiX platform which was rolled out briefly under NAC. The skills developed under the iVEDiX platform remained valid for the SISENSE platform.

Management of the HSR was initially moved from the NAC to the MoHCC AIDS/TB unit and then finally to the MoHCC Monitoring and Evaluation (M&E) Directorate. In June 2019, the HSR was formally launched by the MoHCC and subsequently training was delivered for the SISENSE platform to 3 master trainers, 16 dashboard designers, and 20 senior managers (directors, deputy directors, chief executive officers, programme managers) from the MoHCC.

From the time of the launch until the date of this assessment (October 2020), there have been three different Ministers and Permanent Secretaries, which has presented challenges particularly in maintaining the momentum which was apparent up to the launch. Consequently, the management arrangements of the HSR remain informal and there is no clear roadmap in place to guide progress. This situation, coupled with the arrival of COVID-19, has hampered progress to date and explains in part why usage and uptake is currently low.

Zimbabwe HSR governance

Zimbabwe HSR is led by the MoHCC M&E Directorate. The director herself assumes overall responsibility for the HSR with support from three deputy directors from M&E, Health Information Services (HIS) and ICT.

The table below gives the make-up of the oversight team, their roles and level of effort with regard to the HSR management.

Table 16: Zimbabwe Overview of Oversight Team for HSR

Department	Title	Role	Level of effort
MoHCC	Programme Lead for HSR, Coordination Quality Management – Senior	Coordination of stakeholders, link with programmes and high-level leadership, advocacy, quality management, identification of users	4 hours a week 10%
MoHCC	Situation Room Focal Point – Senior	Operationalisation of HSR; Coordination & implementation, training of users, user support, support ingestion, quality assurance of data	25%
MoHCC	ICT Lead for HSR – Senior	Architecture design and set up, high level oversight of technical delivery, user management, identification and ingestion of indicators, coordinate with UNAIDS HQ ICT team, represent technical requirements for HSR	5 hrs a week 12.5%
MoHCC	HIS lead for HSR – Senior	Hosts all data for MoHCC including HSR; collection and management; design and set up	8 hrs a week 20%
UNAIDS	Provide funding, support coordination efforts – Senior	Coordination & implementation, design and ingestion of data, training of users, user support, support ingestion, quality assurance of data	5%

Several respondents highlighted that fact that different sectors view and use data differently and that M&E traditionally focuses on outputs and results rather than the 'function of data' and the process of applying data to policy-making and planning. This fact was felt to have resulted in a lack of broader consultation.

For this reason, suggestions were made by several key informants, both users and designers, that the development of a steering committee or working group with a wider membership, or the embedding of HSR as a standing item on the agenda of existing technical working groups (TWGs) in HIV and family health would be worthwhile. While there is a TWG under the M&E Directorate, it has reportedly not been very active.

Implementation arrangements

There are 3 master trainers and 16 dashboard designers within the MoHCC and at NAC, while 20 senior managers from the same agencies have been trained (directors, deputy directors, chief executive officers, programme managers) on the HSR. Each of the deputy directors has a specific and unique role in ensuring that the HSR is implemented. Currently there is no TWG or Steering Group for the HSR, and management of the HSR is reported as being 'ad hoc' and on a 'needs basis'.

Several challenges to implementation of the HSR have emerged from the review:

1. MoHCC is undergoing organizational review and is in a state of flux with a new Directorate of Health Informatics currently being established;
2. The high level of turnover of health ministers and permanent secretaries demands continued advocacy for the HSR and its value;
3. The dependence on donor resources for HIS, leading to fragmentation of effort; and
4. In remote areas, power and internet connectivity is unreliable.

These issues, coupled with the organizational culture of vertical working and working in siloes, present operational challenges; respondents report no formal management, no clear roadmap and a lot of inactivity.

Digital ecosystem

According to the International Telecommunication Union's 2017 Information and Communication Technology (ICT) Development Index, Zimbabwe is ranked 136 out of 176 countries globally with 83.18 per cent of citizens owning a mobile phone and 23.12 per cent of households having access to the internet.[36]

Zimbabwe has been investing in digital health for a number of years, with investments in DHIS2 for a National Health Management Information System (HMIS) and a national human resources (HR) database for medical personnel. A national eHealth strategy (2012–2017) was implemented to improve the health system via the usage of digital tools.[37]

The Community Treatment Observatory (CTO),[38] for example, seeks to serve both as an accountability and a validation function. Implemented by ZNNP+ and supported by the International Treatment Preparedness Coalition, the CTO offers a digital platform which focuses on selected indicators to monitor along the HIV cascade relating to implementation of routine viral load testing (RVLT) and differentiated service delivery (DSD).

The CTO supports the desired shift from paper-based data collection processes to digital solutions in order to minimize data errors, facilitate real-time data feedback, and promote better data quality assurance. At the same time, it serves as a reality check of data collected through the formal health system on acceptability, availability and accessibility of services for HIV positive people in all their diversity. By working with ZNNP+ it empowers the national network to take the lead in generating evidence for advocacy purposes, is able to identify challenges at health facility levels and seeks to use data to advocate for changes. These ambitions align well with the HSR since they underpin the need for evidence-based programming and at the same time support the commitment to Greater Involvement of People with HIV and AIDS (GIPA).

[36] https://www.itu.int/net4/ITU-D/idi/2017/index.html
[37] https://www.who.int/goe/policies/countries/zwe_ehealth.pdf?ua=1
[38] https://itpcglobal.org/wp-content/uploads/2020/10/saCTO-Analysis_9-21_rev2-2.pdf

National Health Information Strategy

A new National Health Information Strategy (HIS) (2020–25) has been developed with the vision of 'Information & Surveillance for Universal Health Coverage' accompanied by five key pillars.

Table 17: Zimbabwe National Health Information Strategy (2020-2025) Key Pillars

National Health Information Strategy (2020–2025) Key Pillars
1. Health information stakeholders collaborate towards achieving the vision: effective leadership, supportive governance structures and effective stakeholder engagement combine to achieve a landscape of cooperation to drive the strategy forward.
2. Health information is available where and when it is needed and shared easily and safely: adequate infrastructure is in place, including connectivity, to allow all stakeholders to access the National HIS**;** standards and interoperability frameworks are developed to facilitate effective sharing of data among all stakeholders, with adequate security in place to safeguard data and maintain appropriate privacy and confidentiality.
3. Health workers have the skills needed to use information systems productively: a human capital development plan is implemented to secure the people and capabilities needed for sustainable National HIS development.
4. Innovations that improve health services are approved and supported: a supportive environment is created, with appropriate regulations and compliance measures, to nurture innovations and embrace opportunities created by emerging technologies.
5. Health information systems deliver value: obstacles of financing and affordability are addressed through adequate planning, prospective cost benefit analysis, M&E and benefits realisation planning, to secure National HIS sustainability and socioeconomic return from investments.

The HSR aligns well with these result areas, values and ambition. To realise the ambition of the National Health Information Strategy, a new Directorate of Health Informatics is being set up and it is as yet unclear as to how this will affect existing arrangements for the HSR.

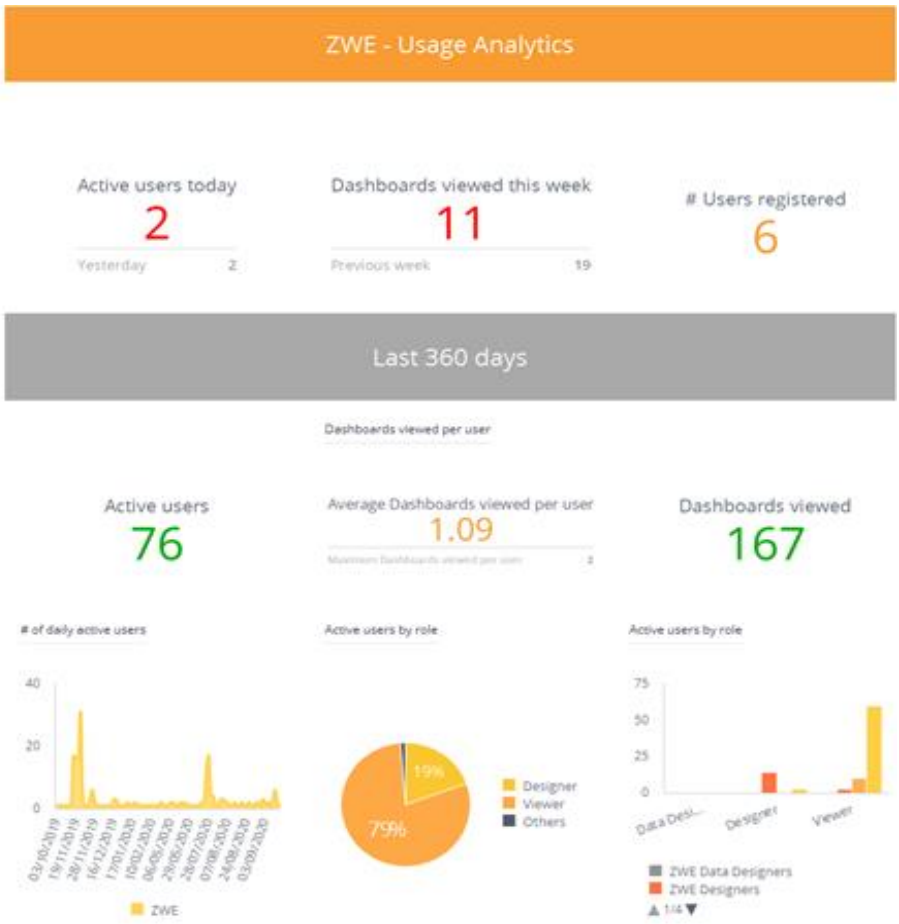
Several development partners are also active in digital health; for example, the US Government through USAID and Centres for Disease Control and Prevention (CDC) is supporting the establishment of the Electronic Health Record System. Through the DREAMS project, an electronic community monitoring system for adolescent health and HIV, UNDP is supporting the Electronic Patient Monitoring System and WHO is supporting the DHIS2. As one respondent said, '*there are a lot of processes going on and it is all very fragmented'.*

Demand and Usage

A total of 93 users have been trained with 77 registered and 52 active although activity levels spike at training times suggesting the majority of usage happens at that time (see Figure below). From May to August 2020 there were 28 unique users from the MoHCC, CDC, UNAIDS, USAID, UNFPA, WHO and civil society organizations (CSOs). The system as of October 2020 had not yet been rolled out to the Districts.

