NUTRITION INFORMATION IN ROUTINE REPORTING SYSTEMS

A Landscape Analysis for
UNICEF's Eastern and Southern Africa Region

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Acknowledgements

This report was prepared by UNICEF's Eastern and Southern Africa Regional Office.

Contributors

This Landscape Analysis was led by Norah Stoops, for UNICEF Eastern and Southern Africa Regional Office in collaboration with Joan Matji, Mara Nyawo, Grainne Moloney, Kudakwashe Chimanya and Marjorie Volege (Nutrition Section), Maria Muniz and Braeden Rogers (Health Section) and Sean Blaschke (T4D).

This Landscape Analysis would not have been possible without the support and engagement of the countries in the Eastern and Southern Africa Region who gave their time and expertise to answer our many questions about their nutrition information system. Special thanks go to Ministry of Health HMIS staff and nutrition department staff as well as to HISP and WHO staff and UNICEF country office staff in all 21 countries in the region. We especially thank the countries who opened up their information systems for review. This has facilitated the development of the recommendations in this report that, it is hoped, will support improvements to data availability and use across the region and beyond.

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Cover graph: Cover graph shows National level child admissions for severe acute malnutrition (6months – 5 years) 2017-2019, from a medium-burden country in the Eastern and Southern Africa Region.

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Acronyms

App	Application
CO	(UNICEF) Country Office
DHIS2	District Health Information Software version2
DQ	Data Quality
ESA(R)	Eastern and Southern Africa (Region)
ESARO	Eastern and Southern Africa Regional Office for UNICEF
GAVA	Global Alliance for Vitamin A
GMP	Growth Monitoring and Promotion
HIV	Human Immunodeficiency Virus
HISP	Health Information Systems Program
HMIS	Health Management Information System
HQ	Headquarters
IMAM	Integrated Management of Acute Malnutrition
LOU	Letter of Understanding
MoH	Ministry of Health
MUAC	Mid-upper arm circumference
M&E	Monitoring and Evaluation
NA	Not Applicable
OPD	Outpatient Department
PMTCT	Prevention of Mother to Child Transmission
RO	(UNICEF) Regional Office
T4D	Technology for Development
TOR	Terms of Reference
TWG	Technical Working Group
WASH	Water, Sanitation and Hygiene
WCA	West and Central Africa
WHO	World Health Organisation
WHO DQ Tool	World Health Organisation Data Quality Application
UNICEF	United Nations Children's Fund

Glossary

Apps (in DHIS2): These are custom made software applications that can be used to view the data in DHIS2. Pivot Tables are generated using an app. Charts and maps also use apps. There are other apps that can help with viewing how DHIS2 is constructed. The Indicator Search will show how an indicator is constructed, the HMIS dictionary will show all the Data Elements in the DHIS and the WHO Metadata browser shows both data elements and indicators and their respective groups. An important Data Quality App is the WHO Data Quality Tool that shows reporting completeness, reporting timeliness, outliers and missing data.

> ***Scorecard App:*** Designed to show comparisons across facilities/districts/etc for selected interventions. The use of traffic-light colour coding of cells to highlight good, needing improvement and not doing well is also part of the Scorecard App.
>
> ***Bottleneck Analysis App:*** Based on the Tanahashi model allows analysis of interventions using selected tracer indicators to identify where bottlenecks are occurring in the health system. Once configured, the App allows for automated bottleneck analysis, producing the standard bottleneck analysis graphs with current data as available in the DHIS2.
>
> ***Action Tracker:*** Allows selection and tracking of actions identified to address bottlenecks.

The Scorecard, Bottleneck Analysis and Action Tracker Apps have been developed by University of Oslo and HISP Tanzania with support from UNICEF and are now available to download and use within DHIS2.

Count Indicator: This indicator only adds up raw numbers, it counts or adds up gender and age disaggregation. This usually uses category combinations and the denominator is 1.

Configuration of indicators: Indicators need to be configured in DHIS2. This configuration is the process of assigning the correct numerator, denominator and multiplication factor.

Configuration: A change to the DHIS2 platform that can be locally implemented and managed i.e. by MOH Government team. It requires no new software development. Examples of configuration include creating new nutrition indicators or setting up a nutrition Dashboard. UNICEF supports systems that are highly configurable as this allows countries the flexibility to adapt the system to their needs.

Customisation: A change that requires a software engineer to change or add underlying code in the DHIS2 software itself. This usually cannot be done by MOH teams and requires on-going technical support for future functionality and up-grades. UNICEF does not usually support customization as this has implications for sustainability of the system.

DHIS2: Free and open source software used as well as individual patient data in many low- and middle-income countries globally. It is the HMIS software used in 20 of the 21 countries in ESARO

Data element: This is the term used to describe either numerator or a denominator.

This is raw data and is mainly observations of events, for instance how many children were screened using MUAC. The actual raw data values are captured according to each data element. An example would be Antenatal client 1st visit. This can become the numerator for ANC 1st visit coverage and the denominator for Antenatal client tested for HIV. Aggregate data elements are normally used for routine data.

Dataset: A group of data elements that are put together on a form for data capture. It could be a reporting form that is made electronic, so it is the same as the paper data collection tool. A Dataset is assigned to facility together with frequency of reporting so that data can be captured.

Event data: Event data is anonymised data that is captured on both routine and non-routine basis. It can capture single events, like a training report, with details like participant numbers, gender and age split etc. There is no patient or client identifier attached.

HISP: Health Information Systems Programme – a network of DHIS experts with links to the University of Oslo with local offices (nodes) in 10 countries: South Africa, India, Tanzania, Uganda, Rwanda, Nigeria, Vietnam, Norway, Kenya, Malawi.

HMIS: Health Management Information System is the systems and processes whereby a country defines what information it wants to collect and report on in either a paper and/or electronic format. This can be routine aggregated data or individual patient data. The time period for data collection can range from daily, weekly, bi-weekly, monthly, quarterly and yearly. The HMIS reports on activities that range from household, community, facility, sub district and higher.

Indicator: Measure of performance, usually a rate or percentage or proportion. It has a numerator and a denominator and a factor, either a 100% or other value specifically if population is used. Indicators are generally annualised when the denominator is a population figure. The numerator is multiplied by 12 and gives the result as if this was the figure for the year. An example would be Antenatal client 1st visit coverage.

DHIS2 Instance: The national DHIS2 database in a country is called a 'live' or 'production' instance. A country should also have training instance which is used for training purposes. For testing purposes, a Testing or Sandbox instance is used. This prevents using the national production instance being used for purposes other than pure data capture and analysis.

Metadata: This is the term used to describe all the indicators, the data elements, the various indicator and data element groups, the validation rules and the organisational hierarchy. It is data about data.

Numerator and Denominators: Indicators have a numerator and denominator; the numerator is the figure on top and the denominator is the number at the bottom of the calculation. It can be data that is captured monthly, as in Antenatal Client 1st visit or a population figure like population 0-11 months which is only entered yearly.

Organisational Hierarchy: The list of service delivery points/facilities captured in the DHIS2 that are organised into hierarchical geographic units: sub-district/district/counties/provinces/states/regions/national. Facilities are grouped according to a geographical area and according to Facility Type. This is used in data analysis when services and performance can be compared according to both geographical and facility type.

Relative period / fixed period: Data analysis is also done according to time. A fixed period refers to data displayed for a specific time period. Quarter 1 of 2019 will only show data for that specific fixed period. A relative time period is more flexible and changes as the calendar advances. Quarter 1 2019 can be the last quarter if the current calendar data is April 2019, but if the date is August 2019, the last quarter is Quarter 2 of 2019.

Technical staff: this refers to Information Technology staff who are highly skilled in terms of ICT (Information and Communication Technology). This is generally the staff who work with the more technical aspects of DHIS2, this would include server support and version upgrade.

Executive Summary

UNICEF plays an important role in supporting Ministries of Health to collect reliable and timely nutrition and health data through national health management information systems (HMIS). Improving data and information systems and supporting improvements to the HMIS is an area of focus in UNICEF's approach to health systems strengthening, contributing to health systems that close the equity gaps in maternal, new-born, child and adolescent health and nutrition, and work towards Universal Health Coverage. The availability of timely and reliable nutrition and health information supports the development of health-related policies, strategies, plans and budgets at national level and improves decentralized capacity for management. Further, this provides the necessary information for evidence-based prioritisation, resource allocation and monitoring and evaluation. Data availability at a local level (i.e. facility or district) allows for local decision-making, course corrections and improvements to interventions.

With this background, a landscape analysis of the status of nutrition information reported through the national HMIS and the DHIS2 platform was carried out across UNICEF's Eastern and Southern Africa region, including all 21 countries. The status of nutrition information systems in the Ministries of Health was reviewed. Fourteen countries were physically visited, with others were contacted remotely.

Discussions were held with UNICEF staff, and in the Ministries of Health, where possible with both the Nutrition and HMIS teams. A questionnaire was sent in advance and a group discussion took place. All countries reported a Nutrition policy in place with most policies current or currently being updated. The relationship between the Nutrition unit and the HMIS team was generally governed through a Technical Working Group. The process of updating Nutrition indicators, data collection tools and the HMIS itself was not always well defined. Several countries had a routine review process in place, others reviewed on an ad-hoc basis while some were updating the HMIS system for the first time in 5 years or more.

In most countries UNICEF staff were able to access DHIS2. Ten of the twenty-one countries either do not provide access to UNICEF and partners or have a complex mechanism of allowing access. In Areas/Units/Departments where UNICEF staff were given access to DHIS2, they were very comfortable with manipulation of DHIS2 and in some countries staff have been successfully deployed to the Ministry of Health Nutrition Unit with support from UNICEF. Further, in addition, in some countries, UNICEF is working closely with Ministries of Health to strengthen the integration of nutrition information into routine reporting systems, to improve the quality of the data available and to facilitate the regular use of data to improve programme performance across the countries in the ESA region

The use of DHIS2 for Nutrition reporting was carefully examined. Many countries are collecting large amounts of data, and this impacts on data quality. Not all the data collected is converted into indicators. The Sphere Standard indicators used for measuring quality of the Integrated Management of Acute Malnutrition (IMAM) were not always correctly defined. As there was no standard list of nutrition indicators, countries varied in how they collected and reported data. It was also observed that there were problems with DHIS2 configurations giving incorrect indicator values. Therefore, support is needed for countries to assist them to design improved data collection tools and reporting forms

and their configuration/ set up in DHIS2. Issues with data quality were also noted in terms of incorrect configuration of indicators, with no adherence to best practice conventions for data element and indicator naming, among others (see detail in section 6.2.3). Across the region, there was limited use of dashboards that would show current nutrition program status and support actions and decision making, suggesting that use of the data collected in the DHIS2 is not optimal. Within UNICEF there appears to be a high degree of use of data/information for program planning and decision making, however this is not always translated into good use of data by the nutrition programs in MOH.

Recommendations for UNICEF and Ministries of Health include developing a list of standardised indicators with data elements and providing support to countries when it comes to revising indicators and datasets in DHIS2. It is also recommended that there be improved presentation of country data in the form of dashboards to allow easy review of key information at all levels (national / regional / district). Capacity building for both UNICEF and MOH Nutrition staff in using DHIS2 is important so that maximum use can be made of the routine HMIS and the rich information it can provide.

1 Introduction

Accurate and timely nutrition information is crucial for monitoring programme performance and tracking progress against national and global targets on a regular basis. It is further crucial for monitoring coverage of interventions in order to highlight key areas for improvement, and advocate for and justify fund allocation. A strong routine data reporting system is one of the building blocks of a well-functioning health system and is a key area of work for health systems strengthening and a key focus for UNICEF support in order to build more resilient health systems.

Nutrition information is not always captured through national routine information systems in the health ministries. This makes it difficult to track and evaluate progress made against nutrition targets at central as well as decentralised levels, resulting in lack of use of nutrition data for programme performance improvement. As a first step to support the better reporting of nutrition data in national routine information systems as well as use of that data for evidence-informed programme improvements and course corrections in the Eastern and Southern Africa region, UNICEF Regional Office commissioned a landscape analysis of the use of DHIS2 for nutrition programming in the region.

The focus of the landscape analysis was:

- To assess the status of capture of nutrition information through routine systems (the National Health Management Information System – HMIS) and the use of DHIS2 for routine nutrition information reporting and analysis.
- To inform how UNICEF can better support government-led national improvements to the routine HMIS.
- To contribute to building both a global and regional standard set of indicators recommended to be monitored through the routine information system.

The Landscape Analysis was carried out between February and November 2019 for all twenty-one countries in UNICEF's Eastern and Southern Africa Region (ESAR). The HMIS/DHIS2 was reviewed for 16 of the 21 countries, either in-person (through an in-country visit) or remotely, and the findings are summarised in this report. To complete the Landscape Analysis, countries responded to a detailed questionnaire (Annex 8.2). Responses were provided by both UNICEF and Ministry of Health colleagues, and responses were collected in person through meetings in 14 countries[1], and remotely via email and skype calls in two countries[2]. Five countries did not complete the full Landscape Analysis questionnaire, these were Comoros (who are in the process of converting to DHIS2), Botswana, Eritrea, Somalia and Zambia who all provided key information through a summary spreadsheet that is included in Annex 8.3. A country-specific report was produced for each HMIS/DHIS2 that was reviewed, with country-specific recommendations for improvement (a list of reports available on request is provided in Annex 8.5).

This report presents some background information around DHIS2, documents the methodology used for the landscape analysis, presents the findings including examples of best practice and sets out the key recommendations for improving reporting and use of nutrition information in the Eastern and Southern Africa region. The Landscape Analysis looked at the use of the DHIS2 platform aggregate function which concentrated

[1]Angola, Burundi, eSwatini, Ethiopia, Kenya, Lesotho, Malawi, Mozambique, Namibia, Rwanda, South Africa, Tanzania, Uganda, Zimbabwe.
[2]Madagascar and South Sudan.

on data entry and analytics. The systems assessed for this report all refer to the routine monthly health information reporting that most countries should have in place. It does not refer to disease surveillance, record reviews or other methodologies related to monitoring and evaluation.

