



THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH

Data Quality Assessment (DQA) for the Partnership for HIV-Free Survival (PHFS) Report: Uganda

May 2015



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Abbreviations and Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Antiretroviral
ASSIST	Applying Science to Strengthen and Improve Systems Project
CDC	U.S. Centers for Disease Control and Prevention
DQA	Data Quality Assessment
EID	Early Infant Diagnosis
eMTCT	Elimination of Mother-to-Child Transmission of HIV
FANTA	Food and Nutrition Technical Assistance III Project
HCIII	Health Center Level III
HCIV	Health Center Level IVHIV
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
IYCF	Infant and Young Child Feeding
M&E	Monitoring and Evaluation
MOH	Ministry of Health
NACS	Nutrition Assessment, Counseling, and Support
OTC	Outpatient Therapeutic Care
PCR	Polymerase Chain Reaction
PHFS	Partnership for HIV-Free Survival
PMTCT	Prevention of Mother-to-Child Transmission of HIV
QI	Quality Improvement
RDQA	Routine Data Quality Assessment
SPRING	Strengthening Partnerships, Results and Innovations in Nutrition Globally
STAR-EC	Strengthening TB & HIV/AIDS Responses in East Central Region of Uganda
STAR-SW	Strengthening TB and HIV/AIDS Responses in Southwest Region of Uganda
TASO	The AIDS Support Organization
TF/SF	Therapeutic or Supplementary Feeding Support
USAID	U.S. Agency for International Development
WHO	World Health Organization

1 Introduction

The Ministry of Health (MOH), together with U.S. Agency for International Development (USAID) partners (USAID/SPRING, USAID/ASSIST, FANTA, STAR-EC, STAR-SW and DLG), have been implementing the Partnership for HIV Free Survival (PHFS) since April 2013. The initiative employs the nutrition assessment, counseling and support (NACS) framework to integrate nutrition into routine health service delivery both at the facility and community level. The set of interventions encompasses quality improvement (QI) methods to implement the 2010 World Health Organization (WHO) guidelines on the Prevention of Mother-to-Child Transmission of HIV (PMTCT) focusing on infant feeding. The PHFS initiative is implemented in the six districts of Ntungamo and Kisoro in southwest Uganda, and Jinja, Tororo, Manafwa, and Namutumba district in east and east-central Uganda. This document reports on a data quality assessment (DQA) conducted in 42 health facilities in six districts of Uganda to measure the status quo of the three intervention themes addressing post-natal HIV transmission: QI; elimination of mother-to-child transmission of HIV (eMTCT); and nutrition, assessment, counseling, and support (NACS) data. The DQA was conducted in all the 24 prototype/learning phase (Phase 1) and 18 rapid district-wide, scale-up phase (Phase 2) health facilities for the review period January – March 2014.

The Partnership for HIV-Free Survival

In response to the “Global Plan toward the Elimination of New HIV Infections among Children by 2015 and Keeping Their Mothers Alive,” the Inter-Agency Task Force Working Group on Child Survival & Infant Feeding, The U.S. President’s Emergency Plan for AIDS Relief, and other technical partners are supporting national efforts in six countries with a high HIV burden (Kenya, Lesotho, Mozambique, South Africa, Tanzania, and Uganda) to develop and scale up an effective campaign to provide optimal nutrition for infants and to protect those infants from HIV infection.

The PHFS is the first step in this ambitious plan to rapidly scale up an effective intervention to achieve HIV-free survival among infants. The PHFS interventions will test the effectiveness of a proven framework that uses QI methods to implement the 2010 WHO guidelines on PMTCT, focusing on infant feeding.

Together, the effectiveness of antiretroviral drugs (ARVs) to reduce HIV transmission and of breastfeeding to reduce deaths due to malnutrition, diarrhea, and pneumonia represent an exceptional opportunity to improve HIV-free survival of infants born to mothers living with HIV. Since programmatic experience in implementing postnatal guidelines for care of HIV-infected mothers and HIV-exposed infants is limited, the PHFS will first focus on a learning phase that addresses implementation challenges and develops data systems for tracking and improving program performance. A subsequent scale-up phase will then disseminate these learnings across entire districts. The PHFS will also support incorporation of these learnings into country plans to rapidly scale up implementation of the WHO guidelines.

The PHFS supports and coordinates the design of country-led projects to improve infant survival through improved feeding practices by HIV-infected and uninfected mothers and through protection of HIV-exposed infants through the provision of ARVs to mothers and/or infants. The partnership provides the following support:

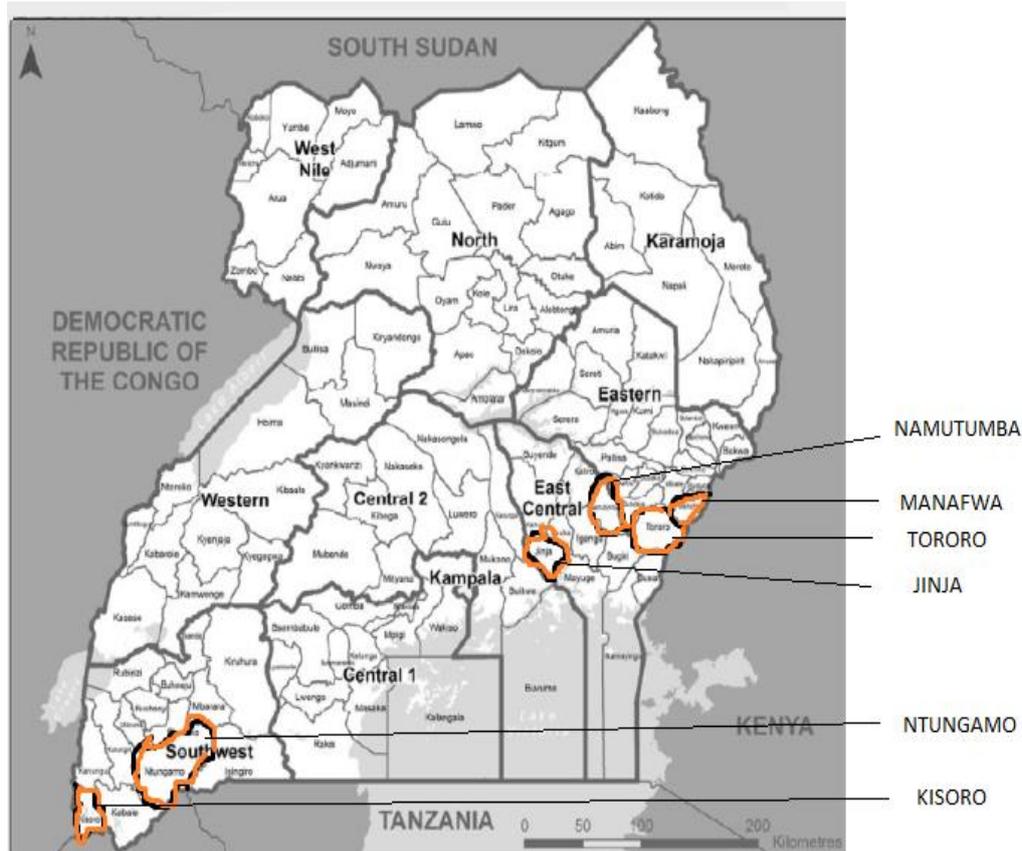
- Design, testing, and rapid scale up of an effective approach to increasing rates of coverage of care for mother-infant pairs in the postnatal period
- Training, technical support, and guidance for the use of QI approaches and infant feeding support

As part of the intervention, a range of monitoring and evaluation (M&E) activities will occur to determine if this initiative is being executed as planned, to verify data in both intervention and non-intervention districts, and ultimately to assess whether the initiative succeeded in accelerating and scaling up eMTCT and nutrition interventions in the countries. To accomplish this, it is critical to collect baseline information to use as a benchmark.