Over the last 360 days, a total of 167 dashboards have been viewed.[39,40]

Figure 30: Zimbabwe Screenshot of usage analytics as of September 2020



The majority of dashboards as shown in the current business matrix relate to HIV with thirteen relating to prevention, testing and treatment of HIV, four relating to malaria, two to reproductive, maternal, newborn and child health (RMNACH) and two to sexual and gender-based violence (SGBV).

[39] This includes the practice dashboards used during training.

[40] The user analytics data provided by SISENSE have some quality issues, including potential co-mingling of country dashboard views. Therefore, the team recommends viewing these data points loosely as a general level of usage.

Most popular dashboards and categories

Between May and August 2020, the most popular dashboards were COVID-19 related, followed by HIV.

Categories (by popularity between May and August):

- COVID-19 (84 views)
- Antenatal clinic (ANC) testing (15 views)
- HIV epidemiological burden (12 views)
- HIV testing (11 views)
- Test and Treat (11 views)
- SRMNCH (21 views across 3 dashboards).

Figure 31: Zimbabwe Screenshot of most visited dashboards for Zimbabwe as of September 2020

Most visited dashboards

Dashboard	# of users
ANC Testing	26
COVID-19 | Overview	25
COVID-19 | Overview (1) (1) (1)...	25
COVID-19 | Overview (5)	25
_accrd_1.2 HIV Testing (2)	23
_drill_HIV Testing - Positivity b...	23
1. HIV Testing	23
HIV Testing	23
z_HIV Testing - Positivity by Di...	23
HIV Epidemiological Burden	20
HIV Epidemiological Burden (1)	20
_accrd_1.1 HIV Testing (1)	18
_drill_HIV Testing - Age group	18
z_HIV Testing - Age group	18
4. Deliveries and Maternal Mo...	17

While usage is acknowledged to be low, the team found some evidence where HSR visualisations had helped in planning. One key informant shared that: '*Through HSR's geospatial analysis, we saw a concentration of HIV positive results in a specific area and this directed us to look at the health facilities to determine why'.* This observation led to a verification trip where evaluators were able to identify that the spike in positive cases was related to artisanal miners and were able to plan accordingly.

In the same vein, COVID-19 data are automatically sent to email and mobile phones as updated data become available. COVID-19 data have been extremely helpful and HIV programmers mentioned that they were using trend data combined with the HSR to determine impact on availability and uptake of HIV services '*HSR data has alerted us to the impact of COVID-19 on services and supplies'.*

Causes of low usage

Over half of the key informants interviewed attributed low usage to the low visibility of the HSR. Key informants noted that in its earlier incarnation under NAC there was a great deal of momentum – implementation plans were in place and regular meetings were held with the broader HIV community. This momentum needs to be revived following the move to the MoHCC M&E Directorate through the application of the HSR by the various programmes (HIV, family health, TB, malaria etc.). Nevertheless, appetite for the HSR remains and respondents felt that raised visibility and renewed focus on the issue of data use could be created by formulating a revived roadmap and way forward for the HSR through a participatory and inclusive process with key actors.

Key informants from Sexual and Reproductive Health (SRH) programming mentioned that their usage of the HSR was low because of the limited number of dashboards relating to SRH: currently there is one on deliveries and three on SGBV. Discussions are underway to agree a range of core indicators (there are currently over 130 on the desired list) and there is a desire to limit the total number of indicators to ensure that the HSR is manageable. This illustrates further the need for an agreed local steering group/task team which could establish a standard operating procedure for such improvements, i.e. 1) coordinate the change requests (document the SRH indicators to be included in the Business Matrix); 2) suggest the dashboards for SRH data (outline the SRH dashboard); and 3) ensure they are implemented (produce and share the dashboards).

The HSR team invested in the purchase of five screens and ten tablets delivered before the launch to provide regular views of key dashboards in public areas or by key partners. However, by the time of the assessment, these devices have not yet been installed. Once this is remedied, according to key informants, they might help stimulate usage. The Zimbabwe HSR has not yet been rolled out subnationally down to District level although interest in this is high.

Finally, there was a degree of confusion about SISENSE among some who had been trained in iVEDiX, pointing to the issue of lack of continuity. One key informant formerly involved in HSR under NAC mentioned that UNAIDS had recently introduced another data system alongside the earlier one (e.g. iVEDiX) but was unclear how and if they fit together. One key informant suggested that the brand should be Zimbabwe HSR rather than SISENSE so that potential viewers would instantly recognize it.

In discussions around general usage of data for planning, most key informants acknowledged that more needs to be done to build data literacy among programmers, planners and policymakers. Suggestions for including descriptors against dashboards were made together with a suggestion to enhance user analytics to promote a culture of data use. The notion of behaviour and cultural change occurred repeatedly with one respondent noting '*technical challenges are easy to fix but the behavioural challenge [of getting people to use data] is more difficult*'.

Data sources for the HSR

Currently, DHIS2 data are pulled into the HSR, together with COVID-19 data which reportedly comes from the daily SITREP report which is compiled by the Communicable Disease unit on a daily basis from reports received from various facilities.

Work is underway to include Logistic Information Management System data, but at the same time significant efforts are being made elsewhere to integrate data from the Electronic Patient Monitoring System with other data sets under the Electronic Health Records System.

Discussions with representatives from civil society organizations working in HIV and AIDS revealed a great appetite for the HSR to consider including community-generated data, for example, the CTO (above) although no pathway for integration of these data into the HSR could be found.

Data quality

Several key informants noted that efforts to ensure data quality are ongoing and significant. However, scrutiny of the dashboards and business matrix revealed a lack of internal consistency of data. For example, data in the business matrix on the site does not match the data in the dashboards (see Figure below). Here it can be seen that enrolment figures for 2019 were lower than new initiates which is not possible since initiation can only happen after enrolments as the data over other timeframes clearly shows. The dashboard on treatment gaps appears to be more realistic.

Figure 32: Zimbabwe Business matrix vs dashboard data

Business Matrix vs Dashboard

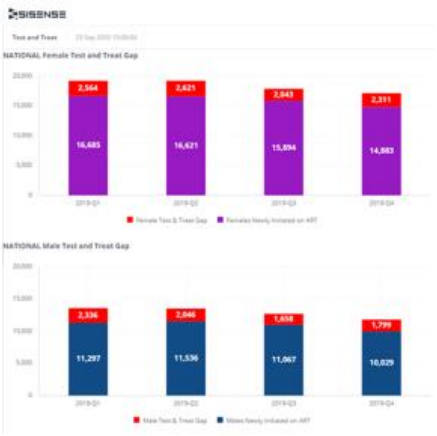
Prevention

#People newly enrolled on ART

2015	2016	2017	2018	2019	2020
178,948	170,431	35,272	141,940	**11,877**	3,86

#People newly initiated on ART

2015	2016	2017	2018	2019	2020
126,521	130,792	32,445	128,504	**108,012**	37,913



Collaboration and Transparency

There appears to be good collaboration at an individual level between NAC, the HIV and AIDS, TB and Malaria units at MoHCC and the M&E Directorate. However, this collaboration is not sustainable if only based on individual relationships. While the HSR has great potential for enhancing collaboration with partners and for advocacy for better application of data in policy-making planning and programming, evidence could not be found of this potential yet being realized.

As discussed earlier, a significant obstacle to enhanced collaboration is the existing organizational culture of working in siloes which is reported to exist within MoHCC. Several respondents noted that the HSR would need to be '*better grounded in the organization's culture and context'* to secure its future. This situation is reconfirmed in the HIS strategy which points out that:

> *The IT unit, M&E department and HIS unit do not have a mechanism to coordinate their collaboration in the implementation of their respective mandates. There are efforts to develop a responsibility matrix that each one of the units will aim to achieve.*[41]

The fact that there is an increasing number of directorates currently looking at data systems and use, including the establishment of a new Health Informatics Directorate, is both a challenge and an opportunity for the HSR. With active advocacy for the platform and its utility there is now an opportunity for management of the HSR to ensure that it is embedded within the emerging digital health ecosystem.

Currently, key informants noted, for information and support relating to the HSR they would go to individuals already known to them, either in UNAIDS or M&E directorate, since there is no formal mechanism to request access the HSR. Plans are underway to ensure that HSR issues are made a standing item on the agendas of the relevant Permanent Secretary and the Minister of Health and Child Care. One respondent mentioned that '*currently data is privatized'* in Zimbabwe which acts as an obstacle to transparency, further highlighting the fact that individual relationships at times enable access to data. One respondent achieved access by '*sheer coincidence'* as he happened to approach the right person who could provide it. Further to this, several respondents agreed that *'If the screens were up many people could view the data; it would increase transparency and encourage discussion.'*

The Zimbabwe HSR is frequently cited as having been the first HSR of the current nine to create SGBV dashboards. However, usage of these was low. It was interesting that most respondents from the HIV sector felt these dashboards related more to the SRH sector, while the SRH sector respondents felt generally unmotivated to use the HSR because of the limited number of other indicators directly relating to their area of work. A brief consultation with an M&E officer in the Ministry of Gender revealed that there is as yet no consultation with this ministry, although they are currently planning to establish a national electronic database on GBV.