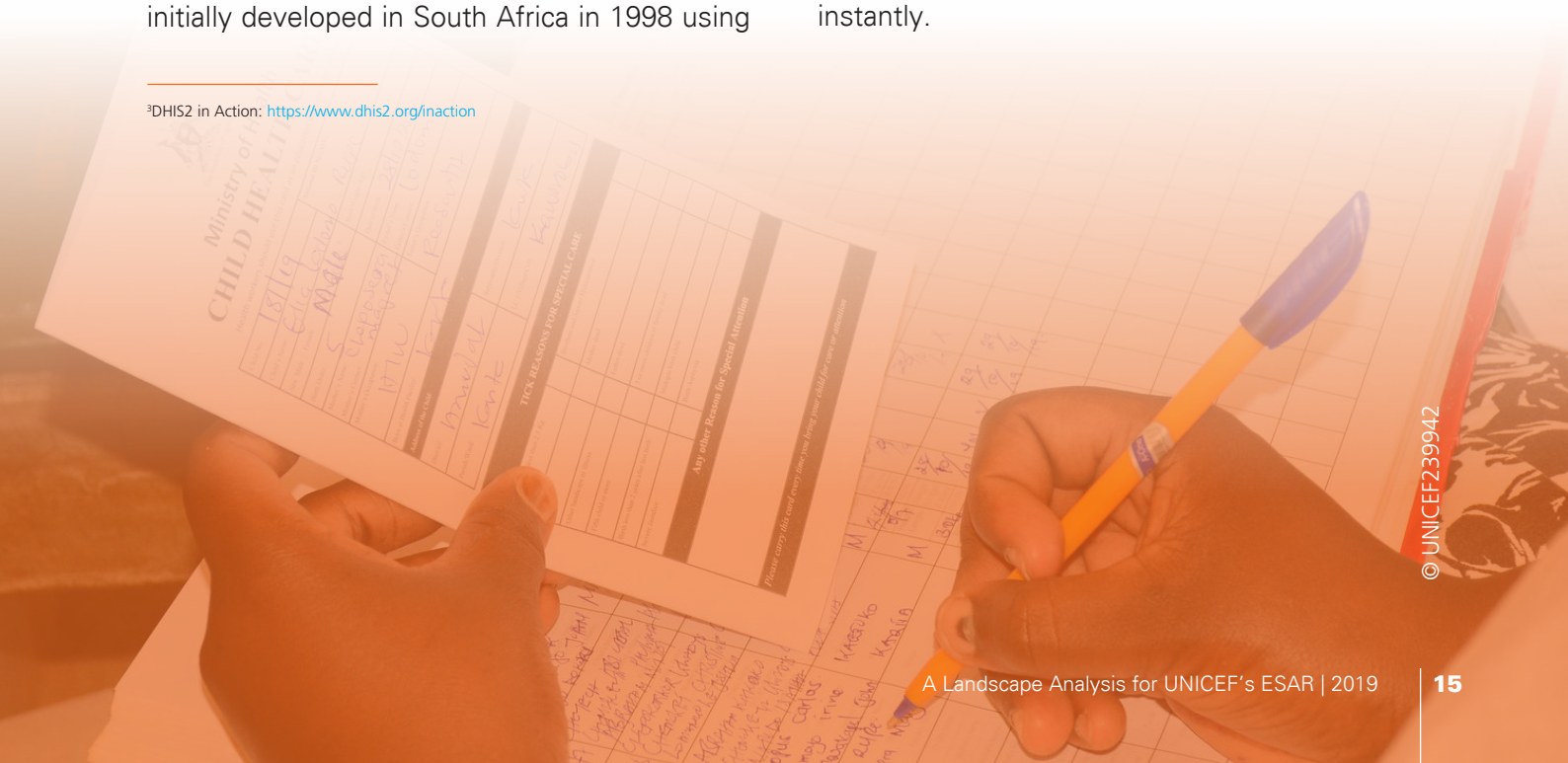
1.1 Health Management Information Systems (HMIS)

All 21 countries have an HMIS Unit embedded in the Ministry of Health. The Monitoring and Evaluation Unit may be part of the HMIS, or may be separate, and the people responsible for the actual configuration of DHIS2 are often situated in another section – usually an Administrative section for Management Services within the Ministry of Health. Nutrition Unit programme teams may or may not have their own Monitoring and Evaluation staff, and how they interact with the HMIS Unit is also not always clear. This split of roles and responsibilities at times results in a disjointed approach to revision of indicators and correction of any DHIS2 configuration errors and can affect the smooth functioning of the whole health information system.

DHIS2, District Health Information Software version 2, is a relational open source, web-based health management information system (HMIS) platform built on Postgres that requires connectivity, (i.e. the internet) to be able to be accessed and used. It is a generic platform that supports a wide range of uses including beyond the health sector. The software supports capture, management and visualization of routine data (aggregate, event, and case based). It was initially developed in South Africa in 1998 using Microsoft Access and linked Excel Pivot Tables. This concept was adapted by the University of Oslo Informatics Department and converted to become an internet-based database in pilot countries and finally reached an advanced stage with a full roll-out in Kenya in 2010. This set the stage for it to become the leading free and open source software platform used by an increasing number of low- and middle-income countries as a mechanism for handling capture, management and visualisation of routine data (aggregate, event and more advanced patient-level data using DHIS2 Tracker). It is now used by 67 low and middle-income countries, including national-scale deployments in 46 countries and pilot programs in 21 countries[3]. Use of DHIS2 is supported by the Health Information Systems Programme (HISP), which is a global action research network first established in South Africa and supported by the University of Oslo, now with 'nodes' in 10 countries.

The use of applications (apps) like the Scorecard app, Bottleneck Analysis app and Action Tracker app together with the dynamic and interactive dashboards that can be generated using information available within DHIS2 instances simplifies the process of data synthesis, visualization and use for planning, performance management and accountability purposes. The apps support end users to assess system performance using routine information sourced from DHIS2 and other systems, and then to use this information to prioritize and implement evidence-informed corrective action. Over time many applications (apps) have been developed to expand the functionality of the core platform of DHIS2. They can be downloaded and installed instantly.

[3]DHIS2 in Action: https://www.dhis2.org/inaction



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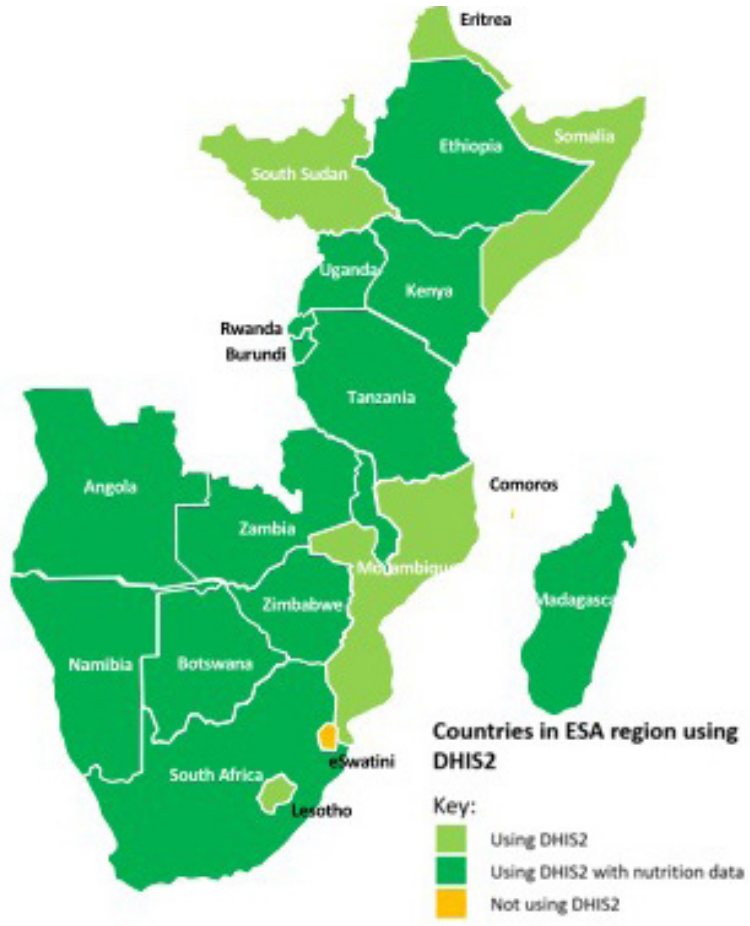
1.2 Use of DHIS2 Platform in ESA Region

Figure 1: Use of DHIS2 across UNICEF Eastern and Southern Africa Region



Nineteen of the twenty-one countries in UNICEF's Eastern and Southern Africa Region (ESAR) use DHIS2 as the platform for data management and use. Of the remaining two, one is currently converting to DHIS2 (Comoros), while one country (eSwatini) uses a patient-based system for data collection with analysis and output reports are still in the process of being developed. The setup, hosting and configuration of DHIS2 can be a complex task, with a large degree of technical skill required. Some countries have not included all the relevant nutrition data into DHIS2, and this has led to parallel information flows. In all these countries there is a process to move all the data being captured in a parallel system into the routine data into DHIS2.

There are 16 Anglophone countries in the region, where English (and Swahili) are used for the DHIS2, 3 Francophone countries and 2 Lusophone countries. Ethiopia follows the Ethiopian calendar as opposed to the Gregorian calendar which is used throughout the rest of the region.

1.3 Terminology

In HMIS, and in this report, an indicator is a variable that has a numerator and denominator and uses a factor to get a result. This could be a percentage, a ratio or per 1,000 population. Numerators and denominators are data elements, which are displayed on reporting forms. Count indicators are raw data that consists most often of the sum of gender and/or age disaggregation. There is often confusion about the meaning of terms such as 'Indicator', with some programs referring (incorrectly) to all raw data collected, as well as calculated values, as indicators.

Once the set of indicators with numerators and denominators is defined, they should be set up in an electronic data handling system that will capture, validate, analyse and provide reports for program management and performance assessment. The electronic data handling system most often used in UNICEF's Eastern and Southern Africa region is the District Health Information Software, Version 2 (DHIS2; see Figure 1).

1.4 The Planning and Information Cycle

Ideally, countries should develop a Health Information Systems Strategy, leading to an HMIS framework which guides actions and activities. Having an essential indicator dataset to measure goals and targets from the national strategic plan, is a crucial first step. This requires active participation from all programs and the HMIS Unit. Each health program should define its goals, objectives, targets and resulting indictors. In this process of defining indicators, the numerators and denominators should also be defined.

Figures 2 and 3 show the steps in the planning cycle and the data handling process in the information cycle. These two cycles complement each other – what information needs to be collected comes from the Planning Cycle and then after the data has gone through the various stages in the information cycle, it is used to monitor and evaluate if the targets that were set have been achieved.

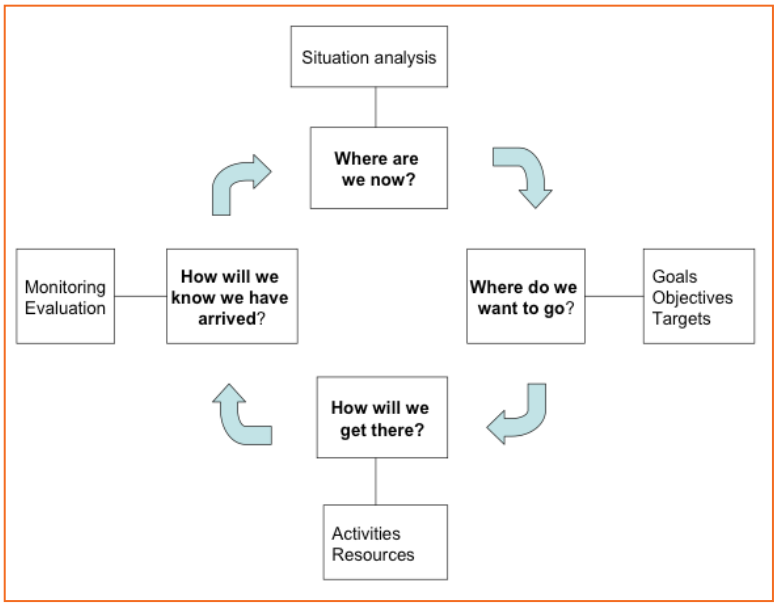


Figure 2: The planning cycle

The Planning cycle defines the basis for understanding how to measure a program. The situation analysis documents the current status in a country, leading to decisions on what needs to be achieved in terms of goals, objectives, indicators and targets. Actions are taken to achieve these objectives and goals. The final step of this cycle is to monitor and evaluate if the set targets have been achieved.

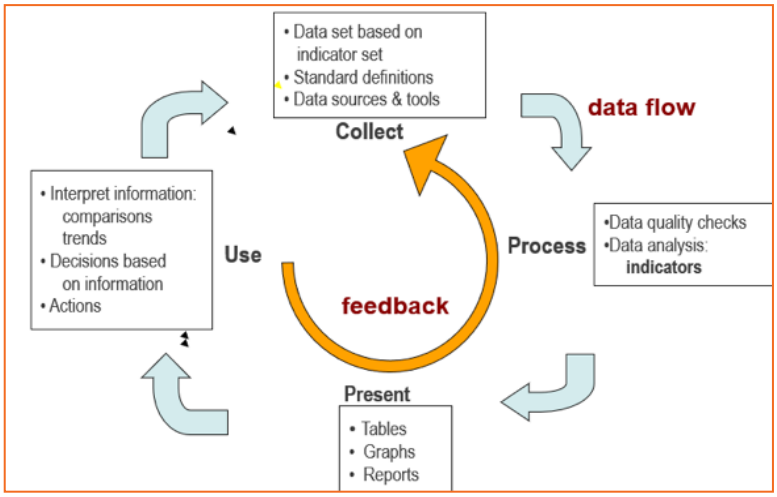


Figure 3: The information cycle

This cycle shows how data flows, starting from the decisions on what to collect – data elements that are based on indicators, to data quality checks, conversion to indicators, presenting the data/information and then using it to assess performance.

