

# **B+ Monitoring & Evaluation Framework Dissemination and Country Consultation**

Adapting Monitoring & Evaluation Systems for Cohort and Enhanced Monitoring as well as Outcome and Impact Evaluations/Assessments

20 – 23 October 2015 | Kampala, Uganda



## **Technical Synthesis**

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## Abbreviations and Definitions

### Abbreviations

ANC	Antenatal Care
ART	Antiretroviral Therapy
ARV	Antiretroviral
CDC	Centers for Disease Control and Prevention
DHIS	District Health Information Software
DHIS1.4	District Health Information Software version 1.4
DHIS2	District Health Information Software version 2
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EID	Early Infant Diagnosis
EMR	Electronic Medical Record
EMTCT	Elimination of Mother-to-Child Transmission of HIV
GARPR	Global AIDS Response Progress Reporting
HEI	HIV Exposed Infant

HISP	Health Information Systems Program
HTC	HIV Testing and Counseling
ID	Identifiers
LLAPLa	Life Long ART for Pregnant and Lactating Women
LTFU	Lost to follow up
M&E	Monitoring and Evaluation
MIP	Mother-Infant Pair
MNCH	Maternal Newborn and Child Health
MTCT	Mother-to-Child Transmission of HIV
PITC	Provider Initiated Testing and Counseling
PMTCT	Prevention of Mother-to-Child Transmission of HIV
PNC	Postnatal Care
SI	Strategic Information
SMS	Short-text Messaging System
TB	Tuberculosis
UCSF	University of California, San Francisco
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VMMC	Voluntary Male Medical Circumcision
WHO	World Health Organization

Definitions

**Cascade:**<sup>1</sup> The term cascade emphasizes a sequence of services needed to achieve desired impacts. The cascade concept also informs tracking of patients from one service to the next and highlights the gradual attrition of coverage of the eligible population over the steps of the sequence. Monitoring the cascade of services requires a consolidated set of indicators covering the entire sequence of services. Cascades can be cohort based or cross sectional.

**Cascade Analysis**<sup>1</sup> shows where the biggest attrition, or leaks, occurs between services so that appropriate targeted responses can improve linkages and retention in care.

**A Cohort**<sup>2</sup> is a group of people with something in common—in M&E is it understood as a defined population, with a shared event, followed overtime, for a shared outcome of interest.

**Cohort Monitoring**<sup>3</sup> is the tracking of information about a particular group of people (e.g. women who initiated ART in October 2014) as they go through time to ascertain the shared outcome of interest (e.g. what percentage of women in this particular group are still alive and on treatment 12 months post initiation of ART).

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<sup>1</sup> Consolidated Strategic Information Guidelines for HIV in the Health Sector, WHO, May 2015

<sup>2</sup> Rothman, Greenland, & Lash. Modern Epidemiology

<sup>3</sup> IATT M&E B+ Framework, CDC, WHO and UNICEF, March 2015

**Data Triangulation**<sup>4</sup> is the analysis and use of data from three or more sources obtained by different methods. Findings can be corroborated and the weakness or bias of any of the methods or data sources can be compensated for by the strengths of another, thereby increasing the validity and reliability of the result.

**Enhanced Monitoring**<sup>3</sup> refers to the collection of additional or non-routine indicators to trigger timely identification of implementation problems and challenges that need corrective action. Specific areas of concern during early programme transition include commodity availability, quality assurance of rapid testing and early maternal retention. This monitoring allows facility and programme staff to rapidly identify issues and minimize potential risks of ARV stock outs, misdiagnoses and LTFU.

**HEI Cohort**<sup>5</sup> is a population of infants born to an HIV-infected mother whose shared event is the month and year of birth, followed over a time period of 18 months or six weeks after cessation of breastfeeding and whose shared outcome of interest is retention and final HIV status.

**HEI Retention**<sup>6</sup> is defined as monitoring at specific time points, of all children born to HIV positive mothers enrolled and benefitting from services along the care continuum, from birth to final outcome.

**Longitudinal Register**<sup>3</sup> is a tool in which each patient is entered by name and by unique numeric ID. Over the course of subsequent visits, patient-monitoring data will be entered in the same place (i.e. same row) in the register.

**Maternal ANC Cohort**<sup>5</sup> is a population of pregnant women whose shared event is the month and year of first ANC attendance, followed over a time period through pregnancy for a period such as 6 months and whose shared outcome of interest is known HIV status and ART initiation.

**Maternal ART Cohort**<sup>5</sup> is a population of HIV positive pregnant women initiating and/or on ART whose shared event is the month and year of ART initiation, followed over a time period, such as 24 months post ART initiation and whose shared outcome of interest is treatment status at 24 months.

**Maternal ART retention**<sup>6</sup> is defined as the proportion of HIV positive pregnant and/or breastfeeding women on ART alive and on treatment at 1, 2, and 3 months post ART initiation (early retention), and then at 6, 9 and 12 months post ART initiation.

**National scale B+ implementation:**<sup>7</sup> Option B+ policy implemented at more than 90% of all PMTCT or MNCH sites through a number of health system models. ART can be provided on site (preferred) or through referral at some facilities, according to the service delivery models in the country.

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<sup>4</sup> UNAIDS Monitoring and Evaluation Fundamentals: An Introduction to Triangulation

<sup>5</sup> IATT MEWG B+ M&E Framework Subgroup

<sup>6</sup> IATT B+ M&E Dissemination and Country Consultation

<sup>7</sup> IATT Secretariat

**Purposeful Sampling<sup>4</sup>** is when investigators purposely seek out respondents they believe will fulfill the needs of the study.

**Representativeness<sup>8</sup>** is the ability of a sample (i.e. a selected subset of a population) to accurately represent or typify a larger population.

**Retention<sup>9</sup>**: defined as continuous engagement from diagnosis in a package of prevention, treatment, support and care services

**Scale-up phase of B+ implementation<sup>7</sup>**: B+ operational plans and training in place, with program scaling up to multiple regions and facilities to reach final phase which is transition to national level.

**Subnational Analysis<sup>1</sup>**: the analysis of data disaggregated by geographical location allowing the monitoring of access to and use of services over time, and revealing inequities in access to and use of services affecting certain populations or locations. This helps to focus and prioritize the response to the areas where it can have the greatest impact.

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<sup>8</sup> UNAIDS Monitoring and Evaluation Fundamentals: An Introduction to Indicators

<sup>9</sup> Retention in HIV Programmes: Defining the challenges and identifying solutions: Meeting Report, 13-15 September 2011, Geneva

<sup>10</sup> Botswana, Cameroun, Côte d'Ivoire, DRC, Kenya, Malawi, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, Zambia and Zimbabwe

<sup>11</sup> Fatima Tsioris – ICAP at Columbia University, James Houston – CDC, Nande Putta – UNICEF/IATT, Priscilla Idele – UNICEF, Sadhna Patel – CDC, Shabbir Ismail – EGPAF, Shaffiq Essajee – WHO, Tegan Callahan – CDC

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## Executive Summary

A robust monitoring and evaluation (M&E) system is a key component of a strong health system, able to respond to and provide quality health services across a diverse population. Similar to other disease-specific programs, HIV faces the task of aligning to WHO-led guideline changes as new scientific evidence on prevention and treatment emerges. With the current WHO recommendation of lifelong ART for all pregnant and breastfeeding women living with HIV, outcomes (including maternal survival and final infant HIV status) require monitoring through longitudinal data systems complemented with regular cohort analyses, as well as enhanced monitoring. Additionally, as we move toward the need for more strategic policies and programming to garner system and resource efficiencies, M&E systems need to be designed to be able to inform differences arising from age, sex and geographic trends as well as identify weaknesses such as sub-optimal commodity supply and testing quality.