Country Ownership and Sustainability

There is no doubt that there is enthusiasm and appetite for the HSR especially among the key informants interviewed from the HIV and AIDS programming area. The Director of M&E and her deputy directors are committed to the success of the HSR but acknowledge that it is not yet properly institutionalized.

Many respondents said that a country-owned and sustainable HSR needs to be fully managed by national staff in Zimbabwe and that an open-source platform might circumvent both the license fee

[41] National Health Information Strategy 2020–2025. November 2019 (p. 18).

and the need for the server to be managed by UNAIDS in Geneva. It is not clear whether an analysis of the cost of this has been undertaken as yet. A mark of country ownership was also seen to include a wider network of stakeholders in decisions and the inclusion of community generated data.

Consideration has been given to incorporating future costs of the HSR, particularly the license fee, into budget arrangements specifically through proposals to the Global Fund for AIDS, TB and Malaria (GFATM).

One respondent suggested that a name and logo change on the web screens from SISENSE to Zimbabwe Health Situation Room would promote the idea of the HSR being country owned.

Other respondents mentioned that enhanced advocacy illustrating the value of HSR to planning and programming would help secure sustainability. There was confidence among respondents that Zimbabwe has sufficient ICT professionals capable of building and maintaining systems.

Many key interview informants believed that the sustainability of HSR will depend very much on its visibility and evidence that it is supporting effective and efficient planning and programming. Some have said that concerted effort is now required to bring more stakeholders around the table and to ensure that the programme responds to a wide range of potential users' needs without becoming unwieldy.

Findings and Conclusions

The Health Situation Room has been affected by high turnover at ministerial level and administrative challenges flowing in from that, inadequate institutionalization of the HSR, the relocation of the HSR management from NAC to the AIDS/TB unit in the MoHCC and finally to the M&E Directorate at MoHCC, and the onset of COVID-19. Steps to address these issues suggested by respondents were the development of a fresh implementation plan or roadmap and more inclusive and formal working arrangements.

The evaluation team identified the following issues:

- The HSR would benefit from more formal governance arrangements through a steering committee or similar.
- Collaboration with the Ministry of Gender would support broader use of the SGBV dashboards, encourage better alignment of SGBV data and its analysis in pursuit of national targets and would also contribute to greater efficiencies as the Ministry of Gender is in the process of developing its own GBV data system.
- The HSR currently has low usage rates, in part as explained above, but also due to low visibility and awareness of the platform and how to access it. Of the available dashboards, the COVID-19 and HIV dashboards received most attention. The small number of sexual and reproductive health indicators currently included explain to a large degree why usage by SRH practitioners is low. Plans to increase visibility, for example by installing screens and expanding consultation about the HSR to a wider number of stakeholders would go a long way to addressing this, together with a more diverse range of dashboards. A suggestion to increase visibility was to link dashboard visualizations into existing planning and management mechanisms, for example the regular Permanent Secretary meetings where data from the HSR could be used both to trigger discussion and to raise awareness of the power of data. It will be important to ensure an appropriate mix of indicators from different service areas are covered in order to attract a wider user base.
- Evidence of the application of the HSR visualisations to programming was difficult to find and it was felt that a TWG approach which included sectoral programmers would help advocacy and utilization efforts. This is particularly important for the future of the HSR, as its usefulness will determine whether or not the SISENSE licence is funded after 2021.

- The new National Health Information Strategy and discussions flowing from it present a well-timed opportunity for the HSR to restart and to be solidly embedded within the Government of Zimbabwe's digital health system.

Considerations for the future

A synopsis of the learnings shows that the Zimbabwean HSR requires:

- A fresh implementation plan;
- Formalized governance for the HSR operations and management;
- Automated system where information is sent to email and mobile phones as updated data become available;
- Visibility/access plan;
- Plan to be responsive to user needs;
- Consider expanding SRH indicators;
- More explicit links to programming; and
- To capitalize on this opportunity and commitment by different stakeholders in improved data analytics.

Annex 1: Zimbabwe Dashboards

Example Dashboards

The evaluation team identified several example dashboards as part of the analysis.

COVID-19 Dashboards

- Overview (see screenshot)
- Deaths (weekly)
- National level only
- Case fatality rate
- Confirmed cases
-

Figure 33: Zimbabwe COVID Overview Dashboard

HIV Dashboards

- Epidemiological burden (annual)
- # receiving antiretroviral treatment
- People living with HIV
- AIDS-related deaths
- New HIV infections
- Deaths averted due to ART

Figure 34: Zimbabwe Epidemiological Burden Dashboard

Annex 2: Zimbabwe Evaluation Interviewees

No.	Type of engagement	Name	Designation and Organization	Date
1	Inception meeting	Martin Odiit	UNAIDS	18 August 2020
2	KII	Martin Odiit -	UNAIDS Senior SI Advisor	19 August 2020
3	KII	Lloyd Machacha	MoHCC Deputy Director M&E	20 August 2020
4	KII	Isaac Taramu si	NAC Strategic Information Specialist	21 August 2020
5	KII	Trymore Chawurura	MoHCC Deputy Director	23 August 2020
6	KII	Raymond Yekeye	National AIDS Council Operations Director	25 August 2020
7	KII	Tafadzwa Dzamara	MoHCC M&E Analyst	27 August 2020
8	KII	Chenjerai Sisimayi	World Bank – Zimbabwe, Health Specialist	27 August 2020
9	KII	Ngonidzaishe Manika	MOHCC AIDS & TB Unit IT	28 August 2020
10	KII	Ngwarai Sithole	MOHCC AIDS & TB Unit Strategic Information Adviser	28 August 2020
11	KII	Mr Manes Munyanyi	MoHCC Deputy Director HIS	31 August 2020
12	KII	Daniel Simiyoni	NAC Provincial Database Officer	1 September 2020
13	KII	Trust Chiguvare	M&E Lead CDC	1 September 2020
14	KII	Rudo Mhonde	UNFPA M&E Officer	2 September 2020
15	KII	Simon Mayanja	UNDP GF Unit M&E Specialist	3 September 2020
16	KII	Pemberai Zambezi	FACT Zimbabwe Strategic Information Manager	7 September 2020
17	KII	Simbarashe Mabaya	WHO National Progamme Officer HIV/STIs	7 September 2020
18	KII	Brighton Muzavazi	MOHCC M&E Officer Family Health Department	8 September 2020
19	KII	Charles Birungi	UNAIDS Fast Track Adviser	10 September 2020
20	KII	Dr Owen Mugurungi	MOHCC Director AIDS & TB Unit	10 September 2020
21	KII	Dr Rugare Abigail Kangwende	MOHCC Director Performance M&E	10 September 2020
22		Admire Chiwamba	Ministry of Women Affairs – M&E Officer	Telephone call

Acronyms: CDC = Centres for Disease Control and Prevention, HIS = Health Information System, KII = Key informant interview, MoHCC = Ministry of Health and Child Care, NAC = National AIDS Council, SI = Strategic Information, STI = sexually transmitted infection

STOCKTAKES

Cote d'Ivoire

History and Background

Cote d'Ivoire launched its Health Situation Room (HSR) on 26 March 2018 using the iVEDiX system. It is managed by the Direction de l'Informatique et de l'Information Sanitaire (DIIS) within the Ministry of Health and Public Hygiene (MoHPH). The National AIDS programme is a main user of the system but not the only one. As a result, the Cote d'Ivoire HSR has always been broader in focus than HIV data from its commencement.

Figure 35: Cote d'Ivoire online launch of the Health Situation Room

After launch, much work was performed by the DIIS including multiple trainings, but by mid-2019, the project was described as "at a stage of stagnation" according to a UNAIDS Mission Report written in July 2019. Some of the causes of this stagnation included challenges with iVEDiX, challenges with DIIS promoting the HSR broadly within the health system for decision-making, and competing priorities from other MoHPH activities.[42]

The Health Situation Room was migrated to SISENSE in June 2019 as part of the mass migration of all of the systems. The mission in July was intended to present the transitioned HSR to the Cote d'Ivoire HSR Technical Working Group, and build the institutionalization and ecosystem elements to support long-term sustainability of the HSR.

Country Digital Health Enabling Environment

In 2012, Cote d'Ivoire's Ministry of Health and Public Hygiene adopted the National Plan of Development for eHealth to set national policy and for the implementation of eHealth solutions in the country. The national routine health information management system platform in use is DHIS2 and there is a national data warehouse. DHIS2 has been deployed to all regions and districts in the country with the inclusion of five health programmes: HIV, TB, nutrition, malaria and maternal and child health. The country is working towards expanding DHIS2 to facilities, building workforce capacity, enabling interoperability/data exchange between national digital health systems, and expanding use and functionality of electronic medical records (EMRs).

[42] Health Situation Room Côte d'Ivoire Mission Report 23–26 July 2019 | Institutionalization

Resourcing and Governance Structure

As noted in the HSR concept note, the following roles and responsibilities were outlined in the management of the HSR.

Table 18: Côte d'Ivoire roles and responsibilities in the management of the HSR

Role	Responsibilities
Project Coordinator	Manages and coordinates the project and resources for the Government; manages the selection of national indicators and the setting of subnational (decentralized) targets; organizes training and mobilizes local resources.
IT Administrator (system and databases)	Manages the configuration of the HSR for the country; licenses, computer equipment, local computer consultations and support; monitoring of the national database for a situation room.
Head of the Logistics Management Information System (LMIS)	Focal point for the LMIS; provides data/provides the link with computer consultants/integrators; performs data validation.
DHIS Platform Manager	Focal point for DHIS; provides data/assures the link with computer consultants/integrators; performs data validation.