It is crucial to follow this process in order to define what should be included in a national HMIS. This Landscape Analysis found that, at times, the process used to define what should be collected starts with the development of a reporting form which collects raw data (data elements) that are captured in DHIS2 without adequate planning as to how the data will be analysed. The process and rationale for the design of the report can at times be to collect as much data as possible with insufficient justification and forethought as to the use of the data during analysis. For example, there were instances where there was no indicator

definition or denominator available behind the data elements that are being reported. This results in bloated datasets (reported from a facility for a specific health program) that at times contain very little information, (there are many zeros reported) and therefore cannot be used in decision making. A further disadvantage of these bloated datasets is that they require a larger server space, which rapidly fills up, requiring more funds to purchase bigger servers. The cost implications of these decisions are usually not considered when designing data collection tools and reporting forms with detailed age and gender breakdowns. A further result is wasted staff time and staff de-motivation in completing complicated data reports.

1.5 DHIS2 skill-sets required

There are different groups of people who use the DHIS2 at country level. These include:

- Highly skilled Information Technology (IT) specialists are required to be able to provide hosting services, perform version upgrading, system maintenance and other technical server related issues. These specialists would ideally have a qualification (e.g. BSc / MSc or equivalent) in computer science.
- The HMIS team and the IT section may take responsibility for the configuration of DHIS2 for in-country set-up, including developing the organisational hierarchy, (the list of facilities, sub-districts, districts and provinces/states that each facility belongs to), data elements and datasets against which data is captured, customisation of indicators and validation rules. This requires a high degree of technical skill plus a clear understanding of both DHIS2 and public health, as well as program specific knowledge.
- DHIS2 is used by 2 main groups of health staff, the people who capture the data and then validate it, and the managers who use the analytics aspects to interrogate and understand program performance.

There is a clear delineation between those who regularly work with DHIS2 – the 'techies' (IT) specialists, and the HMIS and Nutrition Unit staff. The 'techie' group is not always sited within the HMIS Unit. This has the potential to create tension and sub-optimal communication. It was noted during this Landscape Analysis that the technical IT staff who work with DHIS2 are sent to various DHIS2 courses offered (for instance through the University of Oslo), however these courses are seldom offered to the staff of the HMIS Unit, and even less to the Nutrition Unit program staff. These differing roles at times limited communication between these crucial groups and the limited exposure of programme staff to the more technical issues around DHIS2 is likely contributing to some of the mistakes found in the configuration of indicators and the lack of indicators, despite the availability of data.

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2 Methodology

A Landscape Analysis questionnaire was developed with input from the UNICEF ESA Regional Office nutrition and health sections as well as the T4D section. This was used as a basis for discussions with country offices, and to collect a standard set of information from each country in which it was applied. The questionnaire was sent electronically to all 21 countries, along with an introduction of the work to be undertaken as part of the Landscape Analysis.

In order to collect the information, country visits were made to 14 of the 21 countries in the UNICEF ESA region. Country visits took between 2-3 days where meetings were held with UNICEF Nutrition staff and where possible a meeting with Ministry of Health Staff from the HMIS Unit and Nutrition Unit. Skype conference call was used for one country, and the full questionnaire was completed via email for one country. Summary information was collected from the remaining 5 countries (presented in Annex 11.3).

Table 1: Methods used to collect Landscape Analysis information

	Country	Methodology used	Access to DHIS2
1	Angola	Country visit & full questionnaire	Training server
2	Botswana	Summary spreadsheet completed via email	None
3	Burundi	Country visit & full questionnaire	UNICEF user rights
4	Comoros	Summary spreadsheet completed via Skype call	Not currently using DHIS2
5	Eritrea	Summary spreadsheet completed via email	Not currently using DHIS2
6	Eswatini	Country visit & full questionnaire	No DHIS2
7	Ethiopia	Country visit & full questionnaire	None
8	Kenya	Country visit & full questionnaire	User rights obtained
9	Lesotho	Country visit & full questionnaire	Admin rights obtained
10	Madagascar	Full questionnaire completed via email	None
11	Malawi	Country visit & full questionnaire	Admin rights obtained
12	Mozambique	Country visit & full questionnaire	UNICEF user rights
13	Namibia	Country visit & full questionnaire *	Admin rights obtained
14	Rwanda	Country visit & full questionnaire	Partial admin rights
15	Somalia	Summary spreadsheet completed via email	None
16	South Africa	Country visit & full questionnaire	User rights obtained
17	South Sudan	Full questionnaire completed via Skype call	Partial admin rights
18	Uganda	Country visit & full questionnaire	UNICEF user rights
19	Tanzania	Country visit & full questionnaire	None
20	Zambia	Summary spreadsheet completed via email	None
21	Zimbabwe	Country visit & full questionnaire	User rights obtained

*Country visit to Namibia was carried out by the UNICEF ESARO Nutrition Specialist

Where possible access was obtained for viewing the countries' DHIS2 instance, and this resulted in a greater understanding of the use and set-up of DHIS for this review. A report was written after each country visit, detailing the major findings and recommendations for improvement. This was sent to the UNICEF Country Office for comments and any feedback was incorporated, after which a final version was sent to the Country Office for dissemination to the Ministry of Health. Countries not visited were sent a spreadsheet to complete in order to provide some basic details on the nutrition information system.

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3 Findings

3.1 Nutrition Information System environment

3.1.1 Nutrition Policy

All countries visited, or countries from which data was obtained, except one reported that there was a nutrition policy in place. A nutrition policy was considered as either a separate document or part of a national health strategy. The country that did not have a nutrition policy has one under development however with no confirmation of where it will be hosted, i.e. in the Ministry of Health or in the Premier's office. All the Nutrition policy documents had time frames, and most were up to date. Those that were out of date (4 out of 21) were in the process of being updated. Indicators and targets for Nutrition were sometimes provided but there was seldom clarity around the source of the data, means of verification, and what would be obtained from surveys, from routine systems or other M&E data sources.

3.1.2 HMIS and Nutrition collaboration and Technical Working Groups (TWG) in MOH

Table 2: Scheduling for review of nutrition indicators

	Were the nutrition indicators updated within the last 3 years	When is the next planned national revision of DHIS2 indicators?	Is there an agreed timeline for national revision of DHIS2 indicators?
Angola	Yes	No set date	No
Botswana	Yes	In progress	Yes
Burundi	Yes	No set date	No
Comoros	Yes	Will be reviewed during DHIS2 set-up in 2020	No
Eritrea	Yes	No set date	No
Eswatini	Not known	Not known	No
Ethiopia	Yes	No set date	Yes
Kenya	Yes	No set date	Yes
Lesotho	Yes	In progress to finalised by March	Yes
Madagascar	No	No set date	No
Malawi	Yes	No set date	No
Mozambique	In progress	In progress	No
Namibia	No	Rolling revisions on-going	No
Rwanda	In progress	In progress	No
Somalia	No	No set date	Yes
South Africa	Yes	2020	Yes
South Sudan	Yes	No set date	No
Uganda	Yes	No set date	Yes
Tanzania	No	Not known	No
Zambia	Yes	Not known	No
Zimbabwe	No	In progress	No

Most countries reported a close collaboration with the HMIS and the Nutrition Unit within the relevant MOH with mention that a lot of the discussions occur within the TWGs for data and monitoring. The role of the Monitoring and Evaluation Unit was generally seen to be within the broad ambit of the HMIS Unit. In some countries there is a very slow process of adoption of new reporting tools and inclusion of new data elements and indicators that are required. It is also common to find that the responsibility of the Nutrition Unit is limited only to developing a reporting tool with no further input required. This results in the data being collected to enable the creation of indicators; however, no indicators are created or configured in DHIS2.

There is no consistency in how often a country updates its national indicators and associated data elements and reporting tools. While 16 countries reported that their DHIS2 indicators have been reviewed in the last 3 years or that a review is currently in progress (Table 2), just two countries could say when their next review is scheduled, and 7 of 21 countries reported a pre-agreed regular review process (every 2-3 years). These reviews are internally driven by the Ministry of Health HMIS Unit, with varying support from partners. This impacts on how and when DHIS2 is configured. Some countries are currently in the first revision of their DHIS in the last 5 years. Just 6 of the 21 countries reported that there is an existing scheduled process of updating the country indicator list, with associated changes required to what is collected and reported. At times inflexibility and lack of clarity around schedules for indicator reviews and the process for introduction of newly required information results in the development of parallel reporting systems in order to be able to collect new information. Some countries were easily able to add in new datasets and indicators, while for others getting any changes to the actual indicator configuration process was not easy. This is linked to the availability of a formal indicator review process with the process clearer in countries where this exists. As actual configuration, or creation, of an indicator can be a technically complex task, this work tends to remain with the DHIS2 'techie' technical team, who are not public health or program experts. This has resulted in errors found in various DHIS country databases in terms of indicator construction.

3.1.3 Parallel and Supplementary information systems

Table 3: Parallel systems

	Is there a parallel system for nutrition information?	Is there a supplementary system for nutrition information?
Angola	No	No
Botswana	No	No
Burundi	No	No
Comoros	Yes	No
Eritrea	Yes	No
Eswatini	Yes	No
Ethiopia	Yes	Yes
Kenya	No	No
Lesotho	No	No
Madagascar	Yes	No
Malawi	No	No
Mozambique	Yes	No
Namibia	No	No
Rwanda	Yes	No
Somalia	Yes	No
South Africa	No	No
South Sudan	Yes	No
Uganda	No	No
Tanzania	No	Yes
Zambia	No	No
Zimbabwe	No	Yes

A **parallel information system** is defined as the same data being collected separately through two systems and there are some countries where this is happening. Parallel systems are established when there is limited access to the national DHIS2 for reasons that vary between countries. Most countries that have a parallel system are actively working towards reducing the need for it and are moving towards one system for handling all routine data.

A **supplementary information system** is different from a parallel system and is defined as an additional system that includes both routine health and nutrition data that is taken automatically from DHIS2, as well as other types of data provided by other sectors such as Agriculture, Trade, Education, or provided by other organisations including WFP and combined together onto a specific platform. An example of this is a database keeping data related to

health, nutrition, food security and WASH. This database may or may not be hosted within the MOH and may or may not use DHIS2 as the platform. This database may also keep data that is not routine (i.e. that is collected from surveys or other sources), and which does not fit into the traditional format of aggregated data. UNICEF Nutrition programs tend to want to keep these supplementary information systems as they are frequently easier to access and is possible to have input into the design of them, including what information to collect.

It is recommended to use, where possible, the routine MOH system, however when there is a co-ordinated approach to needing other data, the use of a supplementary database can be useful. Tanzania is a good example where the DHIS2 is not accessible to outside partners and, in order to have an information system that is useful, a supplementary system using the DHIS2 platform that is housed outside the MOH has been created and is often referred to and used.

Box 1: Use of a supplementary information system in Tanzania

In Tanzania the HMIS includes some nutrition indicators and uses the DHIS2 platform, however data is only available to partners to view through an on-line web portal which does not allow for viewing data over long time periods, or to drill down to a level lower than the district. Also, available data from the portal is limited. In order to establish a comprehensive system for monitoring nutrition service delivery status, a Multisectoral Nutrition Information Platform (MNIP) has been established, that is a complementary platform to the national HMIS, and centralizes all nutrition information on one platform that is also housed in DHIS2. The aim of this system is to have one common platform where all partners can access nutrition related information equally and easily. The MNIP also aims to improve the quality and consistency of the data while reducing the reporting burden for district staff through automating data linkages within DHIS2 (from the HMIS) and from other information systems – such as between the Ministries of Health, Agriculture, Water and Nutrition). Having data available in a timely way and on an easily accessible platform will also ensure the ability for timely feedback to districts to enable timely corrective actions where necessary. Data collected through the MNIP is used for routine programmatic monitoring, for regular bottleneck analyses, for completing the national scorecard on a monthly basis to track status of key indicators and for monitoring annual workplan implementation.

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3.2 Access to DHIS2 and Use of Data

3.2.1 Access to DHIS2

Table 4: Access to DHIS2 and availability of nutrition dashboards

	DHIS2 access for partners	Is there a functioning dashboard with nutrition indicators?
Angola	Yes	No
Botswana	No	Yes
Burundi	Yes	Yes
Comoros	Not using DHIS	NA
Eritrea	Yes	No
Eswatini	Not using DHIS	No
Ethiopia	No	No
Kenya	Yes	No
Lesotho	No	No
Madagascar	No	No
Malawi	Yes	No
Mozambique	Yes	No
Namibia	No	Yes
Rwanda	No	No
Somalia	Yes	Yes
South Africa	No	Yes
South Sudan	No	No
Uganda	Yes	No
Tanzania	No	No
Zambia	Yes	Yes
Zimbabwe	Yes	No

Access to DHIS2 is dependent on obtaining formal login credentials from the relevant Ministry of Health. Some UNICEF offices have analysis access rights while other offices have no access rights and need to go to the HMIS Unit to see the data online. It was also noted that in most countries limited access was given to features which should be automatically available to all analytic users, and the lack of availability of the Data Quality App was the most noticeable gap. Access to the DHIS2 is crucial if information is going to be used to its fullest potential – it is in using, analysing and reviewing the data on a regular basis that progress and improvements can be made to programs and therefore to the general health status of the population.

It was noted that 10 countries were not providing user access for analytic purposes to DHIS2 for UNICEF Country Offices (at the time of the Landscape Analysis). In Rwanda if data was required, the UNICEF staff would have to visit the HMIS Unit and review in situ and then download required data. In Tanzania UNICEF staff were being referred to the Web Portal where some of the DHIS2 data was available. However, this was unsatisfactory as the data is limited, is in a fixed format and is generally not timely. The definitions of the indicators were unknown and this limited acceptability of the data. Ethiopia is still working on a Data Access Protocol and until then there is no formal DHIS2 access for partners. In South Africa a Data User Agreement is required, and this is granted for a limited time period. It is recommended that a Letter of Understanding (LOU) be developed that could be used as the basis for giving permanent access to DHIS2 instances for UNICEF or partners. This LOU could add limitations, for instance a time-frame after which data can be freely used and reported on or specify a regular review period for the access.