In 2015, the IATT monitoring and evaluation working group (MEWG) finalized and disseminated the IATT B+ M&E Framework. One mechanism used to disseminate was to convene a 15 Country Consultation that took place in October 2015. Country participation was determined as follows: the eight 2015 priority countries (Cameroon, Kenya, Mozambique, Nigeria, South Africa, Tanzania, Uganda & Zambia) that contributed 70% of new infections among the Global Plan countries in 2013, three countries (Malawi, Rwanda and Zimbabwe) representing best practices from the region and four countries (Botswana, Cote d'Ivoire, DRC and Namibia) who are in the process of reviewing their M&E systems for B+ roll out. Each country team included representatives from Ministries of Health, United Nations Organizations, United States Government Agencies, Implementing Partner and Civil Society Organizations; while facilitators came from Center for Disease Control and Prevention (CDC), Elizabeth Glaser Paediatric AIDS Foundation (EGPAF), Health Information Systems Program (HISP) Uganda, International Center for AIDS Care and Treatment Programmes (ICAP) at Columbia University, Joint United Nations Programme on HIV/AIDS (UNAIDS), University of California San Francisco (UCSF), United Nations Children's Fund (UNICEF), University of Oslo, United States Agency for International Development (USAID) and World Health Organization (WHO).

As a result of this consultative process, a number of key agreements were reached.

### ***10 key agreements among 15 countries and global partners in attendance***

#### **1. Limited integration of ART, PMTCT and MNCH M&E systems to date**

Progress has been limited on the integrating of ART, PMTCT and MNCH M&E systems over the last 4 years in most countries. This may be due to the fact that ART, PMTCT and MNCH programmes

often run as separate parallel programmes with minimal joint coordination efforts. Global partners and the 15 countries in attendance agreed integration of these systems will be central to monitoring the adoption and roll out of Option B+ programmes.

## **2. Importance of cohort monitoring for B+ retention data**

Cohort monitoring systems are necessary to obtain programme retention data. Longitudinal registers are critical to being able to conduct cohort monitoring in a paper-based system.

## **3. Recommended cohorts for B+ M&E**

As outlined in the IATT's B+ M&E Framework, there are three recommended PMTCT B+ cohorts of interest—a maternal ART cohort, a maternal ANC cohort, and a HEI (birth) cohort. Each cohort requires a separate longitudinal register.

## **4. Additional cohorts under consideration: mother-infant pair (MIP) cohort**

While the IATT's B+ M&E Framework recommends separate maternal and HEI (birth) cohorts, some countries (Côte d'Ivoire, Democratic Republic of Congo and Tanzania) have adopted or are planning to adopt a single MIP cohort and use a single MIP register. The benefit of an MIP register is that it allows for joint tracking of the mother and her infant using one tool. While an MIP register is useful for follow-up it is not well designed for distinct monitoring of maternal and HEI outcomes, which requires defining of separate cohorts (i.e. month of ART initiation, or month of infants birth). Further evidence is urgently needed to determine the effectiveness of these registers for cohort monitoring and retention outcomes as countries pilot and scale up these approaches.

## **5. Consensus on a definition of maternal ART retention—to address issues with early retention**

Maternal ART retention is defined as the proportion of HIV positive pregnant and/or breastfeeding women on ART retained on treatment at 1, 2, and 3 months post ART initiation (early retention), and then at 6, 9 and 12 months post ART initiation. Going beyond this retention would be monitored under adult care and treatment programmes at 24, 36 and 48 months post initiation.

## **6. Consensus definition of HEI retention**

HEI cohorts should be monitored as a birth cohort—as outlined in the IATT B+ M&E Framework. HEI retention is defined as monitoring at specific time points, of all children born to HIV positive mothers enrolled and benefitting from services along the care continuum, from birth to final outcome.

## **7. Enhanced monitoring is critical during early Option B+ scale up, complimentary enhanced and routine monitoring systems may have a role in improving programme quality**

Enhanced monitoring of a critical set of indicators during early implementation of B+ can help assure quality programme scale up. Enhanced monitoring should be done through a purposeful sampling approach. An enhanced monitoring system, while it may set up parallel reporting systems in the short term can play an important role in strengthening routine reporting and data use during B+ scale up, towards improving programme quality. Some countries have

demonstrated the potential for these systems to be integrated with national monitoring systems (DHIS2).

#### **8. Developing unique ID's to link mother-infant pairs is a secondary priority**

While the importance of implementing unique IDs to link MIP's across services and geographies is acknowledged, operationalization needs to be considered within the context of individual countries. It may be more feasible to implement unique identifiers for mothers and infants in separate cohorts, or in combined mother-infant pair cohorts, in geographies that are taking electronic data systems to significant scale. While electronic data systems are considered and brought to scale, operationalization of effective paper-based cohort monitoring systems should be prioritized over the move to implementation of unique IDs.

#### **9. Requirements for dashboard set up, its utility and value in data use for decision making**

DHIS2 and other available data management systems can provide dashboards (systems to visualize data) tailored to different user profiles and different levels (national/subnational). DHIS2 is the most common platform being used for dashboards in countries. Countries require support to scale up and optimize use of DHIS2 to facilitate the use of dashboards to strengthen data use.

#### **10. Role of cascade and sub-national analysis in PMTCT programme monitoring and evaluation**

Cascade analysis is important for identifying leaks in the PMTCT service cascade, which informs priority interventions for programme improvement. Sub-national analysis of program data informs geographic variability in disease burden and programme leakages. Having sub-national data helps target specific geographies or population, and focus interventions. Both cascade and sub-national analysis can influence policy and strategic programme shifts; as well as justify allocation of limited resources. Countries require support through provision of step-by-step guidance on methodology for cascade and subnational analysis.

These agreements provide a framework for countries to prioritize actions towards building of robust monitoring and evaluation systems. It is acknowledged that there remain knowledge, experience, guidance, resource and system gaps. The IATT will work with country governments and partners to address these through its mandates of coordinating and tracking the provision of technical assistance, monitoring and tracking progress of country led implementation, and developing, updating and disseminating operational and normative tools and guidance; all towards prevention and treatment of HIV in pregnant women, mothers and children.

### **1. Background**

As PMTCT programs have evolved in response to growing evidence with resultant revisions in WHO guidelines, M&E systems have also had to undergo changes to align themselves to monitoring and reporting requirements. In 2013, WHO recommendations included treatment of pregnant and breastfeeding women living with HIV with lifelong ART (Option B+), bringing the need for data systems to move from using aggregate data to assess coverage, to monitoring quality and outcomes. Beyond the number of clients taking up interventions, programs needed to know if these clients were being retained in care, what their PMTCT outcomes were at the end of the intervention period

as well as their long-term treatment outcomes and survival. There was also a need to have a better understanding of the nuances within programs such as age and gender-specific patterns, subnational geographic patterns and real-time data trends for selected indicators, thus enabling quick response to bottlenecks. This required that M&E systems evolve to ensure longitudinal and cohort monitoring to support measuring retention at critical time-points and ascertaining outcomes; and that these systems adapt to the enhanced monitoring approach for selected indicators to support monitoring of early warning signals to flag for programmatic bottlenecks. In response to these needs, the IATT developed the [\*IATT M&E Option B+ Framework\*](#) as a tool to assist in the review, revision and strengthening of data systems. The Framework allows for the development of systems that are able to collect, report and use routine and enhanced program information to maximize the potential of lifelong treatment to improve health outcomes and prevent HIV infections for women, their children and their families.