1.1 Implementation of PHFS in Uganda

In Uganda, the PHFS is being implemented in the six districts of Kisoro Ntungamo, Namutumba, Jinja, Manafwa, and Tororo (Figure 1), and the target is to reach all the Health Center Levels—Health Center Level III (HCIII) and above (111 health facilities) within the 2 years of implementation (2012–2014). The initiative is being implemented by the MOH with support from USAID implementing partners—the Applying Science to Strengthen and Improve Systems Project (ASSIST), managed by University Research Co., LLC (URC); the Food and Nutrition Technical Assistance III Project (FANTA), managed by FHI 360; and the Strengthening Partnerships, Results, and Innovations in Nutrition Globally Project (SPRING), managed by John Snow Inc.—and U.S. Centers for Disease Control and Prevention (CDC) partners—The AIDS Support Organization (TASO), Strengthening TB and HIV/AIDS Responses in East Central Uganda (STAR-EC), managed by John Snow Inc., and Strengthening TB and HIV/AIDS Responses in Southwest Uganda (STAR-SW), managed by the Elizabeth Glaser Pediatric AIDS Foundation. The PHFS intervention was first rolled out as learning sites in 24 prototype health facilities with high-volume HIV/AIDS cases to inform scale-up (Annex 2). Eventually, during its 2 years of implementation, the initiative will be implemented in all 111 health facilities offering Option B+ services in the six selected districts. The MOH and partners jointly selected the districts and health facilities using several criteria, including HIV disease burden and availability of Option B+ services (Annex 2).

Figure 1. Map of Uganda Showing the Six Districts for PHFS Intervention



1.2 Elimination of Mother-to-Child Transmission of HIV in Uganda (eMTCT)

In 2012, the MOH released The Integrated National Guidelines on Antiretroviral Therapy, Prevention of Mother-to-Child Transmission of HIV and Infant & Young Child Feeding to provide guidance to health workers in the delivery of integrated HIV prevention, care, and treatment, and in nutritional care, treatment, and support for people living with HIV. In Option B+, all pregnant women living with HIV are offered lifelong antiretroviral therapy (ART), starting triple ARVs at 14 weeks of pregnancy, regardless of their CD4 count. All HIV-exposed infants are given daily nevirapine from birth through age 4–6 weeks regardless of infant feeding method. Option B+ offers lifelong ART, lowers lifetime transmission rate, leads to less risk of resistance, enables safer breastfeeding, and provides continuity of treatment throughout childbearing years. The rollout of this policy involved:

- Regional sensitization and coordination meetings with health officers, eMTCT focal persons, and implementing partners
- District entry meetings with the extended district health team members and the political arm
- 3-day training for health workers in Option B+
- Mentorship visits
- Provision of data collection tools
- Provision of medical equipment, especially for integration of care into early infant diagnosis (EID)
- Follow-up of lost mother-child pairs¹

1.3 Nutrition Assessment, Counseling, and Support Implementation in Uganda

Over the years, the MOH and development partners have provided targeted nutrition support to selected districts and health facilities using the NACS framework. The framework includes strengthening service providers' skills in nutrition assessment, categorization, malnutrition treatment (provision of ready-to-use therapeutic food), and prevention services such as infant and young child feeding (IYCF), and facilitating linkages with other support programs. In the scale-up plan for nutrition interventions, the MOH plans to integrate NACS into routine health services in health facilities countrywide while improving quality of services in the startup facilities. USAID and CDC are supporting the MOH in this scale-up plan through various partners that support provision of comprehensive HIV care across the country.

1.4 Quality Improvement Framework for Uganda

The QI approach is used to achieve the essential steps of postnatal mother-infant care by coaching and mentoring health workers, conducting learning sessions to compare and learn from each team, conducting harvest sessions to compile best practices for use at all sites, and using journals to track changes, all of which may result in excellent nutritional and HIV care for both the HIV-exposed and non-exposed infants over the first 24 months of life. These steps are:

- Retain all mother-infant pairs in care to ensure that they receive nutrition advice, counseling, and support
- Know the HIV status of every mother and infant
- If HIV+, ensure optimal ARV coverage for mother and infant

¹ Esiru, G. January 22, 2013. "PMTCT Implementation in Uganda: Option B+ Experience." International Prevention Meeting. Protea Hotel, Entebbe.

1.5 Rationale for the Data Quality Assessment

The purpose of a DQA is to ensure that the PHFS initiative is aware of the strengths and weaknesses of the data in relation to five data quality dimensions (validity, reliability, integrity, timeliness, and precision). USAID regulations require that data reporting to USAID—or for reporting externally on USAID performance—must have conducted a DQA at some time within the 3 years before submission.

1.6 Objectives of the Data Quality Assessment

The main objectives of the DQA were to examine the M&E practices in the PHFS implementing health facilities. Specific objectives were to:

- Verify the quality of reported data for four selected indicators from the PHFS indicators
- Determine the availability, completeness, and accuracy of health facility data collection tools used to collect the PHFS indicators
- Assess the capacity of the current data management systems to collect, manage, and report quality data on four selected PHFS indicators
- Highlight corrective actions needed to address significant limitations in data quality on the selected PHFS indicators

2 Methodology

The DQA was conducted in August 2014 in 42 health facilities in the six districts of Jinja, Kisoro, Manafwa, Namutumba, Ntungamo, and Tororo that implemented the PHFS initiative and included all 24 prototype/learning phase health facilities and 18 health facilities from the rapid, district-wide, scale-up health facilities. The lessons learned from the phase 1 sites motivated districts to scale up PHFS activities to all facilities providing eMTCT services in the districts under phase 2. The assessment was conducted for the period January–March 2014. A total of seven health facilities were assessed in each district. (Table 2).

The DQA involved mainly data extraction, capacity assessment, and document review, with no patient interviews. The MOH provided leadership and coordinated the team, while FANTA provided logistics and technical support throughout the entire process, including writing the concept, designing the tools, and finalizing the report.

Table 1. Health Facilities Assessed by Facility Level and District

Health Facility levels	PHFS Implementing Districts						Total
	Kisoro	Ntungamo	Namutumba	Jinja	Manafwa	Tororo	
General Hospital	1	1	0	0	0	1	03
Health Center IV	2	3	1	4	3	3	16
Health Center III	4	3	6	3	4	3	23
Total	7	7	7	7	7	7	42

2.1 Survey Design

2.1.1 Data Sources

Data were collected from all of the 42 health facilities that were implementing PHFS in the six districts. Six teams consisting of five members from the MOH, implementing partners, and district health officials worked closely with health workers from their respective health facilities.

