THE REPUBLIC OF UGANDA

Ministry of Health

HEALTH MANAGEMENT INFORMATION SYSTEM FOR NUTRITION

Reference Manual

2017

Foreword

Nutrition has been categorized as a cross-cutting issue in the National Development Plan (NDPII), Vision 2040 and under the Uganda National Action Plan (UNAP 2011–2016). The Ministry of Health Nutrition Unit, in collaboration with the Division of Health Information, reviewed nutrition data elements within the Health Management Information System (HMIS) in 2014 to streamline those that are captured at the health facility level and have them reported through the District Health Information System 2 (DHIS2) where national-level stakeholders would be able to utilize them.

Among priority interventions for nutrition in Uganda are reporting, monitoring and evaluation which include data collection—largely through the HMIS—to track progress of nutritional status of the population and coverage of nutrition services offered through the country's health structure. Until recently data management has not received adequate attention, especially capacity building among facility-based health workers. Poor data quality or no data at all have made planning, decision making, and implementation for nutrition services a challenge.

This 'HMIS for Nutrition' package aims to build the knowledge and skills of health workers to be able collect, compile, and report timely, complete, and quality nutrition data, and to help them understand the benefits of collecting and reporting quality data for evidence-based decision making. Quality data and the capacity to use them will greatly improve coverage and delivery of nutrition services based on informed decision making, thus contributing to elimination of malnutrition.

I hereby call upon the users of this package to ensure that all health workers are trained to collect, report, and reflect upon nutrition data to make decisions that can end malnutrition in Uganda.

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Acknowledgements

The Health Management Information System (HMIS) for Nutrition Reference Manual (2016) is based on Ministry of Health (MoH) HMIS Health Unit and Community Procedure Manual, Volume 1 (October 2014). The manual highlights nutrition data as guided by the Integrated Management of Acute Malnutrition Guidelines (2016), Maternal Nutrition Guidelines (2010), Integrated Guidelines on Antiretroviral Therapy, Prevention of Mother-to-Child Transmission of HIV (2010), Infant and Young Child Feeding (IYCF) Guidelines (2012), and the Guidelines in Integration of Nutrition Assessment, Counselling, and Support into Routine Service Delivery (2016).
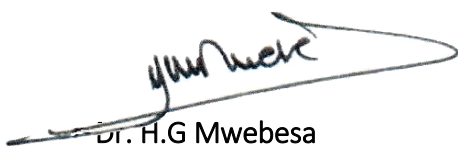
The Ministry of Health would like to acknowledge the invaluable contribution of partners and individuals at various stages of the inception and development of this manual—the U.S. Agency for International Development (USAID) and the World Health Organization Country Office, among others—for all their financial and technical support provided.

Special appreciation goes to USAID's Food and Nutrition Technical Assistance (FANTA III) project, particularly Ahmed Luwangula and Dr. Hanifa Bachou, for the technical and financial dedication and commitment without which development and finalization of this manual would be impossible.

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Lastly, we appreciate the roles of the health facility service providers and clients who enhanced learning during the development process.

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Contents

Acronyms

Ag.	Acting
AMC	Average Monthly Consumption
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Anti-retroviral
BMI	Body Mass Index
CF	Complementary Feeding
CSB	Corn Soya Blend
CSO	Civil Society Organization
DBS	Dry Blood Spot
DHT	District Health Team
DHIS	District Health Information System
DOT	Directly Observed Therapy
DR	Drug Resistant
EBF	Exclusive Breastfeeding
EDD	Expected Date of Delivery
EID	Early Infant Diagnosis
EMHS	Essential Medicines and Health Supplies
eMTCT	Elimination of Mother to Child Transmission
FBF	Fortified-blended Food
FEFO	First Expiry, First Out
GMP	Growth Monitoring and Promotion
HAZ	Height-for-age z-score
Hb	Haemoglobin
HCII	Health Centre II
HCIII	Health Centre III
HCIV	Health Centre IV
HISP	Health Information Systems Program
HIV	Human Immuno-Deficiency Virus
HMIS	Health Management Information System
HSD	Health Sub-district
ICCM	Integrated Community Case Management
IMAM	Integrated Management of Acute Malnutrition
IMCI	Integrated Management of Childhood Illnesses
INR	Integrated Nutrition Register
IPT	Intermittent Preventive Treatment/Therapy
ITC	Inpatient Therapeutic Care
IYCF	Infant and Young Child Feeding
JMS	Joint Medical Stores
LLIN	Long Lasting Insecticide treated Net
MAM	Moderate Acute Malnutrition

MCH	Maternal Child Health
MDR	Multi-Drug Resistance
MF	Mixed Feeding
MNC	Maternal Nutrition Counselling
MoH	Ministry of Health
MUAC	Mid Upper Arm Circumference
NACS	Nutrition Assessment Counselling and Support
NGO	Nongovernmental Organization
NLB	No Longer Breastfeeding
NMS	National Medical Stores
NP	Normal Pregnancy
OI	Opportunistic Infection
OPD	Outpatient Department
OTC	Outpatient Therapeutic Care
PDSA	Plan-Do-Study-Act
PLHIV	Persons Living with HIV
PNC	Postnatal Care
PNFP	Private Not for Profit
QI	Quality Improvement
RF	Replacement Feeding
RUSF	Ready-to-Use Supplementary Food
RUTF	Ready-to-Use Therapeutic Food
SACCO	Savings and Credit Cooperative
SAM	Severe Acute Malnutrition
SD	Standard Deviation
SFP	Supplementary Feeding Programme
TB	Tuberculosis
UBOS	Uganda Bureau of Statistics
UCP	Uganda Clinical Guidelines
UNAP	Uganda Nutrition Action Plan
UNEPI	Uganda National Expanded Programme on Immunisation
USAID	U.S. Agency for International Development
VHT	Village Health Team
W	Weaning
WAZ	Weight-for-age z-score
WHO	World Health Organization
WHZ	Weight-for-height z-score
WASH	Water, Sanitation, and Hygiene
YCC	Young Child Clinic

Course Introduction

The Ministry of Health (MOH) has over the past two years increased the number of nutrition data elements captured in the Health Management Information System (HMIS) in a bid to strengthen the monitoring and evaluation of nutrition service delivery within the health sector. This contributes towards Objective 4 of the Uganda Nutrition Action Plan (2011) that calls for strengthening the policy, legal and institutional frameworks and the capacity to effectively plan, implement, monitor, and evaluate nutrition programs. Nutrition data elements were introduced into various registers positioned at the key health facility contact points, including the outpatient department (OPD), antenatal clinics (ANC), postnatal clinics (PNC), immunization/young child Clinics, maternity wards, HIV clinics, and in-patient wards, among others, in addition to the standalone Integrated Nutrition Register.

A strong HMIS allows health personnel to capture, analyse, and share information about the health system, service provision, beneficiaries, and the overall health status of the population. There are, however, nutrition data collection and reporting gaps at both community and facility levels, in part attributable to the absence of a standardized training manual on the nutrition data elements in the HMIS; inadequate availability of nutrition registers; poor quality data; variation in interpretation of data and minimal demand for nutrition data, let alone use of these data. The revised HMIS (2014) is to ensure that data on nutrition indicators are available through the HMIS/DHIS2. It is essential, therefore, that all data producers/processors have the necessary training and mentoring on the reporting tools to maximize use.

MOH has developed a standardized nutrition data management training package based on the HMIS to strengthen reporting and aspects of data quality from the health facility to the national level. This package will be used to build capacity of cadres at health facility-, district-, and national-level health service providers responsible for collecting and reporting nutrition data.

Aim

This manual is intended to guide capacity building in nutrition data collection, aggregation, routine reporting and use at all levels.

Objectives

- To provide an overview of health service delivery, HMIS, and its linkage to nutrition

- To equip participants with skills to assess nutrition status using anthropometric equipment and tools

- To introduce service providers to nutrition-related data capture and collection tools

- To equip service providers with knowledge and skills on accurate data capture, compilation, and reporting

- To introduce the use of Quality Improvement principles in HMIS

Module 1: Overview of Health Information Systems

Session 1.1: The Health Management Information System (HMIS)

The Health Management Information System (HMIS) is an integrated system used by the Ministry of Health, development partners, and stakeholders to routinely collect relevant and functional information on to monitor the Health Sector Strategic and Development Plan (HSSDP) indicators to enable planning, decision making, monitoring, and evaluation of the health care delivery system. It is designed to assist managers to carry out evidence based decision making at all levels of health service delivery.

At the Health Unit level, HMIS is expected to be used by the Health Unit in-charge, Health Unit departmental in-charge, and the Health Unit Management Committee to plan and coordinate health care services in their catchment area.

The HMIS has been developed within the framework of the following concepts:

- The information collected is **relevant** to the policies and goals of the Government of Uganda, and to the responsibilities of the health professionals.

- The information collected is **functional**; it is to be used immediately by management to inform decisions aimed at improving the health service delivery at the various levels.

- Information collection is **integrated**; there is one set of forms and no duplication of reporting.

- The information is **collected on a routine basis** from all levels of health care service delivery.

Goals of HMIS

The major goal of HMIS is to provide quality information to support evidence-based decision making at all levels of the health care system in Uganda.

Objectives of HMIS

- Provide quality information to support decision making in the Health Sector

- Aid in setting performance targets at all levels of health service delivery

- Assist in assessing performance at all levels of the health sector

- Encourage use of health information

Categories of HMIS Documentation

a) The HMIS manual: Sub-divided into technical modules, where the relevant primary data collection tools (largely registers and tally sheets) and reports are discussed

b) The HMIS database: Where all the summary tables relevant for compiling data from the primary data collection tools are recorded and stored

c) The indicator booklet: Provides the indicator definitions, their methods of calculation, and interpretation

Uses of HMIS

Information from the HMIS can be used in the following ways, among others: planning, epidemic prediction, 2) epidemic detection, 3) designing disease-specific interventions, 4) monitoring work plan performance, and 5) resource allocation

HMIS Data Source and Data Flow

Sources of Data

Data may be obtained on a routine or periodic schedule. HMIS data are largely captured at community and health facility levels, depending on the point of contact between a health worker/health support and a patient/client.

Nutrition data are collected from public, private, Private Not for Profit (PNFP)/Non-governmental Organization (NGO) health facilities and the community. These data are collected using standardized data collection tools and procedures, and aggregated at health facility, Health Sub-District (HSD), district, and finally, at the national level. Data at the national level are accessed through a secure electronic system—the DHIS2, which requires a password to access.

Other sources of health data include:

- **Administrative data sources:** Information on health inventories, supervision, management meetings, logistics management, human resources, financial resource flows, and expenditures at national and sub-national levels

- **Population-based health surveys:** Collected mainly by the Uganda Bureau of Statistics (UBOS) and other institutions that generate data relative to populations (population studies) as a whole

- **Research institutions and academia data:** Involves health systems research, clinical trials, and longitudinal community studies

- **Sentinel sites:** Government-run health facilities normally set up to combat outbreaks. The sites are used to generate high quality individual patient data within the affected catchment area. Civil registration and vital statistics system: Provide essential quality data on births, deaths, and causes of death

- **Population and Household Census:** Carried out every 10 years and is the primary source of data on size of population(s), geographic distribution, and the social, demographic, and economic characteristics. Annual projections at national and sub-national level are provided by UBOS.

All partners use a harmonized and integrated set of data collection tools—the HMIS—for both facility and community-based health data collection. Other data needs that are not met through the HMIS can be collected through any of the above identified sources with guidance from both the Division of Health Information and the relevant technical programs. Triangulation can then be made to establish the linkage and variability from the HMIS data.

Categories of HMIS Data Collection Tools

Health facility data collection tools comprise four categories:

1. **Pre-primary data tools**: These are HMIS tools that have the first contact information that the health worker uses to identify/locate details of the patient, such as Medical form 5, Patient Card.

2. **Primary data tools**: These record patient details on a daily basis, such as the Child Register and Nutrition Register, and can be used to evaluate the performance of the health facility.

3. **Secondary data tools:** These are used to summarize the performance of the health facility by programmatic area, such as the Health Unit Outpatient Monthly Report and the Health Unit Surveillance Report, and are sent to the supervisory levels at agreed upon timelines e.g., Health Unit Health, etc.

4. **Management data tools:** These are HMIS tools that are used to evaluate the managerial functions of the health facility, such as supervision books and records of meetings.

Table 1: Categories of HMIS data collection tools

Pre-primary	Primary	Secondary	Management
Examples	**Examples**	**Examples**	**Examples**
Medical form 5	**Registers**	**Report forms**	Record of management meetings
Requests (lab, x-ray)	- Outpatient	- Notification (HMIS033a)	Record of support supervision
Treatment sheet	- Inpatient	- Weekly (HMIS 033b)	Tool for HMIS support supervision
Treatment follow-up form	- Antenatal	- Monthly (HMIS 105)	Inventory tools
Patient cards	- Laboratory	- Monthly (HMIS 108)	Medical and other health supplies
Referral notes	- Child	- Quarterly (HMIS 106a)	Finance and accounting
	- Operating theatre	- Annual (HMIS form 107)	
	Log books	**Summary tables**	
	- Daily consumption log	- Annual	
	Record books	- Monthly	
	- Cash analysis		

Data Communication and Feedback

HMIS provides data collection tools for capturing patient-level data, which is aggregated into summary reports for submission to the next level. All health service delivery data and information must be routed through the MOH Division of Health Information for validation, analysis and synthesis, and dissemination.

A database book is required at the Health Units, HSDs, and the districts to help in aggregating the data for reporting to ensure accuracy, timeliness, and that relevant information is available to optimize health care delivery over the long term, thus achieving health for all. At the district level, the established district/HSD database serves as a

repository and source for all service delivery data and information. The MOH houses the central database for reporting on progress of the Health Sector Strategic and Development Plan indicators. The MOH Division of Health Information serves as a repository and source for all service delivery data and information at the national level.

The flow of health data is from the lowest level (community), to the Health Unit, to the Health Sub-District, district, and finally to the National Health Databank in the Division of Health Information of the Ministry of Health. Feedback mechanisms on reported data follows the same route, from top to bottom (Ministry of Health to community) as illustrated in Figure 1 below:

MINISTRY OF HEALTH	15th of the next month
District Biostatistician/HMIS FP	15th of the next month
Health Sub District (HSD) Records Assistant	7th of the next month
VHTs VHT Leaders — HEALTH UNITS Records Assistant / In charge — SENTINEL SITES Health Workers	
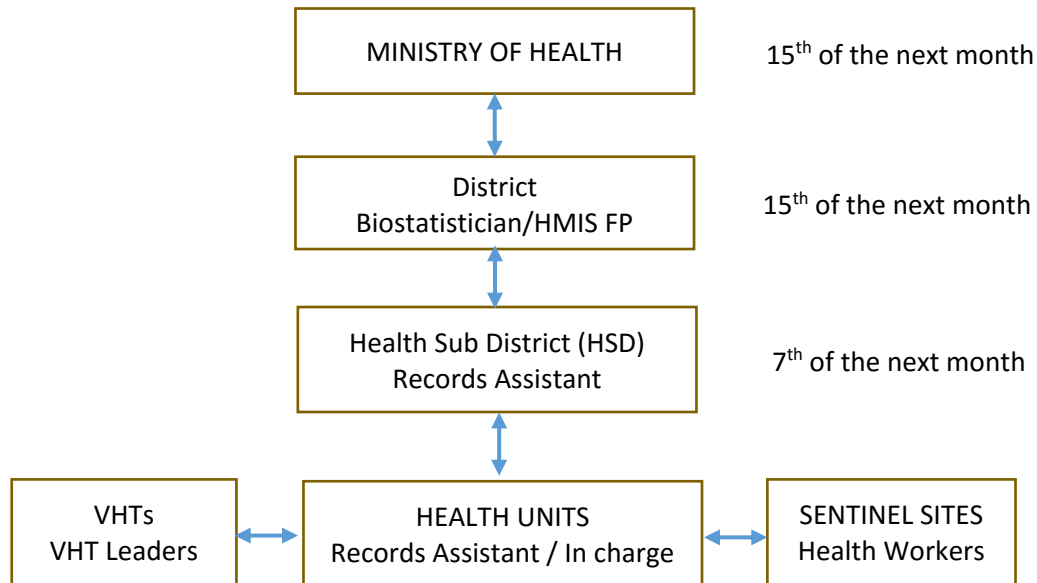
Figure 1: Flow of HMIS data   ⟷ Flow of routine HMIS data

Frequency of HMIS Reporting

The frequency of routine HMIS reporting varies—daily, weekly, monthly, quarterly, annually—depending on the health care service offered and the urgency of the information reported for designing interventions.

Session 1.2: The District Health Information System 2 (DHIS 2)

The DHIS2 is a web-based application used to collect, validate, analyse, and present aggregate statistical data, tailored to integrated health information management activities. It is generic in nature (no need for re-programming) and allows customization of the contents. It was developed by the **Health Information Systems Program (HISP)** project as an open source and globally distributed program.

Evolution of eHMIS

The HMIS was in Uganda was introduced in 1985 as a simple HIS collecting only morbidity data for selected communicable and non-communicable diseases where it was mainly vertical and fragmented. This was largely a paper-based system. With the introduction of the Health Sector Strategic Plan (HSSP), the HMIS was revised to provide data to monitor the performance of the HSSP. It was at this time that health management information started to be used as a system for tracking health sector performance which implied, therefore, every time the strategic plan was revised, the HMIS had to be revised, too. In 2005, age and gender disaggregation was introduced into the HMIS; this is when the epi-info-based system was also introduced and thus the journey for eHMIS in Uganda was started.

In 2007, the District-HIS (DHIS version 1) was introduced. This was largely an MS Access-based system that was later upgraded to web-based HMIS (w-HMIS) in 2008, which included an MS Excel reporting template and other reporting data templates. In 2011/2012, DHIS version 2, (DHIS 2) was introduced in Uganda.

DHIS2 Terminologies

- **Data elements:** Any unit of data entry, such as weight, age

- **Data sets/data entry form:** A set of related data elements collected together

- **Note:** Data elements can be part of many data sets.

- **Indicators:** 'Variables that help to measure changes, directly or indirectly' (WHO 1981); can combine one or more data elements; used to convert raw data into information

- **Organization units (org units):** Location of data, such as department, health facility, geographic area (e.g., district)

- **Reporting periods:** The frequency of reporting a set of defined indicators/variables through a data set—daily, weekly, monthly, quarterly, annually, bi-annually, etc.