Other key stakeholders are other parts of the MoHPH, Ministry of Economy and Finance, and technical financial partners (PEPFAR, WHO). UNAIDS country staff also provide guidance and support to the HSR by being part of the overseeing technical working group.

Data Sources

The Côte d'Ivoire HSR pulls data from DHIS2 and other sources and provides a range of health indicators covering the following health topics:

- Cancer/HIV
- Malaria
- prevention of mother-to-child transmission (PMTCT)
- Sexual and reproductive health
- Stockouts
- TB/HIV
- HIV/AIDS

The data is monthly, starting with January 2015 and ending in October 2020 and is pulled on a regular basis from DHIS2. Additional data is pulled from Lab data and LMIS such as from La Nouvelle Pharmacie de la Santé Publique de Côte d'Ivoire (NPSP) which is not under the direct management of the Ministry of Health and Public Hygiene. It is unclear to evaluators where the COVID-19 data comes from.

Demand and Usage

The Côte d'Ivoire HSR is intended to support usage of health data across all the different levels in the health system, from top leaders to the Department or even lower levels. The purpose of the HSR is to help with an integrated response, including planning, strategy, and decision-making, to different diseases. According to the communication strategy, key users include the "General Health Directorate (DGS/MSHP), the National AIDS Programme (PNLS/MSHP), the Directorate of Informatics and Health Information (DIIS/MSHP), the Regional and Departmental Directorates of

Health (DRS and DDS), the Lutte Health Partner Programmes, Technical Partners and the Community". Primary users of the HSR are districts and health regions. Secondary targeted users include national MoHPH staff, and other ministries. The communication strategy includes specific outreach approaches to primary and secondary users, with identification of user needs, influences, opportunities and responsibilities. The strategy also includes metrics of success.[43]

Côte d'Ivoire shows the most usage across all of the HSRs, with 85[44] active users and 1,695 dashboard views. The vast majority of the user accounts are for Department and district users; only four are for UNAIDS or Centres for Disease Control and Prevention (CDC) users. Like other countries, Côte d'Ivoire HSR provides one user account for a Department in order to manage the maximum of approximately 140 licenses available to them.

Other than the peak after the training in July 2020, the usage statistics show an average of 1-3 daily active users. The most popular dashboards are those for malaria, HIV, TB, and cervical cancer. In addition, there is evidence that the Côte d'Ivoire users are creating new dashboards, mainly for training and practice, based on the names of the dashboards (such as Exercice CSE SR Bouaké, Pratique 1, or David/Démo blox - Cas de paludisme (2018)). This usage is an exciting development since the Centres for Disease Control and Prevention Cooperation Agreement evaluation report stated that Côte d'Ivoire had not rolled out the HSR to users as of September 2018.

In an interview, the Côte d'Ivoire UNAIDS country office expressed their two major challenges relating to trusted data quality and usage of data. One interviewee commented that the HSR helped with "transparency of bad data" which triggered discussions about data quality and revision of indicators. However, there was still delay in usage of data by clinicians and local staff for context-driven decisions. The country team mentioned the need for additional capacity-building on this topic.

Sustainability and Country Ownership

The UNAIDS-CDC Cooperation Agreement mid-term evaluation and interviewees[45] both mentioned the switch of iVEDiX to SISENSE causing delays in rolling out and retraining of users. However, the Côte d'Ivoire team feels that SISENSE is an easier system to use and gives them more access to management elements. Another question was related to who decides which indicators and dashboards to be included and created, and who needs to approve them. Both the HSR Mission Report and the interviewees acknowledged barriers in strategic and policy governance issues related to the HSR, for example which data is captured, how the data is shared and used, and improved. The need for strong governance of the HSR to make sure it meets the requirements of different users was clearly identified as a priority area.

The communication strategy has key goals and metrics around usage, a good indication of ownership. For example, a goal of the communication strategy is that at least 80 per cent of primary target users will use the HSR and that HSR reports will be integrated into health reports. There are also rewards for best dashboards as well as identifying data champions and ambassadors for the HSR.

Finally, there was a strong commitment to the idea of Côte d'Ivoire leadership driving the HSR rather than a donor-driven initiative. There was an acknowledgement that host country leadership may

[43] Communication Plan for the Room Situation, Y4.
[44] As of 2 December 2020. The evaluation team views were removed from the data from SISENSE in this report.
[45] Country Case study Report CIV. CDC-UNAIDS Cooperative Agreement "Strengthening Public Health Capacity and Strategic Information Systems" Mid-term Evaluation. April 2020

result in the identification of platforms or technology approaches other than those supported by donors, which may be a source of conflict.

Considerations for the future

Below is a summary of key observations and evaluators suggestions for consideration.

Table 19: Côte d'Ivoire observations and considerations

Observations	Suggestions for the future
Starting with sustainability plans and long-term vision	The Côte d'Ivoire HSR will most likely need additional support to build sustainability for the system, especially for governance and internal capacity for multiple elements of the HSR, such as identifying user needs, and improving data quality.
Building on broad usage by departments to link to other MoHPH priorities	Côte d'Ivoire has shown broad access to the HSR by Departments and field staff. Building on this awareness and access, the Côte d'Ivoire HSR technical working group can work on more outreach and integrate usage. One area would be to link existing HSR functionality and user base to other programmes prioritized by the MoHPH (such as quality improvements, health system strengthening, or targeted programmes for specific diseases) to build additional capacity and extended usage into decision-making.
Share the experience of usage with other HSR countries	The communication strategy shows identification of user needs, influences and goals, a key element that is useful for human-centered design/user-centered design. This experience can be shared with other HSR users to help improve usage of the system.

Annex 1: Cote d'Ivoire Health Situation Room Documentation

The table below provides a list of documents provided by UNAIDS to inform the Cote d'Ivoire Health Situation Room evaluation.

Document Title	Document Date	Summary Description	Notes
Situation Room Côte d'Ivoire Mission Report July 23 to 26, 2019 | Institutionalization	August 2019	Summary of mission trip by UNAIDS HSR Geneva staff	Review roll out of SISENSE and current situation of Côte d'Ivoire
Centre d'information stratégique du VIH (HIV Situation Room)	August 2017	Concept note for country plan	Found list of roles and key activities
Launch materials (multiple)	March 2018	Multiple documents around the launch	Summary of expectations for the launch
Data tables (excel)	Unknown (assume 2017–2018)	List of indicators from DHIS2	37 initial indicators in one document and 43 in another
Plan d'action pour le déploiement de la situation Room CIV	October 2018	Workplan for the deployment of the HSR	Information from Centres for Disease Control and Prevention Cooperation Agreement
Atelier bilan de suivi a mi-parcours de la mise en œuvre de la Situation Room	March 2020	Terms of reference for 2020	Information on training
From data and reporting to impact and accountability: A case study on the Country Health Situation Rooms	2019	Case study of HSR	Summary of findings for Côte d'Ivoire and other countries
Plan de communication pour la Situation Room	Year 4 (2020?)	Summary of communication goals for 2019	Summary of the key roles and goals for 2019
SISENSE Dashboards	Summer/Fall 2020	Dashboards and usage data	High usage of the dashboards, broad dashboards

Interviewees

Brigitte QUENUM	User-centred design
Ramata COULIBALY EPSE SARASSORO	Strategic Information Adviser
Bléhoué Bleoue	Consultant en appui au CoAg

Lesotho

History and Background

The Lesotho Health Situation Room, a partnership between the Ministry of Health and UNAIDS, started with a concept note in 2016 and officially launched on May 8, 2018. The Lesotho Health Situation Room initially utilized the iVEDiX vendor information technology (IT) platform and migrated to the SISENSE vendor IT platform in March 2020. Due to the IT platform transition and Ministry of Health prioritizing the country response to COVID-19, there have been delays in refresher trainings and usage in 2020.

To date, the Lesotho Health Situation Room has received financial and technical support from UNAIDS headquarters and the UNAIDS Regional Office. Through the Regional Office, the Swedish International Development Cooperative Agency (SIDA) has provided funding to support linkages with sexual and reproductive health rights (SRHR) indicators. No government funding has been provided at this time.

Country Digital Health Enabling Environment

According to the International Telecommunication Union's (ITU) 2017 Information and Communication Technology (ICT) Development Index, Lesotho is ranked 133 out of 176 countries globally[46] with 76 per cent of citizens owning a phone and 29.8 per cent of individuals using the internet.[47] The Ministry of ICT with support from the African Development Bank (ADB) has been working to strengthen government ICT infrastructure, including broadband connectivity and construction of a national data centre, which currently houses the District Health Information Software (DHIS2) data warehouse, in addition to other inter-ministerial data assets.[48]

To support the advancement of the digital health enabling environment, the Ministry of Health developed the National eHealth Strategy 2019–2023 which provides guidance to the Government and partners on eHealth priorities to improve service delivery and health outcomes. The National eHealth Strategy includes information on a 2016 assessment conducted by WHO which concluded that the country is in the developing and build-up phase for digital health characterized by owning a number of vertical ICT projects, rapid ICT growth and utilization and heavy donor support for ICT systems. A notable achievement is the country deployment of an open source data warehouse system, DHIS2 which is implemented centrally and in all 10 districts.

The country also has a draft Health Management Information System (HMIS) Strategic Plan 2018–2022 to guide the development of HMIS in the health sector. The HMIS Strategic Plan provides guidance on the collection of relevant and reliable statistical data pertaining to health status of the nation health services coverage and utilization and the distribution of health resources.

Resourcing and Governance Structure

The lead organization for the Lesotho Health Situation Room is the Ministry of Health (Directorate of Planning and Statistics). Working with the Director is a core team that coordinates the management of the Health Situation Room. The core team includes the IT Manager and the Chief Statistician. Based on a UNAIDS staff member input, it is understood that in 2018 when the Health Situation Room was more actively used, the IT manager spent about 5–10 per cent of his time on the Health Situation Room, the Chief Statistician about 5 per cent and the Director of Planning and

[46] https://www.itu.int/net4/ITU-D/idi/2017/index.html
[47] https://www.itu.int/en/ITU-D/LDCs/Documents/2017/Country%20Profiles/Country%20Profile_Lesotho.pdf
[48] Lesotho National eHealth Strategy 2019-2023.