The team validated the data sources and analyzed the systems at the site level to enable verification of the data and assessed the ability of the current data management system to collect, manage, and report. The teams provided corrective actions needed to address significant limitations observed from the respective health facilities' Routine Data Quality Assessment (RDQA).

2.1.2 Data Collection Instruments/Tools and Procedures

The DQA exercise used an assessment tool adapted from MEASURE Evaluation, the Multi Indicator - Routine Data Quality Assessment (RDQA) tool – a Microsoft Excel–based format. Adapted from Tools-MEASURE Evaluation: <http://www.cpc.unc.edu/measure/tools/monitoring-evaluation-systems/data-quality-assurance-tools><http://www.cpc.unu.edu/measure/tools>, the adapted tool used contains four specific areas of focus.

1. *Data Verification* – Verification enabled a quantitative comparison of recounted to reported data and a review of the timeliness, completeness, and availability of reports for the key PHFS indicators.
2. *Data Management and Reporting System Assessment* – enabled qualitative assessment of the relative strengths and weaknesses of five functional areas of the data management and reporting

system related to the PHFS indicators. These functional areas included M&E structure, functions, and capabilities; indicator definitions and reporting guidelines; data-collection and reporting forms/tools; data management processes; and links with national reporting system.

3. *Recommendations* - In addition to the two key assessment parts, recommendations were used to describe necessary action points based on the identified weaknesses.
4. *Dashboard* – the RDQA checklists were entered directly into Excel spreadsheets. A number of dashboards produced graphics of summary statistics for each site or level of the reporting system.

Table 2 indicates the four selected PHFS indicators—2 for NACS and 2 for eMTCT—considered for the DQA. It also shows the primary and secondary data sources used for data collection. These include: Antenatal Care (ANC) Register, Maternity Register, EID Register, and the Outpatient Therapeutic Care (OTC)/Integrated Nutrition Register as primary sources and the Dispensing Log and the Exposed Infant Chart as secondary documents.

Table 2. Selected PHFS Indicators for Data Quality Assessment

Indicator	Numerator/ Denominator	Source Document	Secondary Document
1. Percentages of pregnant women initiated on ART	# of pregnant women initiated on ART	ANC Register	Dispensing Log
	Total number of HIV-positive pregnant women identified who are not yet on ART (includes those counselled, tested, and given results)		
2. Percentages of HIV-exposed infants given ARV prophylaxis	# of exposed babies born to HIV-positive mothers given ARVs	Maternity Register	Dispensing Log
	# of exposed babies born in the facility in the reporting period		
3. Percentage of exposed infants reported to be adhering to recommended IYCF practices	# of exposed infants adhering to IYCF practices	EID Register	Exposed Infant Chart
	# of exposed babies born in the facility in the reporting period		
4. Proportion of HIV-positive mothers found to be undernourished and receiving therapeutic or supplementary feeding support (TF/SF) at any point during the reporting period	# of undernourished HIV-positive mothers on TF/SF	OTC/Integrated Nutrition Register	Not available
	# of undernourished HIV-positive mothers identified		

2.1.3 Data Entry and Analysis

Data collectors input data directly into the RDQA tool; the tool would then automatically consolidate and analyze data at both district and health facility levels. Respective health facility data were submitted to the PHFS M&E task force for central processing, analysis, and report writing from the teams. Descriptive analysis was done where data were benchmarked at facility, district, and national level. Findings of the exercise were presented via the RDQA tool which utilized a dashboard with various graphs, tables, and narrative.

The analysis of the M&E system structure used a three-level rating scale based on a methodology utilized by the RDQA tool to assess the functionality and status of the five components of the M&E system (Annex 2). Where the M&E component was found to have the desired functionalities, it was given a score of 2.5–3.0 (Green: met standards), where the component needed improvement, a score of 1.5–2.4 (Yellow: needs improvement) was given, and where the component was found to be in an undesirable functionality, a score of less than 1.5 (Red: needs urgent remediation) was awarded. The desired standards for each M&E components are described in Table 3.

Table 3. Criteria for Assessing the M&E System Components

M&E Structure, Functions, and Capabilities	Relevant M&E staff are trained in data management process and tools and all staff involved in the M&E processes are fully aware of their roles and responsibilities.
Indicator Definitions and Reporting Guidelines	There are written guidelines on reporting procedures.
Data-collection and Reporting Forms/Tools	Availability of clear instructions on how to complete the data collection and reporting forms/tools. The standard forms/tools are consistently used by the service delivery site. Relevant indicators are available for measuring and tracking quality of care.
Data Management Processes	The data collection system maintains personal data in accordance with national or international confidentiality guidelines, avoids double-counting across service points, and tracks persons lost for follow up. Where electronic medical records systems exist, quality control procedures are in place to ensure clean data storage and regular back up. Data are reviewed before submission to the next level and used to make decisions.
Links with National Reporting System	The relevant forms/tools are used for data-collection and reporting within the national framework.

Data were entered into the collection tool which was automated to analyze the data. Hard copies were used for solving queries in case of discrepancies during data cleaning and processing. All partners were responsible for data collection, entry, and analysis. Standard regulation by the MOH over the health management information system (HMIS) data was observed.

Analysis of the data was descriptive and focused on the two themes (Option B+ and NACS). The extracted data were presented as a dashboard, tables, and graphs. Data will be kept at the MOH Resource Center for at least 3 years for future reference.

2.1.4 Ethical Considerations

All FHI360 staff who participated in the DQA had a valid standard online FHI 360’s Research Ethics Certificate prior to the assessment. This process equipped the partners with skills for appropriate conduct during data extraction, protection of confidentiality, and ensuring data privacy. All computer data were encrypted on password-protected computers. Access to the data was designated to appropriately responsible MOH staff and M&E task force members who participated in the DQA. Assessors were trained on the use of the tools and participated in the pretest and adjustment. As the assessment was mainly a process of data extraction, capacity assessment, and document review, the potential risk to the clientele of the respective health facilities was minimal. The task force participated in the development and pretesting of tools and trained data collection teams during a 1-day training on the use of the data collection tools.

2.2 Assessment Limitations

Inconsistencies in the implementing partners data at the health facility level for the reporting period were expected. As a result, the quality of the implementing partners' data was compared with the national database (DHIS 2) for final decisions on discrepancies in the reported data.