3.2.2 Dashboards

The aim of a DHIS2 dashboard is to see the current (automatically up-dated) performance of selected key indicators at a glance when opening DHIS. Analysis objects are created, which can be tables, charts or maps, and are then carried onto the dashboard. UNICEF is supporting the use of dashboards at country level for both health and nutrition indicators, in order to allow easy and regular monitoring of data and progress against targets by managers and staff at all levels. However, more work is needed to improve availability and use of dashboards as only 6 countries reported the availability of a functioning dashboard that includes nutrition indicators (Table 4). This was one of the identified shortcomings of the analysis aspect of the nutrition information system. A possible reason for this is the need to build dashboards at country level, suggesting that there is a lack of expertise for the optimal configuration of dashboards and/or a lack of knowledge around what objects are best to include on the dashboard for. To address this, it would help if countries were provided with support to create appropriate dashboards that are the same (reflecting the appropriate data) whether they are opened at National, or District

or Sub-district level. Dashboards in this region could be configured to monitor progress against the African Union Nutrition Scorecard, to facilitate monitoring of country contributions to regional targets.

Below is an example of a dashboard for Nutrition services that is seen when opening DHIS2.

Figure 4: Example of dashboard for Nutrition

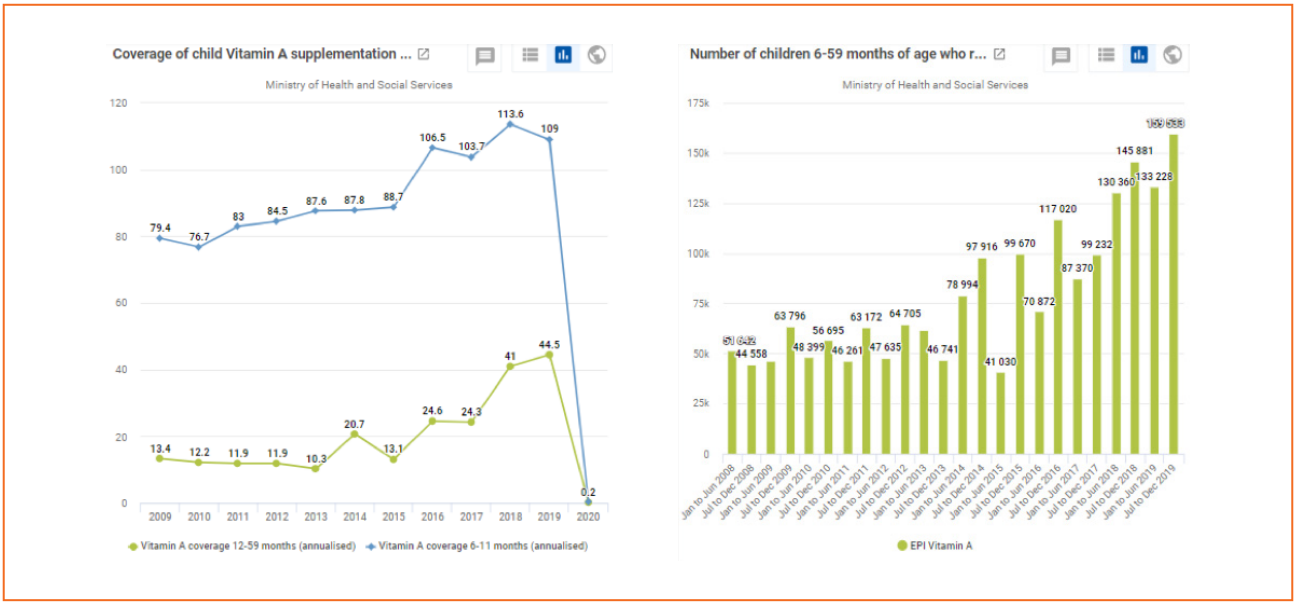

Figure 5: Example of dashboard objects (from Child and Nutrition Dashboard used for training)

DB07_L3_Child Health & Nutrition programme reporting rate_Last 1...

Programme Reporting rates last 12 months									
Data	Child Health and Nutrition programme reporting rate								
Organisation unit / Period	December 2018	January 2019	February 2019	March 2019	April 2019	May 2019	June 2019	July 2019	November 2019
an_Carnivores District	100	100	100	100	100	100	100	100	
an_Herbivores District	100	100	100	100	100	100	100	100	
an_Omnivores District	75	75	100	100	100	100	100	100	

Update | Favorites | Layout | Options | Download | Embed

Organisation unit	Data / Period	December 2018	January 2019	February 2019	March 2019	April 2019	May 2019	June 2019	July 2019	August 2019
hi_HISPland	Child under 2 years underweight for age incidence	13.7	8.1	11.9	7.6	9.9	8.1	8.4	4.8	8.2
	Child under 5 years food nutritional supplementation coverage	8.6	8.9	8.6	9	11	9.8	13.1	7	8.6
	Death in facility under 1 year rate	12	9.3	9.2	6.6	5.6	8.3	7.4	7.9	7.2
	Death in facility under 5 years rate	8.8	6.1	5.8	4.4	4	5.1	4.8	5.5	5.4
	Deworming dose 12-59 months coverage	28.7	20.4	19.2	19	27.1	29.8	27.8	32.1	32.9
	Diarrhoea case fatality under 5 years rate	0	0.83	4.6	2.5	2.5	3.6	0	2.6	0
	Diarrhoea with dehydration in child under 5 years incidence	7.1	6.1	2.3	4	7.4	5.3	4.4	3.7	7.4
	Infant exclusively breastfed at DTaP-IPV-Hib-HBV 3rd dose rate	54.9	55	50.3	50	53.4	54.5	50.1	55.5	54
	Moderate acute malnutrition case fatality under 5 years rate	9.5	0	0	11.1	4	6.7	4.2	20	0
	Pneumonia case fatality under 5 years rate	3.8	3.8	8	1.2	1.2	2.6	2.3	2.1	1.7
	Severe acute malnutrition (SAM) under 5 years inpatient rate	15.9	15.1	10.4	13.5	22.9	11.6	13.4	13	16
	Severe acute malnutrition case fatality under 5 years rate	3.9	0	3.6	6.6	5.7	7.2	8.5	3.6	9.1
	Severe acute malnutrition death under 5 years rate	2.6	0	1.7	7.4	10.7	7.6	7.2	3.2	4.8
	Severe acute malnutrition in child under 5 years incidence	2.3	2.9	2.3	1.7	4.3	3.8	2.7	2.5	2.5
	Vitamin A dose 12-59 months coverage	30.3	24.2	23.9	21.9	30.3	31.3	29.9	31.9	34.2

3.2.3 Indicators and Data Elements

Quantity of data collected

Most countries are collecting too much data which impacts on data quality. Table 5 demonstrates the relationship between data elements and indicators for selected countries. The Table shows data from various (anonymous) countries in ESA and West and Central Africa (WCA) regions. As a general rule, the aim is to have a data element to indicator ratio of 1: 0.8 to 0.5, meaning that if there are more than double the number of data elements to indicators, there is data being collected that is not being used. Either indicators should be configured with this data or the need for the data should be reviewed. Table 5 shows that out of 5 countries reviewed, only one (country 5) comes close to the recommended ratio. Countries with a very low ratio of data elements to indicators should reduce the amount of redundant information by either using it to calculate indicators or stopping collection. A practical way to assess data element usage in order to identify redundant data is to run a report for the past 3 years showing which data elements have had less than 10 values captured – those identified are the data elements that are not used.

Table 5: Relationship between Data Elements and Indicators

	Country 1	Country 2	Country 3	Country 4	Country 5
Aggregate Data Elements	4948	9249	2820	5160	484
Indicators (excluding Count)	286	425	125	226	185
DE to Indicator ratio	0.05	0.04	0.04	0.04	0.38

As a general principle each data element should be used as part of an indicator. Table 5 shows that data is being collected in the routine system but is not being used to calculate indicators. The higher the ratio of data elements to indicators, the more data is being converted into indicators that can measure performance.

Disaggregation of data by gender

The need to be able to understand some aspects of health service utilisation by gender is not doubted, however the routine health information system may not necessarily be the most appropriate way to collect and report this data. Gender disaggregated data adds to the size of the database (which has cost and sustainability implications), means additional workload for staff for data collation, reporting and data entry and often results in poor data quality where the sum of the male and female disaggregation does not equal the total number entered.

If a gender disaggregation is required and is not collected through the routine system for the specific Nutrition program, it is possible to estimate the proportion of male and female through attendance records. This can be done by using the facility headcount or attendance for the 0-59 months which is collected according to gender. Add the two figures together, then calculate the proportion that is male. Use this proportion to breakdown any other figures into a male percentage, thus giving a gender disaggregated value. The gender split can also be cross checked and triangulated against population data.

Box 2: Gender disaggregation – an alternative to collecting disaggregated data

Calculating a gender-disaggregated value using OPD proportion

How to calculate a gender proportion

OPD attendance 0-59 months				
Month	**Male**	**Female**	**Total attendance**	**Male Proportion**
January	589	612	1201	49.0
February	629	664	1293	48.6
March	688	706	1394	49.4
April	659	691	1350	48.8
May	726	771	1497	48.5
June	679	719	1398	48.6
Jan-Jun	**3970**	**4163**	**8133**	**48.8**

Collect OPD attendance numbers by month. The proportion of male attendees is 48.8% (3970/8133*100).

To estimate the number of male and female children attending growth monitoring and promotion (GMP) out of a total 7846 children weighed, find the number equal to 48.8% of 7846 (7846*48.8%), which equals 3829 boys attending GMP. The remaining are therefore female, which is 4017 girls attending GMP (7846-3829=4017).

Naming conventions

Poor naming standards and inconsistent naming make the use of data in the analytics problematic. All data in DHIS2 during analytical processes, be it data elements or indicators are sorted alphabetically. It is therefore very important to ensure that name variables are used in such a way that they are easy to find and understand. This includes naming data elements and indicators in such a way that they are understood to be either raw data, number, rate, proportion or percentage.

Naming of data elements

The phrase 'number of' or 'total number of' are superfluous and should not be used. The French and Portuguese databases have many examples of this. Data elements use a singular expression, meaning that plurals are not used. Examples of this shown here are from outside of nutrition programming to promote easier understanding of some of the issues to do with naming conventions.

Table 6: Examples of poor and best practice for data element naming convention

Screenshot 6.1: French naming (poor)

Total cas, par sexe - Surveillance de l'enfant
Nb Enfants ayant reçu 1ère dose Vit A 12-59 mois
Nb Enfants ayant reçu 2ème dose Vit A, par sexe

Screenshot 6.2: Portuguese naming (poor)

SMI - CCR - Total de PCR colhido
SMI - CCR - Total de criancas com DAG
Estomatologia – Nova - No total de Cáries dentárias
HIV-GAAC - N° de pacientes activos nos GAAC no fim do mês

Screenshot 6.3: English (poor)

CEmONC - Number Perfomed Deliveries with vacuum extraction
CEmONC - Number Performed neonatal resuscitation with bag and mask
CEmONC - Number adminstered parenteral anticonvulsants

Screenshot 6.4: English (best practice)

Child under 2 years underweight - new (weight between -2 SD and -3 SD new)
Child under 5 years on food supplementation new
Deworming dose 12-59 months
Vitamin A dose 12-59 months
Severe acute malnutrition (SAM) death under 5 years

Naming of indicators

Indicators should also have a standard naming convention. Although it maybe counterintuitive to use terminology in a certain way, standard naming is crucial to ensure efficient sorting and sequencing of indicators. The term 'percentage' or 'proportion' is not the first word of the indicator, it should come at the end as per screenshot 7.3 below:

Table 7: Examples of poor and best practice indicator naming conventions

Screenshot 7.1: English (poor)

% of new diarrhoea cases < 5 years - given ORS and zinc supplementation
% of out referrals due to pregnancy related complications
% of pregnant women receiving HIV testing during ANC
% of under five pneumonia given antibiotic
% of women aged 15 – 49 years using modern contraceptives
% of women with Obstetric Fistula receiving a first repair
% still births

Screenshot 7.2: English (poor)

Percentage of pregnant women attending ANC who received iron/folate supplements
Proportion of children aged 12-59 months dewormed
Proportion of Newborn initiated on breast milk within the first one hour after delivery

Screenshot 7.3: English (best practice)

Death severe malaria 5 years and older rate
Death severe malaria under 5 years rate
Early Neonatal death rate (0-7 days)

Table 8: Indicators collected

Indicator	Number of countries
Child health	
Vitamin A supplementary 6-11 months coverage	10
Vitamin A supplementary 12-59 months coverage	11
Vitamin A supplementary 6-59 months coverage	12
Deworming 12-59 months coverage	7
MUAC screening	1
Antenatal Care	
Antenatal IFA supplementation rate	11
Antenatal client deworming rate	5
Antenatal client anaemia rate	9
Neonatal	
Low birth weight rate	16
Early breastfeeding-initiated rate	7
Nutrition Care & Support	
Child under 5 years underweight rate	13
Moderate acute malnutrition rate	13
Severe acute malnutrition rate	14
Stunting rate	6
Overweight/obese rate	4
Normal nutritional status rate	3
Exclusive Breastfeeding at 6 months rate	3
Outpatient Therapeutic Program	
OTP Cure rate	6
OTP death rate	6
OTP non-response rate	6
OTP default rate	6
OTP transferred rate	6
OTP new HIV testing rate	2
Stabilization Centre	
SC Cure rate	6
SC death rate	7
SC non-response rate	6
SC default rate	6
SC transferred rate	6
SC new HIV testing rate	2
Supplementary Feeding	
SF Cure rate	4
SF death rate	4
SF non-response rate	4
SF default rate	4
SF transferred rate	4

Table 8 shows the range of indicators that were reported through the DHIS across the 21 countries. There is no indicator that is reported by all 21 countries through the DHIS2, however all countries were collecting nutrition data. Very few countries were collecting a comprehensive package through the DHIS2 (Kenya 31 of the listed 36; Zambia 26; Malawi 23 and Burundi 21). Where there is a parallel system in use, the country may have the full package. Details by country are shown in Annex 8.4. Where there was a parallel system, plans and processes are in place to move this data into DHIS2.