From October 20<sup>th</sup> to 23<sup>rd</sup> 2015, the IATT convened a technical meeting in Kampala, Uganda that drew over 140 participants from 15 countries. The participating countries were: Cameroon, Kenya, Mozambique, Nigeria, South Africa, Tanzania, Uganda and Zambia (the eight 2015 priority countries that contributed 70% of new infections among the Global Plan countries in 2013); Malawi, Rwanda and Zimbabwe (representing best practices from the region); and Botswana, Cote d'Ivoire, DRC and Namibia (who are in the process of reviewing their M&E systems for B+ roll out). Representatives from Ministries of Health, United Nations Organizations, United States Government Agencies, Implementing Partner and Civil Society Organizations for these 15 countries were in attendance as well as facilitators from Center for Disease Control and Prevention (CDC), Elizabeth Glaser Paediatric AIDS Foundation (EGPAF), Health Information Systems Program (HISP) Uganda, International Center for AIDS Care and Treatment Programmes (ICAP) at Columbia University, Joint United Nations Programme on HIV/AIDS (UNAIDS), University of California San Francisco (UCSF), United Nations Children's Fund (UNICEF), University of Oslo, United States Agency for International Development (USAID) and World Health Organization (WHO). The objectives and associated outputs of the meeting included:

- Dissemination and understanding of the IATT Option B+ M&E Framework;
- Sharing country experiences on cohort, retention and enhanced monitoring;
- Building consensus on definition, tools and methodology for cohort monitoring, retention monitoring, enhanced monitoring and the use of unique IDs;
- Identifying promising practices around cohort, retention and enhanced monitoring for replication during B+ scale up; and
- Building capacity for subnational analysis and dashboard creation as a means to strengthen data use for program improvement.

## 2. Situational Analysis

Through the collection of information in lead up to the meeting<sup>12</sup> as well as through systematic country team discussions during the meeting; there is a better understanding of the status of M&E systems in the context of pregnant and breastfeeding women on lifelong ART as well as their

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<sup>12</sup> Country 'status of M&E systems' questionnaire and indicator surveys, as well as country tools submissions

exposed or infected infants. There have been concerted efforts in countries towards systems modification through tools revisions, piloting of monitoring approaches, development of training resources, training of health care providers, scaling up of electronic data systems and developing guidance documents. Given the differing country models of implementing B+, there are likewise differing monitoring system models. Additionally, countries are at varying levels of progress and as such have different needs and priorities.

Below is a high level summary of the national data system situation in each country.

**Botswana** endorsed Option B+ as policy in 2015 and is in the scale up phase of implementation.

- Cross-sectional registers for integrated monitoring of PMTCT and MNCH are in use.
- Routine maternal and HEI cohort analyses and retention measurement are not conducted.
- There are no national training resources for cohort and retention monitoring in place.
- Beginning October 2015 a partner-supported SMS-based enhanced monitoring system will be piloted in high volume sites to track selected program indicators including HIV Testing and Counselling, Adult ART and PMTCT (missed appointments, rapid test kit commodities and ARV drugs).
- There is no unique ID within the HIV program.
- Dashboards are not in use yet.
- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken. PEPFAR Botswana has started quantifying the unmet needs for these programs.
- Electronic data systems, such as Patient Integrated Management Systems (PIMS II), Integrated Patient Management Systems (IPMS) and DHIS2, are utilized in HIV Programs and to some extent PMTCT. The main challenge is that these tools do not talk to each other (do not interface) and are not covering every facility. The DHIS2 roll out is on-going.
- There is routine reporting of age disaggregated data for ART and PMTCT.

**Cameroon** endorsed Option B+ as policy in 2012 and is implementing at national scale.

- Longitudinal registers for integrated monitoring of PMTCT and MNCH are in use.
- Routine maternal and HEI cohort analyses and retention measurement are not conducted.
- There are no national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- A unique ID is being implemented that is designed for use across programs, at different service delivery points and across sites in different geographical locations.
- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Automated dashboards are in use on the DHIS2 platform to strengthen data use.
- No electronic data systems are utilized.
- There is routine adult and paediatric age disaggregated reporting for ART (<15, ≥15), but none for PMTCT.

**Côte d'Ivoire** endorsed Option B+ as policy in 2015 and is in the scale up phase of implementation.

- There is a recently developed longitudinal register for integrated monitoring of PMTCT and MNCH in place, with a plan to roll it out from 2016 to the end of 2017.

- There are plans to conduct routine cohort analyses of maternal ANC, maternal ART and HEI (birth) cohorts.
- Maternal retention measurement at 1, 2, 3, 6 and 12 months is planned to start in 2016 in 6 regions and then be rolled out nationally. Currently, the OHTA project initiated by UNICEF measures maternal retention at 3, 6 and 9 months.
- There are national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- A unique ID is being implemented that is designed for use only in ART sites.
- Routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART are undertaken.
- Dashboards are not yet in use.
- Electronic data systems are utilized to collect and analyze programmatic data. SIGDEPII is implemented in pilot sites. An evaluation has been completed and the final version of the software will be ready by the end of February, 2016.
- There is routine adult and paediatric age disaggregated reporting for ART (<15, ≥15) and the following for PMTCT: 8-14; 15-19; 20-24; 25-49; >50.

**Democratic Republic of the Congo (DRC)** endorsed Option B+ as policy in 2013 and is in the scale up phase of implementation.

- Longitudinal registers for integrated monitoring of PMTCT and MNCH are in use.
- Routine cohort analyses of maternal ART and HEI (birth) cohorts are conducted.
- Maternal retention is measured at 6 and 12 months and HEI retention at 2, 12 and 24 months.
- There are national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- There is no unique ID within the HIV program.
- Routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART are undertaken.
- Automated dashboards are in use on the DHIS2 platform to strengthen data use.
- Currently 25% of PMTCT sites have electronic data systems.
- There is routine reporting of the following age disaggregation for ART: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-49, 50+; and the following for PMTCT: <15, 15-19, 20-24, 25+.

**Kenya** endorsed Option B+ as policy in 2014 and is implementing at national scale.

- A longitudinal register for HEI's is being rolled out while a longitudinal PMTCT register that is not integrated with MNCH is being piloted.
- Routine cohort analyses of maternal ART (within the above referenced pilot) and HEI (birth) cohorts are conducted.
- Maternal retention is measured at 3, 6 and 12 months (within the above referenced pilot), and HEI retention at 6 weeks, 9 and 18 months.
- There are national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- There is a unique ID within HIV program functional at facility level but requiring modification to function at national level across facilities.

- Routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART are undertaken.
- Automated dashboards are in use on the DHIS2 platform to strengthen data use.
- There is some coverage of electronic data systems for PMTCT.
- There is routine reporting of age disaggregated data for ART and PMTCT clients on ART.

**Kenya** piloted cohort monitoring of maternal ART and HEI birth cohorts to support retention monitoring of the two groups. Disaggregating the maternal ART cohort by ‘newly positive’ and ‘known positive’ status, demonstrated that clients of known positive status had better outcomes than those newly diagnosed. Maternal retention improved over time (3,6 and 12 months) due to corrective action taken at clinic-community level. The HEI (birth) cohort analysis monitored HEI service uptake at critical time points (6 weeks, 9 and 18 months) as well as outcomes at 9 and 18 months. Over 3 years of implementation of the HEI (birth) cohort analysis, the proportion of HEIs retained in care at 18 months increased from 83% (2012) to 93% (2014).

