# THE UNITED REPUBLIC OF TANZANIA

## Ministry of Health, Community Development, Gender, Elderly and Children

# HIV Service Delivery Models

## Mapping HIV Service Delivery Strategies in Tanzania

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## Foreword

By June 2016 the number of people receiving antiretroviral therapy for HIV in low- and middle-income countries reached 18.2 million. This significant scale-up of treatment has been achieved through political commitment, community mobilization and significant domestic and international donor support. Under the global coordination of UNAIDS and the World Health Organization, further ambitious targets have been set to end the AIDS epidemic by 2030. In 2014 UNAIDS set the 90-90-90 target: by 2020, 90% of all people living with HIV will know their HIV status; 90% of all people diagnosed with HIV infection will receive sustained antiretroviral therapy; and 90% of all people receiving antiretroviral therapy will have virological suppression. In addition, in 2015 the World Health Organization recommended the 'Treat All' policy, where all clients diagnosed with HIV are eligible for ART regardless of CD4 or clinical stage.

To meet these ambitious targets, Tanzania has adopted differentiated service delivery models in response to the epidemic. Differentiated service delivery is a client-centred approach that simplifies and adapts HIV services across the treatment cascade in order to reflect the preferences and expectations of various groups of people living with HIV, while reducing unnecessary burdens on the health system. By providing differentiated service delivery, the health system can refocus resources to clients most in need.

This report provides details of SDMs across the HIV care and treatment cascade, both those documented in the peer-reviewed literature as well as those being implemented in clinical sites in Tanzania. Based on these findings, recommendations for service delivery models have been incorporated into the 2017 National Guidelines for the Management of HIV and AIDS. Ongoing commitment and collaboration between the Ministry of Health, Community Development, Gender, Elderly and Children through the National AIDS Control Programme, implementing partners and health service providers will be essential to support the successful implementation of these recommendations.

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## Acknowledgments

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The MoHCDGEC sincerely expresses its gratitude to the U.S. Government, HRSA, CDC, and I-TECH for the technical and financial support in mapping service delivery models used for HIV care. Particular recognition is given to I-TECH staff, Dr. Stella Chale (Clinical Programmes Director) for her technical guidance and coordination and Dr. Flavian Magari (Country Director) and Fernanda Freistadt (Senior Programme Manager) for overall guidance throughout the mapping process. The MoHCDGEC is very grateful to the team of international and national consultants: Dr. Helen Bygrave (IAS), Dr. Anna Grimsrud (IAS), Dr. Isaac Zulu (CDC-Atlanta), Ms. Ishani Pathmanathan (CDC-Atlanta), Dr. Bennet Fimbo and Dr. Emilian Michael (Partners for Health, Tanzania) who were part of this mapping process right from its inception. The MoHCDGEC acknowledges the expertise provided by Mr. Michael Stockman during data analysis and report writing.

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## List of Abbreviations

| | |
|---|---|
| AC | Adherence Club |
| AGPAHI | Ariel Glaser Paediatric AIDS Health Initiative |
| AIDS | Acquired Immune Deficiency Syndrome |
| ANC | Antenatal Care |
| ART | Antiretroviral Therapy |
| BCPE | Bukoba Combination Prevention Evaluation Project |
| BIPAI | Baylor International Paediatric AIDS Initiative |
| CAG | Community ART Group |
| CBO | Community-Based Organization |
| CDC | U.S. Centers for Disease Control and Prevention |
| CDDP | Community Drug Distribution Point |
| CITC | Client-Initiated Testing and Counselling |
| CTC | HIV Care and Treatment Clinic |
| DACC | District AIDS Control Coordinator |
| DOT | Directly Observed Therapy |
| DRC | Democratic Republic of Congo |
| EGPAF | Elizabeth Glaser Pediatric AIDS Foundation |
| EID | Early Infant Diagnosis |
| EMR | Electronic Medical Record |
| FBO | Faith-Based Organization |
| FSW | Female Sex Worker |
| HBC | Home-Based Care |
| HHS | U.S. Department of Health and Human Services |
| HIV | Human Immunodeficiency Virus |
| HRSA | U.S. Health Resources and Services Administration |
| HTC | HIV Testing and Counselling |
| HTS | HIV Testing Services |
| IAS | International AIDS Society |
| ICAP | International Center for AIDS Prevention |
| IP | Implementing Partner |
| IPD | In-Patient Department |
| IPT | Isoniazid Preventive Treatment |
| IRIS | Immune Reconstitution Inflammatory Syndrome |
| KNCV | Dutch Tuberculosis Foundation [Koninklijke Nederlandse Centrale Vereniging] |
| KVP | Key and Vulnerable Populations |
| KYCS | Know Your Child's HIV Status Program |
| LCM | Linkage Case Management |
| LTFU | Loss to Follow-Up |
| MDH | Management and Development for Health |

| | |
|---|---|
| MMP | Multi-Month Prescribing Programme |
| MoHCDGEC | Ministry of Health, Community Development, Gender, Elderly and Children |
| MSM | Men Who Have Sex with Men |
| NACP | National AIDS Control Programme |
| NCD | Non-Communicable Disease |
| NGO | Non-Governmental Organization |
| NIMR | National Institute for Medical Research, Tanzania |
| OI | Opportunistic Infection |
| OPD | Out-Patient Department |
| PCR | Polymerase Chain Reaction |
| PITC | Provider-Initiated Testing and Counselling |
| PLHIV | People Living With HIV and AIDS |
| PMTCT | Prevention of Mother-To-Child Transmission |
| PWID | People Who Inject Drugs |
| RACC | Regional AIDS Control Coordinators |
| RCH | Reproductive and Child Health |
| RHMT | Regional Health Management Team |
| SMA | Six-Monthly Appointment |
| SOP | Standard of Practice |
| STI | Sexually Transmitted Infection |
| TACAIDS | Tanzania Commission for AIDS |
| TB | Tuberculosis |
| TG | Transgender Person |
| VCT | Voluntary Counselling and Testing for HIV |
| VMMC | Voluntary Medical Male Circumcision |
| WHO | World Health Organization |

## Executive Summary

Tanzania has made significant progress in the fight against the HIV epidemic, decreasing HIV prevalence rates from 7.0% in 2004 to 5.1% in 2012 and increasing the number of people living with HIV (PLHIV) on antiretroviral therapy (ART) to 690,944 as of August 2016, or approximately 49% of the known HIV-positive population.[2,3,4] In October 2016, the Government of Tanzania adopted the World Health Organization's (WHO) 'Treat All' recommendations, meaning all those testing HIV-positive are eligible for treatment regardless of CD4 or WHO staging.[6] Combined with the ambitious UNAIDS 90-90-90 target (90% of PLHIV know their status, 90% of PLHIV who know their status are on ART, and 90% of those on ART are virally suppressed), almost double the current number of Tanzanians on ART will require access to ART services by 2020.[7]

In order to achieve these ambitious targets, delivery of HIV services will need to be adapted. Differentiated service delivery is an attempt to address these challenges, as a patient-centred approach whereby services are adapted to address both the needs of clients whilst simultaneously reducing the burden on the health system. By considering three elements—the clinical characteristics of the client, the subpopulation and the specificities of the context—service delivery models (SDM) may be designed using the building blocks of where, when, who and what services are provided.

Differentiated service delivery includes models of HIV testing, ART initiation and ART delivery for both stable and unstable clients and amongst different subpopulations (stable adults, pregnant and breastfeeding women, children and adolescents and key and vulnerable populations). This report describes the findings of a literature review considering the evidence for SDMs across the HIV care and treatment cascade globally and in Tanzania. In addition, a mapping of current challenges and successful SDMs implemented in both public facilities and by implementing partners is presented.

Reported common challenges that impact both access to testing and HIV care include stigma, long waiting times at the clinic and specific access challenges for key and vulnerable populations. Innovative strategies to address these challenges are described using the element and building blocks approach. These include provision of HIV testing services at specific times and locations dependent on the subpopulation, provision of longer refills, fast-tracking approaches, and organisation of adolescent clinics outside school hours.

Based on the findings of this report, recommendations for SDMs have been developed (Section IX). These recommendations have since been included within the revised Tanzania National Guidelines for the Management of HIV and AIDS and will be further used along with the documented best practices to develop an operational guide for service delivery in Tanzania.

## Section I: Introduction

### Background

According to UNAIDS, over 36.7 million people were living with HIV and AIDS in 2015.[1] This has led to the global move to strengthen the efforts across the HIV and AIDS treatment cascade, from testing through to antiretroviral therapy (ART) adherence and viral load suppression. This has resulted in approximately 60% of people living with HIV and AIDS (PLHIV) being aware of their status, 46% having access to ART and 38% achieving viral suppression. [1] In Eastern and Southern Africa, home to over half of all HIV and AIDS cases in the world, 62% of PLHIV know their status, 54% are on ART, and 45% are virally suppressed.[1]

Tanzania has made significant progress in the fight against the HIV epidemic in recent years, decreasing HIV prevalence rates from 7.0% in 2004 to 5.1% in 2012.[2,3] In 2015 an estimated 1.4 million people in Tanzania were living with HIV and AIDS, with approximately 91,000 of these 1.4 million being under the age of 15.[4] Sixty percent of those living with HIV were aware of their status (have ever been tested and received results), and as of August 2016, 49% (690,944) were on ART.[4]

There are, however, wide variations in HIV prevalence and uptake of HIV testing and care and treatment services. Women aged 15-49 years are approximately one and a half times more likely to be HIV-positive (6.3%) than men of the same age (3.9%).[5] Although data in recent years shows steady improvement for key and vulnerable populations (KVP) such as men who have sex with men (MSM), people who inject drugs (PWID) and female sex workers (FSW), these populations still experience higher HIV prevalence (22%, 15.5% and 31%, respectively).[5] Geographic disparities are also present; with some regions varying from 15% estimated prevalence in Njombe, to 2% in Manyara and Tanga.[3]

In October 2016, the Government of Tanzania adopted the World Health Organization's (WHO) 'Treat All' recommendations. The recommendations remove limitations on eligibility for ART access for PLHIV, such that anyone infected with HIV should be initiated on ART regardless of CD4 (count or percentage) and WHO clinical staging.[6] The adoption of these recommendations, coupled with the Government of Tanzania's acceptance of the UNAIDS 90-90-90 strategy (90% of PLHIV know their status, 90% of PLHIV who know their status are on ART, and 90% of those on ART are virally suppressed), represents a significant step towards the fight against HIV and AIDS in Tanzania.[7] However, significant progress still needs to be made in testing and treatment services in order to achieve the 90-90-90 goals. Bridging the gap between a 60% and 90% testing rate, and a 49% and 90% ART access rate will require the Government of Tanzania to carefully examine the challenges, barriers and successes to care and treatment for PLHIV in Tanzania. Differentiated models of service

delivery are needed at each step of the 'treatment cascade' (described below) to meet the challenges posed by these ambitious targets.

## The HIV Treatment Cascade

### Step 1: Testing

The first of the three '90' targets, 90% of PLHIV know their HIV status, identifies the beginning of the HIV treatment cascade as HIV testing. Based on the estimated 60% of adults who know their HIV status as of 2015 (840,000), an additional 420,000 people need to be made aware of their HIV status in order to meet the first of the 90-90-90 targets (90% of the estimated 1.4 million adult PLHIV = 1,260,000).[4]

### Step 2: Referral and Linkage

When an individual tests positive for HIV, the next step in the HIV treatment cascade is referral and linkage to care and treatment services. Under the Treat All recommendations, all individuals who test positive for HIV should begin ART if possible within two weeks, making the referral and linkage step of the HIV treatment cascade vitally important. Current best practices for referral and linkage in Tanzania are based on the National Guidelines for the Management of HIV and AIDS 2015, and state that clients should be referred to the closest care and treatment clinic (CTC), registered and screened for opportunistic infections (OIs).[8] According to recent analysis, approximately 41% of health facilities in Tanzania offer care and treatment services.[9] However, no reliable data are available on the proportion of clients who test positive that are successfully referred and linked to care.

### Step 3: Initiation and Retention on ART

The third step in the HIV treatment cascade is initiation and retention on ART. After all clients have been registered, screened for OIs and assessed for willingness to start treatment, they should be prepared and initiated on ART. After initiation on treatment, facility-based health care providers and community-based organizations (CBO) should work with clients to ensure retention in care, including limiting missed appointments and loss-to-follow-up (LTFU) of clients. Out of the 1.4 million adult PLHIV in Tanzania, approximately 49% (690,944) had access to ART .[4] To achieve the second of the 90-90-90 targets—90% of those who know their status are on ART—an additional 443,056 PLHIV will need to be enrolled on ART by 2020. Of adults who initiative ART, 76.7% are still active on treatment after 12 months.[4]

### Step 4: Adherence and Viral Suppression

The third of the 90-90-90 targets, 90% of those on ART are virally suppressed (defined by WHO as a viral load less than 1,000 copies/ml of blood), leads to the final step in the HIV treatment cascade. By adhering to their ART, PLHIV can attain viral suppression, improve their health and reduce their infectivity and likelihood of infecting others with HIV. While

UNAIDS estimates that globally 38% of PLHIV on ART are virally suppressed, at present there are no reliable data on the proportion of clients with viral suppression in Tanzania.[1]

## Differentiated Service Delivery Models

Achievement of the 90-90-90 targets and implementation of 'Treat All' will require the development and adoption of innovative, differentiated models for HIV diagnosis (testing and counselling) and ART delivery in order to meet the diverse needs of PLHIV. Differentiated service delivery is a client-centered approach that simplifies and adapts HIV services along the cascade of care to respond to the preferences and expectations of various groups of PLHIV.[10]

Above all, differentiated service delivery is aimed at enhancing the quality of the client experience, putting PLHIV at the center of the service delivery process while ensuring the health system is functioning in an efficient manner. Different service delivery models are developed to reach a diversity of clients, from those who present well, to those presenting with advanced disease, and from unstable to stable clients. Through this approach, the general population, pregnant women, children, adolescents, and KVPs, living in urban or rural settings can all have models of care developed to best fit their needs.

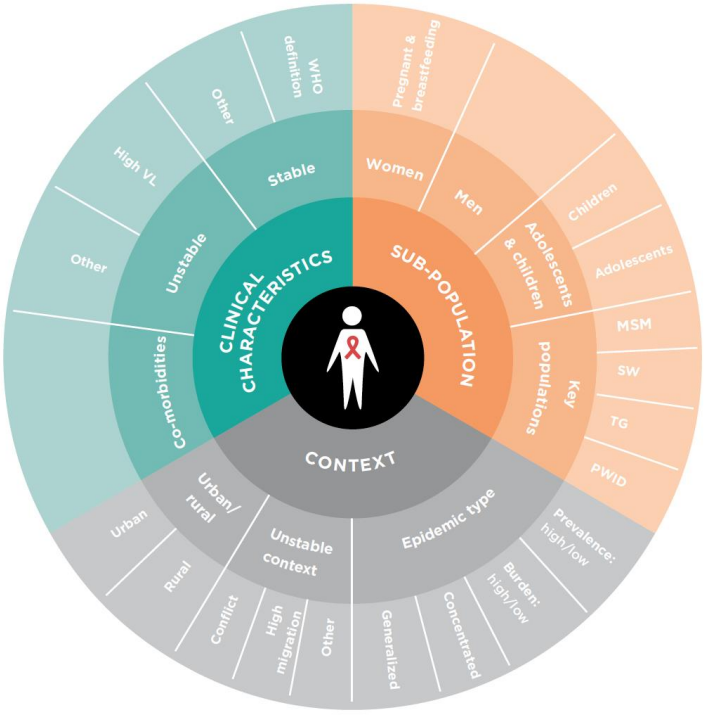
**Figure 1: Differentiated Service Delivery (also known as Differentiated Care)**


Source: *Differentiated Care for HIV: A Decision Framework for Antiretroviral Therapy (2016)*[11]

A differentiated service delivery approach can be applied across the HIV treatment cascade, to achieve all three of the UNAIDS 90-90-90 targets. Differentiated service delivery models for testing, initiation and maintenance of ART treatment may be designed for clients according to three elements: clinical characteristics or needs, subpopulation and environmental context (Figure 2). Once these elements of the client are defined, four

common building blocks of 'when, where, who and what' can be used to define what happens during a clinical, counselling or refill consultation for that client (Figure 3). When and where is the service being delivered? Who is delivering the service? And what service is being delivered?