Vitamin A supplementation

Vitamin A supplementation coverage calculations have become complex due to the need to report data per 6 month semester rather than annually. The data should be reported by child-dose and not 1st or 2nd dose. This is because estimating whether a child has had a 1st or 2nd dose is based on the child's date of birth and, in the absence of electronic individual patient records for accurate age estimation, manual calculation becomes confusing and this difficulty has been observed in some countries. UNICEF requires that Vitamin A supplementation is reported per 6 month semester with the lower of the 2 coverages being a proxy representation for 2-dose coverage for the year. Current GAVA[4] guidelines require that routine and campaign coverages must be calculated separately and not be combined. This 2-dose lower coverage per year proxy-indicator is important for on-going program planning and management, however it is not practical for viewing trend data over a period of time, i.e. multiple years, or for tracking progress against targets throughout the year through calculation and visualisation of an annualised indicator. There is currently no global agreement on using a 2-dose average coverage for the year for these two purposes, in addition to the proxy-indicator coverage per semester. The population age groups of 6-11 months and 12-59 months should be broken down and reported separately. The population figures (the denominator) should be obtained per age group (usually available in the latest national census), and not estimated as a proportion of the total population e.g. 4% of the total population. The formula for each age group is as shown in Table 9, per 6 month semester.

Table 9: Vitamin A supplementation, routine supplementation, per semester

Indicator	Numerator	Denominator
Vitamin A supplementation 6-11 months coverage (routine semester)	Vitamin A supplementation dose 6-11 months	Population 6-11 months OR Population 0-11 months/2
Vitamin A supplementation 12-59 months coverage (routine semester)	Vitamin A supplementation dose 12-59 months	Population 12-59 months
Vitamin A supplementation 6-59 months coverage (routine semester)	Vitamin A supplementation dose 6-11 months + Vitamin A supplementation dose 12-59 months	Population 12-59 months Population 6-11 months OR Population 0-11 months/2 +

Campaign coverage per semester is calculated the same way as for the coverage of routine supplementation, with the denominator being population figures per age group in the area covered by the campaign. When combining routine supplementation and campaign supplementation, care must be taken with the population denominator – it should add up to the total population (per age group) for the area covered – it cannot be doubled. The calculation for 2-dose average annual coverage is different, and is shown in Table 10.

[4]GAVA Monitoring Vitamin A supplementation. A guide for district programme managers

Table 10: Vitamin A supplementation 2 dose average annual coverage

Indicator	Numerator	Denominator
Vitamin A supplementation 6-11 months coverage (routine annual)	Vitamin A supplementation dose 6-11 months	Population 0-11 months
Vitamin A supplementation 12-59 months coverage (routine annual)	Vitamin A supplementation dose 12-59 months	Population 12-59 months X2
Vitamin A supplementation 6-59 months coverage (routine annual)	Vitamin A supplementation dose 6-11 months + Vitamin A supplementation dose 12-59 months	Population 0-11 months + (Population 12-59 months X2)

Table 10 gives the calculation for 2-dose average annual coverage. When configuring this indicator it should also be annualised. As a general best practice, all indicators that use population as a denominator should be annualised; doing this shows month-by-month progress towards achieving the targets set for the year instead of waiting until the end of the year to see the coverage achieved. This allows continuous monitoring of performance throughout the year, allowing for course-corrections if needed. For example, if by the end of May 2-dose annual coverage of Vitamin A supplementation is at 10%, managers can already analyse why and put in place measures to increase coverage during the remainder of the year.

Figure 6: Vitamin A 12-59 months coverage over 10 years, Country X

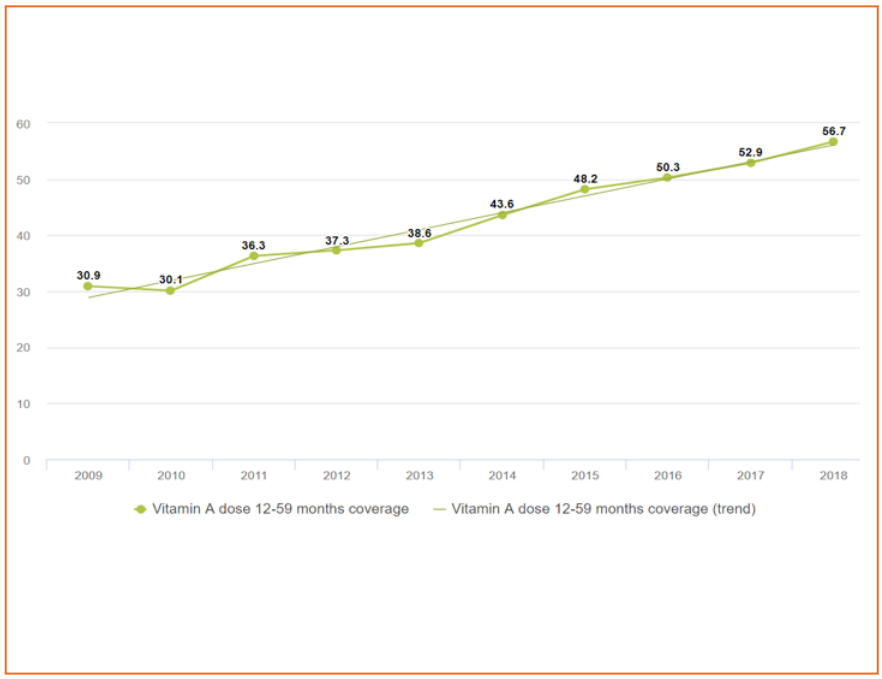

Figure 6 shows the 2 dose average Vitamin A 12-59 months coverage annualised from one country (in ESA region). The advantage of calculating the average annual 2 dose coverage is to analyse progress over time (i.e. multiple years), and it also allows to monitor progress against the annual target throughout the year in order to make adjustments to programming during the year if necessary if coverage is low. For this indicator, it is necessary to combine routine and campaign vitamin A supplementation data in order to get a complete picture of supplemention coverage.

Table 11 (below) shows country Y's current DHIS2 coverage followed by a manual recalculation of the figures. The figures were re-calculated to check the indicator formulation. Routine and campaign data were added together to get a full picture of the coverage. However, it appears that some of the campaign data was not included in the DHIS2 which may explain why the coverage is rather low. Table 11 also demonstrates that showing each age group separately is a useful process in order to understand which age group has better performance and thus target the correct age group if corrective interventions are required. The revised calculations, using the naming described above in Tables 9 and 10, clearly give all information required to monitor Vitamin A supplementation activities.

Table 11: Vitamin A coverage, Country Y – example of re-calculation of indicators

	Original data			Revised calculations		
	Semester Coverage		2-dose annual coverage	Semester Coverage		2-dose annual coverage
	Jan-Jul	Jul-Dec	Jan-Dec	Jan-Jul	Jul-Dec	Jan-Dec
Vitamin A 6-11 months coverage	Recommended indicators not calculated			26.7	29.8	28.3
Vitamin A 12-59 months coverage				16.7	20.3	18.5
Vitamin A 6-59 months coverage				18.4	21.9	20.1
Under 5 vitamin A (routine)	31.8	37.3	34.6	NA		
Vitamin A Supplementation Coverage	21.3	20.6	20.9	NA		

Table 11 gives a good example of the consequences of poor naming conventions being used, with 'Under 5 vitamin A (routine)' showing data that appears to be a percentage. However the naming used in fact suggests that this raw data. In addition, it appears that the two original indicators used ('Under 5 Vitamin A (routine)' and 'Vitamin A Supplementation Coverage') actually mean the same thing. The resulting very different values makes it impossible to know which indicator could be the 'more' correct one.

3.2.4 Report generation in DHIS2

DHIS2 allows users to create their own reports from Pivot tables or charts and save them as favourites so that the template and the reports are always available. Users were expected to create their own reports in the format that they need. Of the reports viewed during the Landscape Analysis, the majority of the information was raw data, with no indicators calculated or further analysis presented. It is recommended that a standard nutrition report format should be used and that it is indicator based and moves away from raw data.

3.2.5 Use of Information

Table 12: Use of data

Country	Are there regular nutrition review meetings	Are there auto-generated nutrition reports to facilitate review?
Angola	No	No
Botswana	Yes	Yes
Burundi	Yes	Yes
Comoros	Yes	NA
Eritrea	Yes	Yes
Eswatini	No	NA
Ethiopia	Yes	No
Kenya	Yes	No
Lesotho	Yes	No
Madagascar	Yes	NA
Malawi	Yes	Yes
Mozambique	Yes	No
Namibia	No	Yes (limited)
Rwanda	No	No
Somalia	Yes	No
South Africa	Yes	Yes
South Sudan	Yes	No
Uganda	Yes	No
Tanzania	Yes	No
Zambia	Yes	No
Zimbabwe	Yes	No

Question 12 of the landscape analysis questionnaire (How do you assess or compare performance of different districts/sub districts etc? How do you know who is doing well and who is not doing well? Annex 8.2), was aimed at all levels of health and nutrition care provision to ascertain if facilities use the data they collect and report to assess their own service provision and make decisions based on how they are functioning. All countries reported that facility level self-performance assessment was lacking. However, there was a near-universal positive response to national, sub national and lower levels being actively engaged in assessment of performance against targets and ranking of facilities and districts through regular nutrition review meetings at different levels (Table 12). Different tools are used to do this assessment, varying between countries. For instance, in Kenya there is a regular process of taking DHIS data and putting it into excel to create the appropriate charts and tables to aid assessment, and with nutrition reviews done on data quality and performance at regular intervals. Set-up of the DHIS2 instance to generate these charts in DHIS2 itself, thus negating the need to download to excel, would automate and speed up this analysis. The UNICEF supported Scorecard, Bottleneck Analysis and Action Tracker Apps can all help with this kind of analysis. Uganda is very active in using scorecards and is piloting use of the Bottleneck Analysis and Action Tracker Apps.

3.2.6 Patient Level Data

There is currently one country in the ESA region (Botswana) using the DHIS2 Tracker app for Nutrition, which is in the pilot phase. This is being led by the Ministry of Health and Welfare and supported by UNICEF and the University of Oslo. Patient level data will be recorded using tablets at facility level and calculations of weight-for-height z-scores will be automated to ensure correct diagnosis of acute malnutrition. It should be noted that patient level data requires substantial resources, and the literature shows many failed mHealth/eHealth projects, many of them based on poor resource support and sustainability plans[5]. This highlights the need for commitment at national level, appropriate infrastructure and support to ensure in-built sustainability, in particular financial support / availability of resources from the outset, before a country can consider the use of the patient Tracker app for patient level data. It is important that the data collection and data flow processes are fully functional and well established before technology is introduced. Box 3 highlights the many challenges with introducing a digital system, especially regarding the technology issues.

Box 3: Use of the Patient Tracker App in Botswana

In mid-2017, the Government of Botswana expressed interest in investing in a patient-level routine information system, primarily to facilitate accurate diagnosis of acute malnutrition in children. Based on a review of malnutrition diagnostic practices at health facility level many children requiring treatment were not receiving it due to misdiagnosis, and the number of children with acute malnutrition was being systematically under reported through the routine information system. As a solution, the District Health Information Software Version 2 (DHIS2) Android Tracker, using nutrition as the entry point, was customized for child nutrition and health services to address these gaps.

A review meeting was organized by the Government of Botswana, supported by UNICEF country and regional offices, to review the available tools in the country and agree which one should be used. It was agreed to use DHIS2 Tracker App because DHIS2 was already being rolled out in the country (with nutrition reporting aggregate data and reliant on multiple parallel reporting systems), and the Government of Botswana was aiming for a streamlined HMIS.

A fundamental strength of the Tracker App is its holistic approach to child healthcare and the linkage to relevant child-related services (immunization, PMTCT, eye health, early child developmental milestones and national birth registration). DHIS2 therefore provided an opportunity to align and link with other sectors. With assured funding from the Government of

[5]Aranda-Jan et al.: Systematic review on what works, what does not work and why of implementation of mobile health (mHealth) projects in Africa. BMC Public Health 2014 14:188

Botswana and some support from UNICEF, the University of Oslo was contracted by UNICEF to customize the Patient Tracker App and to test its use in two health districts, and then scale-up to National level use. The testing and pilot phase will end in February 2020, with full scale-up planned from March 2020. Review phases have been built into the pilot phase, which was planned to run for one year, and challenges have been identified, some of which have been addressed while others are in the process of being addressed. The Government of Botswana is funding the set-up, roll-out and maintenance of the App, with a small initial financial contribution and technical support from UNICEF and the University of Oslo.

Some lessons learned during the pilot include;

- **Device management:** initially there was no ownership of devices (tablets) that are used for data entry by the health facilities that are using them. To address this the Ministry of Health and Wellness (MoHW) formally handed over the devices to the facilities. This has ensured that responsibility and control for monitoring the use of the devices, including data bundle use, is managed by the facilities themselves. The very fast use of the data bundles was also an issue, and MoHW are negotiating a zero-rated URL with the service providers. The device settings need to be checked to ensure that if there is need to 'hotspot' other NIS devices, data bundles are only used for that purpose and cannot be used as a 'hotspot' for internet. The zero-rated URL will therefore be used for synchronizing data / data reporting only and MoHW would pay for actual data size used.
- **Multiple services:** The Patient Tracker App is being used in the Child Welfare Clinics, with nutrition as the entry point. This means that there are many services that are provided to each child at each visit (including eye health, vaccination etc). These services are provided by different healthcare professionals, sometimes in different rooms. To allow for data collection for each child, each facility has been provided with two tablets and data is captured off-line and then synchronized. The pilot has shown that two tablets per clinic is sufficient and that data needs to be synchronized at a minimum every hour (this is done automatically) and manually intermittently and when logging-off to ensure that no data is lost.
- **Retrospective data:** At the first visit of a child after the change-over to the Patient Tracker App, the health worker needs to enter all selected past data for that child (e.g. at birth information, vaccination record etc), as well as do the service for the day. This was a time-consuming job to do in one go, and to ensure efficiency health workers either fixed a separate appointment for the mother to come back with the child's health card, or alternatively asked the mother to leave the card at the facility so that data could be entered later, then she would come back to collect the card. The lesson learned was that adequate time and support from the facility management needed to be available for health workers to complete this task.
- **App and device performance challenges:** In phase one of the pilot, there were problems with the App crashing. Bugs in the App have been fixed by the University of Oslo and the App has become more stable with version up-dates. Some of the devices procured also crashed, and there are now minimum technical requirements / specifications for devices in place to stop this.
- **Data use:** So far it has been noted that data use at clinic, district and national level is still low. Dashboards have been set up for all facilities, and staff have been shown how to customize these as they would like. MoHW has carried out a lot of training on the dashboards, and clinic staff can raise any IT issues with the IT focal person at district level. However, each district had only one IT focal person, which made it difficult in some districts to cover all the facilities with in-person support. This number has now been increased to 2 or 3 (dependent on the size of the district) IT focal points, by including the M&E focal and nutrition focal point in each district in training to provide IT support. In addition, there

are plans to set up help desks at district level and also at national level to provide a rapid response to technical issues.