Kenya is implementing a number of initiatives to strengthen data use. These include: separate monitoring of a number of HIV-related clinical cascades (HIV testing cascade, care and treatment cascade, PMTCT cascade, HIV positive pregnant woman and the HEI cascade); roll out of excel-based tools to generate cascades at national, county and sub-county levels; and the establishment of an electronic dashboard ‘situation’ room for high level political monitoring towards increasing accountability and domestic financing.

**Malawi** endorsed Option B+ as policy in 2011 and is implementing at national scale.

- Longitudinal registers are in place for MNCH but not for PMTCT.
- Routine cohort analyses of maternal ANC and HEI (birth) cohorts are conducted.
- Maternal retention is measured at 12, 24 and 36 months (as a subset of the adult ART cohort analysis), and HEI retention at 2, 12 and 24 months.
- There are national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- There is no unique ID within the HIV program.
- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Automated dashboards are in use on the DHIS2 platform to strengthen data use.

**Malawi** implements HEI birth cohort analysis through the use of cards as the primary source of data. This demonstrates that in the absence of longitudinal registers, cohort analysis can be done by data abstraction from patient cards filed in cohorts; in this case, HEI cards filed by birth cohort. This however is a time consuming and effort demanding process. In addition, the absence of a longitudinal register makes patient tracking for clinical care difficult. Malawi however implements a maternal ANC longitudinal register and demonstrated through its design that registers can serve the dual purpose of both a data entry tool and job aide, through strategic inserts of instructions and reminders.

- Currently 20% of PMTCT sites have electronic data systems.
- There is routine adult and paediatric age disaggregated reporting for ART (<15, ≥15), but none for PMTCT.

**Mozambique** endorsed Option B+ as policy in 2013 and is in the scale up phase of implementation.

- There is a recently developed longitudinal register for integrated monitoring of PMTCT and MNCH in place, with a plan to roll it out by the end of 2015.
- There are plans to conduct routine cohort analyses of maternal ANC and HEI (birth) cohorts.
- Maternal retention is measured at 6 and 12 months (as a subset of the adult ART cohort analysis). HEI retention is not measured.
- There are no national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- There is a unique ID within the HIV program however it has not been designed for use at different service delivery points or across sites in different geographical locations.
- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Manual dashboards (using an excel workbook with data abstracted from their national health information system) are in use to strengthen data use.
- Currently 31% of the PMTCT sites have electronic data systems.
- There will be routine adult and paediatric age disaggregated reporting for ART (<15, ≥15), and the following age disaggregation for PMTCT (10-14, 15-19, 20-24 and ≥25), once the new registers are implemented.

**Namibia** endorsed Option B+ as policy in 2013 and is in the scale up phase of implementation.

- Longitudinal registers are in place for PMTCT but they are not integrated with MNCH.
- Routine maternal and HEI cohort analyses and retention measurement are not conducted (there are plans to conduct retrospective cohort analysis as a baseline in 2016).
- There are no national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- A unique ID is being implemented that is designed for use in ART sites only.
- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Dashboards are not in use.
- Electronic data systems are utilized exclusively for the ART program.
- There is routine adult and paediatric age disaggregated reporting for ART (<15, ≥15), but none for PMTCT.

**Nigeria** has not endorsed Option B+ as policy and is currently implementing Option B.

- There are no longitudinal registers for monitoring of PMTCT or MNCH.
- Routine maternal and HEI cohort analyses and retention measurement are not conducted.
- There are no national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- There are variations of unique ID's being implemented by partners.

- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Dashboards are not in use, but the MOH is working out modalities with UNICEF and other stakeholders towards developing a PMTCT dashboard.
- Currently 40% of the PMTCT sites have electronic data systems.
- There is routine adult and paediatric age disaggregated reporting for ART (<15, ≥15), but none for PMTCT.

**Rwanda** endorsed Option B+ as policy in 2012 and is implementing at national scale.

- There are longitudinal registers for integrated monitoring of PMTCT and MNCH.
- Routine retrospective cohort analyses is conducted only for HEI's on a bi-annual basis.
- Retention measurement is not conducted.
- There are no national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- There is no unique ID within the HIV program.
- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Dashboards are not in use.
- Currently 60% of the PMTCT sites have electronic data systems.
- There is routine reporting of the following age disaggregation for ART: <1, 1-4, 5-14, 15-19, ≥20; but none for PMTCT.

**Rwanda** demonstrated a practical way to link mother-infant pairs through the assignment of the mother ANC and EMR (called *TRACnet*) number to the exposed infant. By conducting 18-month retrospective cohort analysis of HEI's enrolled between September and November 2013 (n=2378) in 94% of their PMTCT sites, Rwanda has demonstrated EMTCT as follows: a cumulative MTCT rate of 1.79% at 18 months (1.1% at 6 weeks, 0.24% at 9 months and 0.26% at 18 months). Retrospective cohort analysis over an extended time period (18 months) provides a good program evaluation perspective and assists in setting a baseline going forward. In-complete data is however a major challenge.

**South Africa** endorsed Option B+ as policy in 2014 and is implementing at national scale.

- There are no longitudinal registers for monitoring of PMTCT or MNCH.
- Routine maternal and HEI cohort analyses and retention measurement are not conducted.
- There are national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- There is no unique ID within the HIV program.
- Routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART are undertaken.
- Automated dashboards are in use on the

**South Africa** implements cascade analysis and monitoring aligned to the 90-90-90 cascade at national, district and facility level. These analyses include data triangulation from the DHIS, National Health Laboratory System and the South Africa PMTCT Impact Study.

DHIS1.4 and DHIS2 platforms to strengthen data use.

- Currently all 4,000+ PMTCT sites have electronic data systems (all PMTCT sites report data electronically through DHIS).
- There is routine reporting of the following age disaggregation for ART: <1, <15, 15+; but none for PMTCT.

**United Republic of Tanzania** endorsed Option B+ (referred to as Life Long ART for Pregnant and Lactating Women: LLAPLa) as policy in 2013 and is implementing at national scale.

- There are plans to pilot a longitudinal PMTCT register that is not integrated with MNCH (from January to March 2016).
- There are also plans to conduct routine cohort analyses of the combined mother-infant pair cohort and to monitor both maternal and HEI retention as part of the cohort pilot.
- There are national training resources for cohort and retention monitoring in place.

**Tanzania** implemented the enhanced monitoring systems LARS on the DHIS2 platform, thus encouraging wide access to data, analysis; visualization's and planned actions.

Another unique feature of LARS is the use of an algorithm based sampling approach as opposed to the B+ Framework-recommended purposeful sampling approach. The algorithm targets sites based on HIV testing yields and performance. This approach does however give rise to fluidity between selected sites from one cycle of assessment to the next.

- An enhanced monitoring system called the LLAPLa Assessment and Response System (LARS), is being implemented to track selected program indicators quarterly including early retention (one month); stock management of rapid test kit commodities and ARV drugs; as well as HIV testing quality assurance.

- There is a unique ID within the HIV program that is designed for use at different service delivery points as well

as across sites in different geographical locations.

- There are no routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Automated dashboards are in use on the DHIS2 platform to strengthen data use.
- Currently 15% of the PMTCT sites have electronic data systems.
- There is routine reporting of the following age disaggregation for ART: 0-1, 2-4, 5-14, ≥15, but none for PMTCT.

**Uganda** endorsed Option B+ as policy in 2013 and is implementing at national scale.

- A longitudinal register for integrated monitoring of PMTCT and MNCH is being piloted.
- Routine cohort analyses for maternal ART cohorts are conducted using the ART longitudinal register.