3 DQA Findings

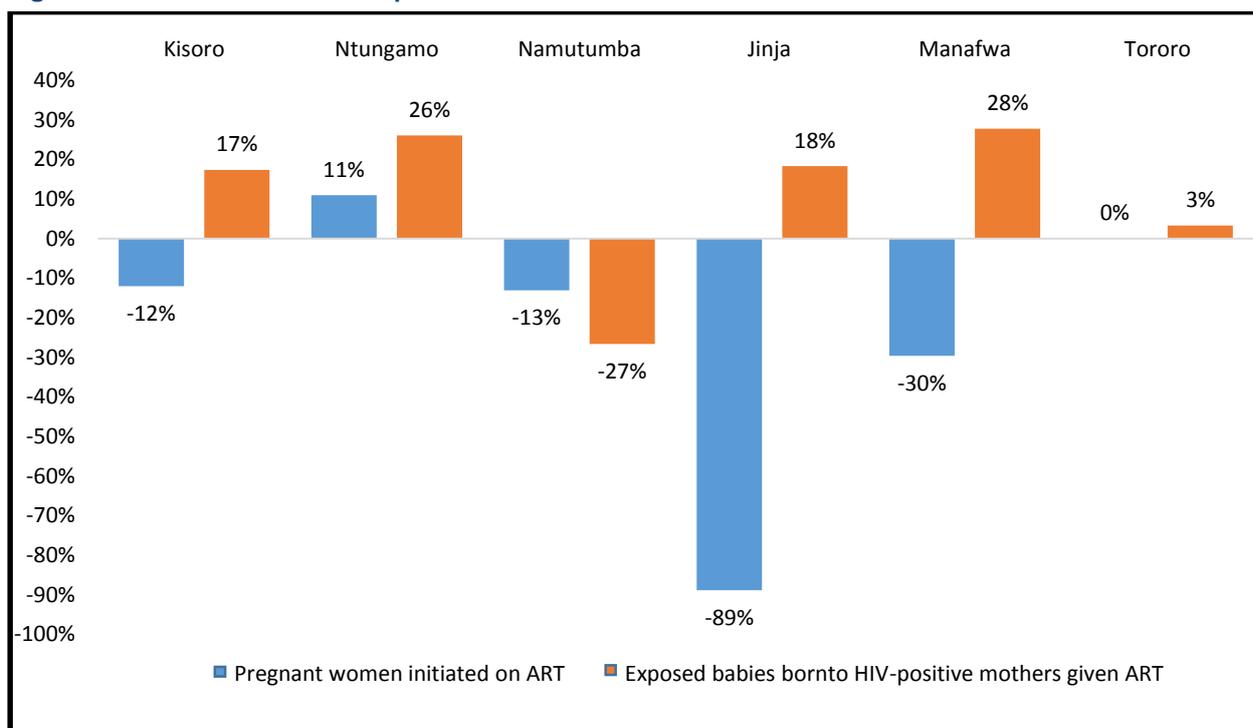
The DQA assessment findings are aligned under the four objectives presented by the districts of Kisoro, Ntungamo, Namutumba, Jinja, Manafwa, and Tororo. There were variations noted in the quality of data and capacity of data management systems. Specific corrective action was provided to each health facility. The following findings are benchmarked at national, district, and facility levels.

3.1 Data Validation (Accuracy)

3.1.1 Verification of Reported Numbers

Validity of data is an important element of any DQA where reported data is assessed against data from primary source documents. Two of the nine eMTCT indicators and 2 of the 11 NACS Indicators were used in the data validation exercise for data collected from January to March 2014 (Table 2). It should be noted that data verification for the two NACS indicators was not possible because there were no national tools to use. Details of the indicator performance verification is shown in Annex 1. Deviations of 5 percent (+/-) were considered “acceptable” (taking into account errors); deviations of 5–10 percent (+/-) were considered “fair”; and, deviations above 10 percent (+/-) were considered “unacceptable.” Figure 2 shows performance on two selected PHFS indicators (#4 and #9) relating to ART for the period January–March 2014 by District. Overall, Tororo district achieved acceptable performance standards for the two indicators. Tororo had complete and accurate reporting of indicator #4—pregnant women initiated on ART. The rest of the districts either under-reported—Jinja under-reported by 89 percent—and over-reported by 18%—Ntungamo over-reported by 11 percent. All the districts except one (Tororo) performed poorly on Indicator #9—exposed babies born to HIV-positive mothers given ARVs. The highest incident of under-reporting was in Namutumba district (27 percent) and over-reporting in Manafwa district (28 percent).

Figure 2. Deviation between Reported and Observed Data on Two ART Indicators



3.1.2 Review of Source Documents (Availability, Accuracy, Completeness)

The DQA exercise assessed the availability and completeness of the primary data sources across four health facility contact points (maternity, ANC, EID, and OTC) and the accuracy of the recorded data during the assessment period (January–March 2014). Overall, maternity registers were more available and complete, and data were relevant for the assessment period.

Availability

Overall, the results showed that all health facilities assessed had ANC and Maternity Registers (100 percent), and 90 percent of facilities had EID Registers. However, OTC Registers were only available in 33 percent of health facilities (Figure 3). This was because the register had not been rolled out to all the facilities, and for those facilities where the register was rolled-out, sufficient funds were not available to re-print additional registers once they were filled.

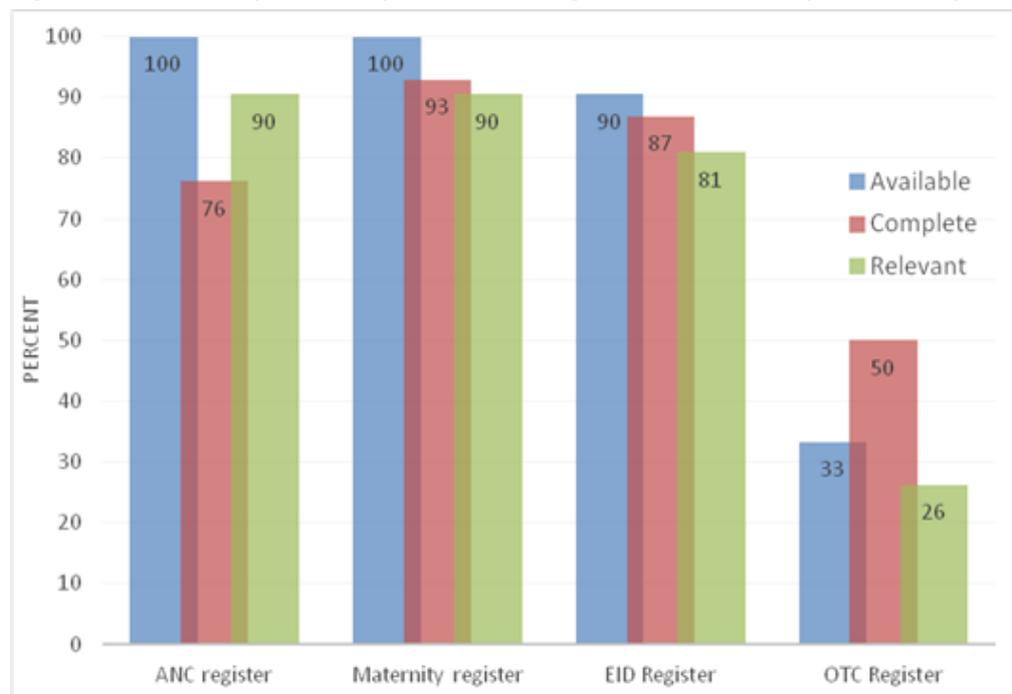
Completeness

All of the registers lacked completeness of the primary data sources in all health facilities assessed. Maternity Registers were 93 percent complete, followed by ANC (86 percent), and EID Registers (83 percent). OTC Registers had the lowest level of completeness (50 percent), because of a lack of patient monitoring and resulting incomplete patient follow-up sections of the OTC Register.