Overview of DHIS2 Functionalities

The Data Model for DHIS2 consists of **three** core dimensions that describe the aggregated data being collected and stored in the database; the 'what'—data element; the 'where'—organization unit; the 'when'—time period.

The 'What' dimension

This defines <u>what data</u> are reported, that is, what is collected and analysed, such as number of clients with severe acute malnutrition (SAM) or number of mothers initiating breastfeeding within an hour after delivery**.**

The 'Where' dimension

This defines **where** the data are coming from. It is **the organisation unit** (health facility, sub-county, district, regional, national). There is a hierarchical arrangement at different levels where data are collected at the **lowest level and automatically aggregated** up the hierarchy.

Organization units can be grouped to refine analysis:

- Level (Health Clinic III, hospital)

- Ownership (government, nongovernmental organization)

- Authority (MOH, local government, civil society organization or CSO)

*Organization must be assigned to one group within a group set

The 'When' dimension

This defines the **period** for which the data are reported. Reporting periods are organized by period types/frequencies, that is, monthly, quarterly, six monthly, yearly. Data are automatically aggregated across periods where monthly data can be aggregated into designated periods. Analysis can be done by:

- Relative Period (such as last month, last year, last financial year) to allow reuse of report layout and charts

- Fixed Period (such as January 2016, 2016, Quarter 3 2016) to allow use of absolute period

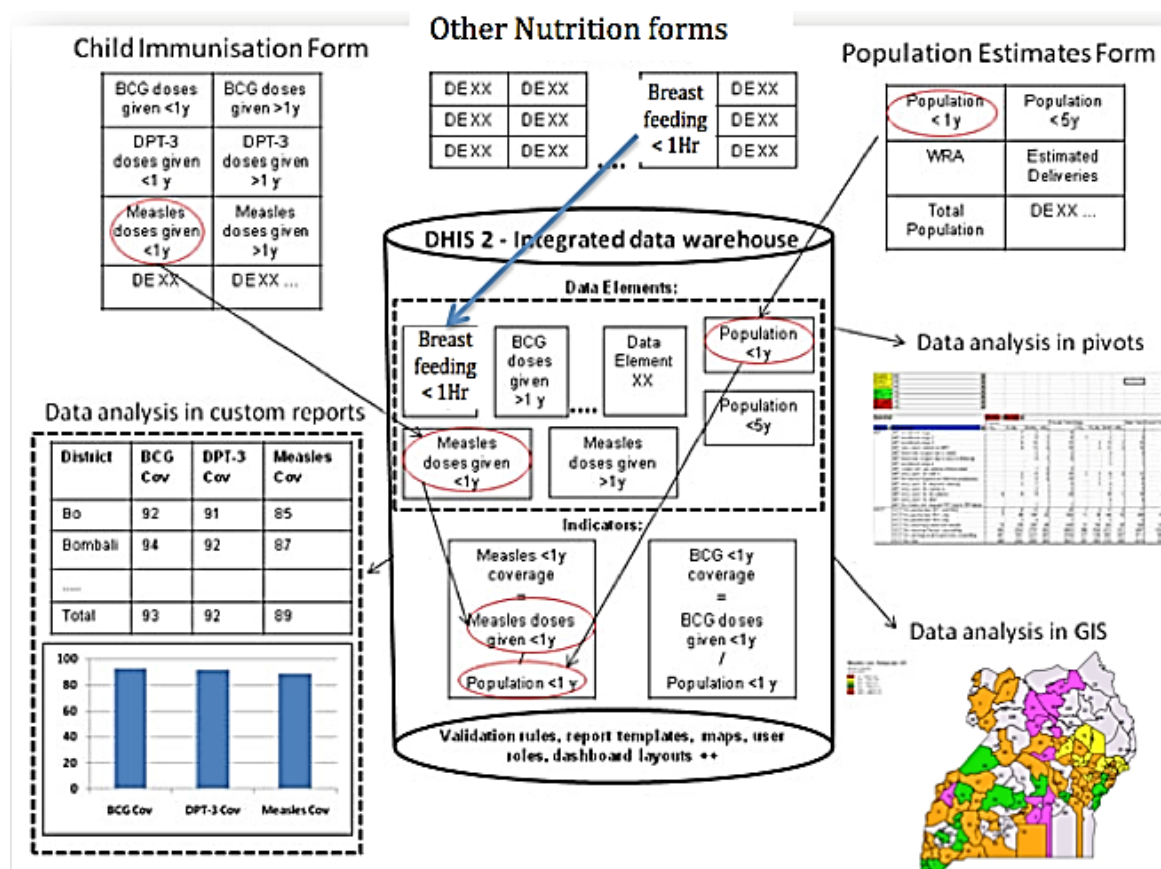All data will at minimum have these three dimensions. This is illustrated in the table below:

Table 2: Data dimensions

WHAT	WHERE	WHEN	
Data Element	**Organisation Unit**	**Period**	**Value**
Number of clients with moderate acute malnutrition (MAM)	Mukono HC IV	Dec-09	22

To understand and summarize what DHIS2 does, we can focus on Figure 2 below.

Figure 2: Data model

Data input = data output

Level of Implementation of DHIS2 in Uganda

The current customization of the DHIS2 in Uganda is for collecting **aggregated health facility** data that is collected weekly, monthly, quarterly, annually, or by financial year. Event-based tracking is also being done, especially through the Maternal and Perinatal Death Surveillance. Efforts are under way to roll out the DHIS2 tracker for tracking largely longitudinal patients like tuberculosis (TB), HIV clients, and elimination of mother-to-child transmission (eMTCT) mothers.

The current users of DHIS2 in Uganda largely include biostatisticians, HMIS focal persons (HMIS data officers in the districts), HSDs, and Health Information Assistants/Records officers in the facilities, including partners and international agencies that are given access rights, depending on the role they play in the system.

Navigating the DHIS2 Software

DHIS2 software is accessed through Google Chrome. Once accessed, the user clicks on the Apps icon, which generates the following features:

- Dashboard
- Pivot table
- Data visualizer
- GIS
- Data entry
- Event capture
- Data quality
- Mobile (light)
- Reports
- Browser cache cleaner
- Score board

DHIS2 users have access to features according to their roles by data management level.

NOTE: DHIS2 training is a 5-day course. This session features only some of the applications.

i) Generating the Report Rate Summary	
Steps: Part A	• Go to the Apps icon and select the Reports module. • From the Reports dialogue box, select Report Rate Summary. • Select the Data Set (report), Organisation Unit, and Period. • Refine your search by selecting 'ownership' to be able to categorise health facilities—government, private not-for-profit, private for-profit.
Steps: Part B	• From the Report Rate Summary above, you can tell the number of facilities in each sub-county. • Click on Download and download as an Excel file. • While in Excel, go to Charts and select the type of chart suitable to represent the data required.
Steps: Part C	• Go to the Apps icon and select the Reports module. • From the Reports dialogue box, select Resources and download the file.
ii) The Pivot Table	
Steps: Part A	• Go to Apps icon and select the Pivot Table module. • The left menu will list sections for all available data dimensions. • From each section, select any number of dimension items.
Steps: Part B	• Arrange the pivot table layout. • Position data dimensions in the columns, rows, or filters by clicking and dragging.
Steps: Part C	• Navigate the available table options. • Hide empty rows and columns. • Show the hierarchy. • Display density. • Select the appropriate font size.
Steps: Part D	• From Favourites, choose Add New; give the favourite a descriptive name and click Create. • To load an existing file, simply type the favourite's name in the Search column.
iii) Data Visualizer	
Steps	• Go to Apps icon and select the Pivot Table module • Select an appropriate chart type—Column, Pie, Bar. • The left menu will list sections for all available data dimensions. • From each section, select any number of dimension items. • Update to visualize the data. • Manipulate the layout (Series, Categories, and Filter). • Manipulate the chart options. • Save the chart as a favourite.

	• Download and add it to your presentation.
iv) Dashboard	
Steps	• While on the dashboard, click on the Add button.
	• Type the name of the dashboard (be descriptive to reflect the contents to be saved there).
	• Click on Create to complete.
	• Click on the Dashboard tab.
	• Under Search, type the first three characters of the object name or any contents of the title of the chart, map, or table from favourites.
	• Click on the Add button to add to the active dashboard.
	• To restrict or allow other users to view your dashboard, click on the Share button.
	• Select the option for Public view.

Module 2: Health Management Information System (HMIS) for Nutrition

Session 2.1: Introduction to Nutrition Situation in Uganda

Magnitude of Malnutrition

In 2011, about 101 million children in the world under 5 were underweight and 165 million were stunted. About 90 percent of stunted children live in only 36 countries. Africa and Asia have the largest number of stunted children. Nearly 19 million children under 5 suffer from severe acute malnutrition (SAM), a life-threatening condition that requires urgent treatment. Reflecting the double burden of undernutrition and overnutrition, about 43 million children under 5 were overweight or obese in 2011. The worldwide prevalence of obesity in adults nearly doubled from 15 percent in 1980 to 35 percent in 2008[1].

Micronutrient deficiency also affects a large proportion of the world's children, as well as women of reproductive age. The World Health Organization (WHO) estimates that about 190 million children under 5 (33.3 percent of the preschool-age population) have subclinical vitamin A deficiency. About 5.2 million children and 9.7 million women are affected by night blindness, which is related to insufficient vitamin A. However, iron is the most common nutritional deficiency, with approximately 2 billion people worldwide affected. In addition, 19.2 percent of pregnant women and 18 percent of children under 5 have iron deficiency anaemia[2].

In Uganda, the populations most vulnerable to malnutrition are women, young children, and people with chronic diseases, including HIV and TB. The prevalence of stunting in children under 5 years of age slightly decreased from 2006 to 2011, from 38 percent to 33 percent, but the prevalence of underweight and wasting has remained stagnant, with slight decreases from 6 percent to 5 percent for wasting and from 16 percent to 14 percent for underweight during the same period. The rate of exclusive breastfeeding in the first 6 months of life increased from 60 percent to 62 percent between 2006 and 2011, but vitamin A deficiency among children under 5 doubled (from 19 percent to 38 percent). Anaemia affects 49 percent of children under 5 and 23 percent of women of reproductive age in Uganda. Acute malnutrition affects 3 percent of women and 5 percent of men between 15 and 49 years of age[3].

Government Efforts to Address Malnutrition

The Uganda Nutrition Action Plan 2011–2016 (UNAP) emphasizes a multisectoral approach to improve nutritional status of all Ugandans, with a special emphasis on women of

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1 Black, R. et al. 2013. 'Maternal and Child Undernutrition and Overweight in Low-Income and Middle-Income Countries'. The Lancet. 382(9890): 427–451.
2 Ibid.
3 Uganda Bureau of Statistics (UBOS) and ICF international Inc. 2012. Uganda Demographic and Health Survey 2011. Kampala, Uganda: UBOS and Calverton, Maryland: ICF International Inc.

reproductive age, infants, and young children. Also emphasized is the 1,000 days from the start of pregnancy through the child's second birthday. Areas of focus include:

- **Development of policies and guidelines**
  - Integrated Management of Acute Malnutrition (2016)
  - Nutrition Assessment Counselling and Support in Routine Service Delivery Training package (2016)
  - Maternal Nutrition Guidelines (2010)
- **Micronutrient initiatives**
  - Food fortification (e.g., adding vitamin A to vegetable oil, iodized salt)
  - Micronutrient supplementation (e.g., vitamin A, iron/folate, and zinc)
  - Promotion of nutritious foods such as yellow/orange sweet potatoes, iron-rich beans
- **Health promotion strategies**
  - Universal National Expanded Programme for Immunisation (UNEPI)
  - Growth monitoring and promotion (GMP)
  - Health/nutrition counselling and education
  - Water, sanitation, and hygiene (WASH)
- **Other initiatives**
  - Operation Wealth Promotion
  - Economic strengthening [microfinance, Savings and Credit Cooperatives (SACCOs)]
- **Capacity building**

The Need to Strengthen Nutrition Accountability in the Health Sector Using Data

Inadequate nutrition data in the existing HMIS tools makes it difficult to develop effective strategies to address malnutrition at all levels. The MOH Division of Health Information and the Nutrition Unit have incorporated nutrition data elements in the current HMIS tools. The incorporation of nutrition data elements in HMIS is an opportunity to collect data and obtain nutrition information from all the structure levels countrywide, improving decision making and accountability and contributing to improved nutrition services. Using good quality data, health facilities can track their own performance and the health sector can make informed decisions to improve services and outcomes.

Session 2.2: Basics of Nutrition

Nutrition is a process by which food and drink is taken, digested, absorbed, and used by the body for physical activity, growth, development, and health. The outcome of this process is the nutrition status. When the body does not get the right amount (inadequate or excessive) of nutrients it needs to maintain healthy tissue and organ function, the resulting nutritional status is defined as malnutrition.

Types and Categories of Malnutrition

Malnutrition can be classified in two ways.

Overnutrition: A consequence of abnormal or excess fat accumulation in the body that may lead to health problems and reduced life expectancy; starts as overweight, and if not controlled, can progress to obesity.

Undernutrition: A consequence of consuming too few essential nutrients, using or excreting them more rapidly than they can be replaced, or not being able to absorb the nutrients consumed, often due to illness or infection.

There are three forms of undernutrition:

- Acute malnutrition/recent (wasting with bilateral pitting oedema)

- Chronic malnutrition/long term (stunting)

- Micronutrient deficiencies (vitamin A, iron/folate, iodine, zinc)

Each of the three forms can further be categorized based on severity (mild, moderate, severe) and can present in isolation or combination.

Identifying and Classifying Malnutrition

Malnutrition is diagnosed by use of anthropometry (body measurements), clinical signs, dietary history and/or biochemical tests. In the HMIS, a child can be identified as normal or classified as having moderate or severe malnutrition, based on anthropometric indicators, (cut-offs and z-scores). Clinical signs, specifically the presence/absence of bilateral pitting oedema, are also used in the HMIS.

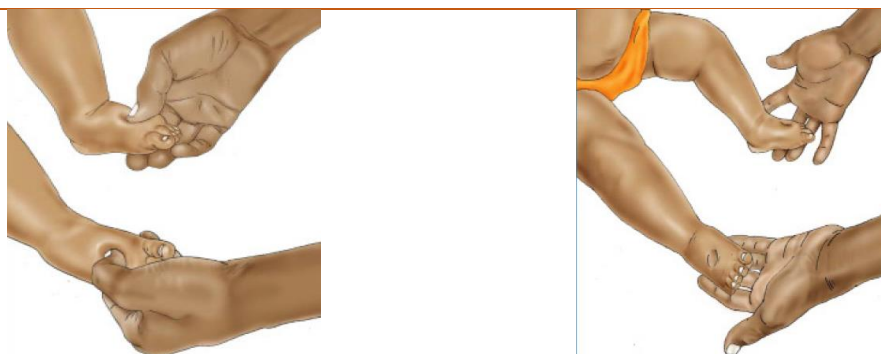### Clinical Signs

Acute Malnutrition

Acute Malnutrition

Chronic malnutrition

Bilateral Pitting Oedema (Nutritional Oedema)

Oedema is the presence of an abnormally large amount of fluid in the body's tissues. Although oedema can be caused by conditions such as congestive heart disease, lymphatic disorders, and kidney disease, it can also be caused by malnutrition. Oedema is of nutritional significance only if it is bilateral (in both feet or legs) and is pitting (when pressure on the skin leaves an indentation that remains after the pressure is removed). Presence of bilateral pitting oedema is a sign of SAM, regardless of any other anthropometric measurements. Among pregnant women, however, bilateral pitting oedema is associated with other pregnancy-related complications (gestational oedema).

Checking for Bilateral Pitting Oedema
1. Test for bilateral pitting oedema with thumb pressure, not just by looking.
2. Press gently with your thumbs on both of the client's feet for 3 seconds (approximately the time it takes to say 'one thousand one, one thousand two, one thousand three').
3. If a shallow indentation or pit remains on both feet when the thumbs are lifted, then the client has bilateral pitting (nutritional) oedema.
Apply gentle pressure with your thumbs. Release after 3 seconds.

There are three grades of bilateral pitting oedema. When there is no bilateral pitting oedema, the grade is 'absent'. Grades of bilateral pitting oedema are classified by plus signs.

Table 3: Grades of oedema

Grades of Bilateral Pitting Oedema Grad	
Grading	**Definition**
Absent	No oedema
Grade +	Mild: both feet/ankles
Grade ++	Moderate: both feet, plus lower legs, hands, or lower arms
Grade +++	Severe: Generalized bilateral pitting oedema, including both feet, legs, arms, and face

NOTE: Nutrition assessment should start with checking for oedema. Presence of bilateral pitting oedema of any grade is classified as SAM. No other assessment is required for classification of malnutrition. Other common clinical signs of acute malnutrition are found in Appendix III.

Anthropometry

Common anthropometry includes Mid Upper Arm Circumference (MUAC), weight, height/length. Anthropometry is used in combination (indices) of different measurements presented as indices and includes: weight for age, weight for height/length and height/length for age, body mass index (BMI) and BMI for age, as illustrated below (Table 4). The measure (MUAC) or Index is compared to standardized cut-offs, based on age, sex, or (in case of MUAC), physiological status (pregnant/lactating mother).

Mid-Upper Arm Circumference (MUAC)

The Mid Upper Arm Circumference (MUAC) is a measure of wasting, a clinical manifestation of acute malnutrition. Classification of nutritional status using MUAC is age/group specific (Table 4).

Table 4: Cut-off points and nutrition status of individuals

Group		Severe acute malnutrition (SAM)	Moderate acute malnutrition (MAM)	Normal
Infants and children	6 months to < 5 years	< 11.5 cm	≥ 11.5 to < 12.5 cm	≥ 12.5 cm
	Children 5 to < 10 years	< 13.5 cm	≥ 13.5 to < 14.5 cm	≥ 14.5 cm
	Children/ adolescents 10 to < 15 years	< 16.0 cm	≥ 16.0 to < 18.5 cm	≥ 18.5 cm
	Adolescents 15 to < 18	< 18.5 cm	≥ 18.5 to < 21.0 cm	≥ 21.0 cm
Adults 18 years and older		< 19.0 cm	≥ 19.0 to < 22.0 cm	≥ 22.0 cm
Pregnant women or mothers with infants up to 6 months		< 19.0 cm	≥ 19.0 to < 22.0 cm	≥ 22.0 cm
Elderly 60 years and older		< 16.0 cm	≥ 16.0 to < 18.5 cm	≥ 18.5 cm

NOTE: MUAC assessment and classification does not apply for:

- Children < 6 months of age
- Patients with bilateral pitting oedema of any grade

Anthropometric Indices

Children < 5 years
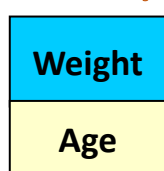
Underweight

Stunting
(<2 years/< 87 cm) (≥ 2 years/≥ 87 cm)

Wasting
(< 2 years/< 87 cm) (≥ 2 years/≥ 87 cm)

For Children and adolescents (5-18 years)

BMI-for-Age

Adults (19 years+)
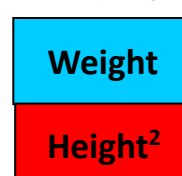
Body Mass Index (BMI)

Body Mass Index (BMI)

BMI is an index comprising two building measures (weight, height). BMI is a reliable indicator of body fat and is useful to identify undernutrition and overweight in adults 19 years and older.