**Figure 2: Client Elements**

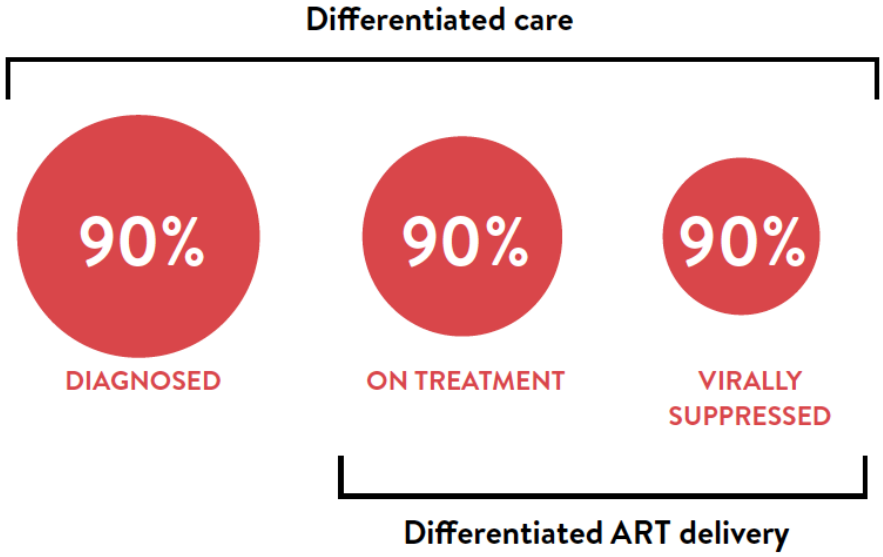



Source: *Differentiated Care for HIV: A Decision Framework for Antiretroviral Therapy (2016)*[11]

**Figure 3: Building Blocks of Differentiated Service Delivery**


Source: *Differentiated Care for HIV: A Decision Framework for Antiretroviral Therapy (2016)* [11]

**Figure 4: Differentiated service delivery in the concept of the 90-90-90 strategy**




Source: *Differentiated Care for HIV: A Decision Framework for Antiretroviral Therapy (2016)*[11]

## Utilisation of this Report

The goal of this report is to identify and describe service delivery models currently being implemented across the HIV prevention, care and treatment cascade in Tanzania. These findings were used to make recommendations for service delivery models to be incorporated into the Tanzania National Guidelines for the Management of HIV and AIDS. In addition, information from this report will be utilized to guide the development of the operational manual, job aides and monitoring and evaluation plan in order to implement the National Guidelines for the Management of HIV and AIDS.

## Section II: Methodology

Information contained in this report was gathered using a mixed methods approach. Primary information was collected through key informant interviews, site visits, surveys, focus group discussions and meetings with Regional and Council Health Management Teams (R/CHMT) and implementing partners (IP). Secondary data was gathered via desk review. This section describes key steps in the data collection process.

### Desk/Literature Review

A desk review of current literature was conducted on HIV service delivery models, focused on Tanzania and East and Southern Africa. Online materials, including databases, reports and publications available from the United Nations, Government of Tanzania, and non-governmental organizations (NGO) were reviewed. Based on this desk review an inception report was created detailing current HIV service delivery models being implemented in Tanzania, differentiated service delivery for people living with HIV in Tanzania, and the proposed methodology to map HIV service delivery models in Tanzania. A copy of the inception report is available and was shared with the Tanzania National Task Force and partners for comments.

### Consultative Meetings

Several consultative meetings with key stakeholders, including National AIDS Control Programme (NACP) officers, IPs, and international HIV experts, were held throughout the course of this work, which informed the data collection and report writing process. A National Task Force Meeting was held on 7 September 2016 in Dar es Salaam to gather feedback on the proposed methodology to be undertaken to create HIV service delivery model recommendations (see Annex 1 for a list of participants). As a result of this meeting the first Stakeholders Meeting (see below for more information) was held with additional IPs and some RHMTs and CHMTs. On 13 September 2016, a National Care and Treatment Sub-Committee meeting was held in Dar es Salaam (see Annex 1). The purpose of the meeting was to agree on criteria to define a 'stable patient' in the context of HIV care and treatment. On 31 October 2016, a meeting was held with the R/CHMTs and professional bodies in Dar es Salaam (see Annex 1) to inform participants on current WHO guidelines, the principles of differentiated service delivery models and explain the mapping activities. Minutes of these meetings were created and shared with partners/stakeholders.

## Data Collection and Analysis

**Stakeholders Meeting I:** A stakeholders meeting was held on the 15-16 of September 2016 in Dar es Salaam. A total of 93 participants from government and NGOs participated in the workshop (see Annex 1). As a follow up, each IP was sent a questionnaire to provide more details on the service delivery models that they presented during the meeting. Service delivery models data were synthesized and entered into an Excel database for future use and an activity report was written.

**District/Regional Facility Questionnaire:** HIV service delivery data were collected from 6,109 health facilities from 25 (of a total of 26) regions across mainland Tanzania from 10 October to 10 November 2016. The data from facilities were collected from questionnaires that were sent to the CHMTs in the districts through RHTMs via emails by NACP. The questionnaires were completed with the assistance of the District AIDS Control Coordinators (DACC) and returned to NACP through email.

The self-reported tool gathered data on: number of facilities offering HIV testing services (HTS), HIV care and treatment and ART services (CTC/ART), voluntary medical male circumcision (VMMC), prevention of mother-to-child transmission (PMTCT), tuberculosis and HIV (TB/HIV) integrated services, sexually transmitted infection (STI) services, PLHIV support groups, polymerase chain reaction/early infant diagnosis (PCR/EID) or viral load testing, adolescent-friendly services and methadone assistance. Additionally the tool gathered data on the number of clients > and < 15 years on ART for both male and female, total PMTCT clients on ART, total number of KVP clients on ART and the total number of TB/HIV clients on ART. The RACCs were requested to complete and submit the facility questionnaire whilst teams conducted site visits (see below).

**Field Visits:** Site visits were conducted in six regions across Tanzania from 10-24 October 2016. The sites visited included 21 regional and district government health facilities and 12 CBOs (see Annex 2 for a full list of the sites and CBOs visited). Two teams of four participants, consisting of NACP and I-TECH staff and independent consultants, conducted site visits. The regions (Arusha, Dar es Salaam, Mbeya, Njombe, Shinyanga, Singida) were selected based on HIV prevalence in the region, presence of IPs implementing various service delivery models, variety of populations living in the region, and the mix of rural and urban areas in the region. In addition to the regional health facility, district and community level health facilities, recommended by the RHMTs, were visited. Qualitative and quantitative data on HIV testing services, referral and linkage, retention and adherence were collected using questionnaires, focus group discussions and semi-structured interviews.

Staff at health facilities selected for interviews included RHMTs, facility in-charges, CTC in-charges, CTC nurses, enrolled nurses, home-based care (HBC) coordinators, and laboratory staff. Staff at CBOs selected for interviews included directors, community outreach coordinators and district coordinators. A semi-structured interview guide was used to conduct the interviews and content was adapted based on the job responsibilities of the participant. PLHIV who were interviewed or participated in focus group discussions were selected by health facility staff (from among clients present at the facility during the site visit.) All participants provided oral consent, and were interviewed using a semi-structured interview guide and focus group guide.

**Analysis:** Data from field visits and health facility questionnaires were entered into two separate Excel databases and checked for accuracy. Simple descriptive statistics were used to analyze quantitative data, while qualitative data were clustered into themes and ranked according to the response rate. A 'snap-shot' of the results was created for ease of use and to share with key stakeholders and IPs during the second Stakeholders Meeting.

**Stakeholders Meeting II:** A second Stakeholders Meeting was held on 1-2 November 2016 in Dar es Salaam. The purpose of the meeting was to share results from the facility data and create service delivery model recommendations for HIV testing services and ART delivery. I-TECH, local consultants and the International AIDS Society (IAS) staff members presented data from the desk review and site visits. Following the presentations, participants were placed into groups and tasked to generate a draft of service delivery model recommendations for their specific topic area. The recommendations were then presented in plenary and discussed among the whole group. A total of 110 participants from government and NGOs participated in this second stakeholders meeting (see Annex 1). A meeting report was written and shared with key stakeholders in the Ministry of Health and U.S. Centers for Disease Control and Prevention (CDC).

## Service Delivery Model Recommendations

Based on feedback from the second stakeholders meeting, content experts from I-TECH, local consultants and IAS drafted the service delivery model recommendations (Section IX). The draft of recommended SDMs was presented to a technical working group. These recommendations, through the review process of the technical working group, have subsequently been incorporated into the service delivery chapter of the National Guidelines for Management of HIV and AIDS.

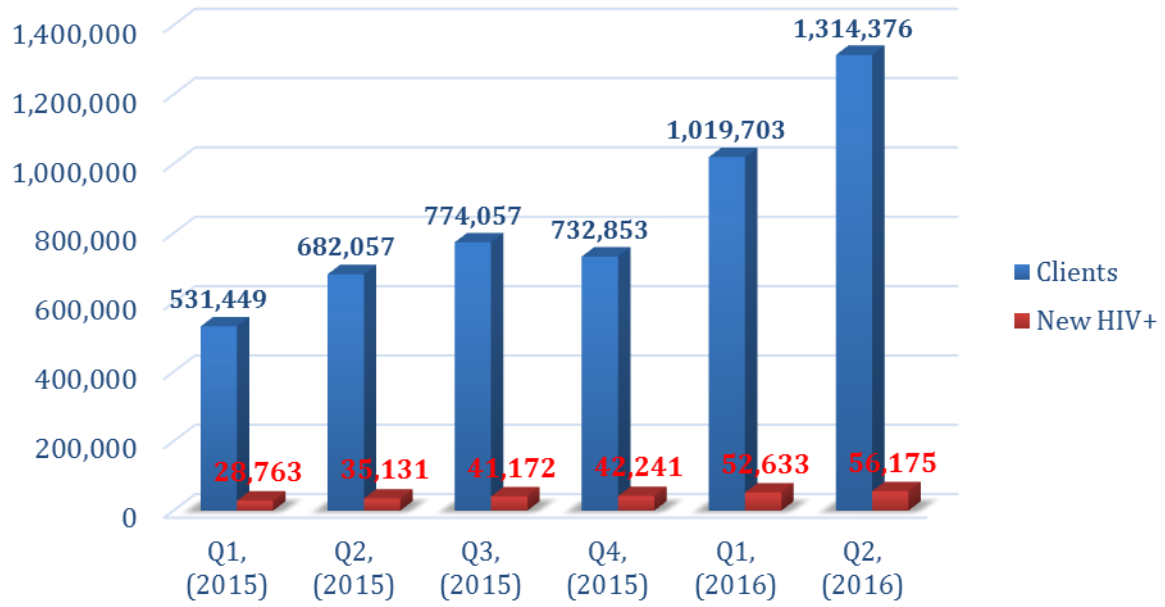
## Section III: Findings on HIV Testing Services (HTS)

### Overview

HIV testing services are the gateway to all HIV and AIDS services and interventions, from prevention to care and treatment and social services for PLHIV. HTS includes testing and counselling (also often referred to as HTC) as well as referral to care, laboratory services and linkages to other support services. The success of the UNAIDS 90-90-90 strategy heavily depends on the effective identification and testing of both PLHIV and those at risk of infection.

Over the past decade Tanzania has committed significant funds towards strengthening HTS in the country. According to recent analysis approximately 83% of health facilities in Tanzania provide HTS.[9] 67% of women and 50% of men in Tanzania have ever been tested for HIV, whilst in 2015, 2.7 million Tanzanians were tested for HIV, with 146,308 (5.4%) found to be HIV-positive.[12] Data from the first half of 2016 indicates that testing continued to grow (Figure 5).

**Figure 5: Quarterly HIV Testing Services (2015 to Q2 2016)**




Source*: Tanzania NACP Quarterly Report 2015-2016*[12]

In the 2015 Consolidated Guidelines on HIV Testing Services, WHO recommends various approaches to strengthen HTS to better reach KVPs and communities, and address issues that impede the effective delivery of HTS in various contexts.[13] Countries are encouraged to deliver a mix of HTS approaches, including facility- and community-based, depending on country epidemic contexts and focusing on the most underserved and affected populations.

The guidelines also include new recommendations to support HTS by trained lay counsellors, and consider the potential of HIV self-testing as an approach to increase HIV testing rates. HTS provision in Tanzania is guided by the National Comprehensive Guidelines for HIV Testing and Counselling *(*February 2013), which contains all relevant national and international WHO recommendations.[14] Providers are trained using a national curriculum and are supervised regularly to ensure adherence to the required standards.

## Facility-Based Testing

Facility-based HTS in Tanzania are most commonly provided using a provider-initiated testing and counselling (PITC) approach but may also be provided using a client-initiated testing and counselling (CITC) method. A 2013 systematic review of facility-based PITC programs in sub-Saharan Africa by Roura et al found mixed results in the translation from policy into practice of HTS, particularly PITC.[15] The study found the proportion of patients both offered and accepting an HIV test to be low in most facilities analyzed, and challenges to PITC included logistical challenges, human resources limitations, and data system challenges. A 2016 study of 71 facility-based staff providing PITC in Malawi found that test kit shortages, insufficient physical space, inadequate trained human resources, and short testing hours were the most common challenges to administering PITC in the facility.[16] Finally, a study of key populations in Tanzania found that KVPs preferred community-based testing to facility-based, mainly because of stigma and confidentiality concerns.[17]

### Community-Based Testing

Community-based HTS is an important approach for increasing early HIV diagnosis, and reaching populations who rarely access clinical services, including adolescents and KVPs.[13] In Tanzania a number of NGOs and IPs support the government to help bridge the gap between health facility and community-based HTS, including through home-based, door-to-door and index client testing. A systematic review of community-based HTS approaches found that mobile outreach and home-based door-to-door HTS were an acceptable and effective method to access men, KVPs and young (non-pregnant) women.[18] Adapting hours of testing, for example moonlight testing for KVPs, also led to higher acceptance of testing and yield.[19] However, some studies have found these methods to be high cost with relatively low yield and found linkage to care to be an issue.[18] A study in the informal settlement of Kibera in Nairobi showed that, while community-based testing is beneficial in reaching KVPs, facility-based PITC yields the highest positivity rates among clients tested.[20]

### Index case testing

Index case testing is a high yield testing strategy. A study in Njombe region found 63% HIV positivity in the partners of newly tested HIV positive clients.[21] A study of newly diagnosed clients presenting to STI clinics in Malawi found a 64% infection rate among sexual partners of index clients, while a study carried out in antenatal and inpatient facilities in Cameroon found over 50% of partners of clients to be HIV-positive.[22, 23]

**Lay Counsellors**

WHO defines lay workers as someone that performs functions related to health care delivery that has not received a formal professional or paraprofessional certificate or tertiary education degree', but they are trained and supervised to conduct an intervention.[24] In the case of HTS, this can include providing counselling and using rapid diagnostic tests. Such lay counsellors can conduct safe and effective HTS.[13] Kennedy and Vonner found in a systematic review that lay counsellors were legally able to perform HIV testing in 40% (48 countries) of countries analyzed and pre- and post-test counselling services in 60% of the countries.[24] In a randomized controlled trial in the U.S., lay counsellors were found to have a 57% update of HTS among emergency department clients compared to a 27% update for healthcare workers.[24] A study of the quality and accuracy of HTS by lay counsellors in South Africa found that of 3,986 HIV test samples taken by lay counsellors and confirmed with laboratory results, only 23 samples were discordant, and of those, only two cases were considered 'errors' where the lay counsellor found a false positive HIV result.[24] In a Kilimanjaro region lay counsellor program, 58 volunteer lay counsellors referred 761 patients for HIV testing in a 12-month period.[25]

**HIV Self-Testing**

HIV self-testing allows an individual to perform and interpret an HIV test by him- or herself in private. HIV self-testing does not provide a definitive HIV diagnosis, but allows individuals to pre-test in the privacy of their own homes, and if positive, link to a facility for further testing.[13] A study of key populations in Nigeria found that self-testing is a possible effective strategy for key populations as it was considered acceptable, convenient and private by study participants.[19] MacPherson et al found that self-testing, which provides the opportunity for people to test at their own convenience and discretion, may increase uptake of HIV testing among those not reached by traditional methods.[26]

**Special Considerations: Paediatric and Adolescent Testing**

Several studies have looked at the challenges to testing children and adolescents in sub-Saharan Africa. A 2016 meta-analysis of 26 studies examining paediatric HIV screening found that inpatient (21%) and nutrition wards (13.1%) had the highest diagnostic yield of HIV-positive tests and presented an important opportunity to paediatric testing outside of PMTCT programs.[27] Sanga et al examined the factors that influence the update of HTC, specifically voluntary counselling and testing (VCT) among secondary school students in Arusha, Tanzania.[28] Despite knowledge on VCT services, uptake was low due to, among other factors, fear of test results, stigma of HIV, distance to the testing centre, and engagement in sexual relationships. The authors recommend integrating youth-friendly voluntary testing and counselling services into secondary schools to increase the uptake of HTS.