- **IMAM guideline:** The IMAM guidelines are not uniformly applied and understood across clinics. To address this, UNICEF has assisted the MoHW to develop a costed implementation plan for management of acute malnutrition. As part of this, there are two training of trainers planned covering all 27 Districts in the country. Training will include how to diagnose, manage, treat and report acute malnutrition. This will standardize the implementation of the national IMAM guideline.
- **Logistics:** During the pilot, the need to be able to monitor basic stock levels and usage has become apparent. Plans are in place with the University of Oslo to include in the next version of the App basic stock-level counts – stocks received, stocks used, with a tally to the number of children treated. This will apply to RUTF, ORS and supplementary foods.
- **Capacity in-country:** There is a core team of 5 people at the MoHW who are now proficient in DHIS2 and the Patient Tracker App. However, the child health and nutrition Patient Tracker system is not their only focus, and they are not enough to cover the whole country. There are plans to increase this core team through further training. The University of Oslo has recommended establishing a HISP node in Botswana, however this may not be in the near future.
- **Staffing:** During the pilot it was seen that some facilities function better than others in terms of their reporting and use of the Patient Tracker App. A factor contributing to this was the staffing levels. It was seen that staffing levels need to be managed by the districts to ensure the right number and right capacity at each facility, dependent on the particular needs / setting of each facility.

A summary of the pilot can be found at this link.

3.3 Quality of data in DHIS2

3.3.1 Applications (apps)

Table 13: Version of DHIS2 in use (at the time of the Landscape Analysis)

Country	Which version of DHIS2 is currently being used?
Angola	V2.31
Botswana	v2.28
Burundi	v2.30
Comoros	NA
Eritrea	v2.27
Eswatini	NA
Ethiopia	v2.30
Kenya	v2.28
Lesotho	v2.30
Madagascar	v2.30
Malawi	v2.28
Mozambique	v2.32
Namibia	v2.30
Rwanda	v2.33
Somalia	V2.27
South Africa	v2.30
South Sudan	v2.30
Uganda	v2.30
Tanzania	Not known
Zambia	V2.31
Zimbabwe	v2.30

Table 13 shows the version of DHIS2 in use in each country at the time of the landscape analysis. It is important for countries to up-date their DHIS2 as new versions become available from the University of Oslo, in order to benefit from improvements made to the software. In addition, as old versions become obsolete, there is no longer any support provided to them through the University of Oslo. New versions become available every 4 months. At the time of report-writing, the current version of DHIS2

is v2.33. Those countries with a version before v2.30 need to up-date their instances in order to continue receiving support.

Many applications have been developed to be used to extend functionality of DHIS2. Apps are uploaded on the DHIS2 App Store and can be downloaded from there and installed in each country's own DHIS2 instance. The WHO DQ Tool is the most common app used. Other apps that should be made available, specifically for analytic users who need to understand the contents of DHIS2, include the WHO Metadata browser and others listed in Table 14. This Metadata app gives a list of data elements and indicators. HMIS Dictionary and Indicator Search are crucial to finding exactly what indicators and data elements are in the system, how they are created and in what group they have been sited. Other apps that have been developed with support from UNICEF and aim to enable easy synthesis of information are now available and can be installed and customised; these are the Scorecard app which looks at comparing performance, and the Bottleneck Analysis app and Action Tracker app that have been created to analyse bottlenecks, automatically produce the bottleneck analysis graphs and keep track of selected interventions to address the identified bottlenecks. UNICEF HQ is working with the University of Oslo to ensure that these apps will become a core part of the DHIS2.

Table 14: Applications that should always be available in any DHIS2 instance

Application	Function
Data Quality App	Lists validation rule violations and other data quality assessments. This is a standard App that should always be available for analytic users
WHO Data Quality Tool	Reviews completeness and timeliness of reports and looks at Missing and Outlier data
WHO Metadata browser	Lists all data elements and indicators found in the system
HMIS dictionary	Lists the data elements are in the system, how they are created and in what group they are sited.
Indicator Search	Lists all the indicators in DHIS2 and how they are constructed
Interactive scorecard app (optional)	Enables viewing performance in a scorecard format
Bottleneck Analysis app (optional)	Uses Tanahashi approach to measure and assess bottlenecks in a health system
Action Tracker app (optional)	Keeps track of interventions selected to address identified bottlenecks

3.3.2 Data Quality

Data quality was not extensively interrogated during this process, as emphasis was placed on the status of the processes for assessing data quality. There are different methods to assess data quality. The use of validation rules within DHIS2 entails comparing one value against another where a value cannot be true. For instance, if there are 10 live births in a given month, then there cannot be 12 live births weighing less than 2500 grams in the same month. Validation rules need to be created based on what data is collected and should be part of the initial set-up of the DHIS2. Validation rules can be run after data entry for a facility, any rules triggered need to be corrected before saving and exiting the form. These same rules can be run for any number of facilities and any time-period using an app called Data Quality. The resulting report showing the errors can be printed out and taken to a facility on the next visit. Due to limited access to DHIS2 it was largely not possible to determine what, if any, validation rules had been set for nutrition, and in some countries, there was no access to the Data Quality App to see what rules had been triggered. Examination of DHIS2 databases available indicate that very few nutrition validation rules had been created specifically for Growth Monitoring and Promotion. Rules were created for Early Initiation of Breast feeding and Low birth weight baby being less live births, however these were seldom violated.

The WHO Data Quality Tool has been developed to assist with assessment of data quality. This App has many features like assessing completeness and timeliness of reporting and missing and outlier analysis. This App can be used without any customisation, but it can also be customised to a specific country for specific data elements and count indicators. Few ESAR countries had the WHO DQ Tool installed and no country in the region had it customised for Nutrition.

A full assessment of the quality of data and reporting in the DHIS2 system would look at issues related to timeliness and completeness of reporting. However, these parameters were not assessed as part of this landscape analysis and anecdotal comments suggested that nutrition data is often entered into the system later than other health data and that facility reporting rates are lower for nutrition data than they are for health data. The reasons for this range from difficulty in completing the forms to no perceived immediate need for routine nutrition data. This is an area that needs to be addressed through improved attention to and use of nutrition data.

Data quality issues arising from other causes

- Poor data quality is not only the result of data errors but can also be found in other areas. For instance, careful examination of immunisation data in DHIS2 shows that in many countries the denominator of population figures is either too high, causing artificial low coverage, or too low, causing coverage rates in excess of 100%. Inaccurate population denominators also affecting Vitamin A coverage indicators in many countries.
- The configuration of indicators needs particular attention. When an incorrect numerator or denominator is used, an incorrect value is obtained, and incorrect indicator configuration was observed in many countries.
- Duplicate indicators: examples were also found where the same indicator has a different name and different values. See example for Vitamin A coverage
- When creating a data element, there is a need to specify what number type is to be used. Table 15 shows the different number types available that can be used in DHIS2. Using the wrong number type can allow errors to be introduced during data entry. Thus, using a Positive or Zero Integer will reduce these sorts of errors.
- Organisational hierarchy: the best practise for creating an organisational hierarchy, i.e. the list of facilities and districts/regions/counties/states is to use a geographical arrangement. This means that all the facilities are listed within their respective administrative boundaries, and hospitals (irrespective of size or function) are also listed in their correct geographical locations and at the same level of all health facilities. If this concept is not applied, and hospitals are listed separately as their own special geographical area or section, it creates problems with mapping and when using population-based indicators. This is because the information from the hospital does not appear in the province / district data, so does not contribute to relevant maps or estimates. This practice was found in a number of countries.

Details can be found in the various country reports.

Table 15: Number types used for Data Elements

Number Type	Implication
Number	Can have decimal values e.g. 25.89 or -38.2
Integer	Is a whole number e.g. 21 or -18
Positive integer	Whole number from 1 upwards
Negative integer	Whole number with a minus value from -1 downwards
Positive or zero integer	**Whole number including a zero and increasing**

4 Promising practice

Table 16: Nutrition information capacity and support

Country	Is there UNICEF-funded support (HR) to MoH for DHIS2?	Is there UNICEF nutrition information capacity (dedicated staff)?	Is there a local HISP node or equivalent to provide technical support
Angola	No	No	Yes
Botswana	No	No	Yes
Burundi	No	Yes	No
Comoros	No	No	No
Eritrea	No	No	No
Eswatini	No	No	No
Ethiopia	Yes	Yes	No
Kenya	Yes	Yes	Yes
Lesotho	No	No	Yes
Madagascar	No	Yes	No
Malawi	Yes	Yes	Yes
Mozambique	No	Yes	Yes
Namibia	No	No	Yes
Rwanda	No	Yes	No
Somalia	No	No	No
South Africa	No	No	Yes
South Sudan	No	Yes	No
Uganda	Yes	Yes	Yes
Tanzania	No	Yes	Yes
Zambia	No	No	Yes
Zimbabwe	No	Yes	No
TOTAL (Yes)	**4**	**11**	**11**

UNICEF works closely with the Ministry of Health at all levels - at national level as well as at district and facility level - providing technical support. This UNICEF presence and engagement is crucial for implementing the new Health Systems Strengthening approach[6], and puts UNICEF in a unique position to fully engage at all levels and with all stakeholders to improve routine information systems. This includes UNICEF's ability to bridge the gap between the IT 'techie' staff and the nutrition and health programme staff who often do not communicate well, but who are both crucial for a well-functioning information system. In some countries in the region (n=4 at the time of reporting, Table 16), UNICEF is supporting at least one staff member, seconded to MOH, specifically to support and improve routine nutrition reporting. These are the countries that have examples of promising practice and best use of data. This strategy should be considered by country offices as a way to build national capacities. A lesson learned from one country

[6]See: https://www.unicef.org/media/60326/file; https://www.unicef.org/health/strengthening-health-systems

in the region is that the terms of reference (TOR), candidate selection and contracting should all be done jointly between the Ministry of Health and UNICEF to ensure that the staff time is finally used as intended and agreed in the TOR. Around half of the countries in the region (11 of the 21 at time of reporting) had a dedicated nutrition information staff in the team. This is an important position to ensure that UNICEF is able to provide leadership in influencing and improving nutrition and health reporting in national routine information systems and actively contributing to the discussions and activities around this at country level. It is important that these staff are kept up-to-date with the latest developments and are well conversant with the DHIS2 platform and additional applications in order to be able to lead the direction of the information landscape. It is equally important for UNICEF managers and other technical staff to have a working knowledge of and be comfortable with accessing DHIS2 dashboards and information to ensure data is used – and to advocate for better data use – for better monitoring and evidence-based programme planning and improvements. This level of capacity within UNICEF is important particularly as not all countries in the region have in-country technical support available (in the form of a HISP node – Table 16).

The dashboards used in the South African WebDHIS for Child Health and Nutrition are a good example of promising practice. South Africa uses the Minimum Indicator Dataset concept and as there is generally minimal data collected, more effort can be applied to data quality. This has led to the actual use of the data as it is generally believed to be of good quality. South Africa also leads in terms of data element/indicator naming and the use of a Data Dictionary which is freely available. See https://dd.dhmis.org/ for more information. Unfortunately, however, the South African DHIS2 is not available for viewing. The following objects are included on South Africa's Child Health and Nutrition Dashboard and this configuration is used at all levels – when DHIS2 is opened by at National level it shows National level data, when it is opened at District level, the same objects are shown with data for that district. The easy availability of this information allows regular monitoring of progress and facilitates use of data.

Table 17: Dashboard objects used in South Africa at national level

Dashboard Object type	Indicator	Time-period	Disaggregation
Scorecard	Reporting Rate	Per month last 12 months	Per province
Chart (bar)	• Deworming coverage 12-59 months (annualised) • Vit A supplementation 12-59 months coverage (annualised)	Last quarter	Per province
Scorecard	Child under 2 yrs underweight for age incidence	Per month last 6 month	Per province
	Child under 5 yrs food nutrition supplementation coverage	Per month last 6 month	Per province
	Deworming dose 12-59 months coverage (annualised)	Per month last 6 month	Per province
	Infant exclusively breast feed at 14 weeks rate	Per month last 6 month	Per province
	Severe acute malnutrition under 5 yrs incidence rate	Per month last 6 month	Per province
	Vitamin A supplementation 12-59 months coverage (annualised)	Per month last 6 month	Per province

5 Challenges

The large amount of data that countries currently require to be collected, specifically more noticeable in Francophone/Lusophone countries, does not encourage good data quality and 'crowds out' other important data. The gender breakdown is not always necessary for every data element and likewise detailed age breakdowns are not always needed. The need for disaggregation should be assessed and decided for each data element/indicator individually and not applied as a blanket rule.

The confusion between what is an indicator and what is a data element adds to uncertainty among front line staff and managers at all levels and how data should be analysed. The attempt to collect data more appropriate to surveys through a routine system also adds to difficulty in understanding how to interpret the data. These issues highlight the need for further capacity building and training around routine information systems.

In some countries the data needed to calculate indicators was available, but the indicators have not been created. This indicates that reporting forms are developed first, followed by the indicators, which is not appropriate. Indicators and targets should be clear from the outset, followed by the data elements needed to calculate the indicators. This information is then used to develop reporting forms.