NOTE: BMI should not be used for determining nutritional status of:
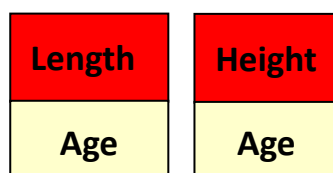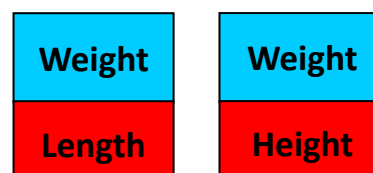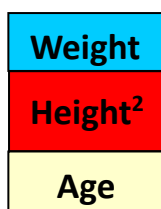
- Pregnant women

- Women in their first 6 months postpartum

- Adults with oedema, whose weight gain is not linked to their nutritional status

- The elderly (60 years+)

For these categories, MUAC assessment should be used instead.

Steps in Calculating BMI

- Measure and record the client's weight in kilograms and height in centimetres.

    Example: Weight = 78 kg and height = 165 cm

- Convert centimetres into meters (100 cm = 1 m, so 165 cm = 1.65 m).

- Calculate BMI using the formula below:

$$\text{BMI} = \frac{Weight\ (Kg)}{Height\ (M^2)} = 28.645$$

- Round to the nearest whole or half number (the nearest 0.5, such as 19.5, 20, 20.5).

- Example: 28.645 rounded to the nearest 0.5 = 28.5;   **BMI = 28.5**

    Drill: Calculate the BMI of the following clients.
    a. Peter weighs 65 kg and is 170 cm tall.
    b. Allen: 75 kg, 156 cm
    c. Joanne: 45 kg and 164 cm
    d. Kim: 30 kg, 123 cm

BMI can also be found using the BMI Wheel.

Finding BMI Using the BMI Wheel

The BMI Wheel is another tool that can be used to calculate BMI. The wheel is double faced. BMI can be determined using the side of the wheel with the word Instructions at the top. Follow the instructions provided to determine the BMI and nutrition status of adults.

Figure 3: BMI wheel: face for determining BMI
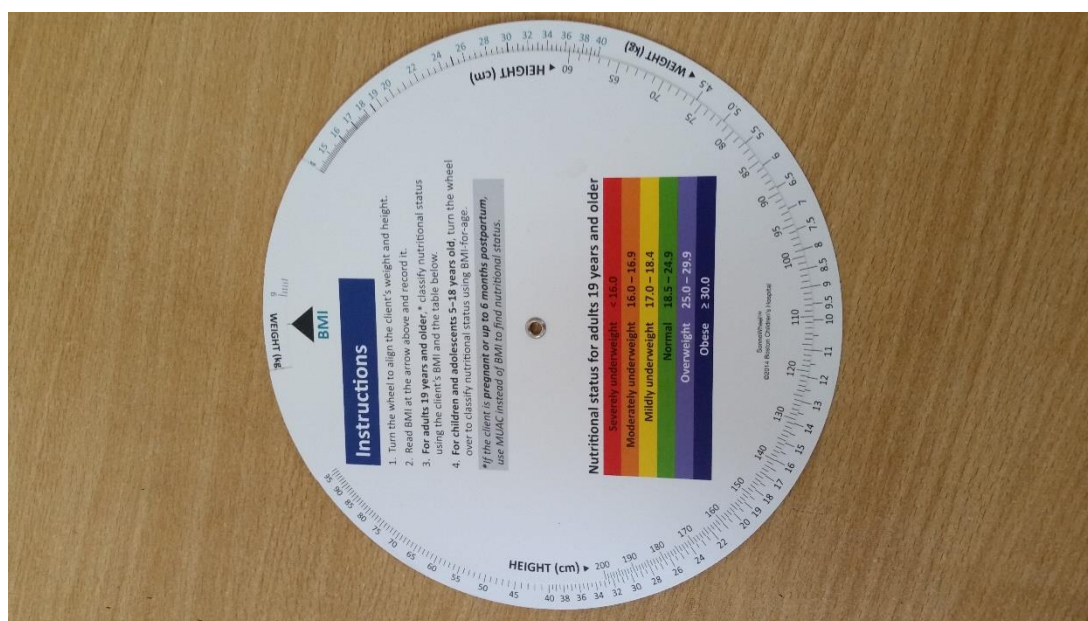
NOTE on the BMI wheel:
- Severely underweight means severe acute malnutrition (SAM)

- Moderately underweight means moderate acute malnutrition (MAM)

- Mildly underweight means at risk of malnutrition

Table 5: BMI cut-offs and nutritional status

BMI (kg/m^2)	Classification
< 16.0	Severe acute malnutrition
16.0–16.9	Moderate acute malnutrition
17.0–18.4	At risk/mild malnutrition
18.5–24.9	Normal nutritional status
25.0–29.9	Overweight
≥ 30.0	Obese

Z-scores (WAZ, HAZ, WHZ, BMI/Age)

Z-scores

Z-scores measure standard deviation (SD), which indicate the tendency of a measurement towards the median reference measurement. The z-score for the median measurement is 0. A measurement lower than the median is indicated with a negative sign (e.g., –1 z-score), and a measurement greater than the median is indicated with a positive sign or no sign (e.g., +2 z-score or 2 z-score).

The further away a measurement is from the median on either side, the greater the risk of malnutrition. A z-score to the left of the median (e.g., –3 z-score) indicates undernutrition, while a z-score to the right of the median (e.g., 3 z-score) indicates overnutrition.

Figure 4: Z-score cut-offs

Z scores are used to determine nutrition status of individuals based on the anthropometric indices. The Z score measures include weight-for-age (WAZ), height-for-age (HAZ), weight-for-height (WHZ), and BMI-for-age.

Weight-for-Age Z-Score (WAZ)

Weight-for-age is a measure of underweight and compares a child's weight to the expected weight of a healthy child of the same age and sex, according to the 200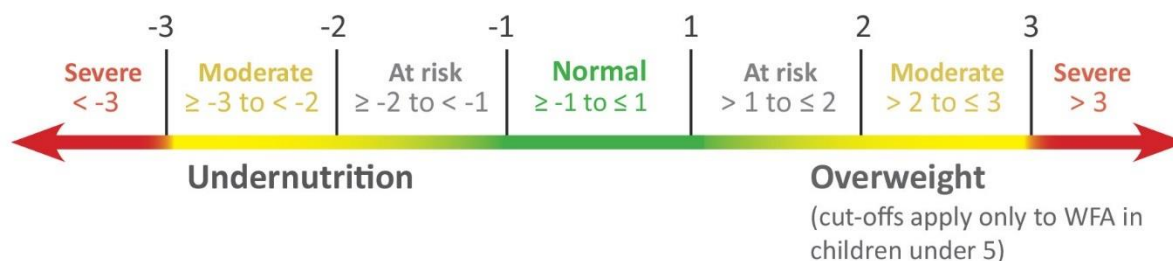6 WHO Child Growth Standards. WAZ can be used to determine the nutritional status of children < 2 years, specifically whether they are underweight, and is used in growth monitoring and promotion programs. WHO has developed standardized sex-based growth curves/charts and field tables to help classify a child's weight for age.

Steps in finding WAZ using standardized growth curves/charts
1.   Select the correct growth chart for the child's sex and age.
2.   Use the vertical line (y-axis) to find the child's weight in kilograms.
3.   Use the horizontal line (x-axis) to find the child's age.
4.   Find where the two lines meet, and determine the z-score category under which the measurement falls.

Finding WAZ Using Standardized Field Tables

While using field tables, the middle column in each table lists the median weight-for-age. To either side of the middle column are z-scores based on age (in years or months). Using this information, you can determine in which z-score range a child's weight-for-age falls (e.g., < -2 z-score and > -3 z-score).

Steps in finding WAZ using standardized field tables
1. Select the correct field table for the child's sex and age.
2. Use the two left-hand columns to find the child's age in years (Column 1) or months (Column 2).

3. In the row that corresponds to the child's age, find where the child's weight falls.
   a. If the child weighs less than the median, find the z-score column that lists the lowest weight that is higher than the child's weight. Confirm that the child weighs more than the weight listed in the column to the left. For example, if the child weighs less than the weight that corresponds to -1 z-score, but more than the weight that corresponds to -2 z-score, he or she is < -1 z-score and > -2 z-score and is considered to be at risk or mildly malnourished.
   b. If the child weighs more than the median, find the z-score column that lists the highest weight that is lower than the child's weight. Confirm that the child weighs less than the weight listed in the column to the right. For example, if the child weighs more than the weight that corresponds to +2 z-score, but less than the weight that corresponds to +3 z-score, the child is > +2 z-score and < +3 z-score.

Height-for-Age Z-Score (HAZ)

Height/length-for-age z-score (HAZ) classifies a child's nutritional status by comparing a child's height to the expected height of a healthy child of the same age and sex based on the WHO Child Growth Standards. HAZ is used to identify stunting, or short stature, which indicates **chronic malnutrition**. There is separate sex specific WHO Child Growth Standards (charts and tables) for length-for-age (for children from birth to 2 years) and height-for-age (from 2–5 years). WHO has made standardized growth curves/charts and field tables available to help classify a child's height for age.

Steps in finding HAZ using standardized growth curves/charts
1. Find the correct chart for the child's age (0–23 months or 24–59 months) and sex.
2. Find the child's height in centimetres on the vertical line (y-axis).
3. Find the child's age on the horizontal line (x-axis).
4. Read and record the number/range where the two lines meet.

Finding HAZ Using Standardized Field Tables

When using field tables, the middle column in each table lists the median height for a given age. To either side of the middle column are z-scores based on age in years or months. Using this information, you can determine in which z-score range a child's height for age falls (< -2 z-score and > -3 z-score).

Steps in finding HAZ using standardized field tables
1. Select the correct field table for the child's sex and age.
2. Using the two left hand vertical columns, find the child's age in years (first column) or months (second column).

3. In the row that corresponds to the child's age, find the child's height/length (centimetres).
 	
  a) If the child is shorter than the median, find the z-score column that lists the lowest height that is greater than the child's height. Confirm that the child is taller than the height listed in the column to the left. For example, if the child is shorter than the height that corresponds to -1 z-score but taller than the height that corresponds to -2 z-score, he or she is< -1 z-score and > -2 z-score and is considered to be at risk/mildly stunted.
 	
  b) If the child is taller than the median, find the z-score column that lists the largest height that is lower than the child's height. Confirm that the child is shorter than the height listed in the column to the right. For example, if the child is taller than the height that corresponds to +2 z-score but shorter than the height that corresponds to +3 z-score, the child is> +2 z-score and< +3 z-score.

Weight-for-height z-Score (WHZ)

Weight-for-height/length z-score (WHZ) is used to classify a child's nutritional status by comparing a child's weight to the expected weight of a child of the same length/height and sex in the WHO Child Growth Standards. WHZ is used to identify acute malnutrition (wasting) as well as overweight and is key to the management of MAM and SAM. WHO has made Child Growth Standards (charts and field tables) for weight-for-length (0–2 years) and weight-for-height (2–5 years) to help classify a child's weight-for-height.

Steps in finding WHZ using standardized growth curves/charts
1. Find the correct chart for the child's sex (if coloured, pink for girls, blue for boys) and age (birth– 2 years) or (2–5 years).
2. Find the child's weight in kilograms on the vertical line (y axis).
3. Find the child's length or height on the horizontal line (x axis).
4. Read the region/number (z-score) where the two lines meet.

Finding WHZ Using Standardized Field Tables

When using field tables, the middle column in each table lists the median weight-for-length/height. To either side of the middle column are z-scores based on age (in years or months). Using this information, you can determine in which z-score range a child's weight-for-length/height falls (e.g., < -2 z-score and > -3 z-score).

Steps in finding WHZ using standardized field tables
1. Select the correct field table for the child's sex and age.
2. Using the two left-hand columns, find the child's height/length (in centimetres).
3. In the row that corresponds to the child's height, find where the child's weight falls.
a) If the child weighs less than the median, find the z-score column that lists the lowest weight that is higher than the child's weight. Confirm that the child weighs more than the weight listed in the column to the left. For example, if the child weighs less than the weight that corresponds to -1 z-score, but more than the weight that corresponds to -2 z-score, he or she is < -1 z-score and > -2 z-score and is considered to be at risk or mildly malnourished.
b) If the child weighs more than the median, find the z-score column that lists the highest weight that is lower than the child's weight. Confirm that the child weighs less than the weight listed in the column to the right. For example, if the child weighs more than the weight that corresponds to +2 z-score, but less than the weight that corresponds to +3 z-score, the child is > +2 z-score and < +3 z-score.

BMI-for-Age Z-Score

The BMI-for-age z-score is used to find the nutritional status of children and adolescents 5–18 years. This indicator, which reflects sex as well as age, is used instead of BMI alone because children and adolescents are still growing and their body composition varies with age and gender.

NOTE: For Adolescent girls 15–18 years who are pregnant or within 6 months postpartum, MUAC should be used to classify nutritional status.

Steps in finding BMI-for-age using standardized growth curves/charts
1. Find the client's BMI (as shown previously).
2. Find the correct chart for the client's age (5–19 years) and sex (if coloured, pink for girls, blue for boys).
3. Find the client's BMI (kg/M^2) on the vertical line (y-axis).
4. Find the client's age on the horizontal line (x-axis).
5. Read and record the number/range where the two lines meet.

When using field tables, the middle column indicates the client's age (in years/months). On the left of the age column is BMI values for boys; the BMI values for girls are on the right hand side. The column at the extreme end of each sex indicates SAM (< -3). Using this information, you can determine in which z-score range a client's BMI-for-Age falls (e.g., < -2 z-score and > -3 z-score).

Steps in finding BMI-for-age using standardized field tables
1. Find the client's BMI (as shown previously).
2. Find the correct chart—BMI-for-age (5–19 years).
3. Find the correct side of the chart for the client's sex (boys on left, girls on right).
4. Find the client's age in the middle columns (years/months).
5. In the row that corresponds to the client's age, find the client's BMI.
6. Read and record the number/range where the client's BMI lies.

Alternatively, BMI-for-age for children and adolescents (5–19 years, except pregnant/lactating girls with children < 6 months) can be classified using the BMI wheel.

Finding BMI-for–age Z-Scores Using the BMI Wheel

- Find the client's BMI (as earlier explained).
- Turn to the opposite side of the wheel with label 'BMI-for-age of children 5–18 years old'.

Figure 5: BMI wheel: Side for determining BMI-for-Age

- Follow the instructions provided on the BMI wheel to find the BMI-for-age z-score and nutritional status.

NOTE on the BMI Wheel:

- Severely underweight means severe acute malnutrition (SAM).
- Moderately underweight means moderate acute malnutrition (MAM).
- Mildly underweight means at risk of malnutrition.

The chart below indicates cut-offs for BMI-for-age z-scores for 5–19 years. Note that overweight begins when BMI-for-age is > +1 z-score in adolescents.

Table 6: BMI-for-age z-score cut-offs

BMI-for-Age Cut-offs					
SAM	Moderate	Mild	Normal	Overweight	Obese
< -3	≥ -3 to < -2	-2 to -1	≥ -1 to ≤ +1	> +1 to ≤ +2	> +2

Nutrition Assessment and Classification Exercises

1. Identify the anthropometric chart/table to find the z-scores for the following clients and classify their nutritional status.

		Appropriate table/chart	z-score	Nutritional Status
a.	A boy 1 year with length of 62 cm and weight of 5 kg			
b.	A girl 3 years with weight of 7.6 kg and height of 70 cm			
c.	A boy 4 years, 8 months who weighs 11.8 kg			
d.	A girl 8 months who weighs 7.2 kg			

2. Use the BMI wheel to classify nutritional status of the following clients.

	Client	BMI	BMI-for-age	Nutritional Status
a.	A male 17 years weighing 43.2 kg with a height of 160 cm			
b.	A girl 14 years, 7 months weighing 38 kg with a height of 145 cm			
e.	A man 25 years weighing 55 kg with a height of 158 cm			

3. Classify the nutritional status of the following clients.

	Client	Weight-for-length/height z-score	BMI	BMI-for-age z-score	Classification
a.	Boy 1 year, 74 cm long, weighing 7.2 kg				
b.	Girl 6 months, 55cm long, weighing 3.9 kg				
c.	Girl 2 years, 3 months 102 cm tall, weighing 12 kg				
d.	Girl 10 years, 174 cm tall, weighing 47 kg				
e.	Man 45 years, 162 cm tall, weighing 36 kg				
f.	Man 19 years, 154 cm tall, weighing 35 kg				
g.	Pregnant girl, 16 years, 154 cm tall, weighing 49 kg				
h.	Lactating woman, 157 cm tall, weighing 70Kg				
i.	Boy 8 years, 156 cm tall, weighing 46 kg				
j.	Girl 10 years, 151 cm, weighing 50 kg				

Nutrition Counselling

Nutrition counselling is a form of interpersonal communication through which a person is helped to assess their current nutritional situation or status and explore ways to address the problem. Effective counselling respects the client's own thoughts, beliefs, and culture.