**Uganda** has implemented an enhanced monitoring system in response to the challenge of high LTFU post initiation of ART. Early retention (1, 2 and 3 months post initiation) is monitored at national, regional, district and facility levels, followed by tracking activities in facilities where there are high volumes of LTFU.

Uganda is also piloting a multiple facility, web-based electronic medical record (WEMR) system built within DHIS2 ("DHIS2 tracker") that provides real time spatial and longitudinal individual and aggregate data on mother-infant pairs. When paired with SMS and phone calls this system is used to track missed appointments in order to decrease patient attrition and increase retention.

- Maternal retention is measured at 1, 3, 6, 12, 24 up-to 72 months. HEI retention is not measured.
- There are national training resources for cohort and retention monitoring in place, however there is a plan to revise them to more comprehensively cover maternal as well as HEI cohort and retention monitoring, analysis and reporting.
- There is a nationwide enhanced monitoring system in place to track selected program indicators including early retention (1 and 3 months), stock management of rapid test kit commodities, and ARV drugs.
- There is no unique ID within the HIV program.
- There are routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART undertaken.
- Automated dashboards are in use on the DHIS2 platform to strengthen data use.
- There is routine reporting of the following age disaggregation for ART: <2, 2-5, 5-14, ≥15, and the following for PMTCT: <19, 19-25, >25.

**Zambia** endorsed Option B+ as policy in 2013 and is implementing at national scale.

- There is a longitudinal register for integrated monitoring of PMTCT and MNCH.
- Routine cohort analyses for maternal ANC and HEI (birth) cohorts are conducted.
- Maternal retention is measured at 30, 60 and 90 days. HEI retention is not measured.
- There are no national training resources for cohort and retention monitoring in place.
- An enhanced monitoring implementation plan has been developed that is scheduled to roll out in November of 2015 and plans to track 28 core indicators including the [IATT M&E B+ Framework recommended enhanced monitoring indicators](#) in 40 sites spread across 22 districts.
- There is a unique ID within the HIV program that is designed for use at different service delivery points as well as across sites in different geographical locations.

**Zambia** is implementing a unique ID in the national EMR system – SMARTCARE, with plans to scale this up nationwide and across all program areas and sectors. The unique ID is generated in a manner that allows it to work in the electronic environment without undermining the paper-based system. This unique ID works across programs (HTC, ANC, PNC, TB, ART, VMMC and other non-HIV program areas), across geographies, links mother-infant pairs, is linked to the vital registry system and is currently being piloted for feasibility of expansion to a national unique ID in collaboration with the Ministry of Home Affairs and Department of National Registration, Passport and Citizenship.

- for PMTCT, EID or Paediatric ART undertaken.
- Automated dashboards are in use on the DHIS2 platform to strengthen data use.
- Currently 70% of the PMTCT sites have electronic data systems.
- There is routine reporting of the following age disaggregation for ART: <1, <15, ≥15; but none for PMTCT.

**Zimbabwe** endorsed Option B+ as policy in 2013 and is implementing at national scale.

- There are longitudinal registers for monitoring of ANC and for monitoring of HEI's.
- Routine maternal and HEI cohort analyses and retention measurement are not conducted.
- There are no national training resources for cohort and retention monitoring in place.
- No form of enhanced monitoring is conducted.
- A unique ID is being implemented that is designed for use only in ART sites.
- Routine cascade/subnational analyses of unmet need for PMTCT, EID or Paediatric ART are undertaken.
- Dashboards are not in use, but the MOH is currently making efforts to enhance its electronic system to come up with visual dashboards on selected indicators.
- There is some coverage of electronic data systems for PMTCT.
- There is routine reporting of the following age disaggregation for ART: <1, 1-4, 5-9, 10-14, 15-19, 20-24, 25-49, 50+; but none for PMTCT.

### 3. New Learning Gained

As a result of the technical workshop, a number of themes emerged as priorities to improve monitoring systems.

**Cohort and retention monitoring are necessary in order to measure outcomes.** Achieving the benefits of B+ requires high levels of uptake of ART services, retention, adherence and viral suppression. The final goal is optimum maternal outcomes (maternal retention, viral suppression and maternal survival) and infant outcomes (HEI retention, nutritional status over time, final HIV status at cessation of breastfeeding, HIV free survival and ART initiation for infected infants). Measuring retention along the care continuum at key time-points enables us to monitor progress towards this final goal. This is in addition to supporting adherence and conducting routine viral load monitoring.

Evidence demonstrates that:

1. HIV positive pregnant women are more likely to be LTFU than non-pregnant women living with HIV, with the greatest drop off occurring immediately after ART initiation and post-delivery<sup>13</sup>; and
2. LTFU is more likely in younger women<sup>14</sup>.

Measuring early maternal retention monthly in the first three months is therefore critical to inform the implementation of appropriate interventions to retain pregnant women at the most vulnerable points in the care continuum. The use of age disaggregated PMTCT recording and reporting tools enables programs to also implement age-targeted interventions. Monitoring of maternal retention along the PMTCT care continuum is thus recommended at months 1, 2, 3, 6, 9 & 12 (to cover the

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<sup>13</sup> Tanzania: Tanzania MoH Report of Early Implementation of Lifelong ART for Pregnant and Lactating Women Living with HIV

Malawi: Tenthani et al AIDS 2014, 28:589–598

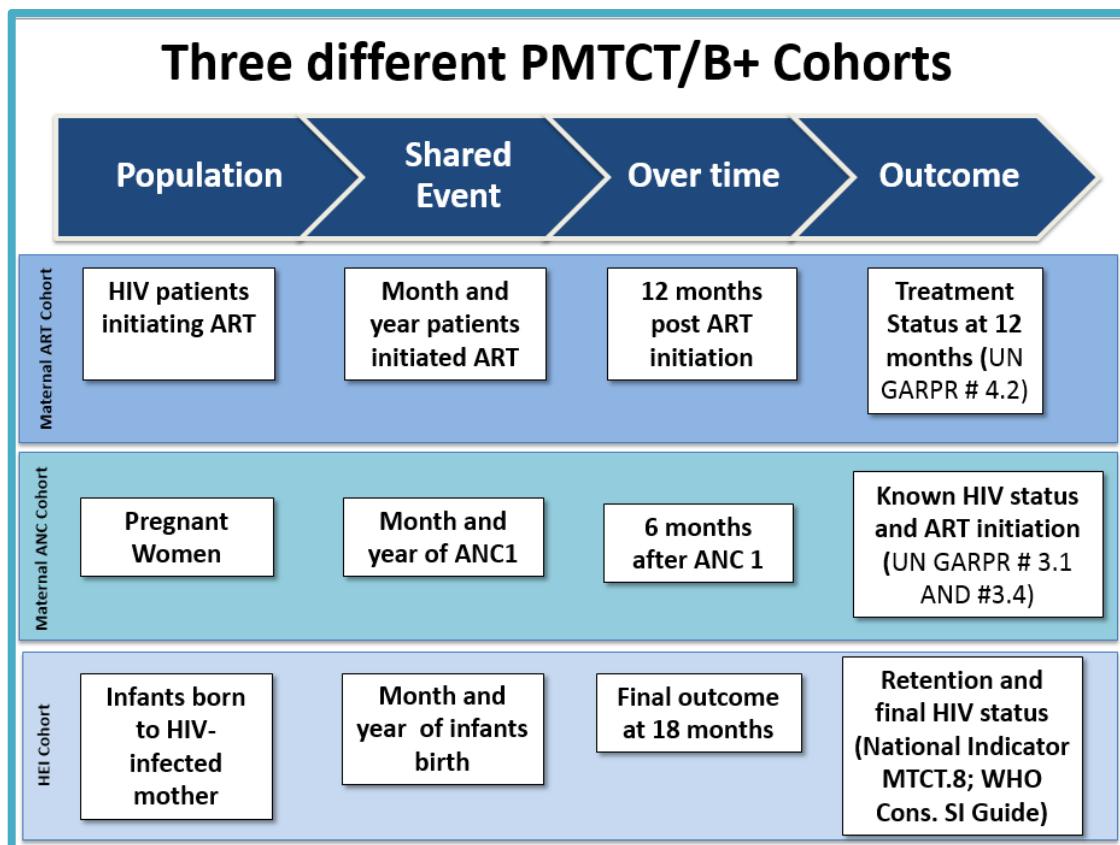
Philips et al. 20th IAS Conference, 2014, Melbourne, Abs. MOPDB102)