A challenge often witnessed at country level is the difficulty faced to get the Nutrition indicators included in the HMIS/DHIS2. The reasons for this are manifold. In many countries the HMIS/DHIS2 is 'owned' by the technocrats and not always by programme managers who better understand and appreciate the nuances of public health. This 'techie' ownership results in requests from nutrition managers (e.g. for an indicator to be created / corrected) not always being taken seriously. The process of changing the report forms / datasets / data elements / indicators is not always clear, with no formal schedule, and Nutrition Units report that they are not always notified of an opportunity to timeously make contributions to the updating of the HMIS/DHIS2. This highlights the need for nutrition information capacity within UNICEF in order to ensure engagement in relevant fora and discussions, as well as the need for a policy to guide reviews to indicators and the resulting changes of data elements, datasets and reporting forms. This should include a documented schedule for reviews, under the auspices of the HMIS Unit in the Ministry of Health.

The DHIS2 is not always open to all stakeholders and partners (see Table 4 in section 6.2.1). This greatly limits access to and, therefore, use of, data at all levels. An open atmosphere or ease of access regarding data and access to data by Governments is welcomed in order to increase data use and limit parallel information systems. It is in using, analysing and reviewing the data in the national health information system that progress and improvements can be made within the nutrition and health programs and to the general health status of the population. Different levels of access can be set in DHIS2, and these should be used by Governments to facilitate the level of access to data by partners that Governments are comfortable with.

6 Recommendations

	Recommendation	Responsibility
1	Provide a list of standardised nutrition indicators with definitions, numerators and denominators clearly stated that can be easily adopted by countries into their DHIS2.	UNICEF RO
2	Take a lead, at country level, in providing technical support and advice on adopting the standard set of nutrition indicators within the national health information system.	UNICEF CO
3	Ensure participation and leadership in relevant technical working groups and engagement in national data review processes, e.g. when an indicator review or data collection review is being carried out.	UNICEF COs, with support from RO
4	Provide technical support for DHIS2 configuration as required.	UNICEF COs with support from RO
5	Ensure standardised nutrition dashboards are available and in use in all DHIS2 instances in the region.	UNICEF CO, with support as needed from RO
6	Invest in human resources: provide capacity building for both UNICEF Nutrition and Health staff as well as MOH staff around: a) Nutrition Information Systems b) Use of DHIS2 analytics c) Quality assurance / quality control of data d) Ensuring use of data for programme improvements e) Use and documentation of lessons learned of applications for better monitoring, in particular the Scorecard, Bottleneck Analysis and Action Tracker Apps.	UNICEF COs and RO
7	Consider developing a DHIS2 access letter of understanding between Government and stakeholders to facilitate access to data and document agreed terms and conditions of data access and use.	UNICEF CO with support from RO
8	Review country DHIS2 instances for correct configuration (e.g. correct indicator set-up / use of correct organisation hierarchy / use of data quality apps etc), using the country level reports and recommendations made during the process of this landscape analysis.	UNICEF CO with support from RO
9	Encourage cross-sectoral linkages to maximise on use of data, data analysis and capacity building opportunities. This is especially relevant for nutrition, health and WASH in the HMIS.	UNICEF CO and RO

10	Community nutrition information systems were not reviewed as part pf this Landscape Analysis; however, it was noted that a system for reporting community-based nutrition data is a gap. It is recommended that this information be included in the HMIS, reported into the routine system through a facility (that the CHW reports to) and labelled as community level in order to differentiate from facility level data.	UNICEF COs
11	Consider implementation research around how best to build and sustain Government capacity for improved quality of data and better data use to monitor and improve programming.	UNICEF ESARO with COs.

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7 Conclusion

This Landscape Analysis has highlighted the opportunities to strengthen national reporting systems across the region. The DHIS2 platform is in use in most countries, and reporting systems exist, going forward it will be important to improve and strengthen those existing systems. This report, and the reports from the individual country visits carried out as part of this analysis, provide some key recommendations as to what should be priority actions and areas for UNICEF support in order to contribute to high quality sustainable national data and information systems that are regularly used for programme monitoring and performance improvement. UNICEF has a key role to play, particularly through support at the decentralised level and through support to the programme units (e.g. health, nutrition etc) within Ministries of Health in implementing these recommendations.

8 Annexes

8.1 Table of recommended indicators and data elements

8.2 Landscape questionnaire

8.3 Summary table of Nutrition results per country

8.4 Data elements and/or indicators collected per country

8.5 List of country reports

8.1 Recommended Indicators and Data Elements

Indicator	Definition	Numerator	Denominator	Disaggregation
Growth monitoring and promotion				
Child screened Weight for Height rate	Percentage of children screened with weight for height	Child screened Weight for Height	Child headcount 0-59 months	All services (curative and promotive)
Child weighed Weight for Age rate	Percentage of children screened with weight for age	Child weighed Weight for Age	Child headcount 0-59 months	All services (curative and promotive)
Child underweight for age moderate rate	Percentage of children screened weighing between -2SD and -3SD	Child with WFA Z-score between -2SD and -3SD	Child weighed	WFA ranges
Child underweight for age severe rate	Percentage of children screened weighing less than -3SD	Child with WFA Z-score below -3SD	Child weighed	WFA ranges
Child WFH moderate malnutrition rate	Percentage of children screened with moderate acute malnutrition	Child with WFH Z-score between -2 and -3SD	Child weighed	WFH ranges
Child WFH severe malnutrition rate	Percentage of children screened with severe acute malnutrition	Child with WFH Z-score below -3SD	Child weighed	WFH ranges
Child HFA rate	Percentage of children screened who are stunted	Child with HFA Z-score below -3SD	Child measured	
MUAC screening rate	Percentage of children screened with MUAC	MUAC screened in child	Child headcount 6-59 months	Facility
MUAC screening coverage	Percentage of child population screened with MUAC	MUAC screened in child	Population 6-59 months	Community
MUAC red rate	Percentage of children with MUAC Red	MUAC red in child	MUAC screened	Facility/Community MUAC – Green/Yellow/Red
MUAC yellow rate	Percentage of children with MUAC Yellow	MUAC yellow in child	MUAC screened	Facility/Community MUAC – Green/Yellow/Red
Maternal Health				
Antenatal client breastfeeding counselling rate	Percentage of ANC clients who received breastfeeding counselling at 1st visit	Antenatal client 1st visit received exclusive breastfeeding counselling	Antenatal client 1st visit	Facility/Community
Antenatal client screened for anaemia rate	Percentage of antenatal client 1st visit with haemoglobin done	Antenatal client 1st visit haemoglobin done	Antenatal client 1st visit	

Indicator	Definition	Numerator	Denominator	Disaggregation
Antenatal client covered with IFA rate	Percentage of antenatal client visits where Iron Folic Acid is either being taken or prescribed	Antenatal client covered with IFA	Antenatal client – all visits	
Breast feeding early initiation rate	Percentage of infants put to breast within 1 hour of birth	Breast feeding initiated within 1 hour of birth	Live birth (in facility)	
Low birth weight rate	Percentage of live births with weigh below 2500 grams	Live birth under 2500 grams	Live birth (in facility)	
IMAM (Sphere indicators)				
MAM admission out-patient		Moderate acute malnutrition admitted		New/relapse/transferred in/ month start 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
MAM cure rate	Percentage of MAM discharged as cured	MAM discharged cured	Discharged all	Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
MAM defaulter rate	Percentage of MAM discharged as defaulted	MAM discharged defaulted	Discharged all	Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman

Indicator	Definition	Numerator	Denominator	Disaggregation
MAM non-recovery rate	Percentage of MAM discharged as non-recovery	MAM discharged non-recovered	Discharged all	Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
MAM death rate	Percentage of MAM discharged died	MAM discharged died	Discharged all	Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
SAM admission		Severe acute malnutrition admitted		In-patient / out-patient New/relapse/transferred in/ month start 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
SAM cure rate	Percentage of SAM discharged as cured	SAM discharged cured	Discharged all	In-patient / out-patient Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman

Indicator	Definition	Numerator	Denominator	Disaggregation
SAM defaulter rate	Percentage of SAM discharged as defaulted	SAM discharged defaulted	Discharged all	In-patient / out-patient Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
SAM non-recovery rate	Percentage of SAM discharged as non-recovery	SAM discharged non-recovered	Discharged all	In-patient / out-patient Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
SAM death rate	Percentage of SAM discharged died	SAM discharged died	Discharged all	In-patient / out-patient Cured /died /defaulted /non-recovery /transferred out 0-5 months 6-59 months 5 years and older Pregnant and lactating woman
Child micronutrient supplementation: Routine plus Campaign				
Vitamin A supplementation coverage 6-11 months (routine semester)	Percentage of children 6-11 months with Vitamin A supplementation given on a routine basis	Vitamin A prophylactic dose 100,000 IU 6-11 months	Population 6-11 months OR population 0-11 months/2	

Indicator	Definition	Numerator	Denominator	Disaggregation
Vitamin A supplementation coverage 12-59 months (routine semester)	Percentage of children 12-59 months with Vitamin A supplementation given on a routine basis	Vitamin A prophylactic dose 200,000 IU 12-59 months	Population 12-59 months	
Vitamin A supplementation coverage 6-59 months (routine semester)	Percentage of children 6-59 months with Vitamin A supplementation given on a routine basis	Vitamin A prophylactic 6-59 months	Population 6-11 months + population 12-59 months	
Vitamin A supplementation coverage 6-11 months (campaign semester)	Percentage of children 6-11 months with Vitamin A supplementation given on a campaign basis	Vitamin A prophylactic dose 100,000 IU 6-11 months	Campaign population 6-11 months	Facility/Community
Vitamin A supplementation coverage 12-59 months (campaign semester)	Percentage of children 12-59 months with Vitamin A supplementation given on a campaign basis	Vitamin A prophylactic dose 200,000 IU 12-59 months	Campaign population 12-59 months	Facility/Community
Vitamin A supplementation coverage 6-59 months (campaign semester)	Percentage of children 6-59 months with Vitamin A supplementation given on a campaign basis	Vitamin A prophylactic dose 6-59 months	Campaign population 6-59 months	Facility/Community
Vitamin A supplementation coverage 6-11 months (2 dose average)	Percentage of children 6-11 months with Vitamin A supplementation	Vitamin A prophylactic dose 100,000 IU 6-11 months	Population 0-11 months	
Vitamin A supplementation coverage 12-59 months (2 dose average)	Percentage of children 12-59 months with Vitamin A supplementation	Vitamin A prophylactic dose 200,000 IU 12-59 months	Population 12-59 months X 2	
Vitamin A supplementation coverage 6-59 months (2 dose average)	Percentage of children 6-59 months with Vitamin A supplementation	Vitamin A prophylactic dose 6-59 months	Population 0-11 months + (population 12-59 months X 2)	
Deworming coverage 12-59 months	Percentage of children 12-59 months dewormed	Deworming dose 12-59 months	Population 12-59 months X2	Facility/Community
Micronutrient powder coverage				To follow global guidance

Indicator	Definition	Numerator	Denominator	Disaggregation
Counselling for improved Infant and Young Child Feeding				
Infant and young child feeding counselling rate at 6 weeks	Percentage of mothers/caregivers given IYCF counselling at 1st dose vaccination at 6 weeks	IYCF counselling given to mothers/caregivers at 1st dose immunisation (6 weeks)	DPT containing vaccine 1st dose	
Infant and young child feeding counselling rate	Percentage of mothers/caretakers given IYCF counselling	IYCF counselling given	Child screened GMP	Facility/Community

8.2 Landscape questionnaire

NUTRITION INDICATORS IN ROUTINE REPORTING SYSTEMSIN ESA REGION:

A Landscape Analysis

Introduction

These questions are aimed at finding information that will provide a relatively detailed look at the situation of nutrition as it relates to the monitoring and evaluation, the routine HMIS and where appropriate, the DHIS2 of a country. This is not looking at the actual data, but more related to questions about the HMIS and relationship with Nutrition data.

The answers can be verbal, i.e. during a face to face meeting, or written or a combination of both methods. Feel free to add onto the basic responses and elaborate when necessary. There are no right or wrong answers, just information on the reality as experienced by the people responding to these questions.

Questions

It is hoped that the UNICEF Country office, and partners where appropriate will come together and review these questions. We also hope to determine who, in UNICEF and/or partners, is leading the HMIS work and how health and nutrition are integrated.

It is envisaged that each UNICEF Country Office will review and answer the questions first and ensure that they understand them. Some questions are not necessarily within the ambit of UNICEF to provide answers.

Once UNICEF has finished the questions, a meeting with the MOH counterparts needs to be arranged to go through the list together.

If possible, appropriate input from other (I)NGOs working in Nutrition field and any plans for integration with the national system should be included as well.

Landscape analysis questions

1. National response with MOH

1) Is there a National policy/strategy document about the Nutrition programme? Is there a health information policy / strategy?
2) When was the National/Nutritional policy updated and the and when is the next update planned – state the actual year
3) What mechanisms/governance structures exist to discuss and coordinate Nutrition indicators for inclusion in the national HMIS and then the DHIS
4) Who decides what is included in the national HMIS and then the DHIS?
5) What indicators (or measures of performance) are collected for nutrition (Numerator, denominator and factor) on a routine basis from facility level and from community level (if this service is provided/reported)
6) What other data elements are collected that do not appear in the above list
7) Please provide the exact calculation for Vitamin A coverage 12-59 months and Vitamin A coverage 6-59 months
8) How is Vitamin A to children 6-11 months given?
9) How is Vitamin A 12-59 months given/distributed?
10) If campaign – how is the data captured in the HMIS/DHIS2

11) Are there any agreed national targets or benchmarks for the different indicators, and are they part of the policy document?
12) How do you assess or compare performance of different districts/sub districts etc? How do you KNOW who is doing well and who is not doing well?
13) How are the data collection forms designed?
14) Is there a review process for the National Indicator list and how often is this done? Information needs change over time as new policies are introduced and old policies updated (ART treatment is a good example).
15) How often is the National Indicator list changed?
16) What does the Nutrition program have to do to have their indicators included in this list?
17) Does the Nutrition program run a parallel system because their data is not collected in DHIS2?
18) If there is a parallel program, please provide some details

2. Assessing DHIS2

19) Who is responsible for setting up the Nutrition aspects of the HMIS in DHIS?
20) What is the health worker/nutrition manager involvement in setting up DHIS2 for nutrition?
21) Who does quality control over the technical aspects, i.e. ensuring that the correct numerator and denominator is selected?
22) Are there any dashboards for nutrition, who set them up and who maintains them?
23) Who uses these dashboards and how are they used?
24) Do the objects (refers to Pivot tables/Charts & Maps) on the dashboard use relative period or fixed period?
25) Dashboard – how many objects are raw data only, how many are indicators and is there a reporting rate
26) Are partners allowed to access the DHIS2 data routinely, this is for both data capture (if required) and for analysis?
27) Please provide a soft copy of facility and community level data collection tools
28) Please provide a soft copy of data entry screen (from Reports app) with data for 2018
29) Is Nutrition data collected at other periods besides monthly?
30) What is the process of removing data elements/indicators that are no longer relevant?