**Special Considerations: Key and Vulnerable Population Testing**

Interventions and data on HTS for KVPs are limited, often due to laws or policies that make accessing services difficult for MSM or FSWs.[19] The WHO consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations emphasizes the need for testing in multiple settings; for particularly respecting consent and confidentiality; and facilitating linkage to care.[29] As mentioned above, targeted community-based testing for KVPs had highest proportion of first-time testers (83%) as compared to other community-based services (including home-based, self-testing, index testing, mobile services) or facility-based testing.[19] A study of male most-at-risk populations in Nigeria (MSM, PWID) found that community-based HTS conducted by peers had a higher acceptance and greater HIV yield than referral by peers to either clinical or mobile HTS.[30] Hladik et al found that 35% of MSM in Kampala, Uganda, had never tested for HIV, with the main reasons being not feeling at risk (29%) and being afraid of testing positive (22.2%).[31] The same study found that, of the 607 participants who received an HIV test, 13% tested positive, and of those, 80% reported that they were unaware that they had HIV. The authors suggest that stigma, fear, abuse and associated poor mental health are significant barriers to HIV prevention and control activities among MSM, including frequent HIV testing.

## HTS: Experience from Tanzania

**Facility-Based HTS**

Of the 6,109 health facilities that reported via questionnaire, 5,461 (90%) reported offering HTS. of the 21 sites that received site visits, all 21 (100%) reported offering PITC at the facility:

- 21 facilities (100%) offer PITC in the out-patient department (OPD)
- 12 facilities (57%) offer PITC in the in-patient department (IPD)
- 21 facilities (100%) offer PITC as a part of their PMTCT services
- 19 facilities (90%) offer PITC at antenatal care (ANC) visits, during delivery and postnatal care
- 19 facilities (90%) offer PITC in the immunization clinic
- 18 facilities (86%) offer PITC in the paediatric clinic
- 17 facilities (81%) offer PITC in the tuberculosis clinic
- 14 facilities (67%) report offering PITC in the STI clinic
- 11 facilities (53%) offer PITC in the malnutrition clinic
- 21 facilities (100%) offer PITC for index clients (HTS for family members, siblings, partners of a newly diagnosed client) at their health facilities

Considering strategies for testing children eighteen of the 21 facilities visited (86%) offer PITC in the paediatric clinic. Three facilities (14%) conduct outreach for testing adolescent

girls and young women, and two facilities (9%) reported conducting door-to-door outreach and hot-spot testing for adolescent girls and young women. Some respondents indicated that school-based HTS is the best approach for adolescents.

**Community-Based HTS**

There is a wide range of reported community-based HTS strategies, mainly provided through IPs and CBOs.

Of the 21 sites visited, eight (38%) reported conducting community outreach for HTS using facility staff. Three facilities (14%) offered PITC in the workplace, six facilities (29%) reported conducting door-to-door HTS for KVPs, and four facilities (19%) offered hot-spot testing for KVPs (testing in places such as bars and locations where KVPs are known to gather) using health facility staff members in collaboration with local implementing partners. FSWs, MSM, and PWID were the most targeted populations for HTS, with seven facilities (33%) conducting outreach for FSW, and five facilities (24%) conducting HTS outreach for both MSM and PWID. Three facilities (14%) reported providing HTS outreach services for adolescent girls and young women, while one facility (5%) reported offering outreach services to prisoners, migrant workers, plantation workers and partners of FSW.

According to CBO staff interviewed, outreach to KVPs (FSW, MSM, PWID) using PLHIV (peer educators or peer experts) is their most used and effective community-based HTS approach. According to CBO staff, peer experts are more trusted in the KVP community than nurses and other staff from health facilities. Specifically, hot-spot testing with peer experts was reported to be very effective, although CBOs also report having peer experts (often FSWs) conduct moonlight and mobile testing for KVPs. CBO staff stated that the best time to implement these activities are in the 'moonlight' hours for FSW (7-9 pm). By contrast, only 19% of sites visited conduct hot-spot testing themselves, although the use of PLHIV for HTS outreach was mentioned by health facility staff and facility in-charges as a way to increase HTS efficiency and meet the goals of Treat All.

For general populations, CBO staff stated that door-to-door index client testing using CBO staff, is a highly effective HTS strategy. Common index clients tested included siblings, family member and sexual partners. Other successful community based HTS approaches described by CBO staff included home-based HTS and workplace testing, especially for adolescents and adult men working in the formal sector. CBO staff mentioned that, as for KVPs, weekends and evenings after working hours were the best times to test adolescents and males for HIV.

Additional community-based HTS methods targeting vulnerable populations include mobile testing for herdsmen and providing HTS at drop-in and youth centres.

**HTS Challenges**

The most common challenge reported in providing HTS was the shortage of test kits with over half of all clinical staff interviewed reporting this. The second most common challenge cited was stigma, resulting in people, both in the facility and community, declining to be tested for HIV.

For community-based HTS, the most common challenge was the lack of budget to conduct outreach activities. If there was an active IP in the community surrounding the health facility, sometimes the health facility staff would join the outreach efforts; otherwise, most often the health facility did not conduct HTS outreach activities (only 38% of facilities visited reported conducting any HTC outreach initiatives using their own staff). In addition, CBO staff stated that the lack of confidential places to provide HTS in the community during outreach efforts is a major barrier to community-based HTS. Because of the stigma surrounding HIV and discrimination against PLHIV and KVPs, most FSW, MSM and PWID are not willing to test in public places, so the need for a private, confidential location to perform both counselling and testing is essential. Finally, CBO staff stated that lack of disclosure of HIV status to partners is a big challenge in HTS, and HIV care and treatment in general. When clients keep their HIV status confidential, there is a missed opportunity for HTS for their partners who may or may not yet be HIV-positive or know their status. Many of the staff interviewed stated that HTS challenges such as lack of disclosure of HIV status, refusal to test for HIV among discordant couples (usual the male), refusal of index clients to test, and people not willing to test until they are very sick, all fall under the larger issue of stigma of HIV and discrimination of PLHIV in the community.

Other challenges cited by staff members, although less common, included the refusal of many people, mostly men, to collect and accept their HIV test results. For adolescents obtaining consent from the parent or caregiver due to stigma was raised as a major barrier by facility staff and CBO members.

**Innovative HTS Strategies**

In order to address challenges to HTS and test more people for HIV in the facility, staff members believe that continuous **HIV health education** needs to take place at both the facility and community level. Staff members mentioned that this would not only improve the knowledge of people about the importance of testing for HIV, but would also help to reduce stigma of HIV and discrimination of PLHIV in the community. Facility in-charge staff also stated that **community sensitization** to reduce stigma was a necessary solution to meet the goals of the Treat All initiative. In addition to continued health education, facility staff said that **focusing on outreach activities to test KVPs**, who they think drive the HIV epidemic in Tanzania, would be an innovative solution to HTS challenges. Both staff members and facility in-charges stated that the **use of PLHIV as peer educators or peer experts to conduct outreach,** especially to KVPs, would be a successful innovation to

improve HTS services and target those who are most unwilling to seek HTS at the facility level. Peer experts can conduct door-to-door, hot-spot, and home-based counselling and testing. Staff members also believe that **extending CTC hours** in order to accommodate those working in the formal and informal sectors, particularly FSW and adult and adolescent males would increase the number of people testing for HIV.

Staff members stated that innovative models to target and test adolescents are key to improving HTS numbers in the facility and community. Three health facility staff mentioned that the use of adolescent peer experts would assist in targeting adolescents to test. One participant stated that special **adolescent outreach** (to schools and at 'bonanza' events) would help, and one participant mentioned that creating a special area to test adolescents within the health facility would improve the number of adolescents testing for HIV.

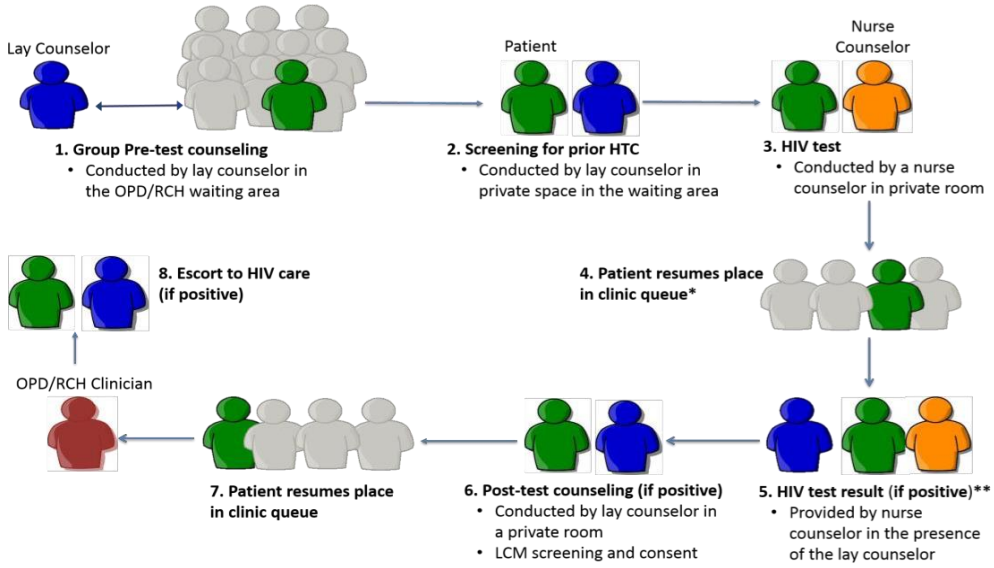
**Snapshot**: The Bukoba Combination Prevention Evaluation (BCPE) Enhanced HTS Project (Partner: ICAP)

**HIV Service Delivery Area:** Facility-based provider-initiated testing and counselling

**Overview**: The International Center for AIDS Prevention (ICAP), in collaboration with the Tanzania Ministry of Health, Community Development, Gender, Elderly and Children, and Tanzania Commission for AIDS (TACAIDS) administers the Bukoba Combination Prevention Evaluation (BCPE) Enhanced HTC project. The PITC arm of the project, run in 11 health facilities in Bukoba municipality, capital of Kagera region in northwest Tanzania, aims to achieve 100% HTS coverage in OPD and RCH clinics. The BCPE PITC model revised the flow of patients to ensure that HIV testing was offered to all patients who might benefit from testing without significantly delaying their OPD/MCH visit.

The target population for the intervention were clients aged 18-49 years in the OPD and MCH clinics with no prior HIV diagnosis, no HIV test in the last three months, and potential recent exposure to HIV. The flow of patients into the OPD and MCH clinics was revised to allow all clients to participate in HTS without significantly delaying their clinic visit. Nurses, lay counsellors and nurse counsellors provided all eligible clients group pre-test counselling, screened clients on the need for HTS, and referred the clients for testing unless they had been tested within three months, or were already in HIV care. At least two lay counsellors and one nurse counsellor were added to each facility to accommodate the increased tasks. The project runs on a daily basis. See below for a diagram of the revised patient flow.

| Differentiated Service Delivery Building Blocks | |
|---|---|
| **Who:**<br>Nurses, lay counsellors and nurse counsellors provide all testing and counselling services | **What:**<br>Screening, pre-test counselling, referral for testing |
| **When:**<br>Offered daily | **Where:**<br>In OPD and MCH clinics |




**Results**: From October 2014 to June 2016, 63,390 people (35% male, 65% female) were counselled and tested for HIV in 11 health facilities in Bukoba Municipality. 3,275 (5.1%) tested positive. Compared to the standard of care before the BCPE PITC model was put in place, the new model identified 5.7 times more HIV positive patients overall (2,829 vs. 494, 5.0 times more males and 6.2 times more females).

Source: *International Center for AIDS Prevention, 2016*

**Snapshot**: 'Know Your Child's HIV Status' (KYCS) Program

(Partner: Baylor International Paediatric AIDS Initiative)

**HIV Service Delivery Area:** Facility-based paediatric HIV testing and counselling

**Overview**: Baylor International Pediatric AIDS Initiative (BIPAI) administered the KYCS facility based pediatric HTS program in CTCs in seven regions in the Lake Zone of northern Tanzania (Kagera, Geita, Shinyanga, Mwanza, Simiyu and Mara). The goal of the program was to identify and test all children of parents who were receiving HIV CTC services in health facilities from March 1, 2011 to Dec 31, 2013.

**Differentiated Service Delivery Building Blocks**

| **Who:** | **What:** |
|---|---|
| Counsellors, nurses and home-based care coordinators conduct KYCS testing events. | KYCS testing events were held to test children of parents receiving CTC care in health facilities. Children of newly identified and enrolled adults in CTC were identified via CTC enrollment cards, and encouraged to come to testing events. |
| **When:** | **Where:** |
| Monthly or biannually | Community-based |

**Results:** From 1 March 2011 to 31 December 2012 a total of 3,978 people were tested at KYCS testing events. 108 children (3.6%) and 120 (11.8%) adults, who are partners of CTC clients, tested HIV positive. The KYCS testing events appear to be a cost-effective way to identify HIV-infected children, and may offer an important linkage-to-care opportunity for those children who test positive.

<table>
<tr><td colspan="2">Snapshot: Index Client Testing<br>(Partner: Management and Development for Health)</td></tr>
<tr><td colspan="2">HIV Service Delivery Area: Facility- and community-based index client HTS</td></tr>
<tr><td colspan="2">Overview: Sexual partners of FSW and siblings of HIV-positive children enrolled in CTC in Dar es Salaam are targeted for HTC.</td></tr>
<tr><td colspan="2">Differentiated Service Delivery Building Blocks</td></tr>
<tr><td><u>Who</u>:<br><br>HTS are provided by community health workers and CTC nurses and nurse counsellors.</td><td><u>What</u>:<br><br>Spouses and sexual partners of FSW enrolled in CTC services are traced and incentivized to visit the CTC, or are visited at home, for an HIV test. Siblings of HIV positive children enrolled in CTC services are traced using family member information found on CTC enrollment cards and tested in the facility or the home.</td></tr>
<tr><td><u>When</u>:<br><br>Offered routinely</td><td><u>Where</u>:<br><br>Facility and community/home</td></tr>
<tr><td colspan="2"><u>Results</u>: From July to September 2016, 2,267 siblings of HIV-infected children were tested between CTC and home-based sites. 5% (113) of those tested positive. During the same time period, the positivity yield among spouses and sexual partners of FSW tested was 22%. Additional data reveals that both partners of FSW and family members of children with HIV find the testing approach reliable, effective, and acceptable by the community. Although the positivity yield for testing partners of FSW is high, the program has found that many partners will only come for testing at the facility if they are given incentives. Additionally, poor documentation of family members, including siblings of HIV-infected children, makes it difficult to trace all sibling index clients. Finally, the willingness of parents and guardians to bring their children into the facility for testing is quite low, although program staff have found that with the use of community health workers, testing can be done at home at convenient times.</td></tr>
</table>

**Spotlight**: Sauti Project
(Partner: Jhpiego)

**HIV Service Delivery Area:** Community- and home-based PITC for key and vulnerable populations

**Overview**: Jhpiego, an affiliation of Johns Hopkins University, in collaboration EngenderHealth, Pact and the Tanzania National Institute for Medical Research (NIMR)/Mwanza, administers the Sauti Project. The community-based HTS arm of the project, conducted in seven Tanzanian regions (Shinyanga, Tabora, Mbeya, Njombe, Iringa, Dar es Salaam, and Kilimanjaro), aims to increase HTS among KVPs via community- and home-based HTS. The target population for the intervention is FSW and their partners, MSM, and adolescents girls and young women aged 14-25 who are out of school and sexually active.

**Differentiated Service Delivery Building Blocks**

| **Who:** | **What:** |
|---|---|
| Medical officers, assistant medical officers, clinical officers, nurses, community health promoters, and peer educators | HIV testing and counselling with referral. Those who test positive are linked to facility-based CTC and family planning services. Those who are diagnosed as HIV-negative are guided through risk-reduction planning and supported in accessing other community and facility based care, treatment, and family planning services. |
| **When:** | **Where:** |
| 3 months for KVPs (FSW and MSM), and 6 months for vulnerable populations (partners of FSW and adolescent girls and women 14-24) | The community, hot-spots, drop-in centres, and in the home |

**Results**: Between April and June 2016, more than 202,000 people were tested for HIV, with 5,441 testing positive and 27% of those linked directly to care. Additional analysis of the project demonstrated that mobile community-based HTS shows high acceptability and reached men (99% acceptance rate), FSW (99% acceptance rate), MSM (98% acceptance rate), partners of FSW (96% acceptance rate), and adolescent girls and young women (96% acceptance rate). Several challenges were reported. Chronic shortage of HIV test kits affected the ability to offer HTS at all times. The chronic and serious shortage of human resources, and lack of a policy surrounding the use of lay counsellors to test for HIV made it difficult to adhere to testing schedules.

Of the 1,932 people with HIV diagnosis, 415 clients were linked to care, and 137 were initiated on ART. Of the 415 linked to care, 264 (64%) were found in care and treatment,

and of these 215 (81%) were active in care and treatment. Challenges highlighted by the project include: government health facilities offering care and treatment services are perceived as unfriendly to key and vulnerable populations and attitudes of providers limit access to services by these groups (stigma and discrimination); lack of flexible hours at CTC; lack of dedicated clinics for key and vulnerable populations; limited trust by key and vulnerable populations of peer educators to maintain HIV status confidentiality; regional/district AIDS coordinators resistance to conduct ART enrollment at point of diagnosis, despite being recommended by national HTS guidelines.