<sup>14</sup> Twanya et al. Loss to follow-up in PMTCT in Malawi. Tropical Med and Int'l Health 19(11); 2014.  
Tenthani: AIDS 2014, 28:589–598

ante, intra and post partum higher-risk-of-LTFU periods). HEI retention measurement at time-points linked to the scheduling of broader routine child survival interventions (i.e. 6, 10, 14 weeks; 6, 9, 12, 18 and 24 months, in line with the national immunization, growth monitoring and HIV testing schedules) until the determination of the infant's final HIV status after breastfeeding cessation, is also recommended. This is critical for early identification and linkage to ART for HIV positive infants/young children and supporting HIV free survival of the exposed infants.

**Cohorts have tremendous value with three suggested to measure retention.** Maternal ART, Maternal ANC and HEI (Birth) Cohorts (Figure 1).

Figure 1: Three PMTCT Cohorts of Interest<sup>5</sup>



- The maternal ART cohort is defined as a population of HIV positive pregnant women initiating ART whose shared event is the month and year of ART initiation, followed over a time period of 12 months post ART initiation and whose shared outcome of interest is treatment status at 12 months.
- The maternal ANC cohort is defined as a population of pregnant women whose shared event is the month and year of first ANC attendance, followed over a time period such as 6 months post first ANC visit and whose shared outcome of interest is known HIV status and ART initiation.
- The HEI cohort is defined as a population of infants born to an HIV-infected mother whose shared event is the month and year of birth, followed over a time period of 18 months until final outcome and whose shared outcome of interest is retention and final HIV status.

**Cohort analysis** requires the use of longitudinal registers in a paper based system or electronic data systems, to capture retention and adherence to care and treatment over time. In paper-based systems, cohort analyses allow for the evaluation of outcomes and do not require electronic data systems.

#### **Key considerations/ opportunities:**

- While several countries have longitudinal registers in place in varying stages, many are not being utilized to undertake cohort analyses. Participants agree that capacity building is needed for cohort and retention monitoring and analysis through systematic training to the lowest levels of implementation.
- Wide sharing of tools, resources and experiences among countries is important to support the process of tools modification in countries.
- Where longitudinal registers are not in place, use of the ART registers and tools for all women initiating B+ can fill a critical gap in the short term to support retention measurement.
- Different cohort monitoring models can and are being adopted. These include: maternal ART, maternal ANC and/or HEI (birth) cohort monitoring. Others are planning to adopt the combined MIP cohort monitoring that requires a longitudinal MIP register.
- The benefit of a MIP register is that it allows for tracking of mothers living with HIV from ANC through postpartum; can trigger follow-up for any mother who does not return for her own ART follow up or who does not bring the child back for expected follow up care until final outcome diagnosis.
- While MIP registers are useful for follow-up through the PMTCT continuum, often they are not designed to monitor key PMTCT indicators such as retention of women on ART, or the proportion of HIV exposed infants who receive PCR testing by 2 months, or the final HIV status by 18 months. Better defining of the cohorts of women and infants separately by the timing of an event (e.g. month of ART initiation, or month of infants birth) would increase their value.

#### **Enhanced Monitoring can intensify**

program monitoring in order to identify bottlenecks, provide insight into program quality and allow for timely programmatic course correction. This is of particular benefit in initial phases of program roll out as new systems are being put in place, as well as over the longer term for purposes of monitoring program quality. At a minimum, the areas requiring enhanced monitoring are:

- Rapid HIV testing quality assurance
- Stock out of critical commodities and ARVs
- Early retention (both maternal and HEI)

### -Viral load suppression

It is not necessary to conduct enhanced monitoring in all sites or in a representative sample of sites and hence a purposeful sampling approach is proposed which is non-random and can be based on the following criteria:

- High volume sites located in high prevalence areas
- Presence of “good record keeping”<sup>15</sup> and “adequate capacity”<sup>16</sup> for data management.

This will give sufficient timely information for analysis and action.

### **Outcomes Assessments through linking mother-infant pairs are important means to determine program effectiveness in achieving its goals.**

Outcomes of interest for the mother are: maternal retention, viral suppression, maternal survival; and for the infant are: HEI retention, nutritional status over time, final HIV status at cessation of breastfeeding, HIV free survival, and ART initiation for infected infants. The primary target of interest for the PMTCT effort is the reduction of mother-to-child transmission of HIV to less than 5%. Cohort data facilitates the use of program data to assess outcomes and impact. Additional considerations for use of program data to assess outcomes and impact could include the use of unique ID's to link MIP's, high retention rates and high coverage of EID and infant/child HIV testing.

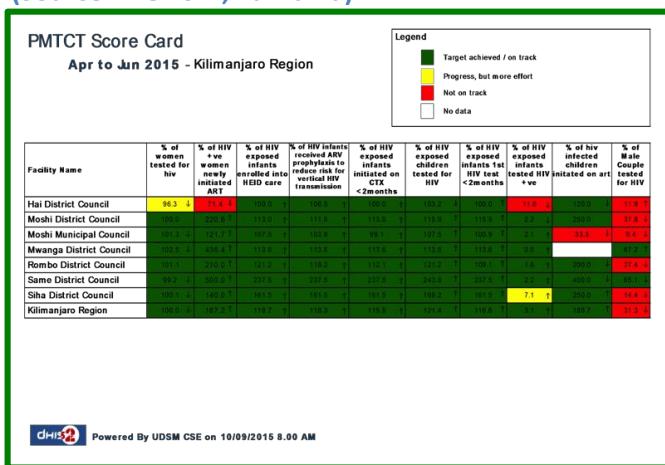
#### **Key considerations/ opportunities:**

While the importance of implementing unique IDs to link MIPs across services and geographies for tracking and facilitation of outcomes and impact assessment is acknowledged, this needs to be considered within the context of individual countries. This may be more feasible in countries that are in the process of taking electronic data systems to significant scale; and may need to be delayed in countries that are focusing on the implementation of paper based longitudinal registers and cohort analysis as this needs to be prioritized over implementation of unique ID's.

### **Dashboards are helpful in visualizing data trends**

Dashboards are tools that help to give a visual representation of performance and can take various

**Figure 2: PMTCT Scorecard, Kilimanjaro, Tanzania**  
**(Source: MOHSW, Tanzania)**



forms such as graphs, cascades, scorecards and maps (Figure 2). These visualizations make it possible to appreciate areas of greatest burden or greatest unmet need or health zones furthest away from set targets. By comparing this information with other variables, it can be viewed in the context of geographic location, age, sex and other socio-economic factors. This gives a more comprehensive understanding of a program and facilitates targeting action that is context specific.