3. Data quality and data flow (this could be both MOH and partners who may enter data)

3.1 Describe the data flow for Nutrition data
3.2 What validation rules have been set up in DHIS2? (List the rules if known)
3.3 How many rules have been violated in Q4 2018? (Give the number)
3.4 Has the WHO DQ app been installed?
3.5 Has it been set up for Nutrition data elements and if so, what data elements/indicators have been selected?
3.6 Have any data quality checks or assessments been done on the HMIS data outside DHIS2

4. Output and feedback (these come from MOH)

4.1 What reports are routinely produced from DHIS2?
4.2 Who is responsible for the creating of these reports?
4.3 Who asks for reports and what is done with them?
4.4 Is there any orientation for health managers on how to navigate DHIS2 once they are given access (so they can make their own reports etc)?
4.5 How do facilities assess their own performance for Nutrition services?
4.6 How frequently are Nutrition review (National and lower level) meetings held?

4.7 At the Nutrition (National) review meetings, is data and information presented and discussed?

4.8 At the Nutrition (Sub-national and lower) review meetings – is data and information presented and discussed?

4.9 Who presents the Nutrition data?

4.10 Are any decisions taken based on the data presented?

4.11 Who is responsible for the recommendations and actions that arise from these meetings?

5. Training

Who reports on any training done for the following and how often is there a training report issued?

5.1 Nutrition/Counselling

5.2 Information system

5.3 Who is responsible for the training on staff at lower levels for Nutrition and related data?

5.4 Who is responsible for capturing the nutrition data into the HMIS/DHIS?

6. Stock and logistics

What data is collected via what system for Nutrition commodities?

7. Patient level data

Are there any plans for patient level data specifically for Nutrition? This includes DHIS Tracker App as an example. Are there other Electronic Medical Records for Mother and Child program?

8.3 Summary table of Nutrition results per country

Item	Angola	Botswana	Burundi	Comoros	Eritrea	Eswatini	Ethiopia	Kenya	Lesotho	Madagascar	Malawi	Mozambique	Namibia	Rwanda	Somalia	South Africa	South Sudan	Uganda	Tanzania	Zambia	Zimbabwe
DHIS2 access for partners	Yes	No	Yes	NA	Yes	Not using DHIS	No	Yes	No	NA	Yes	Yes	No	No	Yes	No	No	Yes	No	Yes	Yes
Is there a National Policy with goals, objectives and targets set for nutrition?	Yes	No? MoHW (Nutrition) has guideline	Yes	Yes 2018-2025	No	In development	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Are exisiting indicators based on the targets as	Yes	No	Yes	Yes	N/A	Not known	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	N/A	Yes	No	Yes	No	Yes	Yes
Is there a documented list of nutrition indicators that details the numerator and denominator?	Yes	Yes	Yes	Yes - for SAM	Yes	Not known	Yes	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No	Yes	No
Do data collection tools match the required information (numerator and denominator)?	Yes	Yes	Yes	Yes	Yes	Not known	Yes	Yes	Yes	Not sure	Yes	In progress	Yes	Yes	N/A	Yes	Yes	Yes	Not known	Yes	No
Were the nutrition indicators updated within the last 3 years	Yes	Yes	Yes	Yes	Yes	Not known	Yes	Yes	Yes	No	Yes	In progress	No	In progress	No	Yes	Yes	Yes	No	Yes	No
When is the next planned national revision of DHIS2 indicators?	No set date	Situational Review underway at MoHW to prepare for programme indicator review. For the most part, indicators are submitted by each programme and added as submitted.	No set date	Will be reviewed during DHIS2 set-up process in 2020	No set date	N/A	No set date	No set date	In progress to finalised by March	No set date	No set date	In progress	Rolling revisions on-going	In progress	No set date	2020	No set date	No set date	Not known	Yes	In progress
Is there an agreed time-line for national revision	No	Yes	No	No	No	No	Yes	Yes	Yes	No	No	No	No	No	Yes		No	Yes	No		No
Is there a functioning dashboard with nutrition	No	Yes	Yes	NA	No	No	No	No	No	NA	No	No	Yes	No	Yes	Yes	No	No	No	Yes	No
Are there regular nutrition review meetings	No	Yes	Yes	Yes - on monthly basis	Yes	Not known	Yes	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Are there auto-generated (in DHIS2) nutrition reports to facilitate review?	No	Yes - through Tracker	Yes	NA	Yes	NA	No	No	No	NA	Yes	No	Yes (limited)	No	No		No	No	No	No	No
Is the WHO Data Quality Tool installed?	No	No	No	NA	Yes	NA	No	Yes	No Yes	No	Yes	Yes	Yes	Yes	No		No	No	No	Not known	Yes
Which version of DHIS2 is currently being used?	v2.31	v2.28	v2.30	NA	v2.27	NA	v2.30	v2.28	v2.30	v2.30	v2.28	v2.32	v2.30	v2.33	v2.27	v2.30	v2.30	v2.30	Not known	v2.31	v2.30
SAM/MAM admission data included in the DHIS2?	Yes	Yes	Yes	NA	Yes	Not known	Yes	Yes	Yes	Yes	Yes	In progress	Yes (not disaggregated SAM and MAM)	Yes	No	No	In Excel	Yes	Not known	Yes	Yes - SAM
SAM/MAM discharge data included in the DHIS2?	Yes	Yes	Yes	NA	Yes	Not known		Yes	Yes	Yes	Yes	In progress	Yes	Yes	No	No	In Excel	Yes (revised one)	Not known	Yes	Yes - SAM
SAM/MAM outcomes rates included in DHIS2?	Yes	Yes	Yes	NA	No	Not known		Yes	Yes	Yes	Yes	In progress	Yes	No	No	No	In Excel	Yes (revised one)	Not known	Yes	Yes - SAM
Are nutrition indicators calculated in the DHIS2?	No	Yes	Yes	NA	Yes	N/A	Not	Yes	Yes	NA	Yes	Not known	Yes	Yes	No	Yes	Partial	No	Not known	Yes	No
Is Vitamin A coverage calculated correctly?	No	Yes	No	NA	Yes	Not known	Not known	No	Not known	NA	No	No	Yes	Yes (not in DHIS2)	N/A	Yes	Not known	No	Not known	Yes	No
Is Vitamin A collected in 3 age groups	No	Yes	Yes	NA	No			Yes	Yes	Yes	Yes	Yes		Yes	No	No	Not known	Yes	Not known	Yes	Yes
Vitamin A 6-11 months		Yes	Yes	NA	Yes	Not known		Yes	Yes	Yes	Yes	Yes		Yes	No	No	No	Yes	Not known	Yes	Yes
Vitamin A 12-59 months		Yes	Yes	NA	Yes	Not known		Yes	Yes	Yes	Yes	Yes		Yes	No	Yes	No	Yes	Not known	Yes	Yes
Vitamin A 6-59 months		Yes	Yes	NA	No	Not known		Yes	Yes	NA	Yes	Yes		Yes	Yes	No	Yes	Yes	Not known	Yes	Yes
Is there a paralell system for nutrition	No	No	No	Yes	Yes	Yes	Yes	No	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	No	No	No
Is there a supplementary system for nutrition	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No	No	No	No	Yes	No	Yes
Is there UNICEF-funded support (HR) to MoH for	No	No	No	No	No	No	Yes	Yes	No	No	Yes	No	No	No	No	No	No	Yes	No	No	No
Is there UNICEF nutrition information capacity	No	No	Yes	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes	Yes	No	Yes
Is there a local HISP node or equivalent to	Yes	Yes	No	No	No	No	No	Yes	Yes	No	Yes	Yes	Yes	No	No	Yes	No	Yes	Yes	Yes	No

8.4 Data elements and/or indicators collected per country (0=no; 1=yes)

Indicator	Numerator	Denominator	Angola	Botswana	Burundi	Comoros	Eritrea	Eswatini	Ethiopia	Kenya	Lesotho	Madagascar	Malawi	Mozambique	Namibia	Rwanda	Somalia	South Africa	South Sudan	Uganda	Tanzania	Zambia	Zambi	Zimbabwe	TOTAL
Child health																									0
Vitamin A supplementary 6-11 months coverage	Vitamin A 6-11 months	Population 6-11 months	0		1		1	Unknown	1	1	1	1	0	1	1	0	0	0	0	0	Unsure		1	1	10
Vitamin A supplementary 12-59 months coverage	Vitamin A 12-59 months		0		1		1	Unknown	1	1	1	1	0	1	1	0	0	1	0	Similar	Unsure		1	1	11
Vitamin A supplementary 6-59 months coverage	Vitamin A 6-59 months		0		1		1	Unknown	1	1	0	1	1	1	0	0	1	0	1	1	1		1		12
Deworming 12-59 months coverage	Deworming 12-59 months		0		0		0	Unknown	1	1	0	1	1	0	0	0	1	1	0	Similar	Unsure		1	0	7
MUAC screening										1															1
Antenatal Care																									0
Antenatal IFA supplementation rate	Antenatal client IFA supplement	Antenatal client 1st visit	Selected facilities		1		1	Unknown	1	1	1	1	Different	1	0	0	1	0	0	1	1		1	0	11
Antenatal client deworming rate	Antenatal client deworming	Antenatal client 1st visit	Selected facilities		1		0	Unknown		0	0	1	0	1	0	0	0	0	0	Unsure	1		1	0	5
Antenatal client anaemia rate	Antenatal client Hb<11 g/dl	Antenatal client 1st visit	Selected facilities		0		1	Unknown	1	1	1	0	0	0	1	1	1	0	0	Unsure	1		1	0	9
Antenatal client anaemia 1st visit rate	Antenatal client Hb<11 g/dl at 1st visit	Antenatal client 1st visit																							0
Antenatal client anaemia 4th visit rate	Antenatal client Hb<11 g/dl at 4th visit	Antenatal client 4th visit																							0
Neonatal																									0
Low birth weight rate	Live birth <2500gms	Live birth	1		1		1	Unknown	1	1	1	1	1	1	1	0	0	1	1	1	1		1	1	16
Early breastfeeding initiated rate	Breastfeeding early initiation	Live birth	Selected facilities		0		0	Unknown	0	1	1	0	0	1	1	1	0	0	0	1	Unsure		1	0	7
Nutrition Care & Support																									0
Child under 5 years underweight rate	Children underweight	Child weighed/Child seen	0		1		0	Unknown	Unsure	1	1	1	1	1	1	1	0	1	0	1	1		1	1	13
Moderate acute malnutrition rate	Moderate acute malnutrition	Child weighed/Child seen	0		1		0	Unknown	Unsure	1	1	1	1	1	1	1	1	1	0	1	1		1	0	13
Severe acute malnutrition rate	Severe acute malnutrition	Child weighed/Child seen	0		1		0	Unknown	Unsure	1	1	1	1	1	1	1	1	1	0	1	1		1	1	14
Stunting rate			0		1			Unknown	Unsure	1	0	0	0	0	1	0	0	0	0	1	Unsure		1	1	6
Overweight/obese rate	Overweight/obese	Nutritional assessment done	0		0		0	Unknown	Unsure	1	0	1	0	0	1	0	0	0	0	0	0		1	0	4
Normal nutritional status rate	Normal weight	Nutritional assessment done	0		0		0	Unknown	Unsure	1	0	0	0	0	1	0	1		0	0	0		0	0	3
Exclusive Breastfeeding at 6 months rate	Exclusive breastfeeding at 6 months	Unknown			1					1	1														3
Outpatient Therapeutic Program	6-59 months																								0
OTP Cure rate	OTP cured	OTP discharge all	Yes but wrong age group		1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
OTP death rate	OTP death	OTP discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
OTP non responsive rate	OTP non responsive	OTP discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
OTP default rate	OTP default	OTP discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
OTP transfered rate	OTP transferred	OTP discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
OTP new HIV testing rate	OTP new HIV test	OTP admission new			0		0	Planned			0	0	1	0	0	0	0	0	0	0	0		1	0	2
Stabilisation Centre	6-59 months																								0
SC Cure rate	SC Cure	SC discharge all	Yes but wrong age group		1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
SC death rate	SC death	SC discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	1	0	0	0		1	0	7
SC non responsive rate	SC non responsive	SC discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
SC default rate	SC default	SC discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
SC transfered rate	SC transferred	SC discharge all			1		1	Planned	1	1	0	0	1	0	0	0	0	0	0	0	0		1	0	6
SC new HIV testing rate	SC new HIV test	SC admission new			0		0	Planned			0	0	1	0	0	0	0	0	0	0	0		1	0	2
Supplementary Feeding																									0
SF Cure rate	SF Cure	SF discharge all			1		1	Planned	Unsure	1	0	0	1	0	0	0	0	0	0	0	0		0	0	4
SF death rate	SF death	SF discharge all			1		1	Planned	Unsure	1	0	0	1	0	0	0	0	0	0	0	0		0	0	4
SF non responsive rate	SF non responsive	SF discharge all			1		1	Planned	Unsure	1	0	0	1	0	0	0	0	0	0	0	0		0	0	4
SF default rate	SF default	SF discharge all			1		1	Planned	Unsure	1	0	0	1	0	0	0	0	0	0	0	0		0	0	4
SF transfered rate	SF transferred	SF discharge all			1		1	Planned	Unsure	1	0	0	1	0	0	0	0	0	0	0	0		0	0	4

8.5 List of country reports

Reports available on request

1. Angola
2. Botswana
3. Burundi
4. Eswatini
5. Ethiopia
6. Kenya
7. Lesotho
8. Malawi
9. Mozambique
10. Namibia
11. Rwanda
12. South Africa
13. Tanzania
14. Uganda
15. Zimbabwe

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