Statistics only about 2 per cent; however, their level of effort has been reduced due to the IT platform transition and impacts of COVID-19 prioritization.

The primary point of contact at UNAIDS is the Country Strategic Information Advisor, but the position is currently vacant (as of November 2020).

The Ministry of Health's Strategic Information Technical Working Group supports the coordination of information systems and has been a place to discuss the Health Situation Room. There is no dedicated workgroup for the Health Situation Room.

The change management process for data/indicators in the Health Situation Room is overseen by the Ministry of Health core team; no documentation is provided. When an indicator needs to be added or removed it is discussed by the core team, then they conduct due diligence as needed against DHIS2, then define the need and send the information to UNAIDS HQ for next steps. The IT Manager manages account requests. There are no assigned resources from the Government to provide help desk support services to end users.

Internal data quality checks and cleaning primarily happen in the DHIS2 and the Health Situation Room does not appear to get involved with the data cleaning process. If data inconsistencies were to be identified in the Health Situation Room, the core team would work with the Ministry of Health to understand the issue and address them.

Data Sources

Currently, DHIS2 is the only system providing data to SISENSE for the Lesotho Health Situation Room. The DHIS2 system was implemented in-country in 2016 and currently there is a formal data sharing agreement in place with the DHIS2 system owners and updated data is provided monthly via extract, transform, load (ETL) in full over an application programming interface (API) to the Health Situation Room. It should be noted that the DHIS2 data cannot be used for other purposes beyond that identified as an approved use in the data sharing agreement.

The Ministry of Health is also creating a DHIS2 data warehouse to link lab data and logistics management information system (LMIS) data. According to sources, the lab and LMIS systems have limited data available and the country has been working to increase use of DHIS2 data.

While the availability of data has improved, the country systems still need time to mature with more robust data collection and use.

Demand and Usage

The primary users of the Health Situation Room are envisioned to be the Districts. Initial trainings for the Lesotho Health Situation Room end users in-country were led by a contractor and the UNAIDS Regional Office over a two-day period; the Ministry of Health has not yet conducted trainings. UNAIDS and the Ministry of Health had planned to conduct refresher trainings on SISENSE, but the plans have been put on hold due to COVID-19 country priorities.

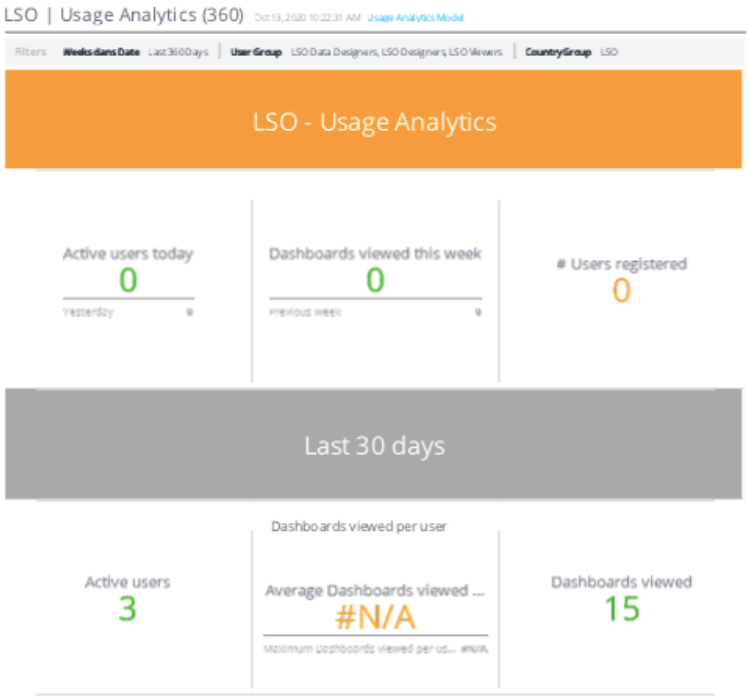
According to a UNAIDS staff member, due to the transition of IT platforms and COVID-19 the demand and usage has been low. However, having access to the data in the Health Situation Room has promoted use of data from DHIS2 at different levels of government and encouraged the culture of data use.

The Health Situation Room, according to a UNAIDS staff member, pushed the country stakeholders to improve the data quality and address concerns; it also led to the improvement of a maternal health labour and delivery form to support electronic data collection.

The current dashboards in the Lesotho Health Situation Room were developed by the UNAIDS Regional Office and government services have not created any to date.

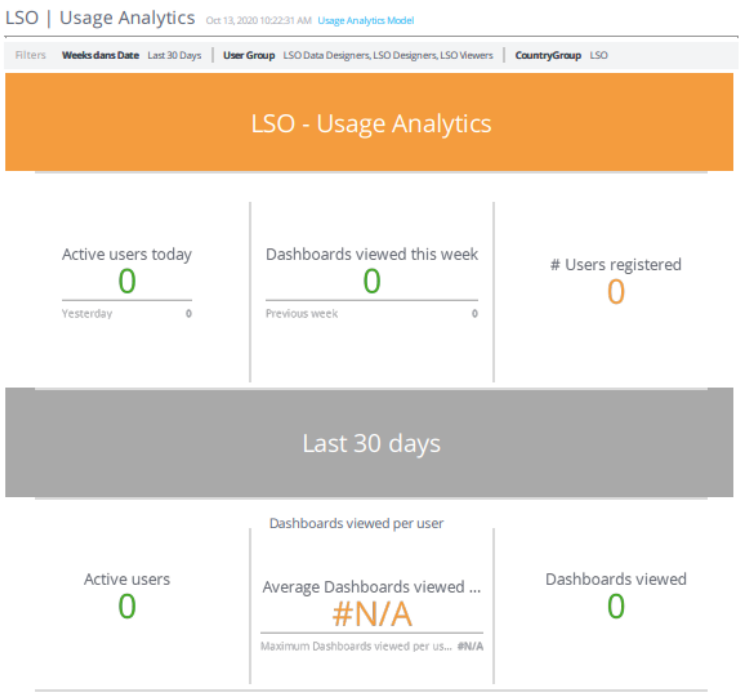
Based on a SISENSE usage analytics report pulled on 13 October 2020 reflecting the prior 360 days there were 3 active users that collectively viewed 15 dashboards. Active users included an individual from UNICEF, the UNAIDS Country Office and the IT Manager from the Ministry of Health that supports the Health Situation Room.

Figure 36: Lesotho Sisense 360 Day Usage Analytics Report



Based on a SISENSE usage analytics report pulled on 13 October 2020 reflecting the prior 30 days, there were no active users.

Figure 37: Lesotho Sisense 30 Day Usage Analytics Report



In terms of engagement with other partners and end users, a UNAIDS staff member indicated the following:

- District Health Information Offices have accounts;
- UN colleagues have engaged;
- UNICEF colleagues infrequent use;
- Global Fund was granted access, but unclear on utilization; and
- Conversation with Centres for Disease Control and Prevention about access and use, but unclear of the current status.

While the Lesotho Health Situation Room does not appear to be clearly embedded in a wider government strategy, it is mentioned in the Lesotho HIV Measure and Evaluation Strategic Plan.

Sustainability

The sustainability and plans for country ownership of the Lesotho Health Situation Room is currently unclear.

The Ministry of Health has limited capacity to resource the Health Situation Room, with three individuals allocating a small percentage of their time to provide support. It is unclear if there are other available, but untapped resources or if additional funding may become available to support investments in country resources to manage the Health Situation Room information technology (IT) and programmatic components.

There may be opportunities to explore alternative government custodians for the Health Situation Room where additional resources with appropriate programmatic and IT expertise may be available.

Dashboards Overview

The following nine dashboards are currently accessible in the Lesotho Health Situation Room:

- HIV Epidemiological Burden
- HIV Testing – no actual data or dashboard available
- Test and Treat – no actual data or dashboard available
- Antenatal Care Figures 2020 Q1 comparison to 2019 Q1 – no actual data or dashboard available
- Antiretroviral therapy (ART) Figures 2020 Q1 comparison to 2019 Q1 – no actual data or dashboard available
- COVID-19 Overview
- Z_1 COVID-19 Overview
- Z_2 COVID-19 Overview
- Z_3 COVID-19 Overview

The live business matrix in the Health Situation Room did not have any DHIS2 indicators, only city longitude and latitude data.

Considerations for the future

Below is a summary of key observations and suggestions for consideration.

Table 20: Lesotho observations and considerations for the future

Observations	Suggestions for the future
Need to define the long-term vision and future state of the Lesotho Health Situation Room	▪ Hold a workshop to bring together key stakeholders (e.g. National AIDS Control Council, Ministry of Health, etc.) to define country requirements/needs and long-term vision/roadmap to define a desired future state and what is needed to get there; ▪ Develop a communication plan to document and disseminate the long-term vision; and ▪ Identify key workgroups for further stakeholder engagement.
Limited capacity to support the Lesotho Health Situation Room in the Ministry of Health	▪ Conduct an assessment of resourcing and roles and responsibilities needed to support the operations of the Lesotho Health Situation Room; ▪ Assess UNAIDS capacity to provide additional funding and resources to Lesotho; ▪ Assess additional funding opportunities and partners that can be leveraged; and ▪ Assess options for custodianship of the Lesotho Health Situation Room.
Need to increase demand and usage	▪ Re-assess the list of end users with accounts to ensure the right individuals have accounts and inactive users are removed; ▪ Launch a refresher training for end users; and ▪ Develop self-service/directed training materials.