Nutrition Counselling Codes and Terms in HMIS

Table 7: Nutrition and ART counselling terms in HMIS

	Counselling term	Counselling code	Term/code description
1.	Infant and young child feeding counselling		Counselling on breastfeeding and complementary feeding, including counselling on infant feeding in the context of HIV/AIDS
2.	Maternal nutrition counselling	MNC	Counselling on maternal (pregnancy/post-partum) nutrition
2.	Pre-lacteal feeding		Giving other fluids or foods to a baby before initiation of breastfeeding
3.	Exclusive breastfeeding	EBF	Giving a baby ONLY breast milk; without any other liquids or solids, not even water *Only prescribed drops or syrups consisting of vitamins and mineral supplements or medicines may be given. Exclusive breastfeeding is recommended until a baby is 6 months old.
4.	Complementary feeding	CF	Giving a baby other foods in addition to breast milk after 6 months of age
5.	Replacement feeding	RF	The process of feeding a child who is not receiving any breast milk with a diet that provides all the nutrients the child needs, until the child is fully fed family foods
6.	Mixed feeding	MF	Feeding both breast milk and other foods or liquids to a child under 6 months of age
7.	Weaning	W	Process of gradually introducing a child to family food and withdrawing breastfeeding/breast milk; recommended after 2 years
8.	Re-lactation		Re-establishing breastfeeding after a mother had stopped, whether in the recent or distant past
9.	No longer breastfeeding	NLB	Breastfeeding stopped
10.	HIV testing and counselling	C	Counselled but declined HIV testing
11.		T	Counselled and tested but did not receive results
12.		TR	Counselled, tested, and results given; client tested HIV negative in PNC
13.		TRR	Counselled, tested, and results given; client tested HIV positive in PNC
14.		TRR+	Client was originally negative but sero-converted at this test
15.		TRv	Client came for delivery with HIV-negative status; test done during this pregnancy
16.		TRRv	Client came with HIV-positive status; test during this pregnancy

Module 3: Key Nutrition Data Sources

Session 3.1: Community Data Collection Tools

a) VHT/ICCM register (HMIS 097)

The VHT/Integrated Community Case Management (ICCM) register records information and helps the health facility plan for health services needed by the community. One copy of the register is filled and remains with the village health team (VHT).

Responsible: VHT team leader

Description of nutrition data elements in the VHT/ICCM register	
The nutrition data elements are found in section - *General information about children 5 years and under* of the VHT/ICCM register. Two columns capture nutrition data as described below.	
Column 8: Received Vitamin A	Review the Child Health Card or available immunization record to verify vitamin A supplementation. If no records are available, ask household members whether the child has been given the first dose of vitamin A. Refer to the first box; if the answer is yes, then tick (√); if no, write a cross (X). During your next visit, again ask if the child has been given the second dose of vitamin A. Refer to the second box. If the answer is yes, then tick (√); if no, write a cross (X).
Column 9: Yellow and Red MUAC	The VHT uses a MUAC strip to measure a child's upper arm (mid-way between the shoulder and the elbow). If the MUAC strip shows the yellow colour, tick in the first box (marked Yellow), if the MAUC strip shows red/client has oedema, tick in the second box (marked Red MUAC/oedema). Yellow and red colours mean that the child has a danger sign. The child needs to be referred, examined, and treated at the health centre.

b) Quarterly Household Summary (HMIS 097a)

The Quarterly Household Summary records information on households and the health services provided to the community in the quarter. The data source document is the ICCM register. Only one copy of the Household Summary is filled in by the VHT team leader on a quarterly basis.

Responsible: VHT team leader

Description of Nutrition Data Elements in the Quarterly Household Summary	
The nutrition data elements are captured under the Children Summary section and the ICCM section.	
i) Children summary section	**Red MUAC/oedema:** Indicate total number of children with red MUAC/oedema disaggregated by gender for the reporting quarter. **Received Vitamin A:** Indicate the total number of children who received vitamin A in the reporting quarter. **NOTE:** Disaggregate Vitamin A first and second dose supplementation.
ii) ICCM section	**Children under 5 years with Red MUAC:** Indicate the total number of 'sick' children with Red MUAC/oedema disaggregated by gender. **Children under 5 years referred:** Indicate the total number of sick children referred to any support services, including nutrition management (children with SAM, or MAM with medical complications).

c) VHT/ICCM Quarterly Report (HMIS 097b)

The VHT/ICCM Quarterly Report records information on households and helps the nearest health centre to plan the health services needed by the community. Three copies are filled in:

- First copy: Remains with the VHT

- Second copy: Submitted to the Health Unit where the VHT is attached

- Third copy: Submitted to the parish coordinator

Responsible: VHT team leader

Description of Nutrition Data Elements in the VHT/ICCM Quarterly Report	
The VHT team leader aggregates data from the quarterly household summaries into the ICCM quarterly report. The nutrition data elements are:	
The fourth item in section A (VHT)	Number of children under 5 years received vitamin A in last 6 months, disaggregated by gender, then totalled
The sixth item in section B (ICCM Section)	Number of children under 5 years with Red MUAC, disaggregated by gender; indicate the total number of children under 5 years with Red MUAC/oedema identified in the reporting quarter

Session 3.2: Primary Health Facility Data Sources

The Outpatient Register (HMIS form 031)

The OPD register is used to record detailed information about each outpatient visit. Only one copy of the register is used per Health Unit and should be kept in the Outpatient Department (OPD).

Responsible: Person in charge of OPD

Description of Nutrition Columns in the OPD Register

The OPD register has 18 columns, of which 6 capture nutrition data as described below.

Column	Description
Column 4: Age and Sex	Review available records (Child Health Card, baptism card, mother's passport, previous treatment records), or ask client/caregiver. • Write the patient's age in months if the patient is **under 5 years** of age. Write clearly **MTH** after the age. • Write the patient's age in complete years if the patient is above **5 years** of age. Write the Sex (Gender) of the patient. Indicate **M** for male and **F** for female.
Column 5: MUAC, Weight and Height/Length	**MUAC** Take MUAC for clients 6 months of age and older. Write the MUAC colour code (R for red, Y for yellow, and G for green) and the measurement in centimetres (cm). Red indicates SAM, yellow indicates MAM, and green indicates normal nutritional status. **NOTE:** If MUAC is red or yellow refer client to obtain the admission number from the Integrated Nutrition Register (INR). **Weight** Measure and record the weight of the client in kilograms (Kg). Indicate the weight on an Outpatient Card Handout as well. **Height/Length** Measure and record the height (for children over 2 years or ≥87 cm)/length (for children 2 years and under or < 87 cm) of the clients in cm. Also indicate height/length on the Outpatient Card.
Column 6: BMI, weight-for-age z-scores, and height/length-for-age z-scores	**BMI** Calculate BMI by weight (kg)/height (m^2). For calculation of BMI, height or length in cm should be converted to metres (m) by dividing height or length in m by 100.Write ND if weight and/or height is not taken. **NOTE:** BMI is considered only for clients (> 19 years). **Weight-for-age z-scores (children < 5 years)** This measures **underweight**. Weight-for-age z-scores (for clients less than 6 months) write N for normal nutritional status if client's z-score are equal or above (≥) -2SD, and U for underweight if client z-score is less than (<) -2SD. **Height/length-for-age z-scores (children < 5 years)** This measures **stunting,** write N for normal nutritional status if client's z-score is equal to or above (≥) -2SD, and S for stunting if the client's z-score is less than (<) -2SD. **NOTE:** For z-scores, refer to respective z-score charts.

Column 7: Blood Pressure and Blood Sugar	Record the patient blood pressure and blood sugar level. Indicate ND if patient blood pressure and/or blood sugar level was not checked.
Column 14. New Diagnosis	Write clearly all diagnoses made. The diagnosis is written only once for a new attendance for the health condition. If more space is required, use another line. Remember that all diagnoses of notifiable diseases should be clearly **starred (*)** by the Serial Number. **NOTE**: All diagnoses must be made according to the standard case definitions and Uganda Clinical Guidelines (UCG) provided by the Ministry of Health. The written diagnosis should correspond to one of the diagnoses listed in the Monthly Health Unit report (HMIS 105).
Column 15. Drugs/Treatment	At a minimum, the names of the drugs or devices (such as RUTF, CSB) and quantities given in accordance with the age and/or weight of the patient. Quantities given should be written in the format: x number of units per dose, x number of doses per day, x number of days the drug is to be taken. **NOTE**: In case of disability, record the device given, such as spectacles, wheel chair, walking stick.
Facilitator note: Diagnosis e.g., MAM, SAM without oedema, SAM with oedema	

Child Register (HMIS form 073)

The Child Register is used to register children at the first visit and then monitor immunizations, vitamin A and deworming for all the children from the Health Unit's service area. Two copies of the register should be used; one for static and one for outreach sessions but both kept at the Health Unit.

Responsible: Person in charge of maternal and child health (MCH) in the Health Unit

Description of Nutrition Columns in the Child Register

The Child Register has 25 columns, of which 11 capture nutrition data. The date is written at the beginning of each clinic day in the middle of the right and left page and nothing else is written on the line.

Column	Description
Column 4: Sex	Write the gender of the child, indicating M (male) or F (female).
Column 5: Age, Height/Length, and Weight	**Age:** Review the child's records (Child Health Card, baptism card, mother's passport, previous treatment records), or ask client/caregiver. Write the child's age at first visit. • Write the child's age in months (if **under 5 years** of age). Write clearly **MTH** after the age. • Write the child's age in complete years if child is **over 5 years** of age. **Height/Length:** Measure and write the height/length of the patient in meters (m).

	Weight: Measure and write the weight of the patient in kilograms (kg). The measured weight should also be used to estimate the drug dosages to be administered. This will be the weight of the child at his/her first visit.
Column 6: MUAC, weight-for-age z-score and height/length-for-age z-score	**MUAC:** Write the MUAC colour code and the measurement in cm. If MUAC is red or yellow, the admission number from the Integrated Nutrition Register (INR) should be recorded. Red is an indication of SAM, yellow indicates MAM, and green is normal nutritional status. Write R for red, Y for yellow, and G for green. **Weight-for-age z-score:** Write N for normal nutritional status if client's z-score ranges between -2SD and +2SD, MAM if client's z-score ranges between -3SD and -2SD, or SAM if client's Z- score is < 3SD. **NOTE:** WAZ is a composite indicator and should not be used to classify acute malnutrition. **Height/length-for-age z-scores:** This measures stunting. Write N for normal nutritional status if client's z-score are equal or above (≥) -2SD and S for Stunting if the client's z-score is less than (<) -2SD. **INR No.:** Integrated Nutrition Register Number (INR No.) is given to a client who has been confirmed with acute malnutrition (If MUAC is red or yellow, or any grade of oedema) in the nutrition unit/program at the health facility.
Column 7: Date of Birth	Review records and write the child's date of birth.
Column 17: Weight at Measles Vaccination	Record the weight of the child at the time the measles vaccination is given.
Column 18: Underweight (below -2SD line) on the Child Health Card	At measles vaccination, plot the weight-for-age of the child on the Child Health Card and indicate with a tick (√) if the child's weight for age was below the lower z-score line on the Child Health Card (-2SD) during the visit when he or she receives the measles vaccine.
Column 19: Overweight (above +3SD line) on the Child Health Card	At measles vaccination, plot the weight of the child on the Child Health Card and indicate with a tick (√) if the child's weight-for-age was above the uppermost line on the child health card during the visit when he or she received the measles vaccine. **Note:** Weight-for-age is a composite indicator, and is not recommended as a measure of overweight. Classify overweight based on weight-for-height, BMI-for-age instead.
Column 20: Weight, MUAC, and INR No.	Write weight (kg) of the child at the last visit, MUAC colour code and the measurement in cm, the admission number from the INR.
Column 22. IYCF	Write Yes if mother received infant and young child feeding (IYCF) counselling. Write No if mother did not receive IYCF counselling.
Column 23: Vitamin A Administration Dates	Enter a tick (√) if the child received his or her first and second supplement of vitamin A during the year when you are registering the child. First dose and second dose refer to the 6-month interval. **NOTE**: Vitamin A administration should continue up to 59 months of age. The subsequent doses should be recorded on the Child Health Card.
Column 24: Deworming	Enter a tick (√) if the child received his or her first and second doses of mebendazole (or any other de-worming agent) during the year when you are registering the child. First dose and second dose refer to the 6-month interval.

	NOTE: De-worming is done in children from 1–14 years of age. The subsequent doses should be recorded on the Child Health Card.
	Remarks
	In this column, important information about the child can be recorded: diseases, (SAM, blindness) death), familial information (TB case in the household, orphan), and administrative information (if the family has migrated). The need for and results of home visits (for children with faltering growth) can be recorded here. The results of the weighing could also be recorded here, as can children for defaulter tracking or follow up (done by VHTs through home visits). If necessary, for example, if you record systematically birth weight, make a separate column for it.

Maternal Services (ANC, Maternity, PNC)

The Integrated Antenatal Register (HMIS form 071)

The Integrated Antenatal Register is used to record the women attending the antenatal clinic (ANC) in the Health Unit. Only one copy of the register is used per Health Unit, and kept in the ANC clinic. This register is the only record of antenatal clients kept at the Health Unit.

Responsible: Person in charge of ANC clinic

Description of Nutrition Columns in the Integrated ANC Register
The register has 28 columns, of which 8 are for key nutrition data elements.

Column	Description
Column 11: Weight, MUAC, Height, and INR No.	**Weight:** Take the weight and record it in kilograms (kg), **Height:** Take the height and record it in centimetres. **MUAC:** Write the MUAC colour code and the measurement in cm. The MUAC colour red indicates SAM, yellow indicates MAM, and green indicates normal nutritional status. Write R for red, Y for yellow, and G for green. **INR No.:** The INR No. is given to a client who has been confirmed with malnutrition (if MUAC is red or yellow) in the Nutrition Unit/Program at the health facility.
Column 12: Blood Pressure	Take the patient's blood pressure and record.
Column 13: eMTCT Codes	Enter the eMTCT code for the woman (W) and her partner (P) that corresponds to the eMTCT services received. The codes used to record eMTCT services received by the client are listed below. **Codes for clients who are newly tested in ANC** C: Counselled but declined HIV testing T: Counselled and tested but did not receive results TR: Counselled, tested, and results given; client tested HIV negative TRR: Counselled, tested, and results given; client tested HIV positive

	Codes for revisit clients who come to ANC with known status TRᴠ: Revisit ANC clients who were tested for HIV on a previous ANC visit with known HIV-negative status. TRRᴠ: Revisit ANC clients who were tested for HIV on a previous ANC visit with known HIV-positive status. **Codes for new clients who come to ANC with documented evidence of test results** TRK: *Clients who tested HIV negative within 4 weeks prior to arrival in ANC TRRK: Clients who tested HIV positive prior to arrival in ANC *Clients who tested HIV Negative within 4 weeks prior to arrival in ANC: If the test is negative and was done 4 weeks prior to the visit then a re-test is recommended. ANC retesting should be done in the second or third trimester. **Codes for clients who are re-tested later in pregnancy** TR+: Clients who tested HIV negative on a re-test TRR+: Clients who tested HIV positive on a re-test
Column 14a: Diagnosis	These are findings after clinical assessment, such as normal pregnancy (NP), malaria, high blood pressure, SAM, or MAM.
Column 16: Infant Feeding Counselling and Maternal Nutrition Counselling	Write Y for Yes if pregnant woman is provided with infant and young child feeding counselling (IYCF). Write N for No if pregnant woman is not provided with IYCF counselling. Write Y if maternal nutrition counselling (MNC) was provided. Write N if MNC was not provided.
Column 18: Haemoglobin	Record the Hb level (for example, 10.4 g/dl).
Column 22: IPT Dose	This refers to IPT1 or IPT2 given as first dose or second dose, respectively, of Intermittent Preventive Treatment (IPT) for malaria by directly observed therapy (DOT) during the second or third trimester of the pregnancy. Enter 1 if first dose is given and 2 if second dose is given, and ND if not due for the dose at that visit, and C if completed. Mothers on Septrin do not need Fansidar. If the mother is on Septrin use the following codes: CTX: Initial Septrin prescription CTXᴠ: Septrin prescribed on a previous visit; giving a refill
Column 23: Free LLIN	Has the mother received a free long-lasting insecticide-treated net (LLIN) from the health facility? Enter Y, if mother has received a free LLIN or N if she has not received a free LLIN.
Column 24: Mebendazole Dose	Enter a tick (√) if a woman has received a dose of Mebendazole on that visit and an X if she has not received the dose yet considered due. Enter NA if she is not due for the dose, and C if completed.
Column 25:Iron/Folic Acid	**Iron**: Enter a tick (√) if a woman has received iron and record the number of tablets given on that visit after the tick. For routine supplementation everyday a woman should receive 200 mg (1 tablet) once a day. The minimum number of tablets for each woman should be 30 tablets if the interval between visits is one month.

	Folic acid: Enter a tick (√) if a woman has received folic acid and record the number of tablets given on that visit after the tick. The dose is one tablet once a day. The minimum number of tablets for each woman should be 30 tablets on each visit if the interval between visits is one month on each visit

NOTES: An ANC card should be filled in first for the patient's own carried notes.

Integrated Maternity Register (HMIS form 072)

The Integrated Maternity Register is used to record admissions, deliveries, admission of obstetrical complications, and the management procedures carried out. Only one copy is used per Health Unit and stays in the maternity ward.

Responsible: Person in charge of maternity ward

Description of Nutrition Columns in the Integrated Maternity Register
The register has 34 columns, of which 6 are for nutrition.

Column	Description
Column 16: eMTCT Code	Enter the eMTCT code for the woman (W) and partner (P) that corresponds to the eMTCT services received. The codes used to record eMTCT services received by the client are listed below. C: Counselled but declined HIV testing. T: Counselled and tested but did not receive results. TR: Counselled, tested, and results given; client tested HIV negative in maternity clinic. TRR: Counselled, tested, and results given; client tested HIV positive in maternity clinic. TRR+: Client was originally negative but sero-converted at this test. **Codes for clients who come to maternity clinic with known status** TR√: Clients who came for delivery with HIV-negative status tested during this pregnancy. TRR√: Clients who came for delivery with HIV-positive status tested during this pregnancy.
Column 18: MUAC/INR No	**MUAC and INR No.:** Write the MUAC colour code and the measurement in cm. If MUAC is red or yellow, write the admission number from the Integrated Nutrition register (INR no.). Write R for red, Y for yellow, and G for green.
Column 22: Immediate Skin-to-Skin Contact	Write **Y** for Yes; if the baby is dried thoroughly and wet cloth removed, placed skin to skin on mother's chest, and then covered with dry cloth or blanket; and write **N** for No: if not done.
Column 23: Breastfed ≤ 1 hours?	Write Y for Yes if the mother has started breastfeeding the baby within 1 hour after delivering and N for No if not.
Column 25a: Counselling at Discharge	Write C under Disch; if mother counselled on danger signs, home-based care, and when to return for PNC. Write NC under Disch; if not counselled on danger signs, home-based care, and when to return for PNC. Write Y under Mater.Nutr. Couns; if MNC was provided. Write N under Mater. Nutr. Couns; if MNC was not provided.
Column 25b: IYCF	Write Yif mother is counselled on IYCF. Write Nif mother is not counselled on IYCF.