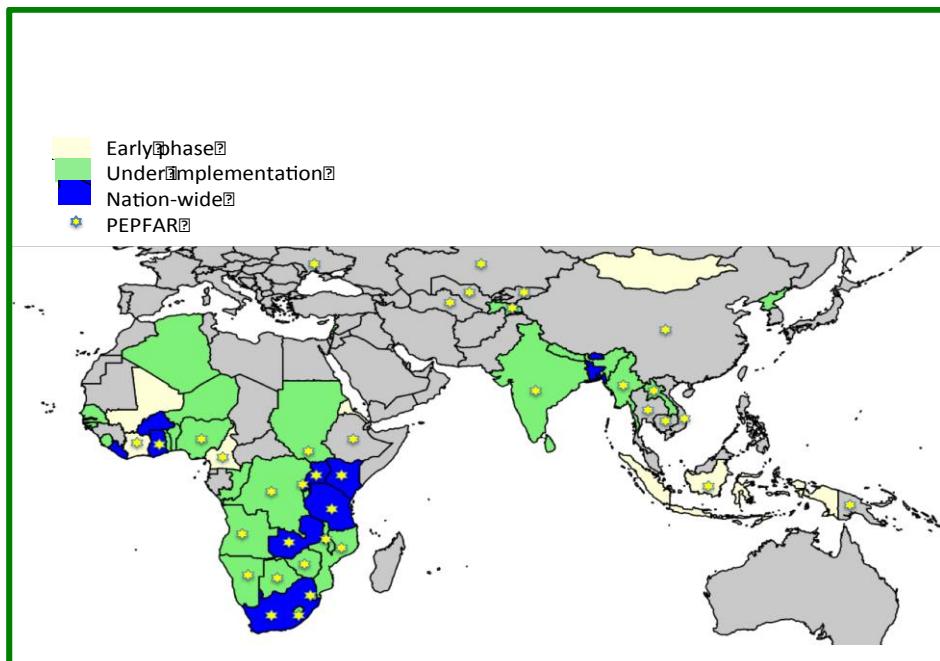
DHIS2 is the most common platform being

<sup>15</sup> Good record keeping refers to records that are complete, correct and consistent.

<sup>16</sup> Adequate capacity refers to the sites ability to collect, store, collate, analyze and report data.

used for dashboards in countries (Figure 3). DHIS2 is implemented nationally in Kenya, Rwanda, South Africa, Tanzania, Uganda and Zambia; is under implementation at various stages in Botswana, DRC, Malawi, Mozambique, Namibia, Nigeria and Zimbabwe; and in the early phase in Cameroon and Côte d'Ivoire. Countries require support to scale up and optimize use of DHIS2 to facilitate the use of dashboards to strengthen data use.

**Figure 3: DHIS2 Roll Out - June 2015 (Source: University of Oslo)**



**Resource and programmatic efficiencies can be gained through the use of sub-national analyses** of program data to inform geographic variability in disease burden and programme leakages. Through this information, programming can be better targeted. Sub-national analysis can also help to influence policy and strategic programme shifts, as well as justify allocation of limited resources.

**Triangulation across various data sources**, such as spectrum estimates, census estimates, programme data and survey data optimizes use of all available data to arrive at more accurate estimates. While a number of countries have available population estimates of pregnant women and infants needing treatment at national and subnational levels, few countries use this data to calculate and analyze **variability/disparity in unmet need**. Countries require step-by-step guidance on calculation and analysis of variability/disparity in unmet need.

In conducting **sub national analyses**, **Zimbabwe** obtains the estimated population in need (of PMTCT, ART) by triangulating spectrum estimates and census estimates, with spectrum estimates being used at district, provincial and national levels, and census estimates at facility level. The result of the sub national analyses has been more targeted programming

## 4. Overall Gaps

### 4.1 Knowledge Gaps

#### Cost Benefit Analysis of Implementing Electronic Data Systems at Scale

Most countries have implemented electronic data systems in high volume sites as the most practical way to prioritize allocation of limited resources or based on implementing partner choice. It would be beneficial to understand the full benefit of implementing electronic data systems at scale including the front end and maintenance costs and whether there are savings to be gained on overall health costs. Countries such as Zambia are taking electronic data systems (DHIS2 and SMARTCARE) to scale and it will be important to document the added advantages and constraints of this approach.

### 4.2 Experience Gaps

#### Mother-Infant Cohort Analysis

While some country experiences have provided practical implementation examples of maternal cohorts (Kenya, Uganda) and HEI (birth) cohorts (Kenya); there is currently no practical experience around combined MIP cohorts. Some countries such as Tanzania, Côte d'Ivoire and DRC have adopted or are planning to adopt MIP cohorts. It will be of importance to document their experiences in order to adequately inform a comparison of the separated vs. the combined cohort analysis approach; and recommendations thereof.

### 4.3 Guidance Gaps

#### Definitions

There remain gaps in guidance around some definitions such as “lost to follow up” as variations exist among countries.

#### Community Monitoring

The emphasis of the IATT M&E B+ Framework is primarily on monitoring at facility level, however there is an acknowledgement that the health facilities do not work in isolation, and a lot of the work in retaining mothers and infants takes place within the community. There remains a need to determine the monitoring needs at community level and provide guidance around this.

#### Cascade and Subnational Analysis

While some countries are implementing this in some form, there is a need for guidance on cascade and subnational analyses to facilitate its scale up and institutionalization in countries.

#### Unique Identifiers

This is an emerging area of interest and need, based on the growing emphasis on use of program data to assess outcomes. There is a dearth of knowledge or experience in this area as few countries have piloted or implemented this at any scale. This is an area that would benefit from a compilation of a compendium of best practices along with some guidance on unique IDs.

#### Global Reporting

Now that recommendations for countries to implement maternal and infant cohort and retention monitoring systems have been disseminated, global reporting guidance (Global AIDS Response Progress Reporting: GARPR) needs to be updated to reflect standardized maternal and HEI retention indicators for global monitoring and cross-country comparison.

### 4.4 Resource and System Gaps

#### Training resources

Training in cohort and retention monitoring as well as cascade/subnational analyses of unmet need for PMTCT, EID/PITC and Paediatric ART is a need spanning across most countries. Currently there is no widely available generic standardized training material on cohort and retention monitoring or cascade/subnational analyses that countries could adopt or adapt for their use in building capacity in-country. This is an urgent need that the IATT has a role in addressing.

#### DHIS2 Scale up

The majority of countries use or are moving to DHIS2 as their monitoring platform, however at different implementation levels and with varying capabilities. If usage is optimized, DHIS2 presents an opportunity for countries to work extensively with data visualizations to enhance data use and even conduct longitudinal follow-up with the use of DHIS2 tracker. Alongside the provision of tools and guidance there is a role for a coordinated effort working with the University of Oslo to capacitate countries maximally in this regard.