## Section IV: Findings on Referral and Linkage to Care

### Background

In order to meet the goals of 90-90-90, it is not sufficient to simply test people for HIV; linkage to treatment services must be provided. All clients who undergo HTS must be either connected to HIV prevention services (if tested negative), or referred and linked to HIV care and treatment services (if positive).

A systematic review of data from studies conducted in sub-Saharan Africa between 2000 and 2011 found that only 57% of people diagnosed HIV-positive were linked to care and completed their ART assessment.[32]The same study cited distance, transportation costs, and long queues at health facilities as the main barriers to care. A study conducted in Swaziland found that only 34% of people who tested HIV-positive through community- and home-based testing were enrolled in HIV care and treatment services.[33] A study in Tanzania found that key barriers such as the reluctance to engage in HIV services while feeling 'healthy', rigid clinic policies, disrespectful treatment from service providers, stock-out of supplies, stigma and discrimination, alternative medicines, distance to the health facility and poverty all contributed to a low rate of entry into care and treatment services.[34]

WHO recommends evidence-based best practices for effectively referring and linking clients to care and treatment services.[13] These strategies may include the use of trained lay providers, peer navigators, expert patients and community outreach workers to provide linkage services, intensified post-test counselling by trained health care workers, decentralization of services to be closer to points of testing and the use of mobile phones and text messages to trace PLHIV. A systematic review of 24 interventions to facilitate linkage to care in 21 countries in sub-Saharan Africa found that streamlining services to minimize patient visits, providing peer support, and providing incentives may increase linkage to care.[35] A similar review found that support for disclosure of status, patient tracking, enhancing counselling from peer experts and other PLHIV, and home visits were all successful strategies to improve linkage to care.[36] Additionally, shortening the time between testing and initiation on ART has been proven a successful model. A study in Kuyasa Clinic in Khayelitsha, South Africa, found that a program limiting the number of counselling sessions prior to initiation on ART has the potential to reduce LTFU prior to ART initiation.[37]

### Referral and Linkage: Experience from Tanzania

#### Facility-Based Referral and Linkage Approaches

Health facility staff reported the most common linkage method used is the use of a referral form (reported by 19 of 21 facility staff interviewed). If a client tests positive outside of the CTC (whether elsewhere in the facility or through community-based HTS), they are provided

a referral form to CTC and are responsible for visiting the facility themselves. If the client has been tested within the same health facility, 13 facilities (65%) stated that they also provide the client with an escort to the CTC. Staff members said that these escorts were most commonly reserved for pregnant mothers who were escorted to PMTCT from the immunization clinic or RCH, and children of infected parents who were escorted to CTC.

In order to verify that a client who has tested positive at an outside testing site has enrolled in CTC, the referring testing site must follow up with CTC staff. After a client has enrolled at CTC, CTC staff complete the 'feedback portion' of the referral form and place it in a box on the reception counter. In order to verify enrolment of a client, the referring testing site must visit the CTC and review these forms in order to identify their client. This is the most cited verification method by health facility staff (14 out of 21 facilities, or 67%). Additional verification methods include: direct escorts report back to the testing site that the client has enrolled in CTC (6 facilities or 26%), and mobile tracking of the clients by home-based care providers at the point of testing (3 facilities or 14%).

**Community-Based Linkage and Referral Approaches**

Many of the same approaches that are implemented by facilities are also used by CBOs, including the use of the referral form. However, because CBOs are based in communities, they are able to offer additional services to ensure clients enrol at a CTC. These services include direct escorts by peer experts and CBO staff from the point of testing to the CTC, and the use of HBC coordinators to facilitate the linkage to CTC. Many CBO staff reported conducting home visits of clients who had testing HIV-positive in order to follow up and ensure those patients had visited the CTC. If they hadn't visited, the HBC coordinator would escort them to the CTC.

As mentioned above, in order for a CBO to verify their client has enrolled in care, a staff person must visit the CTC, review the feedback forms and reference their testing registry. However, many CBOs stated they don't have the time or budget to conduct this process. In the case of a direct escort from a CBO staff member or peer expert, the person who has escorted the client verifies enrolment. CBOs also conduct home visits to client houses to check for CTC cards to ensure enrolment.

**Referral and Linkage Challenges**

Loss-to-follow-up between the point of testing and the CTC can be quite high. Facility in-charges stated that the high LTFU rate is a major challenge to achieving the Treat All mandate. Facility staff, in-charges and community support staff, as well as CBO staff interviewed, cited HIV stigma as a major barrier that prohibits clients from seeking care after testing positive, and will prevent achievement of the Treat All guidelines. Participants said that many clients who test positive refuse to seek care near their homes or places of work, for fear of stigma and discrimination, and hence travel long distances to access treatment. Mechanisms to track clients are a challenge with clients often providing the

wrong contact information. CBO staff cited the lack of feedback from CTC staff about enrolment as a barrier, and both CTC and CBO staff mentioned the time and budget constraints to visiting the clinic multiple times (CBO staff) or calling CBOs (CTC staff) to confirm enrolments.

Another challenge cited was the dependence on the clients to seek care themselves. According to one clinician, 'the current referral system to CTC is very client dependent, they are responsible for walking from testing to CTC themselves'. The same clinician stated that in a context where stigma and discrimination of PLHIV is very high, it takes a very motivated person to seek services themselves. Additionally, several interviewees (including facility in-charges and CBO staff) mentioned that some clients who test positive but still feel well refuse to seek care and treatment services. This was also noted as a challenge to meeting the goals of Treat-All, in both the context of referral and linkage and adherence to care and treatment. Several facility and CBO staff members, including community-based support staff, mentioned that the effective linkage of migrant populations (including farmers, herdsmen, fishermen, etc.) is a major challenge. These populations tend to test in one area and then move to another, and without proper tracking mechanisms, following up with these clients is very difficult. An additional challenge stated by CBO staff is linking clients to care on days when the CTC is not open to new clients.

**Innovative Referral and Linkage strategies**

In order to address the many barriers of referring and linking clients to CTC services, staff members believe that it is vitally important to improve communication between testing facilities and CTCs. Suggestions include increasing the mobile phone budget for CTCs in order to contact testing facilities once a client has enrolled at CTC, and also the creation of an electronic medical record (EMR) system that both the CTC and testing facilities have access to in order to track a client's progress from testing to enrolment and retention in HIV care and treatment. Similar to an EMR, some CBO staff suggested the use of **mobile application software**, which would provide each client with a specific **identification** and allow both testing and care and treatment facilities to track clients.

In addition, facility and CBO staff believes that the use of **peer experts or educators to escort** newly diagnosed clients to the CTC, and/or track clients who have not registered at a CTC, would be very effective. This was also mentioned by facility-based community support staff and facility in-charges as a way to achieve Treat All. In order to address the stigma and discrimination that lead many PLHIV to seek services far away from their homes and places of work, facility staff and facility in-charges advocated for continuous HIV health education at the community level.

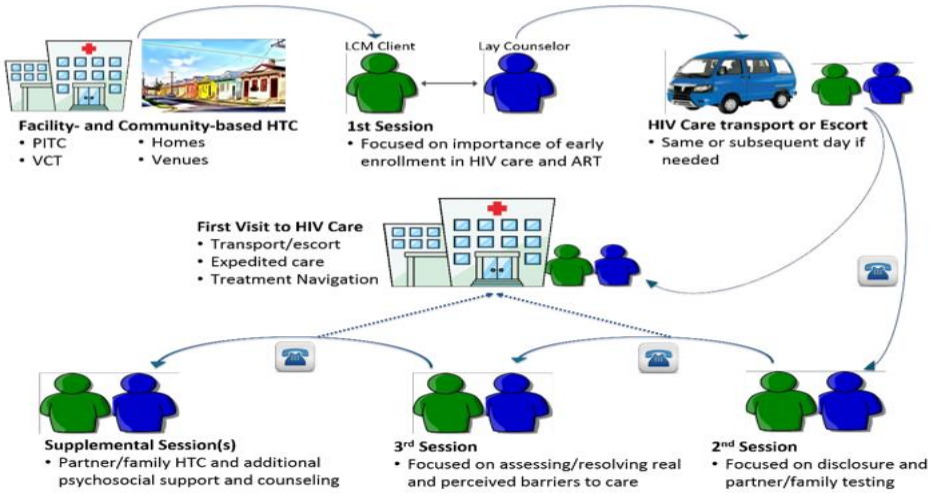
**Spotlight**: The Bukoba Combination Prevention Evaluation Project: Linkage Case Management (LCM) (Partner: ICAP)

**HIV Service Delivery Area:** Referral and linkage to HIV care and treatment services

**Overview**: ICAP, in collaboration with the Tanzania Ministry of Health, Community Development, Gender, Elderly and Children, and Tanzania Commission for AIDS (TACAIDS) administers the Bukoba Combination Prevention Evaluation (BCPE) Project. The Linkage Case Management (LCM) arm of the project, run in 11 health facilities and seven community-based HTS teams in Bukoba municipality, capital of Kagera region in northwest Tanzania, aims to enroll more than 3,700 newly and previously diagnosed, out-of-care clients aged 18-49 into HIV care and treatment, and increase early enrolment in HIV care to 90% of eligible clients (currently at 31%). The target population is newly and previously diagnosed, out of care clients aged 18-49 years.

**Differentiated Service Delivery Building Blocks**

| **Who:** | **What:** |
|---|---|
| Peer experts (educators), and trained lay counsellors provide counselling and direct escort services. | Clients are linked to peer experts and trained counsellors and provided up to five multi-session face-to-face counselling sessions on HIV care, disclosure, and barriers to care. Clients also receive transport or an escort to their first CTC appointment, and receive reminders (via phone call) for future appointments during the 90-day period. |
| **When:** | **Where:** |
| Initiated at the point of diagnosis (either facility-or community-based HTS), and last for 90 days thereafter | Facility and phone |




**Results**: From October 2014 to June 2016, 3,760 clients were eligible to participate in LCM. 89% of eligible clients (3,343) consented to take part in the program. Of the 3,343 eligible clients, 2,941 clients have been provided with all services and their cases have been closed, while 402 cases are still being managed. Of closed cases, 91% successfully registered at HIV CTCs, 89% had a baseline CD4 test result in their medical charts, and 53% (of the eligible 54%) were initiated on ART. Based on the success of the program, new strategies were implemented to increase LCM participation, including permitting delayed consent for clients who were not ready to participate on the day of diagnosis, increased cell phone air time for follow-up calls, and performance based incentives for peer experts and counsellors.

Source: *International Center for AIDS Prevention, 2016*

## Section V: Findings on ART Initiation

### Overview

In the Treat All era, with the WHO recommending ART for all HIV-positive people regardless of stage or CD4 count, there is increasing attention being paid to *how* to provide services to PLHIV. The 2016 WHO Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection includes chapter six on Service Delivery to address the diversity of needs of PLHIV.[6]Globally and in Tanzania, there is a growing cohort of clients who have been on treatment for several years. At the same time, there is a need to expand timely access to ART for those who have yet to start.

**Four Types of Clients:**

- **Clients with early disease**
- **Clients with advanced disease**
- **Stable clients on ART**
- **Unstable clients on ART**

During a consultation on care packages for PLHIV, WHO reviewed the growing diversity of client needs and assessed how programs can treat and care for people differentially. Broadly, four groups of clients with specific needs can be identified as noted in Table 1: people presenting when well, people presenting with advanced disease, stable clients and unstable clients.

People presenting when well are clients who, at the time of testing and diagnosis, have higher CD4 counts and no signs and symptoms of opportunistic infections or WHO stage 1 and 2. People with advanced disease are those with low CD4 counts (<200 cells/$mm^3$) with or without opportunistic infection or WHO stages 3 and 4.[6]

WHO defines clients as stable on ART if they meet the following criteria: on ART for at least 1 year, no current illnesses or pregnancy, good understanding of lifelong adherence and evidence of treatment success (two consecutive viral load measurements below 1000 copies/mL).[6] Unstable clients are those clients on ART that do not meet the 'stable' criteria.

**Table 1: Diversity of Care Needs for People Living with HIV**

| People living with HIV | Care package elements |
|---|---|
| People presenting when well | Adherence and retention support |
| People with advanced disease | Clinical package to reduce mortality and morbidity |
| Stable individuals | Reduced frequency of clinic visits and community ART delivery models |
| Unstable individuals | Adherence support, viral load testing, switch to second- or third-line ART if indicated, monitoring for HIV drug resistance (HIV-DR) |

Source*: WHO Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection (2016)*[6]

Given the diversity of needs of PLHIV, the package of care required will vary by group. Depending on the clinical needs of client, adaptations to the building blocks (when, where, who, what) should be made to ensure the appropriate level of care. The first two groups of clients identified in Table 1—people presenting when well and people presenting with advanced disease—are not yet on ART and require timely initiation. Their needs will be discussed here in Section V.

Differentiated ART service delivery models will be presented for the third group (stable individuals) in Section VI and for the fourth group (special populations-unstable) in Section VII.

**ART Initiation for People Presenting When Well**

Current recommendations are to initiate ART as soon as the client is ready, which can be the same day that the client was tested HIV positive (rapid ART initiation) or as early as possible. Pre-ART counselling and education allows the client and health care providers to discuss what ART is (scheduling, regimen, benefits, possible adverse effects) as well as review client health and nutritional status, disclosure plans, social support and overall readiness to commit to lifelong ART. Evidence on accelerated ART initiation is mixed; while the benefit of early initiation and immediate linkage to care exists, there are also risks to starting clients on ART before they are ready, including reduced adherence and treatment outcomes.[38]

As mentioned above related to linkage to care, people who feel well may be less willing to start ART despite the better health outcomes for those who initiate early and remain adherent (reduced risk of HIV transmission and HIV-related morbidity and mortality, as well as reduced risk for some forms of cancer, cardiovascular, liver and kidney disease).[6] Early initiation of ART may be more accepted when clients feel they are part of collaborative

decision-making, when clients understand that treatment reduces the risk of death even though they may not currently have symptoms.[39] Several large studies are underway to explore the impact of early ART initiation on HIV incidence and mortality.[6]

**ART Initiation for People with Advanced Disease**

PLHIV with advanced HIV infection will require more clinical examination and laboratory investigations before initiation of ART. This is because clients with OIs, such as Cryptococcal infection, are at a higher risk to develop immune reconstitution inflammatory syndrome (IRIS) and hence immediate initiation is not recommended. However, complications are more likely for those starting ART with advanced HIV disease and the associated co-morbidities.[40, 41]

The WHO-recommended package of care related to initiation for those with advanced disease includes: [6]

- Rapid initiation of ART (once the risk of IRIS is ruled out);
- Systematic screening for Cryptococcal antigen;
- Screening and treatment for TB or provision of isoniazid preventive treatment (IPT) as needed;
- Provision of Cotrimoxazole prophylaxis; and
- Increased intensity of follow-up during the first few months

**ART Initiation: Experience from Tanzania**

Eighteen of the 21 facilities that received site visits (86%) offer ART initiation by a clinician or nurse, and the three remaining facilities were dispensaries that did not offer ART to general clients, but did offer PMTCT services. The most common setting of ART initiation in visited facilities was the CTC, with nine testing 'areas' reporting referring patients to the CTC for ART initiation. PMTCT/RCH clinics and the TB clinic (HIV/TB clients) were the two other 'areas' within the facilities where clients could be initiated for ART.

## Section VI: Findings on ART delivery for Stable Clients

### Overview

Initiating PLHIV on ART is not enough to achieve the UN targets; they must be retained in care in order to achieve viral suppression. Retention in care is a challenge faced by governments, stakeholders, and health care providers worldwide. A cross-sectional study conducted in 41 countries between 2009 and 2014 found that only 33% of the 304,000 PLHIV studied remained on treatment at the end of the five-year period.[42] A recent study of the HIV treatment cascade in four countries, including Tanzania, found that of 390,603 patients enrolled in care, only 56% were retained after 12 months.[43] Geng et al found that out of 18,081 PLHIV in East Africa, 18% (3,150) were lost to follow-up after two years.[44] Of the remaining 15,000, 69% were retained in their original care and treatment facility, 14% had transferred facilities (10% unofficially transferred), 6% were alive but out of care, and 12% had died. Among study clients who had transferred care to other treatment facilities, the most common reason stated for leaving their initial facility was transportation issues (stated by 65%), followed by waiting times at the clinic (33%) and stigma in the community (27%). Among those who were not retained in care, stigma was the most common barrier cited (76%), followed by transportation barriers (51%) and clinic based barriers, including wait time (15%).