	Write the infant feeding option chosen by the mother; this should be entered using the codes as follows: • EBF – Exclusive breastfeeding • RF – Replacement feeding • MF – Mixed feeding
Column 26: Weight (Wt)	Indicate the baby's weight in kilograms to the nearest 0.1 kg (for example, 3.2 kg).

Integrated Postnatal Register (HMIS form 078)

The Integrated Postnatal Register is used to record the postnatal clients attending the clinic. Only one copy is used per Health Unit and stays in the postnatal clinic.

Responsible: Person in charge of maternal child health clinic

Description of Nutrition Columns in the Integrated Postnatal Register
Eight of the 25 columns in the Integrated Postnatal Register capture nutrition data.

Column	Description
Column 12: Weight and MUAC	Take and record the weight (kg) and the MUAC (cm).
Column 13: eMTCT Code	Enter the eMTCT code for the woman (W) and her partner (P) that corresponds to the eMTCT services received. The codes used to record eMTCT services received by the client are listed below. **Codes for clients who are newly tested in postnatal care** C: Counselled but declined HIV testing T: Counselled and tested but did not receive results TR: Counselled, tested, and results given; client tested HIV negative in PNC TRR: Counselled, tested, and results given; client tested HIV positive in PNC **Codes for revisit clients who come to PNC with known status** TRᴠ: Clients who were tested for HIV on a previous visit with known HIV-negative status (for example, during ANC or labour) TRRᴠ: Revisit ANC clients who were tested for HIV on a previous visit with known HIV-positive status (for example, during ANC or labour) **Codes for clients who are re-tested in postpartum** TR+: Clients who tested HIV negative on a re-test TRR+: Clients who tested HIV positive on a re-test **NOTE**: If the initial HIV test is negative, a re-test is recommended during early postpartum. Enter the eMTCT code for the woman (W) and her partner (P) that corresponds to the eMTCT services received. The codes used to record eMTCT services received by the client are same codes listed above.
Column 15: Routine Administration	Tick (√) if a woman has routinely been offered iron, folic acid, and Septrin for HIV-positive status.

Column 16a: Diagnosis	Indicate diagnosis such as pneumonia or malaria, if the mother has any, or normal if the mother has no infection, SAM, or MAM.
Column 22: Infant Feeding Counselling, IYCF, and Maternal Nutrition Counselling	Infant feeding method chosen should be entered using the codes: EBF: Exclusive breastfeeding RF: Replacement feeding MF**:** Mixed feeding Enter Y if a pregnant woman is provided with IYCF counselling or N if a pregnant woman is not provided with IYCF counselling. Enter Y if MNC was provided and N if MNC was not provided.

HIV and TB Services

The registers used in the HIV/AIDS and TB service points include:

- Exposed Infants Clinical Chart
- HIV-Exposed Infant Register (HMIS form 082)
- Pre-ART Register (HMIS form 080)
- ART Register (HMIS form 081)
- Health Unit TB Register (HMIS form 096a)
- Drug Resistant (DR) TB Register (HMIS form 096b)

Exposed Infants Clinical Chart

The Exposed Infant Clinical Chart is used for documenting and tracking an individual HIV-exposed infant (0–18 months) at every health facility visit through the Early Infant Diagnosis (EID) process. It is a pre-primary tool that fits into the **Exposed Infant Register.** A copy of the clinical chart is filled in per child and stays at the Mother-Baby Care point located within antiretroviral (ART) clinic or MCH clinic at the Health Unit.

Responsible: Person in charge of the HIV/AIDS clinic

Description of Nutrition Sections in the Exposed Infant Clinical Chart

The Exposed Infant Clinical Chart has the summary page (front side) and follow-up section (back side) and each side has some nutrition data.

Summary Page: Feeding Method in the Sub-section of Testing Information

Enter the infant's feeding practice when first Dry Blood Spot (DBS) or second DBS is taken. This should be filled in on the date that the DBS was collected, not before. Indicate using one of the codes listed below or at the bottom of the page:

EBF	–Exclusive breastfeeding
RF	–Replacement feeding (never breastfed)
MF	–Mixed feeding (< 6 months)
CF	–Complementary feeding (> 6 months)
W	–Weaning
NLB	–No longer breastfeeding

NOTE that the code for a mother who is not breastfeeding is either NLB (if she was breastfeeding before and has stopped) or RF (if she has been using replaced feeding since childbirth).

Follow-up Section	
Column	**Description**
Feeding code	This captures the infant feeding practice at the time of the visit.
	Write the feeding practice using the codes e.g.
	EBF –Exclusive breastfeeding
	RF –Replacement feeding (never breastfed)
	MF –Mixed feeding (< 6 months)
	CF –Complementary feeding (> 6 months)
	W –Weaning
	NLB –No longer breastfeeding

Growth Measures: Height, Weight, z-scores, and MUAC	**Height** Measure the height/length and record in cm. **Weight** Take the weight and record in kg. **Z-Scores** Record the weight-for-age Z-Scores from the Child Health Card as: -2 to < +2: (Normal range); ≥ -3 to < -2 (MAM); < -3 (SAM); > +3 (Obese). **NOTE:** Weight-for-age is a composite indicator and should not be used for classifying acute malnutrition. **MUAC** Take the mid upper arm circumference (only for infants > 6 months of age) and record the measurement (cm) and MUAC colour—G (green) Y (yellow) or R (red).

HIV-Exposed Infant Register (HMIS form 082)

The Exposed Infant Register is used for documenting and tracking HIV-exposed infants (0–18 months) through the EID process. Only one copy of the register is used per Health Unit, and stays at the Mother-Baby Care point located within the ART clinic or MCH clinic at the Health Unit.

Responsible: Person in charge of the HIV/AIDS clinic

Description of Nutrition Columns in the Exposed Infant register
The Exposed Infant Register has 29 columns, of which are 3 key nutrition data element.

Column	Description

Column 17: Infant Feeding Status	Record the infant's feeding practice when the first DBS sample was taken. This should be filled in on the date that the DBS was collected, not before. Indicate using one of the codes listed below (also provided at the bottom of the register page.
	        EBF – Exclusive breastfeeding
	        RF – Replacement feeding (never breastfed)
	        MF – Mixed feeding (< 6 months)
	        CF – Complementary feeding (> 6 months)
	        W – Weaning
	        NLB – No longer breastfeeding
	NOTE that the code for a mother who is not breastfeeding is either NLB (if she was breastfeeding before and has stopped) or RF (if she has been using replaced feeding since childbirth).

Column 23: Infant Feeding Status	Feeding practice when the second DBS was taken. Use one of the codes. *Respective codes are provided at the bottom of the page.
Column 28. Visit Details	**Appointment date:** Write the date of next appointment. **Date of visit:** Write the date of the visit. **Age:** Write the age in months. **Infant feeding**: Write the feeding practice using the codes below. EBF –Exclusive breastfeeding

	RF –Replacement feeding (never breastfed) MF –Mixed feeding (< 6 months) CF –Complementary feeding (> 6 months) W –Weaning NLB –No longer breastfeeding **Z-Scores**: Record the weight-for-age z-scores from the Child Health Card as: ≥ -2 to < +2: (This is Normal range); -3 to < -2 (MAM); < -3 (SAM); > 3 (Obese). **NOTE:** Weight-for age is a composite indicator and should not be used to classify acute malnutrition. **MUAC:** Take the MUAC (only for infants > 6 months) and record as G (green) Y (yellow) or R (red).

HIV Care/ART Card

The HIV Care/ART Card is a pre-primary tool that fits into the Pre- ART or ART Register. It is used when a client interfaces with the clinical team. The card has three sections: 1) the summary page (demographic), 2) follow up education, counselling support, and preparation for ARV therapy, and 3) continuation. Each of these sections has a nutrition data element.

Responsible: Person in charge of the HIV/AIDS clinic

Description of Nutrition Elements in the HIV CARE/ART card
i)   Summary Page:

Infant feeding status under the sub-section Exposed Infant Follow Up. This filled in for every mother who has an exposed infant.
 	
Indicate the feeding status of the child < 6 months and when ≥ 6 months. Use the codes:
     EBF   -   Exclusive breastfeeding
     RF   -   Replacement feeding (never breastfed)
     MF   -   Mixed feeding (< 6 months)
     CF   -   Complementary feeding (> 6 months)

ii)   Follow up Education, Counselling Support, and Preparation for ARV Therapy
This section can be used to record any nutrition education to prevent malnutrition, such as positive living, nutrition counselling.
Continuation: This section has four key columns.

Column	Description
Column 4: Weight, Height, and MUAC/Oedema	Determine these and record at every visit.
Column 8: New OI, Other Problems, include nutritional problems	Use the following colours/codes to capture nutritional problems. Green – Normal nutrition status Yellow – Moderate acute malnutrition Red – Severe acute malnutrition SAMO – Severe acute malnutrition with oedema PWG/PA – Poor weight gain/poor appetite

Column 13: O**ther Medicines Dispensed** (include nutritional supplements)	If the client has received any therapeutic or supplementary food, record it—Ready-to-Use Therapeutic food (RUTF), Corn Soya Blend (CSB), Super cereal, Super cereal plus, Ready-to-Use Supplementary Food (RUSF).
Column 16: **Refer or Consult or Link/Provide** (including nutritional support and infant feeding)	Nutritional support and infant feeding codes • Therapeutic Feeding • Infant Feeding Counselling (if < 2 years) • Nutrition Counselling only (if > 2 years) • Food Support

Pre-ART Register (HMIS form 080)

The Pre-ART Register is used to record all clients accessing HIV/AIDS care services at the Health Unit. Only one copy of the register is used per Health Unit and stays at the Health Unit, in the HIV Care/ART clinic.

Responsible: Person in charge of the HIV/AIDS clinic

Description of Nutrition Columns in the Pre-ART Register The nutritional status of clients is updated on quarterly basis, especially the last visit during the quarter. The Pre-ART Register has 17 columns on the left side. On the right side of the registers (**quarterly follow-up nutritional status**) are the key nutrition data elements.	
Lower Space: Nutritional Status	For each client on pre-ART care whose nutritional status was assessed at the last visit, indicate the nutritional status using the codes below (also found at the bottom of the pre-ART register). N Normal nutritional status SAM Severe acute malnutrition SAMO Severe acute malnutrition with oedema MAM Moderate acute malnutrition PWG/PA Poor weight gain/poor appetite

ART Register (HMIS form 081)

The ART register is used to record all clients accessing ART services at the Health Unit. Only one copy of the register is used per Health Unit and stays at the Health Unit, in the HIV Care/ART clinic.

Responsible: Person in charge of the HIV/AIDS clinic

Description of Nutrition Columns in the ART Register

The ART register has 20 columns, of which 3 are nutrition data elements.

Column	Description
Column 4: Sex	Write the client's age in years; if the child is ≤ 2 years, record age in months.
Column 10: Weight/MUAC	Indicate the patient weight in kilograms at start of ART and his or her nutritional status using the MUAC tape.
Column 16: eMTCT	The four sub-columns under Elimination of Mother-to-Child Transmission of HIV/AIDS capture information on the estimated date of delivery (EDD), ANC number, and the HIV-Exposed Infant number. The ART Register provides for recording of this information for four pregnancies while the patient is on RT.
Column 20: Monthly Follow-up Status	For each month, record the nutritional status of the client in the second e cell as indicated by the watermarks. Use the codes below: N - Normal nutritional status MAM - Moderate acute malnutrition SAMO - Severe acute malnutrition with oedema SAM - Severe acute malnutrition PWG/PA - Poor weight gain/poor appetite

Health Unit TB Register (HMIS form 096a)

The Health Unit TB Register is used to maintain records of TB patients' information, follow-up of treatment, and ascertaining the outcome of treatment for patients registered. Only one copy of the register is used per Health Unit, and is placed in the TB clinic or TB ward.

Responsible: Person in charge TB clinic/ward

Description of Nutrition Columns in the ART Register

The Health Unit TB Register has 21 columns, of which 3 are nutrition data elements.

Column	Description
Column 6: Sex	Record the sex of the patient as M for male and F for female.
Column 7: Age	Write the patient's age in complete years if over one year of age. Use months if the patient is under 1 year of age, clearly writing MTH after the age, and Days if less than 1 month.
Column 14: MUAC, Weight-for-Age z-score, Height/Length-	**MUAC** MUAC is for only children from 6 months of age. Write the MUAC colour code and the measurement in cm. If MUAC is red or yellow, the admission number from the Integrated Nutrition Register (INR No.) should be recorded. Red

for-Age Z-Score, and INR No.	indicates SAM, Yellow indicates MAM, and Green is normal nutritional status. Write R for red, Y for yellow, and G for green.
	Weight-for-age Z-score Z-score write N for normal nutritional status if client's z-score ranges between -2SD and +2SD, MAM if client's z- score ranges between -3SD and -2SD, or SAM if client's z- score is < -3SD NOTE: Weight-for age is a composite indicator and should not be used to classify acute malnutrition.
	Height/Length-for-age z-scores This measures stunting. Write N for normal nutritional status if client's z-score is equal or above (>) -2SD and S for stunting if the client's z-score is less than (<) -2SD.
	INR No.: The INR No. is given to a client who has been confirmed with malnutrition (if MUAC is red or yellow) in the Nutrition Unit/program at the health facility.

Drug Resistant (DR) TB Register (HMIS form 096b)

The DR-TB Register guides DR-TB program implementers to record and report variables appropriately. One copy of the register is used per health facility and placed in the TB clinic/TB ward.

Responsible: Person in charge TB clinic/ward/Multi-drug Resistance (MDR) coordinator

Description of Nutrition Columns in the ART Register

The DR TB register has 28 columns, of which 4 are nutrition data elements.

Column	Description
Column 5: Age	Write the age of the patient.
Column 6: Sex	Record the patient's sex as M for male and F for female under this column.
Column 18: Nutrition (MUAC, WHZ) and INR No. before Treatment	Write the MUAC colour code and the measurement in cm. If MUAC is red or yellow, write the admission number from the INR. Red indicates SAM, yellow indicates MAM, and green is normal nutritional status. Write R for red, Y for yellow, and G for green. For the weight-for-height/length z-score, write N for normal nutritional status if client's z-score is between ≥ -2SD to < 2SD, MAM if the client's z-score is between ≥ -3SD and < -2SD, or SAM if the client's z-score is < -3SD. **NOTE:** Z-score column is not provided in the register.
Column 24: Initial Weight	Record the baseline weight of the patient in kg.

Session 3.3: Integrated Nutrition Register (INR) (HMIS form 077)

The INR is used to record detailed information about each client enrolled in nutrition care (for example, Outpatient Therapeutic Care [OTC], Inpatient Therapeutic Care [ITC]), Supplementary Feeding Program [SFP]. Patients accessing health services at different care points within the health facility are routinely assessed for nutritional status. Those found to be malnourished are referred to the Nutrition unit/corner for confirmation of their nutrition status and provision of appropriate care. One copy of the register is used per health facility, and stays at the nutrition unit/corner.

Responsible: Person in charge of nutrition services

Description of Nutrition Columns in the INR	
Column	**Description**
1: Client Number	Assignment of client numbers starts at the beginning of the financial year (1 July) and is assigned at the nutrition unit/corner (for example 0001). This number does not change for the subsequent visits. An R is added to the number if the client is a referral from another facility with a nutrition care program, for example, 0001R.
2: Date	Write date of registration/enrolment.
3: Client Name	Write surname, given names, and telephone number. Contact information for the next of kin should also be provided.
4: Client Address	Address of the client by parish/village; a contact mobile /telephone number should also be listed.
5: Sex	Write M for male or F for female.
6: Age	Review available client records (Child Health Card, baptism card, and preceding treatment) or ask the client or caregiver. Indicate the age in months for children (under 5 years), and in complete years (for clients 5 years and over).
7: Infant Feeding Practice	For children less than 2 years, indicate the infant feeding practice with codes as follows: exclusive breastfeeding (EBF); replacement feeding (RF); mixed feeding (MF); complementary feeding (CF); No longer breastfeeding (NLB).
8: Pregnancy/ Lactating Status	Write 'Preg' for pregnancy, 'Lact' for lactating and 'NLact' for non-lactating but with child < 6 months, and 'Other' for other status.
9: Type of Admission	**New admission:** clients newly enrolled in the current financial year. **Re-admission:** clients enrolled more than once in the same financial year. Re-admissions might result from relapse or default. Clients re-admitted in a different financial year are registered as new clients.
10: Type of Nutrition Management	Indicates the type of nutrition management the client is being offered. - Tick ITC for clients with SAM with medical complications, admitted in the health facility, and treated for acute malnutrition and other medical conditions on inpatient basis. - Tick OTC for clients with SAM with no medical complications and who are treated with therapeutic feeds on outpatient basis. - Tick SFP for clients with MAM treated with supplementary feeds on an outpatient basis.
11: Entry Care Point	Indicate the clinic from where the client has been referred from using the following codes: YCC = Young Child Clinic, ANC = Antenatal Clinic, MC = Maternity Clinic, PNC = Postnatal Clinic, ART = Antiretroviral Treatment Clinic,

	Pre-ART = Pre-Antiretroviral Treatment Clinic, OPD = Out Patient department, TB = TB clinic, CHW= referral by community health worker.
12: Nutrition Status at Enrolment	Tick appropriately: MAM: Moderate acute malnutrition SAM without oedema: Severe acute malnutrition with no oedema SAM with oedema: Severe acute malnutrition with oedema—add '+' for grade one oedema '++' for grade two oedema, and '+++' for grade three oedema
13: HIV Status at Enrolment	- Write 'Pos' for HIV positive. - Write 'Neg' for HIV negative. - Write 'unknown' for those whose status is not known. - Write 'exposed' for HIV-exposed children.
14: ART Services at Enrolment	- Write 'ART' if client is on ART treatment (including Option B+ for HIV-positive mothers). - Write 'pre-ART' if client is enrolled in an HIV clinic but not yet on ART; 'NA' for those not yet enrolled and for HIV-negative clients.
15: Enrolment and Re-visits	Indicate the enrolment date; check for oedema and record +, ++, +++; take and record the weight in kg on enrolment and at each visit. Take and record the height in cm (once for adults, 19 years and older) and at each visit for the children and adolescents; and record the date of next appointment: In this column, under the MUAC colour, indicate the MUAC colour code (for clients over 6 months) and the measurement in cm. Red indicates SAM, yellow indicates MAM, and green is normal nutritional status. Write R for red, Y for yellow, and G for green. In this column, under the weight-for-height/length z-score, indicate the z-score (for patients under 5 years). Write N for normal nutritional status if patient's z-score is between ≥ -2SD and < 2SD, MAM if client's z-score is between ≥ -3SD and < -2SD, or SAM if the client's z-score is < -3SD. **NOTE**: Indicate z-scores for BMI-for-age (clients 5–19 years) and BMI (clients 19 years and over) too. Indicate overweight for z-score between ≥ +2 and < +3) and obese for z-score of ≥ +3. Overweight begins when the BMI-for-age is > +1 z-score in adolescents. Under therapeutic/supplementary foods given, indicate the nutrition therapy given (RUTF, F-75, F-100, and ReSoMal) or supplementary food, for example, FBF. Counselling code: Write 1 for optimal dietary practices for adults, including pregnant and lactating women; 2 for use of therapeutic foods; 3 for IYCF; 4 for water, hygiene, and sanitation (WASH); 5 for ARV adherence; and 6 for other.
16: Assessment at Exit	At point of exit, check for oedema, take and record the weight in kilograms and height/length in centimetres.
17: Target Exit Criteria	Indicate the target MUAC cut-off or weight-for-height/length z-scores. This should be filled in **at enrolment,** depending on enrolment criteria.
18: Exit Outcome and Date	Write the code to indicate how the client exited the feeding program: - C if client was cured (attained target exit criteria) - NR for nonresponse client - DF if the client defaulted - IPD if the client was transferred to in-patient ward, for example, a medical ward - D if the client died - TO if the client was transferred to another OTC/ITC/SFP

	- **Exit date:** Indicate the date when the client's exit outcome (above) occurred.