Annex 1: Lesotho Health Situation Room Documentation

The table below provides a list of documents provided by UNAIDS to inform the evaluation of the Lesotho Health Situation Room evaluation.

Document Title	Document Date	Summary Description	Notes
Lesotho Situation Room Launch Presentation Script 2018	May 8, 2018	Presentation slides for the launch of the Lesotho HIV & Health Situation Room.	Presenter(s) unknown. Duplicate copies provided.
Lesotho Demo	November 2017	Presentation slides with a series of HIV & Health Situation Room dashboards.	
Lesotho business matrix Reviewed_24 February 2020	February 24, 2020	Business matrix of Lesotho Health Situation Room indicators.	
2017.055 Dr Nyapane Kayae MoH Lesotho	August 22, 2017	Official UNAIDS communication to the Lesotho Minister of Health on the Lesotho HIV & Health Situation Room. Includes information on a regional training and high-level next steps.	
Lesotho Situation Room User Template	N/A	Spreadsheet with a list of names, contact information and Health Situation Room username and password information.	Unclear if this document is for a training or to document the licenses/ accounts for the live Lesotho Health Situation Room.
Archive Do Not Use – Lesotho business matrix July 2017	July 2017	Archived version of the Lesotho Health Situation Room business matrix.	
DHIS and AIDSInfo Groups and Descriptions	N/A	Spreadsheet with a list of indicators from DHIS and AIDSInfo.	Indicator tab is missing the descriptions. Date unknown.
Facility List from DHIS	N/A	Lesotho facility longitude and latitude coordinates.	
Lesotho MAJ 2018 – Additional Indicators Submitted 14 August – Integrated on 20.08.2017	August 20, 2017	Spreadsheet with a list of indicators for the Lesotho Health Situation Room.	
Lesotho Launch Checklist	May 8, 2018	Includes a list of activities, timelines and responsible team member for activities to support the launch of the Lesotho Health Situation Room.	
Lesotho Flyer	N/A	Draft Lesotho Health Situation Room flyer with notes.	Duplicate copies provided.
iVEDiX HIV AIDS Case Study Lesotho Print	N/A	Final version of the Lesotho Health Situation Room flyer.	
Image files	N/A	Lesotho Ministry of Health logo. Lesotho country flag image. Lesotho coat of arms image. Lesotho background image.	
Country Theme Guide Lesotho	N/A	iVEDix document on determining requirements and preferences for the Lesotho theme on the Health Situation Room platform.	
Lesotho Health Management Information System Policy	June 2018	Lesotho's Health Management Information System policy addressing challenges related to legislation,	

Document Title	Document Date	Summary Description	Notes
		governance, resources, infrastructure, data security and confidentiality and more.	
Lesotho Health Management Information System Strategic Plan 2018-2022	N/A	Lesotho Health Management Information System Strategic Plan 2018-2022 was developed to guide the development of HMIS in the health sector.	
Lesotho HIV & AIDS Monitoring and Evaluation (M&E) System Assessment Report		A review of the implementation of the M&E Plan and overall HIV M&E System to inform the development of the new National HIV M&E Plan 2018/19-2022/23. This report is therefore based on a rapid assessment undertaken in June 2018.	Working draft and final draft versions provided.
Launch of the HIV and Health Situation Room – Press Release	May 8, 2018	Press release on the launch of the Lesotho Health Situation Room.	PDF and Word versions provided.
Lesotho Training Agenda	N/A	Information on the Lesotho Health Situation Room training for national and district SI officers.	Version unclear. No information on attendees.
Lesotho HIV Situation Room Training Programme 15 January 2018	January 15, 2018	Information on the Lesotho Health Situation Room training for national and district Strategic Information officers.	Version unclear. No information on attendees. Duplicates provided.
Lesotho HIV Situation Room 23-06-16 Revised 3 November 2016	November 3, 2016	Lesotho HIV Situation Room concept note that outlines components of the project and status information on progress.	
Lesotho National HIV and AIDS Monitoring and Evaluation Plan 2018/2019 – 2022/2023	N/A	The National HIV & AIDS Monitoring and Evaluation Plan is to guide coordinated and efficient collection, analysis and use of data; enabling tracking of progress in the national HIV response and enhancing evidence informed and sound decision-making.	
Lesotho Ministry of Health – National eHealth Strategy 2019 - 2023	N/A	The Lesotho eHealth Strategy which outlines guidance to the Ministry of Health and partners to minimize the gaps through the application of eHealth initiatives to improve service delivery and health outcomes, to complement other health systems initiatives.	
Lesotho Situation Room Training	N/A	Lesotho Health Situation Room training slide deck with information on group work.	
Copy of Uganda Situation Room Training – Group Works 1 & 2	N/A	Uganda Health Situation Room training slide deck with information on group work for groups 1 and 2.	Uganda information.
Copy of Uganda Situation Room Training – Group Work 3	N/A	Uganda Health Situation Room training slide deck with information on group work for group 3.	Uganda information.
Copy of Situation Room – Project Overview Uganda	January 2018	Uganda Health Situation Room project overview and concept note.	Uganda information.

Document Title	Document Date	Summary Description	Notes
Copy of Detailed Agenda for the Uganda Health Situation Room Training	N/A	Detailed agenda for the Uganda Health Situation Room training.	Uganda information.
Copy of Copy of Screenshots Situation Room - Kenya	N/A	Kenya Health Situation Room screen shots.	Kenya information.
Copy of Copy of Kenya Health Situation Room Launch Presentation	9/17/2015	Kenya Health Situation Room launch presentation.	Kenya information.
An additional 20 documents in a sub-folder labeled 'Brian Training Materials'.	Varied	A mix of graphics, training and help desk/support resources.	

Mozambique

History and Background

The Mozambique Health Situation Room (HSR) planning started in 2017, with a concept note developed in 2018, but it has not yet launched. The Mozambique Health Situation Room has been a partnership between UNAIDS, the Mozambique Conselho Nacional de Combate ao SIDA (CNCS), the GTM (Mozambique multi-sectoral working group for strategic information) and has political support from the NACC Director and First Lady.

The Mozambique Health Situation Room is expected to go live in early 2021 using the annual HIV estimates generated at the provincial and district levels and roll-out plans are being developed but were not provided to the evaluation team. The GTM will be simultaneously rolling out the Monitoring and Evaluation Plan of the fifth National Strategic Plan for the HIV Response (2021–2025) and will be working with the 11 provinces to provide training and support local implementation. The GTM training for the 11 provinces is to include a training on the Mozambique Health Situation Room.

To date, the Mozambique HSR has received funding from UNAIDS and through a U.S. Centers for Disease Control and Prevention Cooperative Agreement. No Mozambique government funds have been provided.

Country Digital Health Enabling Environment

Mozambique is in the process of updating the National Health Information Strategy 2009–2014. Limited other information is available on Mozambique's digital health enabling environment (e.g. policies, infrastructure, architecture, workforce, strategy, standards, interoperability, etc.) and much of the health sector is still paper-based.

According to the ITU's 2017 Information and Communication Technology (ICT) Development Index, Mozambique is ranked 150 out of 176 countries globally with 54.1 per cent of citizens owning a mobile phone and 16.2 per cent of households with internet. [49]

In the documentation of the UNAIDS situation room several prerequisites are stated for supporting countries in the implementation of the situation room. Mozambique falls short in providing access to District Health Information System (DHIS2) and Logistics Management Information System (LMIS) monthly updates to the subnational/facility data, and internet connectivity. However, this might change should the access be granted (namely when permission is received to provide the application programming interface (API) with the HSR), and there is a clear agreement among UNAIDS and national partners that pursuing the HSR concept can support the strengthening of health information systems in Mozambique.

Resourcing and Governance Structure

The lead organization for the Mozambique Health Situation Room is CNCS. There is one CNCS point of contact who is the Measure and Evaluation Manager but there are no other assigned NACC staff.

The GTM provides multi-sectoral strategic information expertise and coordination and is the governing body which provides direction and coordination for the Mozambique Health Situation Room. GTM participants include:

[49] https://www.itu.int/net4/ITU-D/idi/2017/index.html

- NACC (chair)
- UNAIDS (co-convener)
- National Institute of Health
- National Institute of Statistics
- Centers for Disease Control and Prevention
- USAID
- World Health Organization
- Implementing partners: Elizabeth Glaser Pediatric AIDS Foundation, Fundação para o Desenvolvimento da Comunidade (FDC)
- Civil society: Lambda–Mozambique Association for Sexual Minority Rights

The GTM group maintains a terms of reference document, but it was not provided to the evaluation team.

Of note are the different objectives of the NACC and the National Institute of Health which manages the Mozambique Health Observatory (funded by U.S. Centers for Disease Control and Prevention) which reportedly has some overlap in programmatic data sharing and visualization objectives. The National Institute of Health manages the National Health Observatory (ONS) and is responsible for data analysis, triangulation and visualization of various health domains, including HIV. They have dedicated staffing and IT infrastructure, although they have had challenges with accessing updated and validated programmatic data. There have been conversations exploring the potential link between the ONS and HSR, however, these conversations require high-level buy-in given the scope and mandate of CNCS and the National Institute of Statistics. Some stakeholders were cautious about the added value of the Mozambique Health Observatory given similar visualization functionality as the District Health Information Software (DHIS2).

Data Sources

Due to a lack of formal data-sharing agreements and a *de facto* policy of not sharing country data outside of Mozambique, the project experienced significant challenges with getting access to Mozambique's health management information system (i.e. DHIS2) and other data sources. Stakeholders explored an option for the Ministry of Health to pull aggregate data out of DHIS2 and share with the Health Situation Room, but discussions were paused given data-sharing concerns and level of effort required to further manipulate and transform the data. As a result, key partners have pivoted towards a phased approach to data sharing to meet the country where it is and start by addressing an immediate challenge on getting access to the HIV estimates data. The HIV estimates data will be updated annually. The intention is to work towards future phases which include appropriate agreements in place and connections to DHIS2.