In Tanzania LTFU has been documented as approximately 12% at six months rising to around 62% at seven years, with men suffering a higher LTFU than women.[45] Tomori et al found that common barriers to retention in care and adherence to ART in Tanzania included: lack of knowledge and misperceptions of treatment, distant health facilities, inability to cover out-of-pocket costs associated with care, stigma and reliance on alternative healing systems instead of biomedical treatment.[46]

### Cost Implications of Treat All

While scaling up care and treatment services to all PLHIV, as Treat All suggests, will increase costs, more effective or differentiated service delivery models can reduce cost per person from what has been projected, and even potentially total costs. A recent cost analysis was conducted by the Health Policy Project to calculate the cost, and potential savings, of facility level ART service delivery needed to achieve Tanzania National AIDS Control Programme targets.[47] The analysis included the costs of medications (ART), human resources, laboratory costs, and overheads. The study found that the site-level unit cost of providing ART to adults in Tanzania is approximately $279 per adult client per year, which is estimated to rise to $343 per adult client per year by 2020. The cost is largely driven up by the cost of additional viral load testing. The authors found that this cost could be significantly reduced, to as low as $312 per client per year, if 'effective' service delivery models are put in place.

Effective delivery models include reduced laboratory tests, clinical visits and the use of pharmacy refill visits. For example, the authors indicated that reducing client visits to health facilities from once per month to once every six months (with ART refill visits every three months) would significantly reduce human resource and overhead/supplies costs. The study also found that if effective service delivery models are implemented, the total ART costs in Tanzania could be cut from $451 million in 2020 to $359 million.

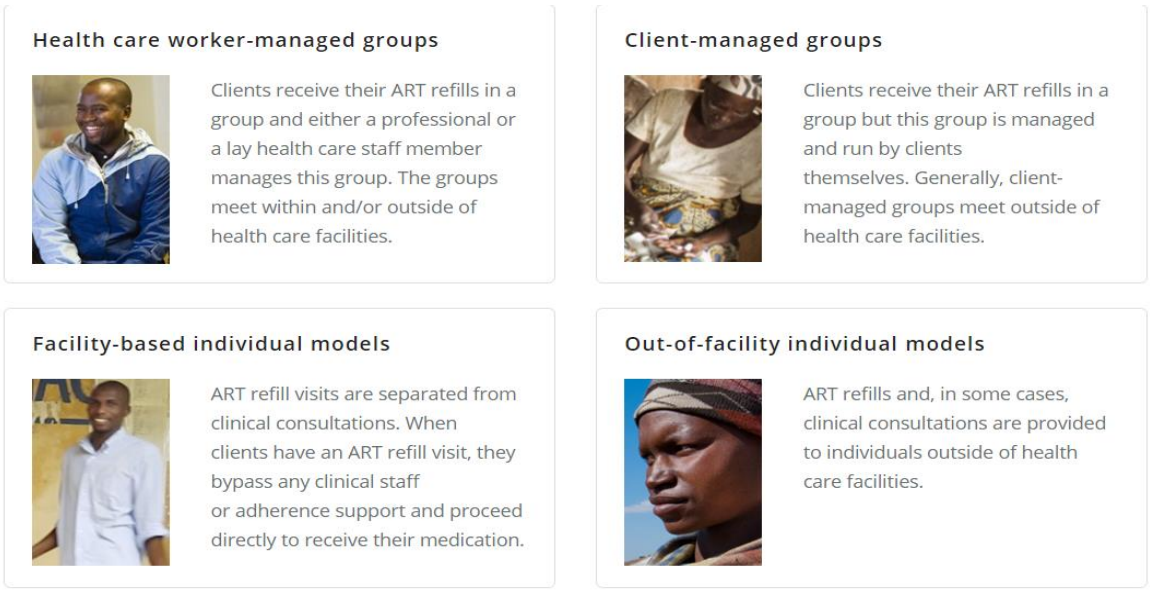
In addition to the client-centred benefits of differentiated service delivery, these cost projections also support the value of providing services that are tailored to different types of client characteristics and needs.

## Differentiated ART Delivery for Stable Clients

WHO defines stable patients as 'those who have received ART for at least one year and have no adverse drug reactions that require regular monitoring, no current illnesses or pregnancy, are not currently breastfeeding and have good understanding of lifelong adherence and evidence of treatment success (i.e. two consecutive viral load measurements below 1000 copies/mL). In the absence of viral load monitoring, rising CD4 cell counts or CD4 counts above 200 cells/mm$^3$, an objective adherence measure, can be used to indicate treatment success'.[6] In Tanzania, a definition of stable client has been agreed upon within Clinical subcommittee and is referenced in the recommendations in Annex 3.

Four models of differentiated ART delivery have been described for stable clients, according to the literature, described in more detail below:

**Figure 5: Models of Differentiated ART Delivery**




Source: *http://www.differentiatedcare.org/*

**1. Facility-Based Individual Models**

In this model, stable clients attend the clinic once or twice a year for a clinical consultation. ART refills are given directly from pharmacy according to the maximum ART refill available from national supply (commonly three months). This model has been successfully implemented in Malawi, Uganda, Swaziland South Africa and Zimbabwe, resulting in reduced number of visits per client while maintaining retention on ART. Data from Malawi, where a six-monthly appointment (SMA) strategy is implemented, reports initial 12-month retention of 97% among 5,800 clients in the SMA model, and 36-month retention of 94%.[48, 49]

**2. Out-of-Facility Individual Models**

Out-of-facility individual models vary according to where in the community the services are provided, as well as what services are delivered and by whom. They can be divided into three categories: fixed community distribution points, mobile outreach ART delivery, and home delivery.

- ***Fixed Community Points*** **-** Promising results have been found from fixed community points with evidence from the community drug distribution point (CDDP) model in Uganda and the community ART distribution points in the Democratic Republic of the Congo (DRC). In Uganda, LTFU was reported as 16.5% in the facility arm and 4.28% in the CDDP arm.[50] In the DRC, retention at 12 and 24 months post transfer to the community ART distribution point was 89.3% and 82.4% respectively.[49]

- ***Mobile outreach ART delivery*** **-** There is limited published evidence of utilizing mobile outreach services to distribute ART refills outside of the health facility. Two conference abstracts report on outcomes. In Swaziland, health facilities were offered a choice of three ART delivery models for implementation. One health centre and one clinic implemented an outreach service to support remote communities, one health centre chose to implement ART adherence clubs (ACs) and 12 clinics implemented community ART groups (CAG). Twelve-month retention was 77% for the outreach service model (n=102), 96% in ACs (n=289) and 81% in CAGs (n=336).[51] In South Africa, comprehensive ART services (including ART refills) were provided by mobile outreach on South African-Zimbabwean border farms to vulnerable, highly mobile Zimbabwean migrant farm workers and their families.[52] The intervention piloted a travel package, including a three-month ART refill. Viral suppression was 91.2%, and of those clients who indicated planned travel to Zimbabwe, only 2% did not return within three months of their planned return date.

- ***Home delivery*** **-** There are two cluster randomized controlled trials from Kenya and Uganda reporting outcomes from home ART delivery models. In Uganda, there was no difference between the virological failure rates for home versus for facility care.[53] Mortality rates were also similar between the groups. Health services and client cost

year were less for home delivery compared with facility refill (US$793 vs. $838 for health services and $18 vs. $54 for client). In Kenya, no significant intervention-control differences were found with regard to detectable viral load, mean CD4 count, change in ART regimen, new opportunistic infections or pregnancy rates. Intervention clients made half as many clinic visits as did controls.[54]

**3. Health Care Worker-Managed Group Models**

In this model, health care workers are responsible for the management of the provision of ART drug supply, care and support to groups of stable clients. Twenty-five to 30 stable clients meet for 30-60 minutes and are facilitated by nurse or designated lay health care worker who provides a brief symptom screen, referral where necessary, peer support and distribution of pre-packed ART to all the members every two to three months (four to six times a year). Group members have their viral load taken at one of their annual group visits and are seen individually for clinical review at their next group visit. They also have access to clinicians through the model referral mechanisms if they become unwell. Group members are allowed to send a friend or family member to collect their ART drug supply in the group.

The implementation of the ART Adherence Club (AC) model in the Western Cape, South Africa provides most of the evidence for the impact of health care worker-managed group models. From January 2011 to March 2015, 55 facilities offered a total of 1,308 ACs to 32,425 clients (25.2% of the total ART cohort).[55] Study data indicated that client outcomes of those clients in ACs were better than those from previous studies, and a random sample of 10% of ACs from non-research-supported sites, retention, LTFU and transferred-out rates were 94.9%, 2.1% and 3.9% at 12 months, respectively, and viral suppression was 96.8%.[56] In addition, a costing study found that the average cost per client per year for AC model to be $300, versus $374 for standard care, making the AC model the more cost effective option.[57]

A study of youth-specific ACs found that ART client outcomes were good, with a 94.3% retention rate at 12 months for ART stable youths, and 86.4% retention rate for newly initiated youth.[58] A study of family ACs found a 94.8% retention rate and 85.2% viral suppression rate for clients who had re-suppressed after a nurse-led intervention and were referred into an adult AC.[59]

**4. Client-Managed Group Models**

In client-managed group models, clients stable on ART form groups of four to 12 people. They meet at a group member's home or venue convenient to all members. Each member reports on adherence, and undergoes a pill count and brief symptom screen, which is

completed on a group monitoring form. The group may use the opportunity to provide each other with peer support. Each member takes a rotating turn to attend the health care facility for monitoring tests and clinical review whilst collecting ART refills for all members of the group. All members' ART cards/clinical folders are drawn at the facility and the attending group member reports on the health and adherence of each member from the group monitoring form to the clinician who completes the client ART card/clinical folder. The collecting member thereafter travels home, meets the group at the same venue and distributes collected ART refills. Any group member who is unwell or reports symptoms can attend the facility with the group representative or seek clinical support at any other time. This model has been successfully implemented in Mozambique, Zimbabwe, Malawi, South Africa, Swaziland, Uganda, Lesotho and Zambia.

Data from client-managed group models shows improved client outcomes with qualitative evidence supporting reduced costs and increased time savings. The majority of the evidence for client-managed groups comes from the large cohort of clients enrolled in Tete CAGs in Mozambique. In a 2014 descriptive cohort study, retention outcomes at 12, 24, 36 and 48 months were 97.7%, 96.0%, 93.4% and 91.8% respectively with a mortality of 2.1 and a LTFU rate and 0.1/100 per client year.[60] Data from two qualitative studies found cost and time savings for clients and improved certainty of ART access and mutual peer support, which facilitated better adherence.[61, 62]

## ART Delivery for Stable Clients: Experience from Tanzania

### Existing Models

Data collected from the regional and district health facility questionnaires show that 1,535 facilities (26%) currently offer ART through CTCs in their facility. Of the 6,109 facilities responding, 5,417 (87%) offer PMTCT services.

According to the data collected, the most common service delivery model for ART distribution at facilities was providing the ART refill during a consultation with a CTC staff member (19 out of 21 facilities, 90%). Only two facilities (8%) reported offering 'fast track' refills for ART. Seventeen facilities (81%) reported offering long ART prescription programs of two months for 'stable clients' (most commonly defined by those interviewed as those clients who were adherent to appointments and treatment, presented with no opportunistic infections or clients who lived far from the facility and frequent travelers including long truck drivers). Eighteen (18) PLHIV (of 30 interviewed) reported receiving their ART on a monthly basis, but would prefer longer (two to three months), six PLHIV reported to receive two months refill and confessed to be happy, and another six PLHIV who receive monthly refills reported to be satisfied with the model and prefer no change. The main reason for preference of ART monthly refill model was to be seen by clinician in every visit made. One participant said, '*My doctors help me, therefore I prefer to see my*

*doctors each month when I need a refill'.* Other reasons were fear of expiration of medications and concern about security of drugs at home for those who have not disclosed their status.

Almost all clients were required to visit the facility CTC for all ART refills, with only one facility (Njombe Hospital) using clinic staff to conduct community outreach for ART distribution. The facility reported conducting community-based outreach one time per month using facility staff to provide ART refills and clinical visits to rural areas with a high number of clients enrolled in care and treatment. Six facilities (30%) reported offering decentralization of ART to peripheral sites within their catchment area (dispensaries, clinics) while zero facilities reported offering community-based ART via trained community health workers or peer experts. Sixteen PLHIV interviewed stated that they didn't know of any other place, aside from their current location, where they could go to refill their ART, while four said they knew of a dispensary near their home, but they don't go because of stigma. Eleven PLHIV said they would prefer refilling their ART prescription at a dispensary in their community. As one said, '*It is a good idea to be able to refill your ART at the community for those people who have been on treatment for a long time. But it will be difficult for new clients because of the stigma in the community.'* Nine interviewees stated that even if ART were available in their community, they wouldn't access services there because of the high stigma. Five PLHIV said they would prefer receiving their ART refills close to their community or at home, but through PLHIV groups or CAGs rather than at a health facility.

**Spotlight**: The Multi-Month Prescribing (MMP) Project

(Partner: BIPAI)

**HIV Service Delivery Area:** Facility-based ART distribution for stable children and adolescents

**Overview**: Baylor International Pediatric AIDS Initiative administers the Multi-Month Prescribing (MMP) programme in CTCs in seven regions in the Lake Zone of northern Tanzania (Kagera, Geita, Shinyanga, Mwanza, Simiyu and Mara). MMP is administered in all health facilities supported by BIPAI, with the goal of reducing the amount of time that clinicians spend with clients, and the amount of time clients spend at health facilities. In addition to Tanzania, BIPAI also administers MMP in health facilities in Lesotho, Swaziland, Uganda, Botswana and Malawi. Stable clients were defined as: having an improving CD4 count, undetectable viral load and minimal HIV associated morbidity. 'Good adherence' is defined by if the client has successfully adhered to ART protocol for six to nine months. Children had to be two years or older to access the MMP model.

Photo: Baylor University

| **Who:** | **What:** |
|---|---|
| Pediatricians, Medical Officers, trained Nurses prescribe ART, while trained Counselors, Pharmacists, and social workers | Longer ART refills for children |
| **When:** | **Where:** |
| 2-3 month refills + clinical consultation | Facility HTS sites |

**Results**: Overall MMP data shows that MMP does not result in inferior clinical outcomes. MMP client ART adherence rates were shown to be similar or significantly higher than monthly client ART adherence rates in the six countries that the MMP initiative is administered. Rates of LTFU and mortality are lower in all countries for MMP clients versus monthly prescription clients, and the chance of achieving a CD4 of greater than 350 and an undetectable viral load tend to be higher in MMP clients than in monthly clients. Finally, MMP was found to result in significant time savings for both clinic staff and clients within the clinic, and for clients between visits. A frequent challenge for the MMP initiative is stock-out of ART and supply chain inconsistency.

**Challenges to Existing ART Delivery Models**

For all interviewed, from PLHIV to health facility and community based organization staff, the number one challenge mentioned to either distributing or acquiring ART at the facility or community level echoed what was reported for testing and linkage to care: stigma. According to PLHIV and CBO staff, stigma and discrimination in the community causes people to not disclose their status to family and friends, and forces them to seek services, including ART refill, far from home. One PLHIV stated, *'I'm afraid to disclose my status to my family, so I cannot receive or refill my ART at a nearby facility'.* As with testing and referral to care, stigma in the community and at health facilities forces many clients to seek care at different CTCs each time they need an ART refill, causing confusion and delay when providing prescriptions for refill. Many PLHIV interviewed reported that they cannot afford the travel costs associated with visiting the CTC for appointments and ART refill, a challenge also mentioned by health facility and CBO staff. Almost all PLHIV interviewed stated that they have to walk to CTC appointments because they cannot afford to take public transport, with most reporting walking at least 30 minutes to seek services (15 responses), while some reporting walking between 2 and 4 hours (9 responses) to reach the CTC. Many PLHIV also reported the waiting times to see a health provider as a major challenge. Sixteen PLHIV reported waiting an average of one to two hours before being seen by a health care provider, while 13 others reported waiting for five or more hours. After waiting to see a clinician, PLHIV then have to wait at the pharmacy, or ART counter to receive their refill. PLHIV and CBO staff also cited unfriendly services and bad language (8 responses) from health care providers at health facilities as a barrier to care.

Additionally, stock-out of ART drugs was mentioned by participants from all groups (facilities, CBOs, PLHIV) as a major challenge to both service delivery models for the distribution of ART and achievement of the Treat All guidelines. Either patients miss doses or need to spend time making extra trips to the health facility, or, as some PLHIV stated, stock-outs can cause them to frequently change regimens, resulting in side effects and poor adherence.

Finally, CTC working hours were cited as a challenge by PLHIV to refilling their ART prescription. Both formally and informally (e.g., farmers, FSWs) employed clients have a difficult time visiting the CTC during their normal hours (7:30 to 3:30 Monday to Friday).