Session 3.4: Nutrition Tally Sheet (HMIS form 077a)

The nutrition tally sheet aids counting/aggregating of entries from the INR. Each count from the INR is tallied by crossing the zero '0' on the tally sheet under each column and corresponding row.

The tally sheet captures data under different titles.

Categories
Describes 10 nutrition data categories as reported in the Health Unit Nutrition Quarterly Summary

Groups	
Less than 6 months	Captures nutrition data for children < 6 months for each data category reported
6–59 months	Captures data for children 6 – 59 months for each nutrition data category reported
5–18 years	Captures nutrition data for children and adolescents, 5–18 years reported
Totals	Provides summations of data for all age groups per category of nutrition data to be reported
Pregnant/lactating women	Captures data on nutrition services provided for pregnant and lactating women in a quarter

Description of Nutrition Data Categories

The rows on the Nutrition Tally Sheet include all nutrition data reported on a quarterly basis.

Category	Description
1	Clients who received nutrition assessment in this quarter using colour-coded MUAC tapes/z-score chart. **NOTE:** Include BMI. **Source registers:** OPD, Child, Integrated (ANC, Maternity, PNC), Pre-ART, ART
2	Clients who received nutrition assessment using height/length for age z-scores (stunted/not stunted) disaggregated by sex and age categories (less than 6 months, and 6–59 months only, total). **Source registers:** EID, OPD, Child
3	Clients who received nutritional assessment and had acute malnutrition (MAM, SAM without oedema, SAM with oedema). **NOTE:** In the tally sheets, SAM with oedema should be shaded for pregnant/lactating women. Gestational oedema is not an accurate measure of acute malnutrition. **Source register**: INR
4	Newly identified malnourished cases in this quarter (HIV positive, total). **Source register**: INR
5	Clients who received nutrition supplementary /therapeutic feeds (Total, HIV positive). **Source register**: INR
6	Pregnant women who received MNC (Total, HIV positive). **Source register**: Integrated (ANC, maternity, PNC)
7	Pregnant women who received IYCF counselling (Total, HIV positive) **NOTE:** Categories **6** and **7** above only capture data on pregnant and lactating women. Only column for 'Pregnant/lactating women' should be used. **Source register**: Integrated (ANC, Maternity, PNC)
8	HIV-exposed infants who were reported to be exclusively breastfed for the first 6 completed months during the reporting period. **Source register**: EID
9	HIV-exposed infants who were reported to be breastfed up to 1 year. **NOTE:** Categories **8** and **9** (on exposed infants) only target children 6–59 months**.** The shaded regions must not be used. **Source register**: EID
10	Number of treated malnourished clients who attained target exit criteria at the end of the quarter (Total, HIV positive). **Source register**: INR

Session 3.5: Essential Medicines and Health Supplies

Stock Card (HMIS form 015)

The Stock Card is used to track the movements and balance of all commodities stored at any place in the Health Unit for more than a week. The card is filled whenever commodities are brought to the health facility or issued to clients. Only one card is used per item in stock, and is kept in the health facility store.

Responsible: The person (s) designated to be in charge of the stores (there may be more than one store in a Health Unit)

Description of columns in the Stock Card

Column	Description
1. Health Unit Name	Indicate the name of the Health Unit.
2. Health Unit Code	Indicate the unique code allocated to the Health Unit by the District Health Office.
3. Financial Year	This ranges from 1st July of current year to 30th June of the following year.
4. Item Description	*(Name, formulation, strength)* Enter the name of the item, its formulation and strength e.g. paracetamol tablet, 500
5. Pack Size	The specific pack size in for each commodity. For example, RUTF is packed in cartons of 150 pieces/sachets. Issues from the store should be recorded in pack sizes, for example, if 5 cartons of 150 sachets are issued out, write 5 in the **Quantity Out** column.
6. Item Code No	This is the official unique number for the commodity given by MOH. Leave blank if you don't know the number.
7. Special Storage Conditions	These are specific instructions for storing a commodity. for example, 'Store in a cool dry place', 'Store in temperature below 8°C'.
8. Unit of Issue	The smallest unit of an item, for example, 1 tablet, 1 vial, 1 cycle, 1 strip of a determined item e.g., medicine.
9. Maximum Stock Level	This is a 5 month's stock based on the average monthly consumption (AMC) figures. For items with short shelf life Technical Programs will give guidance.
10. Minimum stock level	This is a 2 month's stock based on the AMC figures. For items with short shelf life, Technical Programs will give guidance.

Transaction Information

Column	Description
11. Date	Enter the date when a transaction has taken place at the health facility store (MUST be indicated here).
12. TO or FROM	**To:** When issuing out of the store, please indicate where the stock is going. If abbreviations are used, be consistent and clear. **From:** When receiving into the store, please indicate where the stock has come from. If abbreviations are used be consistent and clear. ***NOTE:** Item(s) must not come into or leave the store without proper documentation, that is, requisition or issue documents that support the transaction.
13. Voucher Number	The Voucher Number should be filled in whenever a transaction takes place. This is obtained from the Requisition and Issue Voucher (HMIS form 017) and Delivery Note. This enables the tracking of movement of an item from one place to another.
14. Quantity In	These are quantities received from a supplier, for example, National Medical Stores, and should be written as the number of pack units. Usually the transaction is written in RED ink to highlight that these are items received in the Store.
15. Quantity Out	Enter the quantities in pack units issued out under this column.
16. Losses/ Adjustments	**Losses:** This refers to any loss of commodities, such as due to expiry, damage, pilferage, or theft. This is usually indicated with a negative sign before the figure. **Adjustments**: Refers to increase or decrease in stock due to borrowing, lending, or redistribution of an item; it is usually indicated with a positive sign for a gain into the store and a negative sign for item(s) lent out of the store.
17. Balance on Hand	Enter the quantities of the commodity remaining in the store after issuing or adjustment.
18. Expiry Date(s)	Enter the expiry date of the commodity received in this column. Stock of the nearest expiry date should always be used first: The First expiry, first out (FEFO) principle.
19. Batch Number	Enter the batch number of the commodity in this column.
20. Remarks	Any remarks or comments about the items received or issued out at the health facility store are recorded here.
21. Initials	The stores person handling the transaction will be put his or her initials here for each transaction carried out. ***NOTE: *Stock levels at minimum values must be reported to the Health Unit In-charge when they happen to avoid stock outs.*** This is a 2 months' stock based on the AMC figures. For items with short shelf life Technical Programs will give guidance.

Requisition and Issue Voucher (HMIS form 017)

The Requisition and Issue Voucher is used to make internal orders within the Health Unit, issuing of commodities, and for redistribution purposes between health facilities within/outside the district. It should be filled whenever commodities are ordered, issued, or redistributed.

Two copies of the voucher are filled. The original and duplicate move together until an issue is made. The duplicate copy remains with the store issuing and the original is sent back to the requesting department with the commodities. It has 17 data elements.

Responsible: Person **i**n charge of the health facility and the Store

Description of Data Elements in the Requisition and Issue Voucher

Column	Description
1: Health Unit Name	Write the name of the Health Unit.
2: Dept./Section/ Ward/Dispensary	Write the name of the requisitioning unit/department.
3: Date	Write the date when the requisition is placed.
4: Ordered By (name, signature)	The requisitioning officer writes his or her name and signs.
5: Authorized By (name, signature)	The officer authorizing execution of the transaction writes his/her name and signs
6: Item Code No.	This is the official unique number for the commodity given by the supplier. *Leave blank if you don't know the number.
7: Item Description (name, formulation, strength)	Enter the name of the item, its formulation, and strength, for example, RUTF, 500 kcal.
8: Previous Receipt	Receiver enters the quantity received from store to his/her unit/section depending on the previous order or requisition.
9: Balance on Hand	Issuer enters quantities after you do your physical count or copy it from the Stock Card.
10: Quantity Required	Enter the quantity required by the requisitioning officer.
11: Quantity Issued	Enter the quantity issued.
12: Unit Cost	Enter in the unit cost of the commodity requisitioned.
13: Total Cost	Enter in the total cost of the line item. This is obtained by multiplying the unit cost by the total quantities required.
14: Issue Date	Write the date when the items were issued.
15: Receipt Date	Write the date when the items were received.
16: Name and Signature of Issuer	The issuing officer writes his or her name and signs.
17: Name and Signature of Receiver	The receiving officer writes his or her name and signs.

Daily Dispensing Log (HMIS form 016)

The Daily Dispensing Log is used to record medicines dispensed, and monitor rational medicines use by recording medicines dispensed to each individual patient. One copy is used per Health Unit and kept in the dispensing unit.

Responsible: Pharmacist/Dispenser

Description of Columns in the Daily Dispensing Log

Column	Description
2: Date	Enter the date when the medicine is dispensed to a patient.
3: OPD/IPD Number	Enter the patient number as assigned in the relevant register (INR).
4: Dispensed Medicine	Enter the name of the medicines prescribed, once on the space provided on top of every page, and enter the quantities every time the named medicine is dispensed, in the space provided at the column-row intersection box**.**
5: Dispenser Initials	Write the initials of the dispenser or the person who dispensed the medicine in the space provided.
6: Total	This is the sum of quantities dispensed at the end of the day. Each new day should be started on a fresh page of the dispensing log. **NOTE:** - The dispenser sums up the totals for every page and enters on the last line on the page provided for page totals. - Daily totals are summed up and entered on the last page provided for the page totals of the day's work. - The dispensing log forms must be stored along with other records for at least 6 years. - A new page must be started for a new day.

Order form for EMHS (HMIS form 085)

The order for Essential Medicines and Health Supplies (EMHS) is used to request for all medicines and supplies from the National Medical Stores (NMS), Joint Medical Stores (JMS) or any other suppliers. The medicines and supplies include EMHS, ARVs, laboratory commodities, TB medicines, contraceptives, condoms and nutrition supplies. The form is filled (in triplicate) by writing the facility needs according to facility level of care each time an order is made.

***NOTE:** While filling the order form, enter the NMS/JMS code for each item as reflected on the NMS/JMS catalogue, respectively.

Responsible: Health facility staff responsible for ordering health commodities

Description of columns in the order form for EMHS

Column	Description
1. Order to NMS/JMS/others	Specify where the order is being sent.
2. Facility Name	Fill in the name of your facility
3. District	Fill in the name of the district to which the health facility belongs.
4. Level	Tick the box that corresponds to the level of care of your facility
5. HSD	Fill in the name of the Health Sub-district to which your facility belongs.
6. Date	Fill in the day, month, and year when you fill your order form.
7. Order Details	**Facility code:** Enter the HMIS facility code. **Year:** Enter the calendar year when this order was prepared, for example, 2016. **Month:** Enter the month. **Order No.:** Fill in the figure corresponding to number of orders made by the facility in the respective year. **Item code:** This is the code as reflected in the NMS catalogue. Fill in this code for each item you are ordering for (medicines and health supplies).
8. Item Description	Fully describe the item you are ordering, including the name, dosage form, and strength.
9. Pack Unit	Fill in the pack unit of the item you are ordering, as reflected in the NMS/JMS catalogue, for example, for Cotrimoxazole 40–80mg, tin of 1,000 tabs.
10. Pack Unit Price	Fill in the price of each item as reflected in therefore NMS/JMS catalogue. Note that some items do not have prices because they are donated. Their cost, therefore, is not borne by the health facility and does not reduce on the credit line balance, for example, contraceptives.
11. Average Monthly Consumption (AMC)	Enter the quantity consumed on average per month.
12. Quantity Needed	The quantity needed is obtained by subtracting your current stock balance from your maximum stock level. This depends on your AMC, which is filled in the Stock Book.
13. Total Cost	Fill in this column by multiplying the pack unit price with the quantity needed.
14. Ordered By	The person filling the order form should write his or her name. This should be the health facility In-charge
15. Approved By	The order form should be approved by the Health Sub-district In-charge. The HSD In-charge should confirm that the cost of the order lies within the facility budget at NMS. **Signature and Date** Both the person ordering and the one approving should sign the order form.
16. Confirmed By	The quantities and accuracy of the order form should be confirmed by the District Health Officer.

Besides the four tools described, Health Units have other EMHS tools (see Table 8 below).

Table 8: Other EMHS tools

Tool	Purpose	Responsible
Stock Book (HMIS form 083)	Summarizes contents of individual Stock Cards into one book, making the ordering process simpler	Pharmacist/dispenser/stores personnel
Bi-monthly Report and Order Calculation Form (HMIS form 084)	• Reports stock-on-hand balances of items • Reports on facility bimonthly usage of commodities • Determines quantities of commodities to re-supply the facility	Stores personnel/ laboratory personnel/ other authorized person(s)
Health Facility Procurement Plan for EMHS (HMIS form 086)	Determine the cost and quantities of medicines and health supplies required for a planning period of one year	Health facility In-charge, Pharmacist/Pharmacy technician/ Dispenser and stores personnel
Discrepancy Report (HMIS form 087)	Outlines steps to be followed by the facility stores personnel when there is a discrepancy in medicines and supplies received	Receiving team/Stores personnel
Health Expired/Spoiled Medicines Register (HMIS form 088)	Used to track all expired or spoiled medicines and supplies from a health facility.	Stores/Pharmacy personnel

Module 4: Routine Nutrition Data Monitoring and Reporting

Session 4.1: The Health Unit OPD Monthly Report (HMIS 105) and Nutrition Addendum (HMIS 009)

The Health Unit OPD Monthly Report is used for reporting monthly attendance figures for OPD, OPD diagnoses, MCH, HIV/AIDS service data, lab data, stock-outs of essential drugs and supplies, and financial data. The report is due every seventh of the following month. Three copies are filled in (copies in triplicate): The original stays at the facility, one copy sent to the HSD, and the other, to the District. For all-level hospitals, a copy is sent to the respective district and another to MOH Resource Centre (Division of Health Information) while the original copy stays at the facility. The report has 10 pages containing 9 sections. Nutrition data elements are on page 3 and include the following:

Column	Description
Item 95	Severe Acute Malnutrition [SAM (with oedema, without oedema)]
Item 96	Moderate Acute Malnutrition (MAM) **NOTE:** The age categories (0–28 days, 29 days–4 years, 5–59 years, 60 years and over) are not aligned with the quarterly reporting categories.
Section 1.3.10	Body Mass Index (BMI), for age ranges 5–10 years, 11–18 years, 18 years and over. **NOTE**: We use BMI (19 years and over) and BMI-for-age (5–19 years); BMI-for-age is not captured.

Nutrition addendum (HMIS 009) to the Health Unit Monthly OPD Report captures nutrition data that are not captured in HMIS 105, but are reported on a quarterly basis. This aligns the monthly reporting categories (pregnant women, age) with the quarterly reporting requirements. The nutrition addendum is due on seventh of the following reporting month. The source registers for the Nutrition Addendum include ANC register, OPD register, child register, and the INR.

From the ANC register, the addendum reports data on:

- Pregnant women receiving iron/folic acid on fourth ANC visit

- Number of pregnant women with Hb < 11 g/dl (at first and fourth visit)

The rest of the registers capture data disaggregated by gender for the age categories 0–6 months, 6–59 months, and 5–19 years on overweight, MAM, SAM without oedema, SAM with oedema, total SAM, and stunting based on z-scores.

Session 4.2: The Health Unit Nutrition Quarterly Summary (HMIS Table 20)

The Health Nutrition Quarterly Summary captures nutrition information on indicators reported quarterly based on data summarized from the monthly reports (HMIS 105, HMIS 009). HMIS Table 20 should be submitted and incorporated in the Health Unit Quarterly Report (due on 7th of the following quarter).

Responsible: Person in charge of nutrition services

At the end of each reporting quarter (July–September, October–Dec, January–March, April–June), using the Nutrition Tally Sheets (Handout page 30), count and record figures as guided by the Health Unit Nutrition Quarterly Summary (HMIS Table 20).

The Health Unit Nutrition Quarterly Summary captures data under different titles.