Accuracy

Accuracy meant that data were collected at the right time with correct dates. Data performance assessment for accuracy was rated as 90 percent for both the Maternity and ANC Registers and 81 percent for EID Registers. The OTC Registers (Figure 3) showed the lowest level of accuracy, perhaps in part because of the recent rollout of the registers and the facility providers' lack of familiarity with these registers.

Figure 3. Availability and Completeness of Registers and Accuracy of Data Reported



3.2 Analysis of Data Quality by Health Facility Type (Availability, Completeness, Accuracy)

Analysis of three data quality dimensions by health facility type is shown in Table 4. Overall, it appears that hospitals and Health Center Level IV (HCIVs) had stronger data quality in terms of availability, completeness, and accuracy than HCIIIs.

Table 4. Availability and Completeness of Registers and Accuracy of Reported Data by Facility Type

Registers	HOSPITALS (3) Performance (%)			HCIV (16) Performance (%)			HCIII (23) Performance (%)		
	Available	Complete	Accuracy	Available	Complete	Accuracy	Available	Complete	Accuracy
ANC	100	67	100	100	75	94	100	78	87
Maternity	100	67	67	100	100	94	100	91	91
EID	100	100	100	88	100	93	91	76	86
OTC	100	67	100	44	43	86	17	50	50
Average (by dimension)	100	75	91	83	80	92	77	74	79
Average (all 3 dimensions)	87			85			77		

3.2.1 Availability by health facility level

While all hospitals assessed had all four registers available, HCIVs and HCIIIs only had two of the four registers available. EID Register availability was 91 percent at HCIIIs and 88 percent at HCIVs. The availability rates were even worse for OTC Registers at these lower health facilities, 44 percent and 17 percent, respectively.

3.2.2 Completeness by Health Facility Level

There were notable variations in data completeness by health facility level. The lower health facilities—HCIVs and HCIIIs—performed better in completeness of the ANC and Maternity Registers compared to hospitals (Table 4).

3.2.3 Accuracy by Health Facility Level

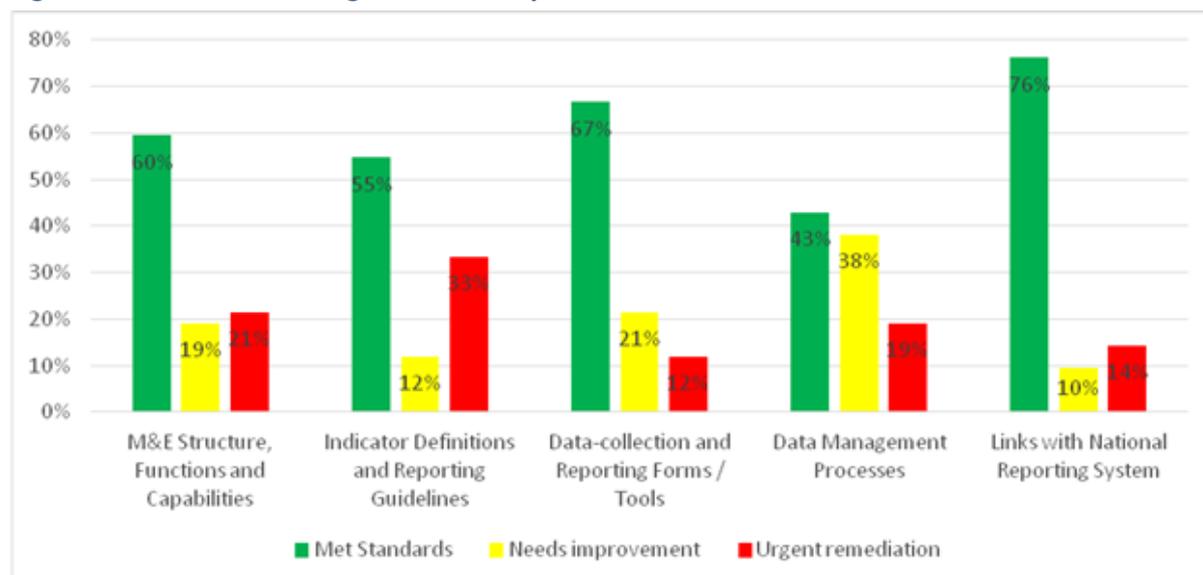
Results about accuracy of data observed indicate that, except for Maternity Registers, all other registers had relevant data applicable to the DQA period for hospitals. Considerable data variation was documented in HCIV and HCIII data across the four source documents with OTC having high accuracy data gaps.

3.3 Functioning of the M&E system

The M&E system has five components that were assessed: 1) M&E structure and capabilities, 2) indicator definitions and reporting guidelines, 3) data collection and reporting forms, 4) data management processes, and 5) linkages with national reporting systems.

The overall findings of the M&E system shows that for four of the five components assessed, more than half of the 42 health facilities met the required standards (see Figure 4). For the data management processes, less than half of the 42 health facilities met the required standards. The low performance was attributable to a lack of feedback to service points. The strongest component of the M&E system appears to be the “Links with the National Reporting System” including national forms/tools (Q19) and single reporting channel (Q20).

Figure 4. Overall Functioning of the M&E System in the 42 Health Facilities



3.3.1 Functioning of the M&E System (Analysis by District)

Overall, districts performed well on linkages to the national reporting system (when, what, and where to report) with outstanding performance recorded in Namutumba and Jinja districts. All seven health facilities in Namutumba met the M&E standards. In Jinja, data management processes needed improvements. Ntungamo and Kisoro districts needed urgent remediation in almost all the components of the M&E system (see Tables 5a-c).

Districts Meeting Standards (Table 5a)

- All facilities in Namutumba assessed met the standards for all components of a well-functioning M&E system.
- Jinja performed similarly to Namutumba except for standards for data management processes, with only 14 percent of facilities assessed having met the relevant standard.
- Facilities in Tororo also perform strongly in meeting relevant standards for the various components of the M&E system.

Table 5a. District Level Functioning of the M&E System

District	Met Standards (% of health facilities per district)				
	M&E Structure, Functions, and Capabilities	Indicator Definitions and Reporting Guidelines	Data Collection and Reporting Forms/Tools	Data Management Processes	Links with National Reporting System
Ntungamo	0	0	14	29	43
Kisoro	0	29	0	0	14
Manafwa	57	14	100	29	100
Tororo	100	86	86	86	100
Jinja	100	100	100	14	100
Namutumba	100	100	100	100	100

Districts Needing Improvement (Table 5b)

- In Kisoro all (100 percent) of the facilities assessed needed improvement in data collection and reporting forms/tools.
- In Manafwa most of the health facilities (71 percent) assessed needed improvement in data management processes.
- In Jinja all the M&E system components assessed in the health facilities met standards, except for data management processes, where 86 percent of the health facilities needed improvement.

Table 5b. District Level Functioning of the M&E System

District	Needs improvement (% of health facilities per district)				
	M&E Structure, Functions, and Capabilities	Indicator Definitions and Reporting Guidelines	Data Collection and Reporting Forms/Tools	Data Management Processes	Links with National Reporting System
Ntungamo	29	29	14	43	14
Kisoro	43	0	100	14	43
Manafwa	43	29	0	71	0
Tororo	0	14	14	14	0
Jinja	0	0	0	86	0
Namutumba	0	0	0	0	0

Districts Needing Urgent Remediation (Table 5c)

- In Ntungamo all the components of the M&E system assessed in the health facilities needed immediate remediation, showing a need for capacity development in this district.
- In Kisoro there was a need for capacity building on data management processes with 86 percent of facilities needing urgent remediation. Seventy-one percent of facilities needed urgent remediation on indicator definitions and reporting guidelines.