**Innovative ART Service Delivery Models**

The decentralization of HIV care and treatment services, from regional and district health facilities to community based dispensaries and pharmacies, was the most common innovative solution proposed by both PLHIV (9 responses) and health facility staff (13). It was also the most common response from facility in-charges when asked for innovative solutions to meet the challenges posed by the Treat All guidelines. In order to effectively take advantage of ART service delivery models in communities, PLHIV stated that community-based HIV education is necessary to reduce stigma and discrimination against

PLHIV, a strategy also mentioned by CBO staff. Providing training, or task-sharing responsibilities so that a greater number of health care workers could provide ART services, was another suggestion proposed by PLHIV, health facility staff and facility in-charges.

As with linkage to care, both PLHIV and facility in-charges mentioned that peer experts/educators and community health workers should be used, and specifically should be trained on ART distribution of pre-packaged ARVs (not dispensing) to bring drugs closer to patients. Facility staff, PLHIV and facility in-charges all stated that training more health care workers, or task sharing certain cadres to be able to provide ART services should be made a priority in order to treat the estimated increase in clients, reduce the amount of time existing clients spend at the facility, and allow more facility staff to conduct outreach programs to deliver ART to rural communities, thereby supporting Treat All. In addition to decentralized care, both facility staff and PLHIV mentioned that long prescription programs would increase adherence to ART. Both groups stated that giving ART for **at least 3 months** for stable clients would be very beneficial and alleviate the stress of having to travel to the CTC on a monthly basis, although some PLHIV still preferred to receive their ART monthly. Facility staff cited the use of block scheduling for appointments (scheduling half the clients for the hours of 7:30 am to 12:30 and the other half from 12:30 to 3:30) as an effective retention and adherence strategy. Twelve facilities (57%) reported offering block appointments for general clients at the CTC, while 11 facilities (52%) offered block appointment times for children under the age of 10, and 12 facilities (57%) reported having specific appointment times for adolescents and young adults aged 10-19. According to one PLHIV, *'block appointments make it very fast and efficient to get services, there are no queues when I go into the clinic for my appointment and ART'.* Additionally, two facilities (8%) reported offering specific appointment times for FSW, MSM and PWID, and three facilities (14%) reported offering specific appointment times for prisoners, mobile populations, migrant workers, adolescents, fishermen, plantation workers and/or clients and partners of FSW. It was suggested that opening the CTC on the weekend to cater to clients who work full-time weekday jobs, and extending CTC hours to cater to KVP, would greatly help those clients increase access to care. CBOs also proposed to make it mandatory for health insurance companies in Tanzania to cover HIV and AIDS costs, including transport to facilities.

Additional strategies being implemented by health facilities to improve retention to care and adherence to drugs include reminder phone calls for appointments (4 out of 21 facilities, 19%) and mobile tracking of clients who are lost to follow-up (3 facilities, 14%). CBOs stated that PLHIV support groups, including adherence support groups, income generation groups and entrepreneurship training, are beneficial to increasing retention and adherence to care. CBO staff and health facility staff both proposed the increased use of 'peer experts', not just for ART delivery, but to provide services such as adherence counselling, administering PLHIV support groups, and tracking clients who have been lost to follow-up.

**Snapshot**: Pick n Go
(Partner: Management and Development for Health (MDH))

**HIV Service Delivery Area:** Expedited pick up of ART for retention and adherence

Management and Development for Health supports PMTCT and care and treatment services in all public and private health facilities accredited by the Tanzania MOHSW in Dar es Salaam region. Their comprehensive HIV care and treatment services focuses on the provision of quality HIV care and ART to both adults and children.

**Differentiated Service Delivery Building Blocks**

| **Who:** | **What:** |
|---|---|
| Nurse counselors dispense ART to PLHIV who have been initiated on ART. | Clients who have been initiated on ART visit small primary health facilities that do not meet criteria to initiate clients on ART on a bi-monthly basis to pick up ART. The sites, known as Pick and Go sites, are usually smaller dispensaries that are close to those living at the village level. |
| **When:** Bi-Monthly | **Where:** Primary care Pick and Go Sites |

**Results**: 567 patients on ART for more than two years pick their drugs up at the 'Pick and Go' sites. Longitudinal study found improvement in mean weight, CD4 count, and retention in care (from 69% to 83%) for participating clients. Clients reported that the sites provide reliable and quick access to refilling ARVs.

<table>
<tr><td colspan="2">Snapshot: Expert Client Peer Support<br>(Partner: Ariel Glaser Paediatric AIDS Healthcare Initiative (AGAPHI))<br>HIV Service Delivery Area: Facility based HIV Counselling for Retention and Adherence</td></tr>
<tr><td colspan="2">Overview: Ariel Glaser Paediatric AIDS Healthcare Initiative (AGAPHI) utilizes expert patients and lay counselors to provide HIV education to PLHIV. The goal of the program is to increase retention to care and adherence to ART for PLHIV.</td></tr>
<tr><td colspan="2">Differentiated Service Delivery Building Blocks</td></tr>
<tr><td><u>Who</u>:<br>Peer experts and lay counselors are trained and provide services to PLHIV on ART.</td><td><u>What</u>:<br>PLHIV on ART with good adherence are trained as counselors at the health facility. Half are linked to the facility Home Based Care Coordinator and are tasked with tracking clients who are LTFU in their community, while the remaining half provide facility based HIV and AIDS and SRH training to clients at the facility. Parents and guardians of children living with HIV are especially targeted for services.</td></tr>
<tr><td><u>When</u>:<br>As clients visit the CTC</td><td><u>Where</u>:<br>Facility and community-based</td></tr>
<tr><td colspan="2"><u>Results</u>: Programme staffs have found that the use of peer experts is a successful approach to improving retention, linking HIV positive clients to care and treatment services, and tracking LTFU. Additionally, the trained staff ‘task share’ responsibilities formally taken on by clinic staff, resulting in less waiting time for patients to see clinicians. A challenge of the programme is the cost implication to compensate the peer experts for their time, and some negative response to the peer experts by current clients.</td></tr>
</table>

## Section VII: Findings on Differentiated ART Delivery for Special Populations

### Pregnant and Breastfeeding Women

#### Overview

In 2012 the WHO recommended referring all HIV-positive pregnant women to begin lifelong ART regardless of CD4 or disease stage (also known as Option B+).[63] Now superseded by Treat All recommendations, Option B+ recognized the importance of supporting the health of the woman while pregnant and preventing HIV transmission from mother to child, and also supporting her health as a mother after the birth of her child. PMTCT and keeping mothers healthy are key interventions for the achievement of the 90-90-90 goals. In the absence of any intervention, transmission rates between mother and child range from 15-45%.[64] Despite significant resources being earmarked for PMTCT efforts worldwide, many children (more than 240,000 in 2013) are still being infected with HIV each year.[64] PMTCT interventions start with primary prevention of both HIV infection and unintended pregnancies in women, and move towards prevention of HIV transmission from women to their infants. If prevention measures fail, pregnant women must be provided care, treatment and support to ensure the health of the women and the development of the child.

PMTCT programmes face many of the same challenges for linking and retaining clients in care as care and treatment programmes targeting the general PLHIV population. A study of 65,000 women from the Malawian national PMTCT programme showed that rates of retention in care declined from 79.9% at six months post-initiation to 62.6% at 30 months post-initiation in the program.[65] The same study concluded that most patients are lost to follow-up within the first few months after initiation on ART, with many not returning after the first visit. Tweya et al found that barriers to accessing and staying in PMTCT care in Malawi included stigma and discrimination against PLHIV, travel expenses and having to travel great distances to seek care, domestic violence, poor health and side effects from ART, and poor comprehension of the initial adherence session.[66]

According to the 2014 Tanzania Mainland Annual PMTCT Program Report, 88% of all pregnant women who attended ANC services in Tanzania were tested for HIV, while 90% of those who tested positive were initiated on ART and provided prophylaxis for PMTCT.[67] A study of predictors of patient dissatisfaction with PMTCT services in Dar es Salaam, Tanzania revealed that 8% (n= 595) of women were dissatisfied with the services they were being provided.[68] Study participants cited poor communication skills of health care workers, and long visit times (more than two hours) as their main points of dissatisfaction with the services.

Integration of PMTCT into ANC has been shown to be an effective method to effectively initiate and retain women in care. A study of integration of HIV services into antenatal and postnatal clinics in rural Kenya found that integrated services led to decreased client waiting times, increased efficiency of service provision, improved retention to care, and increased adherence to medications.[69] A randomized controlled trial in Kenya comparing rates of enrolment on ART in integrated versus non-integrated programmes demonstrated higher rates of enrolment on ART (69% versus 36%) and faster rates of enrolment (0 days versus 8 days) for integrated services versus non-integrated services.[70] The authors concluded that service integration increased maternal HIV care enrolment and ART uptake, but that additional improvements were necessary to improve PMTCT outcomes. Peer-led support groups have also been shown to be effective tools to improve retention and adherence of PMTCT clients. A study from South Africa revealed that a 'Mother Mentor' intervention, in which a peer expert provided counselling, tracked clients and conducted home visits for PMTCT clients, improved retention rates for participants from 63% to 90% after 12 months, and increased disclosure rates from 50% to 71% over the same time period.[71]

**Provision of PMTCT Services: Experience from Tanzania**

For initiation on ART for PMTCT clients, 19 of 21 facilities visited (90%) reported that clients tested at PMTCT were also initiated on ART at the PMTCT clinic. Seven facilities (33%) reported initiating clients at PMTCT who were tested at the immunization clinic, while 13 facilities (62%) initiated clients at PMTCT who tested at the RCH clinic. In 18 of the 21 facilities (86%) a nurse conducted ART initiation, while clinicians initiated ART at the remaining three facilities. Of the 6,109 regional and district facilities that submitted self-reported data, 5,417 facilities (87%) reported offering PMTCT services at their facilities, compared to the 26% of facilities who reported offering ART/CTC services to the general PLHIV population. Several health facility staff, including facility in-charges, PLHIV and CBO staff stated that allowing PMTCT sites to provide ART to the general PLHIV population would be an effective and innovative way to decentralize HIV care and treatment to the community level. According to those interviewed, the resulting proximity to a CTC would result in increased retention in care and adherence to ART for PLHIV.

**Snapshot**: PMTCT Outreach (Partner: Elizabeth Glaser Pediatric AIDS Foundation (EGPAF))

**HIV Service Delivery Area:** ART initiation and community-based care and treatment services

**Overview**: EGPAF uses health facility staff to support sites that already provide PMTCT services to also provide care and treatment services to the general PLHIV population. The program is an initial step to expanding the Treat All initiative to all RCH/PMTCT sites so they can better reach all PLHIV.

**Differentiated Service Delivery Building Blocks**

| **Who:** | **What:** |
|---|---|
| Facility-based nurses and clinicians | Staff conduct mobile outreach sessions to PMTCT sites to provide services including initiation and refill of ART, lab services, general examinations and adherence and retention counselling. |
| **When:** | **Where:** |
| Monthly | Health facilities that offer PMTCT services, but not care and treatment services for the general PLHIV population |

**Results**: To date, 129 monthly mobile outreach sessions have been conducted, resulting in a 59% increased access to care and treatment services in areas where outreach has taken place. Inadequate infrastructure for lab services, and ART supply chain challenges are the main barriers that have been reported. The next step is to expand the program to other councils in the area.

## Children and Adolescents

### Overview

Providing HIV care and treatment services to paediatric and adolescent clients presents unique challenges that must be met with innovative programs to succeed. While the number of new infections among children aged 0-14 in East and Southern Africa has been reduced significantly, from 200,000 new cases per year in 2010 to 50,000 per year in 2015, the number of new infections among adolescents (aged 10-24), especially girls and young women, continues to grow.[1] In 2015, 670,000 new HIV infections among 15-24 year olds worldwide were reported.[73] In the same year 13% of girls and 9% of boys aged 15-24 in sub Saharan Africa had been tested for HIV.[72] Like most countries in sub Saharan Africa, Tanzania has a very young population, with a third of the country's population aged 10 to 24.[73] An estimated 2% of 15-24 year olds in the country are living with HIV, accounting for 11% of all PLHIV in Tanzania.[1] In February 2015, UNAIDS and UNICEF launched the ALL-IN program to address HIV infection among adolescents. The program aims to reduce new HIV infections among adolescents by 75% and AIDS-related deaths among adolescents by 65%.[74]

Numerous analyses have documented barriers to retaining HIV-positive children and adolescents in care once enrolled. A systematic review of retention of paediatric clients on ART in low and middle-income countries between 2008 and 2013 found that retention in care declined from 88% at 12 months post-enrollment, to 67% at 36 months after first starting treatment.[75] A study of determinants of adherence to ART among children and adolescents living with HIV in rural Tanzania found that living with a non-parent caregiver was a predictor of poor adherence, as was belief that traditional medicine is an alternative to ART, non-disclosure of HIV status, school environment, and timing of ART in the morning.[76] The authors concluded that special strategies targeting the caregivers, school environment and health system must be developed to increase retention in care and adherence to ART in children and adolescents.

An analysis of 11 studies by MacPherson et al reviewed service delivery interventions (counselling, peer support, DOT, financial incentives and adolescent friendly services) to improve linkage, retention and adherence in adolescents.[77]The authors found limited evidence to suggest that the interventions had an impact on adolescent retention or adherence. A similar study found that home-based nursing interventions have the potential to improve ART adherence, but further research is needed.[78] That study also found that peer support therapy for adolescents led to improvements in adherence to ART and greater viral load suppression, compared to control groups.

**Provision of Services to Children and Adolescents: Experience from Tanzania**

In order to better retain children and adolescents in care and increase adherence on ART, many facilities interviewed provide specific appointment times for children and adolescents. Ten facilities out of 21 (48%) offered specific appointment times for children less than two years old, 11 facilities (52%) offered specific appointment times for children two to four years old, 13 facilities (62%) offered specific appointment times for children five to nine years old, and 12 facilities (57%) offered specific appointment times for adolescents 10-19 years old. In addition, one health facility staff member stated they conduct a teen club at their facility to increase retention to care and adherence to ART. One facility conducts special family clinic days to increase retention, while one additional facility conducts a youth-specific clinic one day per week.

**Retention and Adherence Challenges for Children and Adolescents**

Two CBO staff stated that the refusal of parents or caregivers to acknowledge the HIV status of their children, mostly because of stigma, leads to poor retention and adherence rates. One health facility staff member said children cannot be adherent to scheduled appointments because their caregivers are not adherent. Additionally, as with testing, one health facility staff cited the challenges for adolescents who work informal jobs to be adherent to appointments because the CTC is only open during the hours of 7:30 to 3:30.

**Innovative service delivery models for Children and Adolescents**

Both health facility staff and CBO staff advocated for the expanded use of peer experts to provide support to individual adolescents and conduct adolescent-focused support groups (4 responses). In addition, health facility staff mentioned that special clinic hours for adolescents, children and their families, and extended CTC hours especially for adolescents would increase retention and adherence rates (4 responses). One CBO staff member stated that health education for parents of children living with HIV would be greatly beneficial for parents to understand the importance of adhering to appointments and ART, while another CBO staff member stated that youth centres for adolescents living with HIV would provide support and increase retention and adherence.

<table>
<tr><td colspan="2">Snapshot: Partnership for Free Survival Program (Partner: EGPAF)<br><br>HIV Service Delivery Area: Paediatric ART adherence and retention</td></tr>
<tr><td colspan="2">Overview: This EGPAF-supported programme provides ‘Ariel’ clubs, which are peer-led teen clubs for adolescents living with HIV. The groups, administered on clinic days, offer clients life skills, and adherence and retention counselling.</td></tr>
<tr><td colspan="2">Differentiated Service Delivery Building Blocks</td></tr>
<tr><td><u>Who</u>:<br><br>Peer educators provide adherence and retention counselling to adolescents living with HIV.</td><td><u>What</u>:<br><br>‘Ariel’ clubs (peer-led teen clubs) are offered on clinic days for adolescents living with HIV. The groups offer clients life skills, and adherence and retention counselling.</td></tr>
<tr><td><u>When</u>:<br><br>Monthly</td><td><u>Where</u>:<br><br>Facility-based</td></tr>
<tr><td colspan="2"><u>Results</u>: Program data has indicated a high attendance and retention in care rate, greater than 95%, for those participating in Ariel Clubs. The main challenge noted by program staff is the lack of peer educators to run the clubs.</td></tr>
</table>

## Key and Vulnerable Populations

### Overview

Key and vulnerable populations play a substantial role in the global HIV epidemic. KVPs are defined by the WHO as groups who, ‘due to specific higher-risk behaviours, are at increased risk of HIV irrespective of the epidemic type or local context’.[29] The WHO consolidated guidelines specifically for key populations focus on five populations: MSM, PWID, people in prisons and other closed settings, sex workers and transgender people (TG). Vulnerable populations—groups of people who are particularly vulnerable to HIV infection in certain situations or contexts, but not affected by HIV uniformly across all countries and epidemics—most commonly include adolescents and young women, orphans, mobile populations, migrant workers, and people living with disabilities.[29]

A UNAIDS 2014 report estimated that approximately 40-50% of new HIV infections worldwide may occur in key populations and their partners.[79] According to the same report, in 2013 FSW were accountable for 70,000 new infections, MSM for 330,000 and PWID for 110,000 new infections worldwide. The Tanzania NACP has estimated the prevalence of HIV

among SW at 26% (155,000 people), MSM at 25% (between 41,000 and 71,000 people), and PWID at 36% (of 20,000 to 42,500 people).[80] In addition to KVPs, there is an increased risk of new infections among younger vulnerable populations (adolescents and young adults), especially girls and young women. According to UNAIDS Spectrum tool, 43% of all new HIV infections in Tanzania are among those aged 24 years and younger, with girls accounting for 70% of new HIV infections among adolescents.[81] According to the same report, HIV prevalence doubles among girls during their transition into adulthood (0.8% for 15-19 year olds to 2% for 20-24 year olds) in Tanzania.[81]

HIV care and treatment services for KVPs in Tanzania are based on the 2014 national guidelines for comprehensive package of HIV interventions for key populations, and follow principles of universal access, equity and the right to health.[82] The guidelines aim to allow access by KVPs to available health services by ensuring that services and programs are non-stigmatizing, non-discriminatory, accessible, affordable and equitable for all. The guidelines also stipulate that programs should be gender-sensitive and address the needs of all men, women and transgender people.