Data Element: Describes the various nutrition data elements reported. In total there are 10 nutrition data elements

Reporting Quarters: These are based on the financial calendar and include July–September (Quarter 1), October–December (Quarter 2), January–March (Quarter 3), and April–June (Quarter 4). Each quarter captures data on:

Groups	
Under 6 months	Captures nutrition data for children < 6 months for each data category reported
6–59 months	Captures data for children 6 – 59 months for each nutrition data category reported
5–18 years	Captures nutrition data for children and adolescents, 5–18 years reported
Totals	Provides summations of data for all age groups per category of nutrition data to be reported
Pregnant/lactating women	Captures data on nutrition services provided for pregnant and lactating women in a quarter

Description of data elements

N1	Number of clients who received nutrition assessment in this quarter using colour-coded MUAC tapes/z-score chart. These data are generated from all primary contact registers. **NOTE**: Include clinical assessment.
N2	Clients who received nutritional assessment using Height/Length-for-Age z-scores (Total, stunted). **This only applies to two age categories: < 6 months, and 6–59 months**. For each quarter, the other column categories (5–18 years, pregnant/lactating women) should be shaded.
N3	Number of clients who received nutritional assessment and had malnutrition (Total, MAM, SAM without oedema, SAM with oedema). **NOTE:** SAM with oedema should be shaded for pregnant/lactating women.
N4	Number of newly identified malnourished cases in this quarter (Total, HIV positive)
N5	Number of clients who received nutritional supplementary /therapeutic feeds (Total, HIV positive) **NOTE: Data elements N2, N3, N4, and N5 include data generated from OPD Register, Child Register, and the INR.**
N6	Number of pregnant and lactating women who received MNC (Total, HIV positive)
N7	Number of pregnant and lactating women who received IYCF counselling (Total, HIV positive) **NOTE**: Data elements N6 and N7 include data generated from the Integrated Maternal Health Registers (ANC, Maternity, PNC). For each reporting period, all columns except '**pregnant and lactating women**' should be shaded (not filled) for data elements 6 and 7
N8	Number of HIV-exposed infants who were reported to be exclusively breastfed for the first 6 completed months during the reporting period
N9	Number of HIV-exposed infants who were reported to be breastfed up to 1 year **NOTE:** Data elements **8** and **9** (on exposed infants) only target children 6–12 months. The shaded regions must not be used. **NOTE:** Data elements N8 and N9 are obtained from the HIV-Exposed Infant Register.
N10	Number of treated malnourished clients who attained target exit criteria at the end of the quarter (Total, HIV positive), only obtained from the INR

Session 4.3: The Health Unit Quarterly Report (HMIS form 106a)

The Health Unit Quarterly Summary captures quarterly attendance figures for HIV Care/ART, Nutrition and TB services. The report is due on every seventh of the first month of the subsequent quarter (7ᵗʰ October, 7ᵗʰ January, 7ᵗʰ April, and 7ᵗʰ July). Three copies of the report are generated each quarter.

1. One stays at the Health Unit.
2. One is sent to the district.
3. One is sent to the Health Sub-district.

In Regional Referral Hospitals, the HMIS 106a data are directly entered in the DHIS2 systems.

Responsible: Health Unit In-charge. At the end of each reporting quarter, nutrition data elements are compiled in the HMIS form 106a, Section 2; page 4 and 5 (Nutrition Cross-Sectional Report), which comprises the Nutrition Quarterly Summary (HMIS table 20). The relevant unit/department registers include: Outpatient, HIV-exposed infant, child, maternal (ANC, maternity, PNC).

The Nutrition Quarterly Summary section captures data under different titles.

Data Element: Describes the nutrition data elements reported; there are 10 nutrition data elements.

Groups	
Less than 6 months	Captures nutrition data for children < 6 months for each data category reported
6–59 months	Captures data for children 6 – 59 months for each nutrition data category reported
5–18 years	Captures nutrition data for children and adolescents, 5–18 years reported
Totals	Provides summations of data for all age groups per category of nutrition data to be reported
Pregnant/lactating women	Captures data on nutrition services provided for pregnant and lactating women in a quarter

Description of Data Elements

The data elements capture data summarized from various registers as described below.

N1	Number of clients who received nutrition assessment in this quarter using colour-coded MUAC tapes/z-score chart. These data are generated from all primary contact registers. **NOTE**: Include clinical assessment.
N2	Clients who received nutritional assessment using Height/Length-for-Age z-scores (Total, stunted). **This only applies to two age categories: < 6 months, and 6–59 months**. For each quarter, the other column categories (5–18 years, pregnant/lactating women) should be shaded.
N3	Number of clients who received nutritional assessment and had malnutrition (Total, MAM, SAM without oedema, SAM with oedema). **NOTE:** SAM with oedema should be shaded for pregnant/lactating women.

N4	Number of newly identified malnourished cases in this quarter (Total, HIV positive)
N5	Number of clients who received nutritional supplementary /therapeutic feeds (Total, HIV positive) **NOTE: Data elements N2, N3, N4, and N5 include data generated from OPD Register, Child Register, and the INR.**
N6	Number of pregnant and lactating women who received MNC (Total, HIV positive)
N7	Number of pregnant and lactating women who received IYCF counselling (Total, HIV positive) **NOTE**: Data elements N6 and N7 include data generated from the Integrated Maternal Health Registers (ANC, Maternity, PNC). For each reporting period, all columns except '**pregnant and lactating women**' should be shaded (not filled) for data elements 6 and 7
N8	Number of HIV-exposed infants who were reported to be exclusively breastfed for the first 6 completed months during the reporting period
N9	Number of HIV-exposed infants who were reported to be breastfed up to 1 year **NOTE:** Data elements **8** and **9** (on exposed infants) only target children 6–12 months. The shaded regions must not be used **NOTE:** Data elements N8 and N9 are obtained from the HIV-Exposed Infant Register**.**
N10	Number of treated malnourished clients who attained target exit criteria at the end of the quarter (Total, HIV positive); only obtained from the INR

Besides the Nutrition Cross-Sectional Report, nutrition data elements are also reported under 1A (**HIV Care/ART Quarterly Cross-Sectional Report**), pages 1, 2 of the Health Unit Quarterly Report Form. The data elements are captured from the registers as described below:

Source register: Pre-ART	N12. Number active on pre-ART care assessed for malnutrition at their visit in quarter N13. Number active on pre-ART who are malnourished at their last visit in the quarter
Source register: ART	N29. Number active on ART assessed for malnutrition at their visit in quarter N30. Number active on ART who are malnourished at their last visit in the quarter

Module 5: Nutrition Data Quality

Session 5.1: Monitoring and Evaluation for Nutrition

Nutrition Data Quality Aspects

Nutrition data are collected to help health workers provide optimal preventive and curative nutrition care to their clients. The data collection system used, therefore, must provide accurate, timely, complete, and relevant information to accomplish the long-term goal of optimizing nutrition service delivery for all.

Completeness

Completeness means that all data collection tools must be filled in as per the procedures and all reporting health facilities must have their data fully submitted to enable aggregation at the Health Sub-districts (HSD) and subsequently, at the national level. Nutrition data elements in the columns of the registers and database tables should be filled in appropriately. If the registers are not filled in properly, it will be difficult to count the record in them, leading to failure to fill in the databases and reporting forms. In addition, data sent to the HSD, district, and national levels, will not be complete.

Note: Data should be reported from both the public and private sectors to get a total picture of the health system.

Timeliness

Data should be available when needed. If the data are not provided on time for decision making, then it is of no use. The implication here is that once nutrition data are collected, transmitted, and processed according to prescribed timelines, then decision makers can be in position to make timely decisions. To ensure *timeliness*, all levels of reporting should comply with the HMIS recommended timelines.

Relevance

The HMIS is about monitoring the services provided and strengthening the management of the health system. Thus, relevant data meeting these needs are essential and part of the definition of the data quality. To ensure relevance, the HMIS information and indicators were developed with consideration of the goals and objectives of the major health policies and programs. At the same time, the management needs of the Districts and health facilities have been explicitly included in the system. The implication here is that nutrition data appropriate for monitoring nutrition services provided have been catered for in the HMIS. Nutrition indicators were developed with consideration of the goals and objectives of the major nutrition health policies and programs, and the data used to generate these indicators are regularly reviewed to ensure that they are in line with the goals and objectives of the major health policies and programs.

Accuracy

Data accuracy indicates whether mistakes are made while filling in the registers, counting entries in the registers, and transferring them to databases and reporting forms. Here we are interested in seeing whether the data that is compiled in databases and reporting forms

reflects no inconsistency between what is in registers and what is in databases/reporting forms at health facility level. Similarly, when data entered is in the computers, there is no inconsistency between reporting forms and the computer file.

To ensure *accuracy,* nutrition data must be collected using standard methods, correctly following procedures for compiling, continuously cross-checking to identify and eliminate errors, make corrections where necessary and store data in a format ready for analysis at any time.

When nutrition data are inaccurate, then:

- Analysis will yield incorrect conclusion
- Errors that seem small at a facility level become very large when aggregated at district or other levels

Nutrition Service Monitoring, Evaluation, and Reporting

To ensure that nutrition service delivery meets its objectives, the activities, inputs, outputs, and outcomes must be monitored, supervised and reported on. A well-designed monitoring and reporting system can identify gaps in implementation of respective components, provide information for on-going needs assessment, advocacy, planning, and redesigning and accountability. Monitoring, reporting, and evaluation should be integral components of nutrition service delivery.

Nutrition monitoring is the systematic and continuous collection of nutrition information during nutrition service delivery. Monitoring aims at establishing whether inputs, processes, and outputs are proceeding according to plan so that timely action can be taken to correct nutrition service gaps detected.

Evaluation of nutrition services involves carefully examining data about a nutrition service to determine whether and how well the set objectives were met. Evaluation helps determine causality—linking a particular output or outcome directly to an intervention over a set period. Evaluation also can show the extent to which changes in outcomes can be attributed to an intervention. This is commonly referred to as 'impact evaluation'.

Reporting is the formal presentation of monitoring and evaluation data—usually a written account of what a program has done, achieved, or experienced—for management, auditing, or tracking purposes. Reporting is done routinely.

Differences between Monitoring and Evaluation

Monitoring is the routine tracking of key elements of a project/program's performance, usually inputs and outputs. It also may include tracking short-term program outcomes. Evaluation is the episodic/periodic assessment of changes that can be attributed to the project/program's interventions.

Table 9: Monitoring versus Evaluation

Monitoring	Evaluation
- Is done continuously to keep track of daily activities	- Is done once or periodically; takes long-range view through in-depth study
- Accepts project/program's objectives and targets	- Questions pertinence and validity of project/program's objectives and targets
- Checks progress toward output targets	- Measures performance in terms of objectives
- Stresses conversion of inputs to outputs	- Emphasizes achievement of overall objectives
- Reports on current progress at short intervals for immediate	- Provides an in-depth assessment of performance for future feedback

Importance of Monitoring, Evaluation, and Reporting

Projects/programs have to contend with human fallibility and mistakes in execution, so we must measure performance in order to make improvements and remain on course. To do this, we must collect and use data to demonstrate how well activities were performed and whether outcomes and impact were achieved. The nutrition activities implemented at health facilities are monitored based on set indicators.

Benefits of Monitoring, Evaluation, and Reporting for Nutrition Services

The process of monitoring, evaluation, and reporting helps:

- Prove that the program is achieving or has achieved intended results

- Show accountability for resources expended

- Yield data to use in response to any critics of the program

- Justify replication, scale-up, or continuation of the program

- Generate information to use in advocating for policy and resources

- Generate knowledge

- Improve cost-effectiveness and efficiency

Session 5.2: Quality Improvement Approaches in Nutrition

Quality improvement (QI) refers to the use of quantitative and qualitative methods to improve the effectiveness, efficiency, and safety of service delivery processes and systems, as well as the performance of human resources in delivering nutrition services. QI involves applying appropriate methods to close the gap between current and expected levels of quality or performance as defined by standards.

In March 2012, the Ministry of Health launched the *Health Sector Quality Improvement Framework and Strategic Plan 2010/11–2014/15* to provide a common framework for all public and private health institutions, partners, and stakeholders to coordinate, plan, mobilise resources, implement, monitor, and evaluate QI initiatives. The framework guides that quality improvement efforts should be coordinated through committees at national, regional, district, hospital, Health Sub-district, and health facility levels. This framework requires evidence-based norms, standards, protocols, and guidelines to be in place and used to identify gaps and measure performance improvement. The framework emphasizes the concept of 'doing right things right'. The outcome is a combination of content of care ('what is done') and process of care ('how it is done').

Improvement can be achieved by addressing either of these components. The most powerful impact, however, occurs by addressing both content and process of care at the same time. This approach supports the ability to provide quality care with increased access and decreased waste and often at a lower cost. Content of care emphasizes effectiveness, whereas focusing on processes of care emphasizes issues related to efficiency, or 'doing right things right'.

QI principles

QI is based on four key principles:

1. **Client focus:** Nutrition services should be designed to meet the needs and the expectations of the clients or community to improve service uptake and utilization. This requires gathering information about and from clients. When health facilities meet or exceed client expectations, clients return, are more likely to comply with advice, and refer others to the services.
2. **Focus on systems and processes:** Health providers must understand the service system and key service processes to identify and analyse gaps, and address causes of poor performance.
    - A system is a set of interacting and interdependent parts and processes.
    - A process is a series of steps used to perform a task or accomplish goal.
3. **Testing changes and emphasizing the use of data:** Changes are tested, and data are used to analyse processes, identify problems, and determine whether the changes resulted in the required improvement.
4. **Teamwork:** A team is a group of people working together to achieve a common goal for which they share responsibility. Improvement can be achieved through the team approach to problem solving and quality improvement.

Steps in Quality Improvement

QI steps try to answer fundamental questions that form the basis for improvement.

- What are we trying to accomplish?
- What changes shall we make that will result in improvement?
- How will we know that the change is an improvement?

Four Basic Steps in Quality Improvement

1. Identify the problem.

Quality improvement starts by asking questions to identify the gap between the actual and desired performance.

- What is the problem? (For example, not all clients in OPD have their nutritional status assessed.)
- How do you know it is a problem? (For example, mid upper arm circumference [MUAC] is not recorded for many clients in the OPD register.)
- How frequently does the problem occur or how long has it existed? (For example, the problem has been ongoing since the MUAC column was introduced.)
- What are the effects of this problem? (For example, malnourished clients are not identified on time.)
- How will you know when it is resolved? (For example, MUAC is recorded for all clients seen at OPD.)
- Ways to identify the problem
    - Survey data
    - Review of records
    - Observation
    - Client feedback

2. Analyse the problem.

The purpose of analysing the problem is to understand it and measure performance of the process or system that produces the effect. Analysis involves asking:

- Who is involved or affected?
- Why, when, and where does the problem occur?
- What happens when the problem occurs?

3. Develop possible solutions (changes).

Changes are possible solutions that are based on data, knowledge, and beliefs about the problem's likely causes and solutions. Quality improvement teams should hypothesize what changes will overcome the problem (for example, assessment of clients will improve if expert clients are trained to measure MUAC at triage and record in the register, leaving more time for staff to run the HIV clinic).

4. Test/implement the possible solution.

Not every proposed solution/change will lead to improvement. Teams should test changes that are feasible, realistic, and likely to lead to improvement. Proposed solutions should be tested based on 'start small, think big' principle—changes are tested on a small scale over a specific period to determine whether they are effective. Based on the results, the team can decide whether to abandon, modify, or implement the solution.

Commonly Used Quality Improvement Models

In Uganda, Quality Improvement is based on the Plan-Do-Study-Act (PDSA) cycle or model. The PDSA model allows teams to systematically try out ideas to improve before deciding to implement. Changes are tried on a small scale before they are implemented on a larger scale. The cycle allows teams to know quickly whether the change will work and helps to gather data to convince colleagues whether the suggested changes work or not.

The QI team should use the PDSA cycle to identify the gaps, test changes to bridge the gaps, study the tested changes, and adapt changes that have caused improvement in nutrition service delivery as best practices.

- Use the appropriate QI tools (documentation journals) to design QI projects, monitor performance, and document best practices.

- Strengthen existing QI teams to implement QI activities.

Steps in the PDSA Cycle

Plan (P)

- Develop a plan of change.
  - What changes will occur and why? (For example start taking and recording weight of all patients attending OTC to track their progress.)
  - Who is responsible for making the change?
  - When and how will the change occur?
- Collect baseline data to measure the effects of change, and monitor the effects of change through a data collection system.

- Educate and communicate with others about the change. Inform and include people involved in the change and make sure they accept it.

Do (D)

- Test the change (intervention). For example, start taking and recording weight of all patients attending OTC.

- Verify that the change is being implemented as planned.

- Collect data about the process being changed.

  - Check that the data are complete.
  - Document any changes not included in the original plan.

Study (S)

- Verify that the change was implemented according to the plan.

- See if the data are complete and accurate.

- Compare the data with the baseline information to determine whether there was improvement.

- Compare predicted or desired results with the results from the test.

Act (A)

- Summarize and communicate what was learnt from the previous steps.

- If the plan does not yield the desired results, modify or abandon the plan and repeat the PDSA cycle if necessary.

- Implement the change as standard procedure if it proved to be successful.

- Monitor the change over time to check for improvements and problems.

There are four basic steps in this approach.

Figure 6: The PDSA Cycle
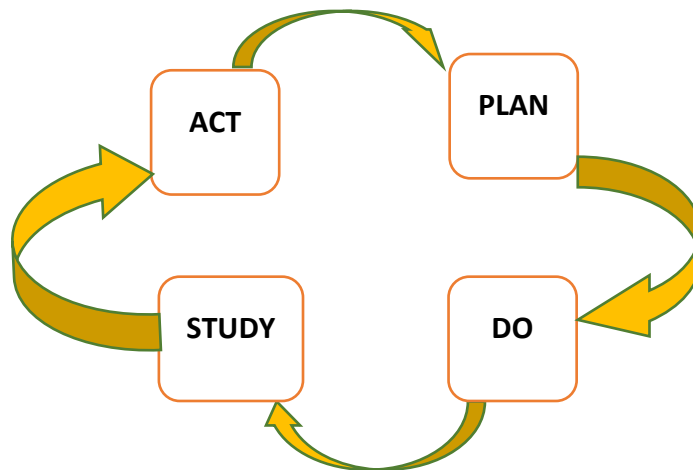
DOCUMENTATION JOURNAL FOR QI ACTIVITIES

The documentation journal is a standard tool used for continuously tracking and reflecting on quality of nutrition services in the health facility and community. The journal helps teams to document suggested changes and continuously monitor performance, and share lessons learnt that contribute to change (improvement/decline). This facilitates follow-up and routine support supervision of nutrition services. The journal has three parts:

Part 1: Documents what the nutrition facility team is trying to accomplish and why.

Part 2: A worksheet where each change implemented at the facility/community is listed, including notation of their effectiveness and the dates when they were started or ended (*if applicable*).

Part 3: A provision for graphing the nutrition data or results, and annotating run charts with your changes to ascertain the impact of the changes suggested and tried.