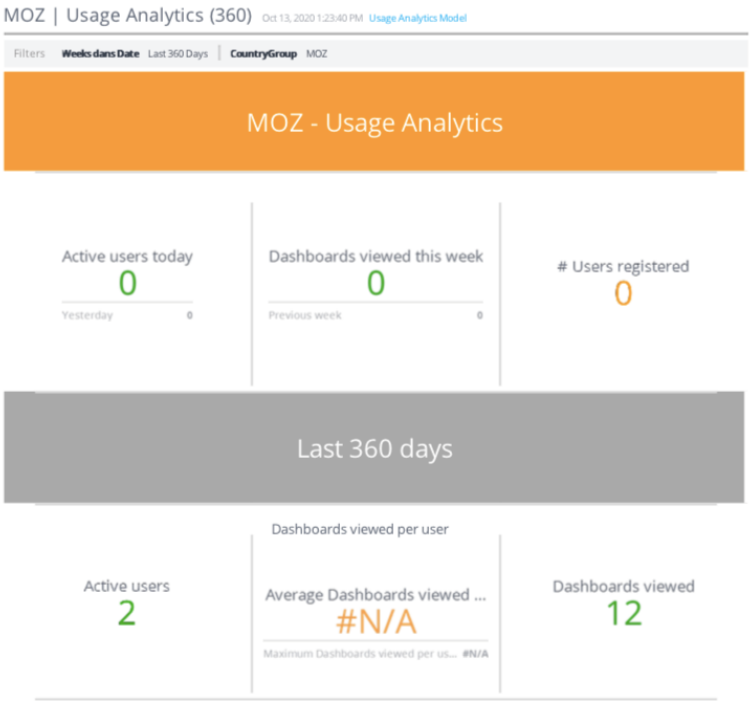
Given country data-sharing challenges and plans to launch with only the HIV estimates data, there are no data-sharing agreements, memorandums of understanding, contracts or other similar agreements in place to support the Mozambique Health Situation Room. In addition, there currently are no Standard Operating Procedures (SOPs) available to manage change control processes and provide guidance to end users on creating dashboards, adding/removing indicators and sharing/publishing data.

Demand and Usage

There is currently no demand and usage information available given the Mozambique Health Situation Room is not yet live.

Based on a SISENSE usage analytics report pulled on 13 October 2020 reflecting the prior 360 days there were two active users who collectively viewed 12 dashboards. Active users included the UNAIDS Country Office and CNCS.

Figure 38: Mozambique 360 Day Usage Analytics Report



No additional training materials for the rollout were provided, but the GTM plans to train the 11 provinces on the Mozambique HSR.

Approximately 10 accounts are available (but currently no licenses as the annual license must first expire in order to renew payment) for the Mozambique Health Situation Room. It is unclear what the approach is for approving and distributing accounts/licenses to key stakeholders.

Sustainability

No information was provided on sustainability plans and there are sustainability concerns amongst stakeholders based on limited NACC human resources and IT capacity, lack of funding, data-sharing challenges, issues with buy-in from key stakeholders given the potential overlap with other systems, and a less mature country digital health enabling environment.

The software seems underutilized (SISENSE usage statistics) in Mozambique. Its value is highest when used for frequently updated data from multiple datasets, but such data is currently unavailable for inclusion. From a sustainability perspective, considering the purposefulness of the software and its maintenance costs, if access to frequent updates of DHIS2 data will not be available, it will be important to consider whether, in the case of Mozambique, the more limited annually updated data could also be used on free existing data visualization platforms (ADR, SPECTRUM software, or other).

Dashboards Overview

The UNAIDS team developed the current dashboards available in the Mozambique Health Situation Room based on the AIDSInfo HIV estimates data. The ten dashboards included across several folders are:

- Key Population Size Estimates, 2017 – dashboard created but not currently live
- HIV Epidemiological data
- Overview – no actual data or dashboard available
- COVID-19 overview
- Antiretroviral treatment (ART) coverage
- HIV prevalence and people living with HIV/AIDS (PLHIV)
- New HIV infections and HIV incidence
- Young people – ART coverage
- Young people – HIV prevalence and PLHIV
- Young people – new HIV infections and incidence

Considerations for the future

Below is a summary of key observations and suggestions for consideration.

Table 21: Mozambique observations and considerations for the future

Observations	Suggestions for the future
Unclear sustainability plans and long-term vision	▪ Conduct a country stakeholder (e.g. government, donors, academia, civil society, other partners) analysis of requirements, needs, ownership, etc. to inform future phases. ▪ Develop a Mozambique Health Situation Room strategic plan/roadmap outlining the programme vision, objectives, and future state plans. ▪ Engage a larger set of donors to fundraise additional funds to support investments in the Mozambique Health Situation Room.
Limited NACC capacity	▪ Conduct an assessment of resourcing and roles and responsibilities needed to support the operations of the Mozambique Health Situation Room. ▪ Engage a larger set of donors to fundraise additional funds to support investments in NACC resources. ▪ Assess UNAIDS capacity to provide additional funding and resources to Mozambique. ▪ Assess alternative options for custodianship of the Mozambique Health Situation Room.
Data sharing challenges	▪ Engage in peer-to-peer learning from other countries with Health Situation Room programmes to identify sample data-sharing agreements and understand promising practices. ▪ Develop a business case justification for access to DHIS2 and other systems in future phases of the Mozambique Health Situation Room. ▪ Facilitate a working session with key country partners to discuss data sharing challenges and options to identify a path forward.
Utility of the HSR platform (SISENSE)	▪ Assess the needs, usage, access to DHIS2 and plans for the tools on data visualization, and the utility or purposefulness of the current HSR platform (SISENSE)

Annex 1: Mozambique Health Situation Room Documentation

The table below provides a list of documents provided by UNAIDS to inform the evaluation of the Mozambique Health Situation Room evaluation.

Document Title	Document Date	Summary Description	Notes
User and Administrator Roles and Responsibilities	N/A	Identifies target users at different levels and how the Health Situation Room can support their work.	No Mozambique-specific information.
Health Situation Room: Country Implementation Concept Note	N/A	Template for the Health Situation Room concept note.	No Mozambique-specific information.
Republic of Mozambique Ministry of Health Directorate of Planning and Cooperation Health Information Department: Health Information System (HIS) Strategic Plan 2009–2014	October 2009	Identifies Mozambique's strategic objectives, priorities and recommended actions to strengthen HIS in-country.	Several years out of date. Unclear if there is an updated HIS Strategic Plan.
Situation Room Data Structure	N/A	A list of 15 measures associated with different provinces and districts, as well as demography and year.	Unclear purpose of the document. No date, no version # and no clear author/document owner.
Mozambique Situation Room Status Update Report	N/A	Outlines key deliverables, % completion on the key deliverables and a description of action steps.	There are four key deliverables none of which are 100% complete. The contract is marked as 25% complete. The notes section indicates, "*…there has been difficulty with national colleagues to obtain access to DHIS2 and data, there have been significant delays in the implementation of the Mozambique Situation Room.*"
Mozambique Key Population Size Estimates	30 August 2019	Visualizations of key population size estimates in Mozambique across three indicators.	Data appears to be from 2017.
Equipment specs Situation Room HDW SR – Mozambique 2017	N/A	List of hardware specifications for the Health Situation Room.	Does not provide information on the status of the equipment purchase, distribution or set-up.
Dear Eva_Update on Moz SR_23 October 2019	23 October 2019	Communication to Eva sharing learnings from other country Health Situation Room implementations and asking for Mozambique commitment to provide project resources.	Sender unknown; timestamp unknown. Assume the intended recipient is Eva Kona Kiwango in the Mozambique UNAIDS Country Office. No insight into the response from Eva.
Business matrix – Mozambique V14_14 August 2018	14 August 2018	Indicator mapping spreadsheet (i.e. business matrix) for the Mozambique HSR.	No clear author/document owner. Unclear what the highlighting signifies.

UNAIDS stakeholders interviewed and consulted:

- Makini Boothe, UNAIDS Mozambique
- Eva Kona Kiwango, UNAIDS Mozambique
- Taavi Erkkola, UNAIDS HQ
- Alex Allouin, UNAIDS HQ

Namibia

History and Background

Discussions began with Namibia in June 2016 when a group joined a Situation Room study tour to Kenya, followed by a commitment from the Ministry of Health and Social Services (MoHSS) which was reaffirmed in May 2018, when the Namibia representatives joined the regional event in Lusaka, Zambia. The Minister of Health reaffirmed his support in a written response to UNAIDS, agreeing the data sharing. To progress implementation two members of staff from MoHSS were supported to participate in the Centres for Disease Control and Prevention (CDC) Africa Situation Room workshop (Addis Ababa 18–20 February 2019). A further two members of staff from MoHSS were supported to participate in business matrix development training at the Situation Room workshop in Johannesburg (27–29 March 2019). Later that year three national health information system (HIS) administrators received training.

UNAIDS Regional Office has provided hardware such as computers and screens for the MoHSS and IT departments to display the data visualisations from the SR.

In discussions on how to operationalise the Situation Room in Namibia two major obstacles emerged:

1. The hosting of data outside Namibia is constitutionally illegal; all data hosting must be with the Office of the Prime Minister unless there is a special exemption. This barred UNAIDS from using SISENSE for direct updates of Namibia's data. However, UNAIDS has continued to make the SISENSE account available for Namibia, should they wish to use it. Namibia has shared some data extracts with UNAIDS IT to demonstrate the use of SISENSE.
2. HIV data was not yet fully integrated into DHIS2.