Table 5c. District Level Functioning of the M&E System

District	Urgent remediation (% of health facilities per district)				
	M&E Structure, Functions, and Capabilities	Indicator Definitions and Reporting Guidelines	Data Collection and Reporting Forms/Tools	Data Management Processes	Links with National Reporting System
Ntungamo	71	71	71	29	43
Kisoro	57	71	0	86	43
Manafwa	0	57	0	0	0
Tororo	0	0	0	0	0
Jinja	0	0	0	0	0
Namutumba	0	0	0	0	0

3.3.2 Functioning of the M&E System (Analysis by Facility Type)

The lower health facilities (HCIV and HCIII) performed better than hospitals in three of the five components; for HCIVs and HCIII, the lowest performance scores were in data management process. Hospitals performed better in two components: data management processes and indicator definitions and reporting guidelines (Table 6).

Table 6. Health-facility-level functioning of the M&E System

Met Standards (%)					
Hospital Levels	M&E Structure, Functions, and Capabilities	Indicator Definitions and Reporting Guidelines	Data Collection and Reporting Forms/Tools	Data Management Processes	Links with National Reporting System
Hospital (n=3)	33	67	33	67	67
HCIV (n=16)	50	50	69	25	81
HCIII (n=23)	70	57	70	52	74

Needs improvement (%)					
Hospital Levels	M&E Structure, Functions, and Capabilities	Indicator Definitions and Reporting Guidelines	Data Collection and Reporting Forms/Tools	Data Management Processes	Links with National Reporting System
Hospital (n=3)	0	0	33	33	33
HCIV (n=16)	31	19	25	56	13
HCIII (n=23)	13	9	17	26	4

Urgent remediation (%)					
Hospital Levels	M&E Structure, Functions, and Capabilities	Indicator Definitions and Reporting Guidelines	Data Collection and Reporting Forms/Tools	Data Management Processes	Links with National Reporting System
Hospital (n=3)	67	33	33	0	0
HCIV (n=16)	19	31	6	19	6
HCIII (n=23)	17	35	13	22	22

3.3.3 M&E System Performance Dashboard by Health Facilities

A dashboard of M&E system performance by health facility is shown in Annex 3. Most health facilities in the districts of Namutumba, Tororo, Jinja, and Manafwa performed well on the M&E system. However, the assessed health facilities in Kisoro and Ntungamo districts did not meet the M&E requirements (score of 3 and above).

Based on the DQA findings, the following actions are proposed to improve the implementation of the PHFS:

Recommendations to improve quality of reported data for key PHFS indicators

1. There is an urgent need to print, supply, and disseminate Integrated Nutrition Registers to all health facilities to capture data on nutrition indicators. This support should be extended to the revised Maternal and Child Health Registers (ANC, Maternity, PNC, and EID) and ART data tools (pre-ART and ART Registers) by PHFS implementing partners.
2. Regularly, or at least quarterly, MOH should organize a DQA to ensure that data submitted are of high quality. This can be done in partnership with PHFS implementing partners and district teams.

Recommendations to strengthen current data management systems

1. Data management processes, which include review of data before submission to next levels and use of data for decision making, is still a challenge to most sites. The QI initiative by the PHFS team (ASSIST, TASO, and SPRING) at all levels needs to focus on supporting data use for decision making and program improvement.
2. There is a need to improve the functionality of the M&E system at the facility level to increase the quality of data reported. These improvements will be best achieved using Continuous Quality Improvement techniques with special emphasis on nutrition and data management.

Recommendations to ensure availability, completeness, and relevance of health facility data collection tools

1. Lower-level health centers, especially HCIIIs, need tailored support to offer quality services to HIV-exposed infants and to record and report data about EID.
2. Technical assistance through continuous medical education, refresher trainings, and support supervision from MOH and implementing partners on reporting to the districts will help to solve data quality issues.
3. MOH needs to disseminate clear indicator definitions and develop job aides for documenting and collecting data at health facilities.
4. It is critical to strengthen mentorships for all districts, though more emphasis should be given to Ntungamo and Kisoro.

4 Conclusion

In conclusion, this DQA was successfully completed and verified that providing sound and quantitatively high-quality data at all facility levels is a difficult task; however, it provided the PHFS initiative with an in-depth understanding of the different components and functionality of the M&E system and what needs to be re-worked for further improvement of the data systems in HFs under the PHFS initiative.

The quality of the data was found to be lacking; however, the DQA findings discovered the need for continuous printing and disseminating of relevant registers (data collection mediums) to the different health facility levels—especially the revised registers. It requires joint coordination of the MOH and implementing partners to ensure this is periodically done.

Data collection and reporting tools are available and completed in all health facilities, with the exception of the Integrated Nutrition Register. However, there is still need to support the facilities in terms of supervision and mentorship and ensuring availability of these registers by different stakeholders.

MOH has a data management system in place to manage, collect, and report quality data. Although HCIVs perform better than the other health facility levels, there is a general need to improve these systems through remediation and capacity development for M&E system managers at the district and health facility levels.

The actions required to improve the data quality for the PHFS indicators include 1) developing capacity, supporting continuously, and supervising M&E system custodians from the national to the health facility level, and 2) working to ensure that all health facilities are constantly well stocked with the right, up-to-date registers/tools and that these are correctly filled out and reported to all necessary levels.

Annex 1. Data Validation on Selected Indicators

	# of pregnant women initiated on ART	# of exposed babies born to HIV-positive mothers given ARVS	# of exposed infants adhering to recommended IYCF practices	# of HIV+ mothers found to be undernourished and receiving TF/SF
Districts	Data Source: DHIS2	Data Source: DHIS2	Data source: IP Reports	Data source: IP Reports
Kisoro				
Reported figures (A)	25	23	0	0
Recounted figures (B)	28	19	41	1
Calculated discrepancy [A-B]	-3	4	-41	-1
% discrepancy	-12%	17%	NA	NA
Ntungamo				
Reported figures (A)	137	119	0	0
Recounted figures (B)	122	88	162	2
Calculated discrepancy [A-B]	15	31	-162	-2
% discrepancy	11%	26%	NA	NA
Namutumba				
Reported figures (A)	23	15	359	0
Recounted figures (B)	26	19	46	4
Calculated discrepancy [A-B]	-3	-4	313	-4
% discrepancy	-13%	-27%	87%	NA
Jinja				
Reported figures (A)	72	49		
Recounted figures (B)	136	40	168	
Calculated discrepancy [A-B]	-64	9	-168	
% discrepancy	-89%	18%	NA	NA