Depending on the changes suggested, level of service provision and indicators to be addressed, teams can decide on the frequency of data aggregation and reporting/feedback. *Refer to examples below.*

Sample Documentation Journal for QI Activities

Name of the facility: _____ District: _____ Region: _____
Team leader: _____ Team members:_____
Start date for improvement project: _____ End date: _____

Part 1: Description of Situation

Improvement objective *(Improve nutrition assessment at OPD)*	**Indicator for the objective** *Percentage of clients/patients assessed for nutritional status at OPD*
Description of problem Briefly describe the nutrition implementation problem/gap being addressed and gaps between the current situation and your improvement objectives. State the differences between the MOH standard of care and the current practices. Also describe some of the challenges with the current situation. (E.g., *Only 10% of OPD clients are assessed for nutritional status*)	
Part 2: Changes Worksheet - QI Team Activities Please list below the changes that the team has tried in order to achieve the improvement objective. Write all changes, whether effective or not. Also note when each change was started and when it ended (where applicable) to enable you to annotate the results.	

Planned and tested changes In the space below, list all of the changes that you are implementing to address the improvement objective. Write one to two sentences to briefly describe the tested change.	Start date DD/MM/YY	End date (if applicable) DD/MM/YY	Was any Improvement registered? (Yes/No)	Comments Note any potential reasons why the change did or did not yield improvement; also note any change in indicator value observed related to this
1. E.g., On-the-job training for all OPD staff	5th /Jan/2016	7th /Feb/2016	No	Few staff at OPD
2. E.g., Allocate more staff to OPD	8th/Feb/2016	13th /April/2016	Yes	Monthly aggregated data indicated improvement
3.				
4.				
5.				

Part 3: Graph Template – Annotated Results

Use the graph below to document your progress. Indicate the value of the numerator and denominator.

TITLE: ………
Indicator value

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Time	0	1	2	3	4	5	6	7	8	9	10	11	12
Numerator													
Denominator													
%													

Notes on the indicators. Write down any additional comments you may have on the performance of indicators. Write anything derived from the changes worksheet and the graph template that might explain the performance trends of the improvement objective.

_____

_____

_____

_____

Notes on other observed effects (lessons learnt). Please write here any effects (positive or negative) you are currently observing as a result of the quality improvement effort, such as comments from patients, changes in your performance or motivation, improved efficiency, or the survival story of a sick patient. You may use your notes to tell the complete story at the next learning session(s)

Appendices
Appendix I: Nutrition Addendum

HMIS 009: NUTRITION ADDENDUM

Health Unit_____Code_____ Level_____ District_____ HSD_____

Sub-county_____ Parish_____ Month_____ Year 20_____

ADDENDUM TO HMIS 105							
Source Document							
ANC Register	Pregnant Mothers Receiving Iron/Folic Acid on ANC 4th visit						
	No. of Pregnant women with Hb < 11 g/dl		1st visit				
			4th visit				

		0-6 Months (W/L z-score)		**6–59 Months (W/H or W/L z-score)**		**5–19 Years (BMI-for-Age z-score)**	
		Male	**Female**	**Male**	**Female**	**Male**	**Female**
OPD, Child Health, EID Register, INR	Over Weight (> +2SD)						
	Moderate acute malnutrition (≥ -3 - < -2 SD)						
	Severe acute malnutrition without oedema (< -3SD)						
	Severe acute malnutrition with nutritional oedema						
	Total severe acute malnutrition						

		Male			**Female**		
		0–6 months (H/A z-scores)	**6–23 months (H/A z-scores)**	**24–59 months (H/A z-scores)**	**0–6 months (H/A z-scores)**	**6–23 months (H/A z-scores)**	**24–59 months (H/A z-scores)**
	Stunted (< -2SD)						
	Not stunted (> -2SD)						

Appendix II: Key Terms Related to Nutrition in the HMIS

	Term	Description
	Term	**Description**
1.	Breast milk feeding:	Feeding a baby expressed breast milk
2.	Breastfeeding:	Feeding an infant or young child milk directly from the breast
3.	Body Mass Index (BMI):	A ratio of weight for height (weigh (kg)/height (m^2) that indicates body fat accumulation
4.	Complementary feeding:	Giving a child other foods (solid or semi-solid) in addition to breastfeeding or replacement feeding to meet the baby's nutrient requirements from 6 months of age
5.	Complementary food:	Any food, whether manufactured or locally prepared, used as a complement to breast milk or breast milk substitute
6.	Exclusive breastfeeding:	Giving a baby breast milk ONLY, without any other liquids or solids, not even water. However, prescribed drops or syrups consisting of vitamins and mineral supplements or medicines may be given. Exclusive breastfeeding is recommended until a baby is 6 months old.
7.	Food:	Any substance—solid, semi-solid, or liquid—taken into the body to provide one or more nutrients
8.	Infant:	A baby from birth to 12 months of age
9.	Infant feeding counselling:	Counselling on breastfeeding and complementary feeding, including counselling on infant feeding in the context of HIV/AIDS
10.	Mid Upper Arm Circumference (MUAC):	The circumference of the upper arm, measured at the mid-point between the tip of the shoulder and the tip of the elbow (olecranon process and the acromium); measures nutritional status of individuals based on muscle accumulation on the upper arm; used for all, except children under 6 months of age
11.	Mixed feeding:	Feeding both breast milk and other foods or liquids to a child under 6 months of age; not recommended regardless of sero-status
12.	Nutrients:	Nourishing substances needed by the body for physical activity, growth, development, and health. Nutrients are divided into macronutrients and micronutrients.
13.	Nutrition:	Sum of all processes involved in the intake, assimilation, and utilization of the proper amounts of nutrients to maintain health, well-being, and productivity. Good nutrition relies on a diverse and adequate diet through the life cycle.
14.	Nutritional counselling:	A form of interpersonal communication through which a person is helped to assess his or her current situation and explore possible ways to address problems
15.	Pre-lacteal feeding:	Giving other fluids or foods to a baby before initiation of breastfeeding

Key terms, cont.

	Term	**Description**
16.	Replacement feeding:	The process of feeding a child who is not receiving any breast milk with a diet that provides all the nutrients the child needs, until the child is fully fed on family foods. Replacement feeds do not include black coffee/tea, fruit juices, over-diluted milk.
17.	Re-lactation:	Re-establishing breastfeeding after a mother had stopped, whether in the recent or distant past.
18.	SAM (severe acute malnutrition)	Nutrition status with z-score (WHZ/WLZ/BMI-for-age) of < -3)/Red MUAC colour/BMI < 16 and/or oedema
19.	MAM (moderate acute malnutrition)	Nutrition status with z-score (WHZ/WLZ/BMI-for-age) ≥ -3 – < -2)/yellow MUAC colour/BMI of 16–18.4 and/no oedema
20.	Young child:	A child from the age of 12 months and above up to 5 years (60 months)
21.	Z-scores:	A measure of standard deviation that indicates the tendency of a measurement towards/away from the median reference measurement. The z-score for the median measurement is 0.

Appendix III: Examples of Clinical Signs Associated with Acute Malnutrition

Face

Full, puffy

Cheeks drawn in

Mouth

Angular stomatitis (ulcers at the corner of the mouth)

Cheilosis (chapping, fissuring of lips)

Skin

Dry (xerosis) and scaly

Dermatitis

Follicular hyperkeratosis

Delayed wound healing

Xanthoma (yellowish papules)

Decubitus ulcers

Herpetiformis

Nails

Koilonychia (spoon nails)

Eggshell nails

Blue lunula

Feet

Swelling of both feet and/or body

Eyes

Corneal or conjunctival dryness

Conjunctival pallor

Corneal vascularization (bilateral)

Redness

Fissuring of eyelid corners

Hair

Colour change

Dry, dull

Alopecia (baldness)

Brittle

Early greying

Mental

Apathy

Depression

Confusion

Dementia

Abdomen

Distension

Flatus

Muscles and bones

Reduced strength

Bone pain

Bowed legs

'Pigeon chest' (protruding sternum and ribs)

Signs of wasting: Prominent bones (ribs)

Skinny limbs

Loose skin (on lifting) around the buttocks (like baggy pants)

Tongue

Colour (magenta, scarlet)

Pain

Oedema

Smooth texture

Pallor

Papillary atrophy

Papillary hypertrophy

Fissuring

Taste changes

Glossitis

Other

Sensory neuropathy

Tetany

Appendix IV: Generic Training Agenda

Time	Monday	Tuesday	Wednesday	Thursdays	Friday
8:30–9:30 am	Climate setting, Admin remarks	Basics of Nutrition cont'd.	Recap	Recap	District Health Information System 2
09:30–10:00 am	*Opening remarks*		Integrated Nutrition Register	Monthly Report and Nutrition Addendum	
		Community Data Tools	INR, cont'd. (INR case scenarios)		
10:00–10:30am	Pre-test	Primary Health Facility Data Tools		Monthly Report and Nutrition Addendum, *cont'd.*	
10:30–11:00					
11:00–12:00 pm	Health Management Information System	Group Work	Nutrition Tally Sheet	Table 20 and the Health Unit Nutrition Quarterly Summary	Introduction to M&E
12:00–1:45	Introduction to Nutrition Situation in Uganda	Group Work, cont'd.			Nutrition Data Quality
1:45–2:45pm					
2:45–3:15 pm	Basics of Nutrition	Group Presentations, Discussions	EMSH	Data Extraction and Reporting (practicum)	QI Approaches
3:15–4:00 pm					Action Planning Post-test, End-course Evaluation
4:00–4:30 pm	Daily Evaluation	Daily Evaluation	Daily Evaluation	Daily Evaluation	Closing Remarks
4:30–5:00pm	Evening Tea **(All)**	Evening Tea **(All)**	- Evening Tea - Daily Evaluation **(All)**	Evening Tea **(All)**	- Evening Tea, Departure **(All)**
5:00–6:00pm	Facilitators' Meeting	Facilitators' Meeting	Facilitators' Meeting	Facilitators' Meeting	Facilitators' Meeting (1hr)

Appendix V: List of HMIS Data Tools

	Name of Data Tool	HMIS Number
1.	ART Register	HMIS form 081
2.	Child Register	HMIS form 073
3.	Daily Dispensing Log	HMIS form 016
4.	Drug Resistant (DR) TB Register	HMIS form 096b
5.	Exposed Infants Clinical Monitoring Chart	
6.	Facility HIV Care (Pre-ART) Register	
7.	Health Unit Nutrition Tally Sheet	HMIS form 077a
8.	Health Unit Nutrition Quarterly Summary	HMIS table 20
9.	Health Unit Outpatient OPD Monthly Report	HMIS form 105
10.	Health Unit Quarterly Report	HMIS form 106a
11.	Health Unit TB Register	HMIS form 096a
12.	HIV Care/ART Card	
13.	HIV-Exposed Infant Register	HMIS form 082
14.	Integrated Antenatal Register	HMIS form 071
15.	Integrated Maternity Register	HMIS form 072
16.	Integrated Nutrition Register	HMIS form 077
17.	Integrated Postnatal Register	HMIS form 078
18.	Nutrition Addendum	HMIS form 009
19.	Order form for EMHS	HMIS form 085
20.	Outpatient Register	HMIS form 031
21.	Pre-ART Register	HMIS form 080
22.	Quarterly Household Summary	HMIS form 097a
23.	Requisition and Issue Voucher	HMIS form 017
24.	Stock Card	HMIS form 015
25.	VHT/ICCM Quarterly Report	HMIS form 097b
26.	VHT/ICCM Register	HMIS form 097

Appendix VI: Case Scenarios

CASE SCENARIO SET 1: INR

The following is information on clients that ever attended nutrition services at Kiyunga Health Centre IV (HCIV) in Luuka District.

Scenario 1: On 2nd August 2015, Irene Namara is age 32, from Kayembe cell, Kidoma parish, Bukooma sub-county in Luuka District. Her telephone number is 0749448910. She has two children and is currently pregnant. She was referred to the ART clinic from the Outpatient Department (OPD) for further HIV counselling after testing positive. She was immediately enrolled in care (pre-ART) and assigned a number, 0057/13. A nurse took her weight and height, which were 49 kg and 179 cm, respectively. Her MUAC was 18.6cm. She was started on ARVs and was referred to the OTC for nutritional rehabilitation, enrolled, and given INR number 050. She received 84 sachets of RUTF for two weeks.

Scenario 2: On 8th August 2016, Mabirizi Ismail Osama, a 4-year-old boy from Kalerwe village, Ikumbya sub-county in Luuka District was referred to the nutrition corner from OPD. His guardian's telephone number is 0754892641. On reassessment, he was severely malnourished but had no bilateral pitting oedema and no medical complications. His HIV status was negative. He was enrolled on OTC and assigned INR No. 064 and received 42 sachets of RUTF on enrolment.

He adhered to all his bi-weekly appointments and his status was monitored as follows: **Revisits**	**1**	**2**	**3**	**4**	**5**
Date	22/8/2016	5/9/2016	19/9/2016	3/10/2016	17/10/16
Weight (Kg)	8.0	9.2	9.6	9.9	10.7
MUAC	Red	Red	Yellow	Green	Green

He was discharged on 17th October 2016 with green MUAC colour.

Scenario 3: On 12th July 2015, Mr. Kalule Ismail Mukasa, 37 years from Bulongo village in Kiyunga sub-county was referred from ART clinic with SAM and weighing 49 kg. His ART number was 0065/15. His nutritional status was confirmed (MUAC 18.6 cm) and he was enrolled in OTC. His contact number was 0772612814. He was advised to report for review on 28th July but returned on 30th July with weight 50 kg and MUAC 18.2 cm. He was counselled and asked to return on 11th August but reported on 17th August with MUAC 18.2 cm and weighing 47 kg. He died on 29th August.

Scenario 4: On July 1st 2016, Nabitaka Evelyn, a 26-year-old woman attending ANC was diagnosed with SAM (with MUAC of 18.6 cm) after she was referred to the nutrition corner. She lives in Waibuga sub-county, Bulanga village. After passing the appetite test, she was enrolled in care and was asked to return for review on 15th July 2016. She reported on 22nd with the same MUAC value. She was counselled and asked to return on 5th August 2016 but returned on 7th September 2016 with MUAC 18.9 cm.

CASE SCENARIOS SET 2: STOCK CARD

At Ntara HCIV in Kamwenge District, the pharmacist Mafabi Jackman manages the store. Mafabi Jackman receives medicines and other medical supplies on behalf of the facility.

- On the 31st December 2012, Mafabi conducts a physical count and finds 100 sachets of RUTF in the health facility. He sends the order form to NMS for the cycle 6 (months of November and December 2012) on 1st January 2013. RUTFs are stored below room temperature.

- On 10th January 2013, Ntara HCIV receives 10 boxes of RUTF (each box containing 150 sachets) from NMS, voucher number is N000254 with an expiry date of May 2016.

- On 14th January 2013 Mafabi Jackman gives 400 sachets of RUTF to OTC.

- On 16th January 2013, 500 sachets were sent to Kichwamba HC II because their supplies had run out and they had not received any from NMS.

- On 18th January 2013, 200 more sachets were sent to ITC ward after request from the In-charge of the unit.

- On 21st January 2013, the facility received 60 sachets from FANTA project.

- On the 27th January 2013, while carrying out routine inspection, Mafabi notices that 50 sachets are open due to rats in the store and he declared them contaminated and he removed them for disposal.

- On 11th February 2013, Mafabi dispenses another 400 sachets to OTC.

- On 20th February 2013, the facility receives 5 boxes of RUTF from NMS, voucher number 00257 and on the same day, Mahyoro Health Centre III (HCIII) returned 140 sachets of RUTF after the DHO noticed they were overstocked, while carrying out supervision.

- On 26th February, another 400 sachets were given to OTC.

- On 28th February 2013, Mafabi conducts a physical count and finds 250 sachets in the facility.

Exercise
1. Input the above information on the Stock Card.

2. What is the balance at hand?

3. Is there a difference between balance at hand and physical count? Explain your answer giving reasons for the difference, if any.

4. Complete the Dispensing Log with information from the exercises on data tools.

CASE SCENARIO SET 3: DAILY DISPENSING LOG

In Kyantungo HC IV, on 16th September 2016, Mutyaba Lawrence dispensed drugs to two patients as follows:

Case scenario 1: Patient Number: 01

Rx tabs: Coartem 4 to be taken 12 hourly for 3 days, Paracetamol 1 gram to be taken every 8 hours for 3 days

Case scenario 2: Patient Number: 02

Rx Cap Amoxicillin 500mg to be taken 8 hourly for 5 days, Paracetamol 1 gram to be taken every 8 hours for 3 days and RUTF 92 g: 3 sachets per day to be taken for 2 weeks.

Exercise

Complete the dispensing log using information from case scenarios 1 and 2.

CASE SCENARIO SET 4: PRACTICE USE OF DHIS2

Report Rate Summary

Try out the following:

a)
- I. What is your district reporting rate for HMIS 033b for the reporting week W30?
- II. Using the above results, which sub-counties led to the district not achieving 100% reporting rate>
- III. Using the above dataset and reporting week, what were the reporting rates for both government and private not for profit facilities in your district?
- IV. Can you identify the government facilities that did not report on time and the sub-counties they belong to?
- V. What recommendations can you give to improve reporting in your district?

b)
- VI. Identify a sub county in your district with the highest number of facilities. Download results as Excel. Using the downloaded Excel sheet, draw a sub-county bar graph showing distribution of facilities per ownership.

c)
- VII. Download a file called 'DHIS2 Access' from DHIS2 Resource into our folder; what is the purpose of that file?

For each question above save your results into our folder created.

Pivot Table

Using the acquired skills in using the pivot table in DHIS2, attempt the following:

I. Identify the sub county in your district that registered the highest and lowest ANC first visit, number of pregnant women tested positive with HIV in the last quarter. Compare the result with the district level. Save it as a favourite with a well-defined name. Download the result into an Excel sheet and arrange it in the same format.

II. In your individual district group discuss and identify any useful data elements/indicators for any dataset and use the pivot table to analyse the data for a chosen period.

    a. List down the 3Ws (What, where, When) you have selected as a team.
    b. Analyse the data using DHIS2 Pivot Table.
    c. Remove all the totals and empty rows.
    d. Save the resulted analysis as a favourite in DHIS2 with a well-meaning name.

    e.   What gaps have you identified in the data you are analysing? What are your recommendations as a team?

Data Visualizer

Attempt the following:

Create a well labelled and titled graph showing the number of new mothers tested for HIV for the quarters January–March 2013 and April–June 2013 comparing with any two sub-counties in your district.

    a.   Add a district target. Did the district achieve it? If not, what could be some of the reasons that led to it?
    b.   Save it as a favourite in DHIS2 with a well-defined name.
    c.   Download it and add it in your PowerPoint presentation.

Dashboard

Create a dashboard and name it with your district name.

    I.   Add all the saved tables, charts, and maps that you have created in this exercise onto it.