## 5. Way Forward and Next Steps

Participants agreed that learning from countries that have implemented best practices has greater value than large-scale workshops. This was noted particularly for the countries that identified the need for assistance in the areas of training, register modification/development and DHIS2 system optimization. Developing an environment of knowledge and experience sharing has been highlighted as a key next step in support of country-planned actions. The IATT through the M&E working group (MEWG) will work with governments and in-country partnerships to actualize country-planned actions. Agreement on some important next steps include the following:

- Development and dissemination of case studies from best practice countries as an important learning resource for countries;
- Establishment of a tools repository on the IATT website to aid countries planning to modify or introduce new tools for routine cohort, retention and enhanced monitoring;
- Mobilizing of global partnerships to support country actions (University of Oslo; UCSF);
- Development of generic training tools, including consideration of revitalization of the [WHO Three Interlinked Patient Monitoring Systems for HIV Care/ART, MCH/PMTCT and TB/HIV: Standardized Minimum Dataset and Illustrative Tools](#) as a resource to support countries in establishing longitudinal cohort based registers;
- Continued documentation of processes and lessons learnt as countries continue to pilot and roll out B+ monitoring and evaluation systems; and
- Provision of structured technical assistance to support countries through achievement of some of the following milestones (see Appendix 3 for a list of participating countries and prioritized actions):
  - 1) Implementing longitudinal paper based registers for pregnant women, mothers and their infants with finer age disaggregation to enable targeted programming for more vulnerable age groups (adolescents and younger women)
  - 2) Conducting routine cohort analyses to determine maternal outcomes (maternal retention, viral suppression, maternal survival) and infant outcomes (HEI retention, nutritional status over time, final HIV status at cessation of breastfeeding, ART initiation for infected infants, HIV free survival).

- 3) Implementing mechanisms or systems for enhanced monitoring of (at a minimum): early retention, ARV drugs and commodities, testing quality assurance and viral load assessment
- 4) Outlining a country context-informed decision and roadmap on unique IDs
- 5) Scaling up and optimization of DHIS2 to facilitate strengthened data use as well as longitudinal follow up and tracking through DHIS2 tracker

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### Appendix 3: Country Prioritized Actions

Bringing together all learning as well as best practices and experiences shared; countries reflected on their gaps and needs; and made the following commitments towards building robust M&E systems in support of B+ implementation:

COUNTRY	PRIORITIZED ACTIONS
Botswana	<ul style="list-style-type: none"> <li>-Conduct country training in cohort and retention monitoring and analysis with TA from IATT and UCSF</li> <li>-Finalize current review of tools with application of learning gained from Kenya, Malawi, Uganda and Tanzania</li> <li>-Operationalize DHIS2 for all data to facilitate integrated monitoring</li> </ul>
Cameroon	<ul style="list-style-type: none"> <li>-Introduce ART register at MNCH sites</li> <li>-Roll-out MIP register</li> <li>-Introduce a unique ID</li> </ul>
Cote d'Ivoire	<ul style="list-style-type: none"> <li>-Develop MIP retention indicators</li> <li>-Define community level indicators to measure community interventions to increase early ANC uptake and MIP retention</li> <li>-Learn from Zambia's unique ID system (process, cost, timeline)</li> </ul>
Democratic Republic of the Congo	<ul style="list-style-type: none"> <li>-Integrate M&amp;E training in planned B+ roll out training with emphasis on MIP tracking</li> <li>-Conduct review of tools to identify needs for cohort analysis</li> </ul>
Kenya	<ul style="list-style-type: none"> <li>-Finalize piloting, updating &amp; roll out of standard HIV M&amp;E tools</li> <li>-Scale up the analytic component of the HEI Cohort Analysis system, learning from the pilot</li> <li>-Develop rapid test kit (RTK) monitoring in 47 counties</li> <li>-Review and strengthen MIP follow-up and retention</li> </ul>
Malawi	<ul style="list-style-type: none"> <li>-Strengthen use of DHIS2 for HIV/AIDS program (Include ART/PMTCT reporting forms in DHIS2)</li> <li>-Consider introduction of a longitudinal register for HEI's</li> <li>-Use electronic database (representing 40% of sites) to begin early retention &amp; finer age disaggregation analysis</li> </ul>
Mozambique	<ul style="list-style-type: none"> <li>- Use electronic database to conduct retention analysis</li> <li>-Incorporate training on retention monitoring in register roll out training</li> <li>-Conduct training at all levels on systematic data use (i.e. cascade analyses)</li> <li>-Revise ART registers to align with WHO guidance (monitoring key outcomes and disaggregating by pregnancy and breastfeeding status)</li> </ul>
Namibia	<ul style="list-style-type: none"> <li>-Conduct retrospective cohort analysis (to serve as baseline)</li> <li>-Develop tools for routine cohort monitoring</li> <li>-Conduct maternal retention analysis from ART electronic database</li> </ul>
Nigeria	<ul style="list-style-type: none"> <li>-Review current tools to support longitudinal monitoring and cohort analysis</li> <li>-Conduct cohort analysis training</li> <li>-Design a dashboard to monitor PMTCT at national and subnational levels</li> <li>-Strengthen private sector engagement (currently not reporting to Government)</li> </ul>

	<ul style="list-style-type: none"> <li>-Establish Unique Identifier Government-Partner collaborative committee</li> </ul>
Rwanda	<ul style="list-style-type: none"> <li>-Implement routine cohort monitoring in 32 select facilities (in Kigali City) to complement retrospective cohort analysis</li> <li>-Develop and deploy PMTCT module in EMR</li> </ul>
South Africa	<ul style="list-style-type: none"> <li>-Introduce data disaggregation for adolescents and pregnant and breastfeeding women</li> <li>-Introduce maternal and HEI cohort analysis</li> <li>-Review current indicator dataset and DHIS as well as consider MCH module on Tier.net (electronic data system)</li> </ul>
The Republic of Tanzania	<ul style="list-style-type: none"> <li>-Pilot MIP cohort monitoring (including conducting a retrospective cohort analysis to set baseline)</li> <li>-Introduce data disaggregation for adolescents</li> </ul>
Uganda	<ul style="list-style-type: none"> <li>Develop, pilot and finalize HEI cohort monitoring tool and customize DHIS2 accordingly</li> <li>-Develop integrated training curriculum for Maternal and HEI cohort and retention monitoring</li> <li>-Integrate proficiency test data into HMIS</li> <li>-Incorporate viral load data in routine reporting system</li> <li>-Strengthen Family Planning (FP) integration (place FP register in ART clinics stat while modifying ART register to include FP data)</li> <li>-Introduce data disaggregation in alignment with WHO Strategic Information Guide for HIV in the Health Sector, with a special focus on the adolescent age group</li> </ul>
Zambia	<p>The following changes to be made in Zambia's draft national B+ M&amp;E framework:</p> <ul style="list-style-type: none"> <li>-Revise maternal cohort definition to pregnant women initiating ART rather than based on Last Monthly Period (LMP) as it is currently</li> <li>-Adjust HEI final status to be after cessation of breast feeding (24 months)</li> <li>-Add viral load indicators to routine monitoring framework</li> <li>-Revise enhanced monitoring to include 2 months retention</li> <li>-Make emphasis on subnational data reviews</li> </ul>
Zimbabwe	<ul style="list-style-type: none"> <li>-Conduct cohort analysis from electronic database</li> <li>-Design tools for paper based cohort monitoring and patient tracking (in consultation with Kenya and Malawi)</li> <li>-Standardize dashboard indicators for various administrative levels</li> </ul>

#### Appendix 4: Links to Resources

##### Meeting Documents

- [-Facilitator Guide](#)
- [-Meeting Agenda](#)
- [-List of Plenary, Group and Country Presentations \(with links to each\)](#)

##### National Data and M&E Systems

- [-UNAIDS Global Plan Fact Sheets](#)

-[Country Questionnaire Responses](#)

-[Country Indicator Survey Responses](#)

#### Frameworks and Guidelines

-[IATT B+ M&E Framework](#)

-[WHO Strategic Information Guide for HIV in the Health Sector](#)

-[Global AIDS Response Progress Reporting Guidelines](#)

-[Global Guidance for Criteria and Processes for Validation \(EMTCT\)](#)