	# of pregnant women initiated on ART	# of exposed babies born to HIV-positive mothers given ARVS	# of exposed infants adhering to recommended IYCF practices	# of HIV+ mothers found to be undernourished and receiving TF/SF
Districts	Data Source: DHIS2	Data Source: DHIS2	Data source: IP Reports	Data source: IP Reports
Manafwa				
Reported figures (A)	27	18		
Recounted figures (B)	35	13	138	
Calculated discrepancy [A-B]	-8	5	-138	
<i>% discrepancy</i>	-30%	28%	NA	NA
Tororo				
Reported figures (A)	67	61	758	0
Recounted figures (B)	67	59	90	0
Calculated discrepancy [A-B]	0	2	668	0
<i>% discrepancy</i>	0%	3%	88%	NA

Annex 2. Dashboard Showing Performance of Different Sites in the M&E System

	Health Facility Name	Level	District	M&E Structure, Functions, and Capabilities	Indicator Definitions and Reporting Guidelines	Data Collection and Reporting Forms/Tools	Data Management Processes	Links with National Reporting System	Average per site
1	Rubaale HCIV	4	Ntungamo	2.33	1.50	2.60	1.33	2.50	2.05
2	Ruhaama	3	Ntungamo	2.00	1.50	1.25	2.50	1.00	1.65
3	Kitwe	4	Ntungamo	1.33	1.25	2.20	2.33	1.00	1.62
4	Itojo Hospital	Hosp	Ntungamo	1.00	1.00	1.40	2.60	2.50	1.70
5	Ntungamo	3	Ntungamo	1.00	1.00	1.40	1.75	2.50	1.53
6	Rwashamaire	4	Ntungamo	1.00	1.00	1.40	1.50	2.00	1.38
7	Kitondo	3	Ntungamo	1.00	1.00	1.00	1.17	1.25	1.08
8	Bubulo	4	Manafwa	2.33	2.50	2.80	2.33	3.00	2.59
9	Bugobero	4	Manafwa	2.33	2.25	2.80	2.67	3.00	2.61
10	Rwanjusi	3	Manafwa	2.67	1.50	2.80	2.33	3.00	2.46
11	Bumwoni	3	Manafwa	2.67	1.25	3.00	1.67	3.00	2.32
12	Bumbo	3	Manafwa	2.67	1.25	3.00	2.67	3.00	2.52
13	Magale	4	Manafwa	1.67	1.25	2.80	1.83	3.00	2.11
14	Bubutu	3	Manafwa	2.67	1.25	3.00	2.00	3.00	2.38
15	Malaba	3	Tororo	3.00	3.00	2.80	3.00	3.00	2.96
16	Mella	3	Tororo	3.00	2.75	3.00	2.75	3.00	2.90
17	Tororo Hospital	Hosp	Tororo	3.00	3.00	3.00	3.00	3.00	3.00
18	Usukuru	3	Tororo	3.00	3.00	3.00	3.00	3.00	3.00
19	Mukujhu	4	Tororo	3.00	2.75	3.00	2.83	3.00	2.92
20	Mulanda	4	Tororo	3.00	2.00	2.40	2.20	3.00	2.52
21	Nagongera	4	Tororo	3.00	2.75	3.00	2.83	3.00	2.92
22	Bugembe	4	Jinja	3.00	3.00	3.00	2.20	3.00	2.84
23	Buwenge	4	Jinja	3.00	3.00	2.80	2.33	3.00	2.83
24	Magamaga	3	Jinja	3.00	3.00	2.80	2.00	3.00	2.76
25	Lukolo	3	Jinja	3.00	3.00	3.00	2.67	3.00	2.93

26	Kakira	3	Jinja	3.00	3.00	3.00	2.20	3.00	2.84
27	Budondo	4	Jinja	3.00	3.00	3.00	2.00	3.00	2.80
28	Mpumudde	4	Jinja	2.67	3.00	3.00	2.00	3.00	2.73
29	Rubuguri	4	Kisoro	2.33	1.00	2.40	1.00	2.50	1.85
30	Iremera	3	Kisoro	1.67	1.00	1.60	1.00	1.00	1.25
31	Nyarusiza	3	Kisoro	1.00	1.00	2.20	1.00	1.00	1.24
32	Busanze	4	Kisoro	1.00	1.00	1.50	1.00	1.75	1.25
33	Nyakinama	3	Kisoro	2.33	3.00	1.80	1.00	1.00	1.83
34	Muramba	3	Kisoro	1.00	1.00	1.60	1.00	1.75	1.27
35	Kisoro Hospital	Hosp	Kisoro	1.00	2.50	2.20	1.67	1.50	1.77
36	Magada	3	Namutumba	3.00	3.00	3.00	2.67	2.75	2.88
37	Namutumba	3	Namutumba	3.00	3.00	3.00	2.67	3.00	2.93
38	Bulange	3	Namutumba	3.00	3.00	3.00	3.00	3.00	3.00
39	Bukonte	3	Namutumba	3.00	3.00	3.00	3.00	3.00	3.00
40	Nsinze	4	Namutumba	3.00	3.00	3.00	2.67	3.00	2.93
41	Ivukula	3	Namutumba	3.00	3.00	3.00	3.00	3.00	3.00
42	Nabisoigi	3	Namutumba	3.00	3.00	3.00	3.00	3.00	3.00
Average (per functional area)				2.37	2.17	2.54	2.18	2.55	2.36

Annex 3. PHFS Quality Improvement Indicators for the Partnership for Uganda

Area	Indicator	Target Population	Data Source	Type of Indicator	Frequency of Collection	Reporting Tool to MOH Resource Center
HIV status, testing, and treatment	Indicator 1: Number of pregnant women with HIV status known before their first ANC visit Num: # of Pregnant women whose HIV status is known before their first ANC visit	All pregnant women who attend ANC	ANC Register	Program indicator	Monthly	HMIS 105 – A16
	Indicator 2: Percentage of pregnant women with known HIV status (includes women who were tested for HIV and received their results) Num: # of pregnant women with known status + # Counseled, tested, received results Den: Total number of 1 ANC visit attendances	All pregnant women attending ANC for the 1 st time	ANC Register	Program indicator	Monthly	HMIS addendum form 009A – A4
	Indicator 3: Percentage of pregnant women who were counseled, tested, and given results Num: # of pregnant women counseled, tested, and given results Den: # of mothers who came for ANC services (new ANC attendances) Note: The denominator excludes those who came with known HIV status	All pregnant women attending ANC for the 1 st time	ANC Register	QI indicator	Monthly	HMIS addendum form 009A
	Indicator 4: Percentage of pregnant women initiated on ART Num: # of pregnant women initiated on ART Den: Total # of HIV-positive pregnant women identified who are not yet on ART treatment (includes those counseled, tested, and given results)	All pregnant women attending ANC	ANC Register	QI indicator	Monthly	HMIS addendum form 009A –A9