Subsequently, in 2019, in order to promote systematic data sharing with stakeholders for decisions and programming, UNAIDS intensified their collaboration with CDC, PEPFAR/USAID, still in pursuit of the United National Partnership Framework (UNPAF) outcome 4.1.1.1: Support the establishment of functional and integrated statistical systems to increase the availability and management of data for policy-making; the establishment of these systems is expected to lead to evidence-based policy-making which should in turn make institutions more accountable and transparent (as well as more efficient).[50]

A Joint Technical Working Group was established, made up of the HIS directorate and HIV/TB Monitoring and Evaluation division with UNAIDS, WHO, CDC, USAID, which meets monthly to discuss progress. Because of the sensitivity of data security and sovereignty, focus has moved away from launching the Situation Room. Instead, agreement has been reached that the Government of Namibia will use the Palantir data platform funded by USAID (yet to be established) and that UNAIDS will collaborate with the team through the Technical Working Group.

Approval for this is currently with the Department of the Attorney General and a MoU was expected later in 2020.

[50] United Nations Partnership Framework (UNPAF) 2019-2023, The Government of the Republic of Namibia and the United Nations Development System in Namibia

Annex 1: Namibia Health Situation Room Documentation

The table below provides a list of documents provided by UNAIDS to inform the evaluation of the Namibia Health Situation Room evaluation.

Document Title	Document Date	Summary Description	Notes
HIV Situation Room Country Implementation Concept Note	Undated	Summarizes the key requirements for the Situation Room with tentative indicators and projected costs	Incomplete
Visualizations: treatment coverage HIV burden ART coverage	2017?	Illustrative dashboards	Unclear if final, no updated information
Training slides	2017	Training course 1-12 iVEDiX	
Training agenda	2017	Overview of the course above	
User template	undated	Unpopulated	
Dashboard inventory	undated	Inventory of key dashboards	Status unclear
Business matrix	2018		Status unclear
Response to technical review year 4 funds of CDC UNAIDS Co operation Agreement	Jul 2019	1 page summary listing tasks to be undertaken	Highlights ongoing commitment to Health Situation Room operationalization
Letter to UNAIDS from MoHSS	Sept 2018	Reconfirming commitment to Health Situation Room	
Invite to Situation Room Training	May 2019		
Regional M&E data form	2017	Coded indicators	

No substantive interviews were held.

Zambia

History and Background

The Zambia Health Situation room (HSR) was set up with the participation of the Ministry of Health (MoH), and Zambia National AIDS Commission together with Smart Zambia Institute, a Division under the Office of the President mandated to coordinate and implement electronic government for improved service delivery. A national training event introducing the HSR was organized in November–December 2017 and on 6 March 2018 a formal presidential launch of the Situation Room took place. In 2019 the Situation Room platform changed from iVEDiX to SISENSE.

By 2020 national implementation of the HSR was underway and subnational training had been conducted with a view to expanding to subnational level in 2020. Extended country adjusted indicator sets were also planned for 2020 but have been delayed due to COVID-19.

Data Ecosystem

The HSR is aligned with the Government of Zambia's eHealth strategy (2017–22) whose vision is 'To have quality, timely, secure and accessible Health information through an integrated national eHealth system by 2021', and whose mission is 'To promote effective and efficient delivery of Health to all Zambians using ICTs'.

Current status

To date, the usage of the Zambia HSR has been fairly low and feedback from the UNAIDS office suggests that this is because advocacy for the HSR has been pitched at a very high level (presidential and ministerial) which has led to a sense of disengagement among other potential users. Therefore, the HSR is being 'reactivated' with outreach to CSOs and to middle management of the Ministry of Health.

The reactivation includes a revision of indicators to reduce their number and definitions together with the inclusion of demographic variables according to the 116 Districts in the country in preparedness for subnational roll-out. Part of the reactivation process will include consideration of additional data sources for the HSR such as the Logistics Management Information System.

Governance Structure

Lead organization: Ministry of Health M&E and ICT Director, working in collaboration with ICT and M&E deputy directors.

UNAIDS Point of Contact: Strategic Information Advisor

Governance mechanism: According to the MTR[51] there are two working groups for the Situation Room: One technical (IT) and the other programmatic. During implementation the IT group took the lead in managing the Situation Room platforms and determining how it operates. Discussions are underway about how to revise management arrangements so that the focus is not only on ICT but also includes HIV and health programming.

[51] Country Case study Report ZAMBIA. CDC-UNAIDS Cooperative Agreement "Strengthening Public Health Capacity and Strategic Information Systems" Mid-term Evaluation. April 2020

Data Sources for HSR

DHIS2 and Spectrum. Efforts are underway to integrate DHIS and SISENSE into one portal to expand access to regular DHIS2 users. Logistics Management Information System data is being considered under the reactivation process.

There are approximately 100 indicators currently.

Demand and Usage

HSR usage has been low: at 2020, according to the UNAIDS CDC Collaboration Evaluation[52] 'The indicators to be included in the 'business matrix' remain under discussion. According to the same Evaluation[53] 'the Situation Room is not yet operational' in Zambia. Policy makers and parliamentarians who need information on HIV or other health indicators currently contact MoH or the National AIDS Commission (NAC) directly, and use DHIS2 or the Spectrum software.

The 'reactivation' process seeks to address this issue and includes three strategies to increase the number of users of the HSR. One approach is to download dashboards and send them out to as many people as possible as passive viewers and in this way alert them to the fact that the data is available. This is following the success of the COVID-19 pop-ups which have been successful in gaining attention. Another strategy is to reach out to the community of civil society organizations and to focus on a non-controversial issue such as the elimination of mother-to-child transmission in order to gain confidence and interest from the faith-based organizations. Thirdly the screens provided by UNAIDS and SIDA are now installed and operational.

Usage varies by individual and programme: for example, the malaria programme is using the HSR to put up available data, 'even if not 100% perfect' to stimulate discussion on gaps and quality, while the HIV team is extremely careful about publishing the highest quality data possible which often involves delays and data which is several months out of date.

Collaboration and Transparency

MoH has a matrix management process which is useful for enhanced collaboration, coherence and coordination. Under this approach the Deputy Director of ICT is on the HSR team and the Smart Zambia Institute team and reports to the Office of the President.

According to the Strategic Information Advisor, and the CDC Co-operation Agreement Report, the HSR team has an excellent working relationship with other development partners.

Country Ownership and Sustainability

The HSR is considered to be fully owned by the Government of Zambia, although UNAIDS has committed to paying for the SISENSE license for two more years.

The shift from iVEDiX to SISENSE was well managed and there remains a high level of interest and enthusiasm for the SISENSE platform. This is due to the fact that the ICT team in Zambia has owned the process and been involved in understanding the differences between the platforms, and the fact that it has greater autonomy in the use of the software by using the SISENSE platform.

[52] ibid.
[53] ibid.

Lessons Learned to Date

A key lesson emerging from Zambia relates to the extent the HSR can contribute towards gender equality and human rights in the spirit of 'leave no one behind', as well as the importance of *political context.* The UNAIDS CDC Collaboration mid-term evaluation[54] notes that 'Gender equality does not seem to be considered for the Situation Room … whilst UNAIDS is committed to remind the Government of international agreements regarding human rights and HIV, Co-operation Agreement activities on key populations and the more inclusive aspects of gender was discontinued reportedly due to lack of interest from MOH and NAC.' The report goes on to note that 'MSM, injecting illicit drugs and commercial sex work continue to be classified as illegal in Zambia and subject to criminal prosecution. Public pushback to serving the health needs of these populations is vigorous because it is perceived as socially and culturally abhorrent'.[55]

In this context, it is challenging for the HSR to collect and make available data on key populations as there is concern that access to this information may precipitate action against them. This concern was reported to be based on the fact that during a recent meeting of key populations involving some UNAIDS partners, a police raid occurred as the meeting was considered indicative of 'illegal activities'. Some community organizations are therefore concerned that HSR data might be used inappropriately; for example, since the HSR collects District data down to the facility level, if clusters of HIV infections are highlighted in a particular location this may serve as a 'red flag' to the authorities to take punitive action. Discussions are ongoing about how to collect and use such politically sensitive information safely.

[54] ibid.
[55] ibid.

Annex 1: Zambia Health Situation Room Documentation

The table below provides a list of documents provided by UNAIDS to inform the evaluation of the Zambia Health Situation Room evaluation.

Document Title	Document Date	Summary Description	Notes
Zambia mission report and action plan, Geneva, Switzerland	6-9 November 2017	Summarizes the key action items, which form the basis for planning and setting up of the Zambia Health Situation Room.	
Visualizations: treatment coverage HIV burden ARTcoverage	2017?	Illustrative dashboards	Unclear if final, no updated info
Training slides	2017	Training course 1-12 iVEDiX	
Training agenda	2017	Overview of the course above	
User template	undated	Unpopulated	
Dashboard inventory	undated	Inventory of key dashboards	Status unclear
Business matrix child health	Dec 2017, Feb 2018		Status unclear
Health Situation Room: Country Implementation Concept Note	N/A	Template for the Health Situation Room concept note.	No Zambia-specific information.
MSL dashboards	undated		
Minutes from phone call Savvy and Taavi	2019	Explaining status and actions	No follow up to determine what occurred
CDC Co-operation Agreement with UNAIDS Mid-term review	April 2020	Detailed assessment of the HSR as part of the Co-operation Agreement	Lists main learnings as: cost of HSR license is prohibitive; limited number of users affects demand.
Integrated HSR ppt.	Sept 2019	Introduction and overview of HSR	
Integrated HSR sample report	undated		
HSR launch ppt	6.3.2018	Overvew of HSR	
iVEDiX case study	undated	Overview of HSR potential	

No substantive interviews were held.

UNAIDS
20 Avenue Appia
CH-1211 Geneva 27
Switzerland

+41 22 791 3666

unaids.org