**Retention and Adherence Challenges for Key and Vulnerable Populations**

As with testing, KVPs face many of the same care and treatment and retention challenges as those faced by others who test positive for HIV. However, because of the additional stigma faced by many KVPs, seeking care and treatment may be even more pronounced. CBO staff stated that many KVPs, especially MSM and FSWs, prefer to go to hidden, far away CTCs to seek care. As with the general population this creates challenges due to the cost of transport and time away from employment to seek services each month. Additionally, many key and vulnerable populations in Tanzania are mobile (including FSW, MSM, herdsmen and fishermen), making it difficult for the testing facility to follow up with the client to ensure they have enrolled in care.

**Innovative service delivery models for Key and Vulnerable Populations**

Health facility and CBO staff both reported that, as with the general PLHIV population, the most commonly used method to increase retention in care and adherence to ART for KVPs is individual client counselling. In addition to facility-based counselling services, several CBOs stated they have programs to provide KVPs with home-based retention and adherence counselling, conducted by home-based volunteers or peer experts. Peer experts also track KVP clients who have been lost to follow-up. Some participants mentioned training service providers at health facilities to be 'KVP-friendly' in order to reduce the stigma burden for KVP clients. As for the general population, ongoing community education on HIV and AIDS to reduce stigma and discrimination was also proposed. As with the general population, several CBO staff cited the use of income generating activities and entrepreneurship trainings, as beneficial tools to improve retention and adherence for KVPs.

## Section VIII: Findings on Integrated Services for HIV Care and Treatment

This section focuses on integrating HIV services into existing clinical services where the client has additional clinical needs. The combination of all these approaches is necessary to achieve Treat All guidelines and 90-90-90 goals.

### Overview

The integration of HIV care and treatment services into existing health facility-based programs aims to address barriers to linkage, initiation, retention and adherence to care for all PLHIV by providing a 'one-stop' shop for clients. As access to ART and care and treatment expands, the integration of services will be vital to effectively treat PLHIV living with additional morbidities such as tuberculosis, diabetes, cancers, and heart disease. In Tanzanian health facilities, integrated HIV services can be found in the TB clinic, RCH clinic, PMTCT services (discussed in Section VII), STI services and, although rarely, within the VMMC program.

Tuberculosis is the most common co-infection for PLHIV and an important area for integration of services. According to the WHO, in 2012 up to 13% of all people living with tuberculosis worldwide were co-infected with HIV.[83] UNAIDS data indicates that PLHIV have an estimated 21 to 34 times greater risk of developing TB than the general population, while a WHO study found that PLHIV have a 5-10% annual risk of developing TB, versus the 5-10% lifetime risk for the general population.[83,84] The Tanzania NACP reports that 1-2% of all attendees of CTCs develop tuberculosis while in care, while 37% of all TB patients are co-infected with HIV.[45]

In 2005 the Tanzania Ministry of Health and Social Welfare adopted WHO guidelines for collaborative TB/HIV activities, leading to the development of the national policy guidelines for collaborative TB/HIV activities.[85] The guidelines, established in 2008, aim to achieve three main objectives: to establish and strengthen mechanisms for delivering integrated TB and HIV services; to reduce the burden of TB in PLHIV and initiate early ART; and to reduce the burden of HIV in patients with presumptive and diagnosed TB. The scale up of integrated TB/HIV services (under one roof services) in Tanzania has been gradually increasing in regional and district government-run and faith-based organization (FBO) hospitals. By the end of 2008, collaborative HIV/TB programs, defined as a client receiving medical care for HIV and TB from a single provider, had been provided in over 90% of all health facilities in the country.[45] Analysis of the programs indicates that HIV testing and counselling among TB patients increased from 50% in 2007 to 83% in 2014, while 95% of PLHIV in CTC were screened for TB in 2014.[86] In 2013, the Ministry of Health reported that 98% of all TB/HIV co-infected clients attending TB clinics received at least one dose of Cotrimoxazole prophylaxis, while 73% of all co-infected clients receiving tuberculosis treatment had been initiated on ART.[45]

The integration of HIV services into other health interventions, including STI and VMMC programmes, has lagged behind tuberculosis and RCH/PMTCT. Challenges to integrating HIV services into existing programmes include inadequate joint planning or implementation of activities at the regional and district levels inadequate resources. A study of HIV integrated services in Dar es Salaam found that barriers to the provision of integrated services included lack of training and infrastructure to offer the services, and lack of guidelines to treat PLHIV co-morbid with non-communicable diseases.[87]

### Integrated Services for HIV Care and Treatment: Experience from Tanzania

Of the 21 sites visited, 17 facilities (81%) offer integrated HIV/TB care in their facilities. Sixteen facilities (76%) reported offering integrated HIV/RCH services, while staff from two facilities reported providing integrated HIV/STI care. In addition to site visit information, data from 6,109 surveyed regional and district health facilities reveals that 1,978 facilities (36%) offer TB/HIV integrated services.

CBO staff stated that the integration of HIV testing and counselling services and non-communicable disease screening is a beneficial way to identify and test people for HIV. Additionally, the integration of HIV and other services at the health facility was mentioned by health facility staff as an effective method to improve linkage mechanisms and ensure people who have tested HIV-positive are enrolled in care. Finally, both PLHIV and facility in-charges mentioned that the integration of HIV services into all chronic illnesses would address challenges to receiving ART, adherence and retention by reducing the stigma of clients having to receive services through the HIV-specific CTC, rather than as part of a package of services in a more multi-purpose building or clinic. Some facilities reported varying the use of different rooms or buildings by day or hours so that use of stigmatized services is not obvious.

<table>
<tr><td colspan="2">Snapshot: One-stop shop - TUNAJALI</td></tr>
<tr><td colspan="2">HIV Service Delivery Area: Integration of HIV and TB services</td></tr>
<tr><td colspan="2">Overview: The TUNAJALI (We Care in Swahili) programme works to provide palliative care and support services to PLHIV in Tanzania. The programme is administered by Deloitte with technical inputs from African Palliative Care Association, Center for Counselling, Nutrition and Health, and Muhimbili College of Health Sciences.</td></tr>
<tr><td colspan="2">Differentiated Service Delivery Building Blocks</td></tr>
<tr><td><u>Who:</u><br>Clinicians provide services to pregnant and lactating HIV positive women, patients who are co-morbid with TB, and in-patients.</td><td><u>What:</u><br>ART is integrated into TB clinics at Morogoro Hospital, PMTCT clinics for pregnant and lactating mothers, and in wards for in-patient clients, creating a 1-stop shop for services.</td></tr>
</table>

| When: | Where: |
|---|---|
| As per PMTCT or TB visit schedule | Facility based PMTCT and TB clinics |
| **Results:** From April to June 2016, 497 patients (96%) of all TB/HIV clients at the facility were initiated on ART. 100% of pregnant women at the PMTCT clinic have been initiated on ART | |

| **Snapshot:** TB Tanzania Program (Partner: KNCV Tuberculosis Foundation Challenge) | |
|---|---|
| **HIV Service Delivery Area:** Integration of HIV and TB services | |
| **Overview:** The Dutch (KNCV) Tuberculosis Foundation works in 42 districts in 6 regions in Tanzania to provide differentiated models of care for HIV and TB, including directly observed therapy (DOT). | |
| **Differentiated Service Delivery Building Blocks** | |
| **Who:** Clinicians and DOT nurses | **What:** Clinicians and DOT nurses provide facility and home-based DOT for TB patients, and patients co-morbid with HIV and TB. Additionally, staff provide PITC, and perform clinical monitoring, lab tests, adherence support, Cotrimoxazole prophylaxis, ART provision. |
| **When:** Weekly or bi-weekly clinic visits depending on client status. Daily visits for 're-treatment' and drug-resistance TB cases | **Where:** Facility and community-based; more than 80% receive their TB DOT at home |
| **Results:** To date the program has yielded a 95% ART uptake and 99% HTS uptake among participants. The treatment success rate is 90% for drug sensitive cases, and 68% for drug resistant TB. LTFU for clients participating in the program is less than 4%, compared to an average of 18% for TB patients in sub Saharan Africa,[88] while the mortality rate in the cohort has declined from 8% in 2006 to 5.6% in 2013. Inadequate TB diagnostic services, and insufficient human resources for health trained in TB are challenges that have been identified with the project. | |

## Section IX: Recommendations on Differentiated Service Delivery Models

These recommendations were developed and incorporated into the National Guidelines for the Management of HIV and AIDS. Identified best practices will be built upon in the development of the manual for service delivery models in Tanzania.

- Table 1: Differentiated HIV Testing Services
- Table 2: Linkage to Care
- Table 3: Differentiated ART Initiation for Clients with Early Disease
- Table 4: Differentiated ART Delivery for Stable Clients
- Table 5: Differentiated ART Delivery for Unstable Clients

*Note: As outlined, differentiated service delivery is fundamentally client-centred. Clients should therefore be able to choose between the treatment delivery models that are available at their facility. Further, it should be reinforced that while a reduced frequency of clinical consultations is necessary for clients who are clinically stable, they can access health services when they need it and do not need to wait for their next appointment date. It is also important that there are strong referral systems between differentiated service delivery models to ensure that clients can receive more enhanced care (or the package of care for clinically unstable clients) as required.*

**Table 1: Differentiated HIV Testing Services**

| When | Where | Who | What |
|---|---|---|---|
| **General Population** | | | |
| • HTS should be available in all facilities during government defined opening hours. HTS should be available 24 hours (overnight and weekends) for facilities providing maternity and inpatient care. | • Facility based testing:<br>• PITC should be offered in all entry points of the health facilities. The entry points should include OPD, IPD (including malnutrition and paediatric wards), CTC, TB, STI, and RCH/PMTCT.<br>• Facility and community based index client testing should be offered from all facilities. | • Expert clients should be trained to mobilise communities to access HTS.<br>• All cadres of existing health care workers should be eligible to be trained to perform HTS.<br>• Every facility must ensure that there is always a HCW on duty who has been trained to perform HTS. | • Integrated screening approaches should be implemented in community testing strategies. This may include HIV testing, TB and STI screening, blood pressure, blood glucose checks, and nutrition |

| | | | |
|---|---|---|---|
| | • Targeted sub-population testing should be offered as community based outreach testing monthly from all facilities. | | assessments. |
| **Special considerations for children and adolescents** | | | |
| | • Targeted outreach testing to schools and colleges, street children and orphanages should be included in monthly outreach planning. | • Expert adolescent peers should be trained to mobilise adolescents for testing.<br>• All cadres of existing health care worker should be trained to prepare DBS samples for EID testing.<br>• All facilities should ensure there is always a HCW on duty who has been trained to provide HTS and prepare DBS samples for EID testing.<br>• Trained health care workers should perform HTS and EID DBS during mobile outreach activities. | • Integrate EID DBS, HTS into outreach Health services e.g. EPI, TB, NCD and Family planning services |
| **Special considerations for pregnant and breastfeeding women** | | | |
| | • Re-testing of HIV negative pregnant and breastfeeding women should be integrated in facility and outreach EPI activities. | | |
| **Special considerations for key and vulnerable populations (KVP)** | | | |
| • Key and vulnerable populations should be consulted to determine the most appropriate time to offer community or | • Districts should map the locations where specific KVP will access HTS and offer targeted outreach testing from the facility serving the defined location | • KVP peers should be trained to mobilise their communities to access HTS. | • KVP should be offered an integrated package of services with HTS e.g. for female sex workers, HTS, Condom |

| | | | |
|---|---|---|---|
| facility based HTS e.g. moonlight testing for female sex workers. | | | distribution, Family planning, STI screening and treatment, GBV services, Prevention services (PEP). |

| **Table 2: Linkage to care** |
|---|
| • All HIV positive clients identified at a facility should be guided (with their consent) to the CTC for enrolment into ART care. This should ideally be done by the HCW who has performed the test or other community health worker or expert client<br>• All HIV positive clients identified should be linked, with their consent, with a community health worker or other community based expert client. A referral form should be completed for anyone testing positive in the community. The community agent should encourage the client to attend the facility of their choice.<br>• Any client who has tested HIV positive should be asked for their consent to be traced. Any client who has not linked to care after one month should be traced. Tracing should initially be by phone followed by a home visit. |

| **Table 3 Differentiated ART Initiation** | | | |
|---|---|---|---|
| **Table 3 a: Differentiated ART initiation for clients with early disease** | | | |
| Eligibility Criteria for Early Disease: WHO Stage 1 or 2, and CD4 count > 350cell/µL (or > 35% for children ≤ 5 years old) | | | |
| **When** | **Where** | **Who** | **What** |
| **General Population** | | | |
| • Starting ART will decrease risk of developing wasting and other infections. All clients should be assessed for the option of rapid initiation. This must include an assessment of both clinical and psychosocial readiness.<br>• Initiation should take place preferably within 2 weeks of a positive HIV test, unless there is a medical contraindication or psychosocial contraindication.<br>• Follow up should be weekly until ART initiation, then week 2, then monthly until the patient is stable. Additional visits may be needed to address any medical or psychosocial concerns | • At all facility levels<br>• Management of clients is done at any ART service delivery point | • Initiation may be performed by a trained healthcare worker (Doctor, AMO, clinical officer, nurse) | • An assessment of both clinical (OI screening) and psychosocial readiness must be carried out before ART initiation.<br>• Counselling should include basic HIV and ART education and assessment for readiness to start ART. |

| **Table 3b.Differentiated ART delivery for clients with advanced disease** | | | |
|---|---|---|---|
| Eligibility Criteria for Advanced Disease : WHO Stage 3 or 4, or CD4 count ≤ 200 cell/µL (or ≤ 25% for children ≤ 5 years old) | | | |
| **When** | **Where** | **Who** | **What** |
| • ART is required to prevent further damage to the immune system<br>• Starting ART soon will decrease risk of disease progression, including wasting and OIs<br>• Initiation should take place preferably within 2 weeks of a positive HIV test, unless there is a medical contraindication or psychosocial contraindication.<br><br>• Weekly follow-up until ART initiation, and then at week 2 and 4 after ART initiation, and then monthly until the patient is stable.<br>• •More frequent visits or hospitalization may be required to stabilize acute medical conditions and address psychosocial and other concerns | • At all facility levels<br>• Management of clients is done at any ART service delivery point<br>• Referral to a higher-level facility when feasible if consultation is not adequate to stabilize the client | • Initiation may be performed by a trained healthcare worker (Doctor, AMO, clinical officer, nurse). | • An assessment of both clinical and psychosocial readiness must be carried out before ART initiation.<br><br>• Assessment for Cryptococcal disease if CD4+ < 100 cell/$mm^3$ )<br><br>• Counselling should include basic HIV and ART education and assessment of readiness to start ART. |

**Table 4: Differentiated ART delivery for stable clients**

Eligibility Criteria of stable clients: Stable clients are defined as those clients who are above five years of age, received ART for at least six months and have no adverse drug reactions that require regular monitoring, no current illnesses (OIs and comorbidities), have good understanding of lifelong adherence of 95% and keeping clinic visit appointments for the past six months on first line ARVs, recent undetectable Viral Load (virologically suppressed) i.e. below 50 Copies/mls. In the absence of viral load monitoring, rising CD4 counts and ≥ 350 cells/$mm^3$.

Note: A stable patient should meet all the above eligibility criteria.