Area	Indicator	Target Population	Data Source	Type of Indicator	Frequency of Collection	Reporting Tool to MOH Resource Center
	Indicator 5: Number of mothers re-tested later in pregnancy, labour, or postpartum	All pregnant women attending ANC	ANC Register	Program indicator	Monthly	HMIS 009A –D6
HIV status, testing and treatment	Indicator 6: Percentage HIV-exposed infants tested for HIV by 6 weeks (1 st Polymerase Chain Reaction [PCR]) Num: # of exposed infants tested for HIV by 6 weeks of age (1 st PCR) Den: # of exposed infants identified in the reporting period	HIV-exposed infants	EID Register	QI indicator	Monthly	HMIS 105 – E1
	Indicator 7: Percentage of exposed infants whose DNA PCR results were given to caregiver Num: # of exposed infants whose DNA PCR results were given to the caregiver Den: # of exposed infants tested for HIV Disaggregate by: 1 st PCR 2 nd PCR	HIV-exposed infants	EID Register	QI indicator	Monthly	HMIS 009A –D6
	Indicator 8: Percentage of HIV-exposed infants given ARV prophylaxis Num: # of exposed babies born to HIV-positive mothers given ARVs Den: # of exposed babies born in the facility in the reporting period	HIV-exposed infants	Maternity Register	QI indicator	Monthly	HMIS 105 –M11

Area	Indicator	Target Population	Data Source	Type of Indicator	Frequency of Collection	Reporting Tool to MOH Resource Center
Nutrition	Indicator 9: Percentage of HIV-positive mothers who receive IYCF counseling at each visit Num:# of HIV-positive pregnant and lactating mothers given IYCF counseling each visit Den: # of HIV-positive pregnant and lactating mothers attending in the reporting period	All HIV-positive mothers	ANC Register, Clinic Attendance Register	QI indicator	Monthly/ Quarterly assessment	Not routinely collected so changes will have to be made
	Indicator 10: Percentage of HIV-positive mothers who receive maternal nutrition counseling Num:# of HIV positive pregnant and lactating women given maternal nutrition counseling each visit Den: # of HIV positive pregnant and lactating attending in the reporting period			QI indicator	Monthly/ Quarterly assessment	Not routinely collected
	Indicator 11: Percentage of exposed mothers initiating breastfeeding within 1 hour of birth Num: # of exposed infants placed onto the breast within an hour of birth Den: # of HIV-positive deliveries	All mothers	Maternity Register	QI indicator	Monthly	HMIS 105 –M12
	Indicator 12: Percentage of exposed infants reporting to be adhering to recommended IYCF practices Num: # of exposed infants adhering to recommended IYCF practices Den: # of exposed infants attending the EID care point in the given month (including re-attendances) Note: Recommended IYCF means “exclusive breastfeeding for 6 months, complementary feeding at 6 months with breastfeeding to 12 months”	All exposed infants	PMTCT Register/ EID Register	QI indicator	Monthly	

Area	Indicator	Target Population	Data Source	Type of Indicator	Frequency of Collection	Reporting Tool to MOH Resource Center
	<p>Indicator 13: Proportion of HIV-positive pregnant and lactating mothers who at each visit receive nutrition assessment</p> <p>Num: # of HIV-positive pregnant and lactating women who receive nutrition assessment at each visit</p> <p>Den: # of HIV-positive pregnant and lactating mothers seen each month</p>	All HIV-positive pregnant and lactating mothers	Register	QI indicator	Monthly	HMIS 106A
	<p>Indicator 14: Proportion of HIV-positive pregnant and lactating mothers who receive nutrition assessment every quarter</p> <p>Num: # of HIV-positive pregnant and lactating women who receive nutrition assessment</p> <p>Den: # of HIV-positive pregnant and lactating mothers active in care</p>	All HIV-positive pregnant and lactating mothers	ART Register	Program indicator	Quarterly	HMIS 106A
	<p>Indicator 15: Proportion of exposed infants who receive nutrition assessment every month</p> <p>Num: # of infants who receive nutrition assessment</p> <p>Den: # of exposed infants seen in the month</p>	All exposed infants	Patient HIV monitoring card	QI indicator	Monthly	
	<p>Indicator 16: Proportion of HIV-positive mothers who are found to be malnourished during the reporting period</p> <p>Num: # of malnourished HIV-positive mothers who are malnourished</p> <p>Den: # of HIV-positive pregnant and lactating mothers active in care</p> <p>Disaggregate by Type of malnutrition:</p> <p>SAM</p> <p>MAM</p>	All HIV-positive pregnant and lactating mothers	Pre-ART or ART Register	Program indicator	Quarterly	HMIS 106A

Area	Indicator	Target Population	Data Source	Type of Indicator	Frequency of Collection	Reporting Tool to MOH Resource Center
	Indicator 17: Proportion of exposed infants found to be undernourished and receive TF/SF at any point during the reporting period Num: # of exposed undernourished infants on TF/SF Den: # of exposed infants found malnourished and eligible for TF/SF	All exposed infants	OTC Register	QI indicator	Monthly	
	Indicator 18: Proportion of HIV-positive mothers found to be undernourished and receive TF/SF at any point during the reporting period Num: # of undernourished HIV-positive mothers on TF/SF Den: # of undernourished HIV-positive mothers identified	All HIV-positive mothers	OTC Register	QI indicator	Monthly	
	Indicator 19: Percentage of exposed infants with acute malnutrition at the 18-month follow-up visit Num: # of exposed infants with acute malnutrition at the 18-month follow-up visit Den: # of exposed infants assessed for malnutrition at the 18 month follow-up visit	All exposed infants	EID Register	QI indicator	Cohort	
	Indicator 20: Proportion of exposed infants who are found to be malnourished at any point during the reporting period Num: # of malnourished exposed infants who are malnourished Den: # of exposed infants in care seen monthly Disaggregate by age group: 0–6 months 6–12 months	Exposed infants	EID Register/ Young Child Clinic register	QI indicator	Monthly	

Area	Indicator	Target Population	Data Source	Type of Indicator	Frequency of Collection	Reporting Tool to MOH Resource Center
	<p>Indicator 21: Percentage of HIV-exposed infants in PMTCT programs that are alive at 18 months of age and HIV positive</p> <p>Num: # of HIV-exposed infants in PMTCT programs that are alive at 18 months of age and HIV positive (includes those who turned positive at 1st and 2nd PCR)</p> <p>Den: # of HIV exposed infants in PMTCT programs that have been discharged from EID care point</p>	HIV-exposed infants	EID Register	QI indicator	Cohort	

Adapted from the PHFS indicators by MOH, USAID ASSIST Uganda, and USAID for review by the partners in the PHFS in Uganda.

Annex 4. The 24 Prototype Health Facilities Assessed by Districts and Implementing Partners

No.	Health Facilities	District	Implementing Partner
1	RUHAAMA HCIII	Ntungamo	SPRING - STAR-SW
2	KITWE HCIV		
3	RUBAARE HCIV		
4	ITOJO Hospital		
5	KISORO Hospital	Kisoro	
6	RUBUGURI HCIV		
7	BUSANZA HCIV		
8	MURAMBA HCIII	Namutumba	
9	NZINSE HCIV		
10	MAGADA HCIII		
11	IVUKULA HCIII		
12	NAMUTUMBA HCIII	Jinja	TASO-Uganda
13	Mpumudde HCIII		
14	Buwenge HCIV		
15	Kakira HCIII		
16	Bugembe HCIV	Tororo	
17	Tororo General Hospital		
18	Mulanda HCIV		
19	Malaba HCIV		
20	Mukujju HCIV	Manafwa	TASO-Uganda
21	Bubulo HCIV		
22	Nagongera HCIV		
23	Magale HCIV		
24	Bubuto HCIV		