- All clients on ART should have a booked appointment for their clinical and refill visits
- All clients should be asked for their consent to be traced if they default

| When | Where | Who | What |
|---|---|---|---|
| **General population** | | | |
| • Clients should have a clinical review twice a year<br>• ART refills for stable clients should be provided for two to three months depending on supply<br>• Clients should choose a "blocked appointment time (AM/PM) as well as an appointment date<br>• Clinics should provide extended opening hours for specific sub-populations (e.g. Adolescent and youth). Frequency of extended hours should be determined based on local demand. | • ART refill should be decentralised to existing facilities. This should include all existing PMTCT sites.<br>• Additional dispensaries and health centres should be facilitated to become ART sites dependant on local demand and a clinic access assessment.<br>• Clients should receive ART at the health facility of their choice.<br>• In hard to reach areas, ART refills through a mobile outreach strategy by health care worker | • Follow up on ART may be performed by any trained healthcare worker (Doctor, AMO, clinical officer, nurse). | • Full clinical review should be done during clinical consultations.<br>• ART refills should be provided to clients according to service delivery model in use. |

The following ART delivery models may be considered to differentiate ART delivery. The choice will depend on assessment of local data, HCW and client challenges. Recommended service delivery models for use in Tanzania include:

- **Facility based Individual fast-track from pharmacy -** clients are seen individually within health care facilities and are fast-tracked for collection of the ARVs
- **Facility based health care worker managed group -** clients are seen in a group managed by a health care worker, e.g. teen clubs, youth clubs
- **Community based individual ART delivery through mobile outreach** - clients are seen individually outside of health care facilities by clinical staff as part of routine outreach
- **Family member or treatment supporter refill** - client nominates a family member or treatment supporter to collect their ART refill from the pharmacy

The following ART service delivery models are used elsewhere in Sub Saharan countries but for Tanzania these models are reserved for research to generate local evidences to guide the practice.

- **Community-based client managed group** - clients meet in a group and receive their pre-packed ART delivered by a group member who has collected the medication from a facility
- **Community-based health worker (CHW) managed individual ART delivery** - clients are seen individually outside of health care facilities through outreach services including receiving pre-packed ART

**Special considerations for children and adolescents**

- Children aged <5 should receive one-month refills in RCH through a family approach. Frequent visits are required to ensure dose is adjusted for weight.
- Children ≥5 should receive two- three month refills. All sites providing paediatric ART services must have HCW trained on paediatric HIV
- ART delivery should be provided outside schools hours, at weekends or during holidays.
- Older children and their guardians should be offered a group refill approach and be booked on the same day. Group activities will be coordinated by the health care worker to facilitate disclosure, peer support and adherence.
- Adolescents and young adults should be offered a group refill approach and peer support. They should be grouped according to age and consideration of disclosure status. Group activities will be coordinated by the health care worker to facilitate disclosure, peer support and adherence.

| |
|---|
| • Children and adolescents attending boarding schools should be offered additional support while at school and follow up appointment during their school holidays. |
| **Special considerations for pregnant and breastfeeding women** |
| • PMTCT and RCHS services should be integrated<br>• Clients should receive PMTCT/SRH services in the same manner as HIV negative clients – i.e. a special room does not need to be dedicated for HIV positive clients.<br>• HIV positive pregnant women should be encouraged to join PLHIV groups for additional peer support<br>• HIV positive breastfeeding women and their exposed infants should be seen on the same day "family approach". Expert clients who have experience of PMTCT should be identified to support adherence counselling and defaulter tracing for pregnant and breastfeeding women. They may be either facility or community based.<br>• Women who are on ART and are clinically stable and receiving differentiated ART delivery should be permitted to stay in their ART refill model throughout their pregnancy whilst accessing their antenatal care<br>• Women who are initiated on ART during pregnancy should have access to differentiated ART delivery models once they meet the eligibility criteria |
| **Special considerations for key and vulnerable populations** |
| • An integrated package of medical care should be offered tailored to the specific needs of the key and vulnerable population (e.g. should receive STI screening and treatment, condom distribution, GBV services, Hepatitis B vaccination and prevention services).<br>• Services for key and vulnerable populations should be friendly and integrated into existing services. Health care workers should provide the integrated package of services in a non-judgemental manner. If feasible specific times of clinics for key and vulnerable populations may be allocated by individual sites.<br>• Peers should be trained to provide psychosocial support, adherence counselling and linkages.<br>• Clients who are stable should be offered the same refill options as the general population except for people who inject drug (PWID). Clients within a particular key and vulnerable population may choose to form their own group for peer support. |
| **Special considerations for mobile populations** |
| • Mobile populations (clients working in other countries or city from their CTC sites, nomadic pastoralists, truck drivers, fishermen) should be offered longer ART refills adapted to their travel plan.<br>• Clients in this sub-population should agree to attend for their annual review, which should be booked when they are in country. |

**Table 5: Differentiated ART delivery for unstable clients**

Unstable clients (any of the following):

- On their current ART for less than 6 months
- Any active OIs (including TB) in the past 6 months
- Poor or questionable adherence to scheduled clinic visits in the past 6 months
- Undetectable recent VL above 50 copies/mL
- Decreasing CD4 cell count or CD4 < 350 cell/mm3
- Age < 5 years
- PWID

Pregnant women

Clients on second line

| When | Where | Who | What |
|---|---|---|---|
| **General Population** | | | |
| • Every month (based on clinical judgment and the specific reason/s they have not met stable eligibility criteria)<br>• Additional visits as required to address any medical or psychosocial concerns<br>• The decision to switch to second line should preferably take no longer than 2 weeks from the receipt of the second high viral load >1000 copies/mL | • At all facility levels<br>• Management of client is done at any ART service delivery point Referral to a higher-level facility when feasible if consultation is not adequate to stabilize the client<br>• Second line initiation should be decentralised to all sites who have a qualified health care worker to switch | • All levels of health care worker who have received training should be able to prepare a VL sample<br>• All health care workers who have been trained and assessed as competent to assess clients with treatment failure should be able to switch clients to second line | • Case management to address reason/s for not meeting stable eligibility criteria<br>• Enhanced adherence counselling should be available both at facility and community level<br>• Viral load monitoring according to the national algorithm<br>• Appropriate switch to second line ART |

*Note: Patients on second line ART who have a VL < 1000 copies /ml should be offered refill options for stable clients*

## Section X: Conclusion

This report has presented an overview of service delivery models for HIV testing services; ART initiation; care and treatment including ART delivery, retention and adherence; and integrated services. It has also presented the findings of a data collection process to better understand the strategies that are currently being used by health facilities and community-based organizations throughout Tanzania.

In order to achieve the Treat All guidelines and UNAIDS 90-90-90 targets, the Ministry of Health, Community Development, Gender, Elderly and Children in Tanzania is reviewing existing services and considering how to adapt differentiated service delivery models that will better meet clients' needs, from newly diagnosed clients (either presenting when well or presenting with advanced disease), to those currently on ART (stable or unstable clients). By identifying a client or target group's elements (clinical characteristics, sub-population, context), and designing the service delivery building blocks (when, where, who, what) to respond to these elements, a differentiated model of service delivery may be developed. Adopting differentiated service delivery, particularly for ART delivery and for key and vulnerable populations, will increase uptake of HIV testing services, improve ART delivery, adherence and retention, and drive toward the final 90-90-90 target of 90% of those on ART achieving viral suppression.

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# Annexes

## Annex 1: List of Participants in Meetings and Consultations

1. National Task Force Meeting, 7 Sept 2016
2. National Care and Treatment Subcommittee Meeting, 13 Sept 2016
3. Stakeholders Meeting (I), 15-16 Sept 2016
4. RHMT and Professional Bodies Meeting, 31 Oct 2016
5. Stakeholders Meeting (II), 1-2 Nov 2016

| | First Name | Surname | Institution/Organization | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 1 | Mpendwa | Abinery | WOFATA | | | X | X | |
| 2 | Noadia | Absalon | WOFATA | | | | | X |
| 3 | Dr. Eric | Aris | MDH | X | X | X | | X |
| 4 | Dr. Vicent | Assey | MOHCDGEC | | | | | X |
| 5 | Ally | Bakari | RAS Pwani | | | | X | |
| 6 | Mshubira | Balinda | CDC-TZ | | X | | | |
| 7 | Dr. Jema | Bisimba | USAID | X | | | | |
| 8 | Ana | Bodino-Memba | xxx | | | X | | |
| 9 | Dr. Beatrice | Byalugaba | RAS Pwani | | | | X | |
| 10 | Dr. Helen | Bygrave | International AIDS Society | | | | | X |
| 11 | Dr. Deborah | Carpenter | CDC | X | | | | |
| 12 | Caterina | Casilini | JHPIEGO | | | | | X |
| 13 | Dr. Stella | Chale | I-TECH | X | X | X | X | X |
| 14 | Joan | Chamungu | TNW+ | | | X | | |
| 15 | Gabriel | Changula | RAS-Katavi | | | | X | |
| 16 | Malegele | Charles | TANGWA-Dodoma | | | X | | |
| 17 | Pascal | Chedego | Dodoma | | | | X | |
| 18 | Ahamed | Chibwana | RAS Mtwara | | | | X | X |
| 19 | Dr. Joseph | Chintowa | HJFMRL | | | | | X |
| 20 | Dr. Petra | Cloves | HJFMRTI | | | x | | X |
| 21 | Dr. Lucas | David | RAS-Shinyanga | | | | X | |
| 22 | Jane | Evarist | NACP/MOHCDGEC | X | X | X | | X |
| 23 | Dr. Bennett | Fimbo | PHSRF/Consultant | X | | X | | X |
| 24 | Dr. Shamos | Finkberner | CAPSEZE | | | | | X |
| 25 | Joel Msafiri | Francis | MDH | X | | X | | |
| 26 | Neema | Gabriel | I-TECH | | | | X | X |
| 27 | Albina | Gerege | THPS | | | X | | |

| | First Name | Surname | Institution/Organization | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 28 | Anna | Grimsrud | International AIDS Society | | | X | | X |
| 29 | Tarcila | Edward | MDH | | | | | X |
| 30 | Kelly | Hamblin | USAID | X | | X | | |
| 31 | Abdalah | Hemed | MED -Kinondoni | | | X | | |
| 32 | Mohamed | Iyullu | RAS Dodoma | | | | X | X |
| 33 | Dr. Nila | Jackson | RAS-Mara | | | | X | X |
| 34 | Dr. Theopista | Jacob | BIPAI | | X | X | | |
| 35 | Dr. Frank | Jacob | RAS Morogoro | | | | X | |
| 36 | Rachel | Jacob | NACOPHA | | | | | X |
| 37 | Dr. Manyasani | Jisoli | RAS-Rukwa | | | | X | |
| 38 | Gwakisa | John | RAS-Morogoro | | | X | | |
| 39 | Janje | Jonas | xxx | | | X | | |
| 40 | Robert Josiah | Josiah | ICAP | | | X | | |
| 41 | Dr. Ramadhani | Kabala | RAS Singida | | | | | X |
| 42 | Ivan | Kagaruki | Mwananyamala Hospital | | | | | X |
| 43 | Dr. John | Kahemele | DOD | | X | X | | X |
| 44 | Neliyaye | Kahunda | Tumbi Hospital | | | | | X |
| 45 | Dr. Alphaxard | Kajura | BMC | | | | | X |
| 46 | Dr. Mwikemo Deborah | Kajoka | MOHCDGEC-PMTCT RCHS | X | | | | |
| 47 | Geofrey | Kalengo | RMO Mbeya | | | | X | |
| 48 | Jacqueline | Kalimunda | USAID-TZ | X | X | X | | |
| 49 | Prof. Samuel | Kalluvya | BMC | | X | X | | X |
| 50 | Dr. Gunini | Kamba | TABORA | | | | X | |
| 51 | Dr.James J. | Kamuga | NACP | | X | X | | |
| 52 | Charles | Kamugisha | TACAIDS | | | | | X |
| 53 | Sarah G. | Kapanda | Kinondoni MMH | | | | | X |
| 54 | Mkingama | Kapinga | NACOPHA | | | X | | |
| 55 | Anither | Karugila | Consultant | | | X | | |
| 56 | Aeshi | Kasandu | DED-Bagamoyo | | | X | | |
| 57 | Allen | Katale | CDC | | X | X | | X |
| 58 | Edda | Katikiro | MOHCDGEC/NACP | | | X | | |
| 59 | Selestine | Kato | NACP | | X | X | X | X |
| 60 | Joseph | Kato | SHIDEPHA | | | X | | |
| 61 | Daniel K. | Kayanda | PIMA-CSO-Freelance | | | X | | |
| 62 | Musa Juma | Kayanda | RAS Tanga | | | | X | |

| | First Name | Surname | Institution/Organization | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 63 | Dr. Alick | Kayange | CDC-TZ | | | X | X | X |
| 64 | Kokuhumbya | Kazaura | CDC | | | X | | |
| 65 | Jiving | Kazitanga | CDC | | | X | | |
| 66 | Dr. Eusebi C. | Kessy | RAS-Njombe | | | | X | X |
| 67 | Abubakary | Kiangi | MOHCDGEC/NACP | | X | X | | |
| 68 | Dr Ayoub | Kibao | RAS Dar | | | | X | X |
| 69 | Dr. Mageda | Kihulya | RAS Simiyu | | | | X | |
| 70 | Juma | Kilongozi | TANOPHA | | | X | | |
| 71 | Dr. Sajida | Kimambo | CDC | X | X | X | | X |
| 72 | Dr. Cripine | Kimario | EGPAF | | X | | | |
| 73 | Dr. Aafke | Kinemo | MOHCDGEC/NACP | | | X | X | X |
| 74 | Dr. James C. | Kiologwe | RAS-Dodoma | | | | X | X |
| 75 | Kiza | Kiseka | RAS Kigoma | | | | X | X |
| 76 | Anna | Kisaya | Mnazi Mmoja hospital | | | | | X |
| 77 | Renatus | Kisendi | NACP/MOHCDGEC | X | | | | |
| 78 | Ruthina | Kizengo | DED- Bagamoyo | | | | | X |
| 79 | Dr. Albert | Komba | Jhpiego | | | X | | |
| 80 | Dr. Khamis | Kulemba | RAS-Simiyu | | | | X | |
| 81 | Patricia | Kuya | MOHCDGEC/NACP | | | X | | |
| 82 | Dr. John D. | Lawi | RAS-Rukwa | | | | X | X |
| 83 | Octavian | Leonard | I-TECH | X | | | | |
| 84 | Antony | Leondard | TUNAJALI | | | | | X |
| 85 | Joshua | Levens | PEPFAR | X | | | | |
| 86 | Dr. Gisenge J.I. | Lija | MOHCDGEC/NACP | | | X | | |
| 87 | Anastella | Lugayana | RAS Pwani | | | | X | |
| 88 | Dr. Masili | Lutaragula | RAS-Mbeya | | | | X | X |
| 89 | Dr. Paul J. | Luvanda | RAS-Iringa | | | | X | |
| 90 | Sharon F. | Lwezaula | NACP | | X | | | |
| 91 | Heriel E. | Maanga | RAS-Manyara | | | | X | |
| 92 | Dr. Flavian | Magari | I-TECH | X | | X | X | X |
| 93 | Dr. Gwau | Magembe | RMO Dar | | | | X | |
| 94 | Dr. Grace | Maghembe | RAS DSM | | | | | X |
| 95 | Dr. Abuu | Maghimbi | UMB | | | X | | X |
| 96 | Boniface | Magige | RAS-Mtwara | | | | X | |
| 97 | Dr. Magafu | Majura | Ruvuma | | | | X | |
| 98 | Dr. Andrew | Makalla | WAFATA | | | | X | |

| | First Name | Surname | Institution/Organization | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 99 | Jason | Makanzo | RAS DSM | | | | | X |
| 100 | Narcis | Makori | GHSC | | | X | | |
| 101 | Angela | Makota | CDC | X | | X | | |
| 102 | Optatus | Malewo | CDC | | X | | | |
| 103 | Neema | Mallya | MOHCDGEC/NACP | | | X | | |
| 104 | Felix | Manda | RAS-Shinyanga | | | | X | |
| 105 | Dr. Clemence | Marcell | RAS-Tanga | | | | X | |
| 106 | Alex | Margery | TANEPHA | | | | X | X |
| 107 | Peter | Maro | JSI/AIDSFREE | | X | X | | |
| 108 | Dr. Damian | Maruba | RAS Katavi | | | | X | |
| 109 | Haruka | Maruyama | ICAP | | | X | | |
| 110 | Benedicta | Masanja | THPS | X | | | | |
| 111 | Dr. Pius | Masele | RAS Mwanza | | | | X | X |
| 112 | Ruth | Masimba | Dodoma R/R/H | | | | | X |
| 113 | Dr. Higgins | Massawe | MNH | | X | | | |
| 114 | Dr. Irene | Massawe | MOHCDGEC /NACP | X | X | X | | |
| 115 | Dorothy | Matoyo | CDC | | | X | | X |
| 116 | Eva | Matiko | CDC | | | X | | |
| 117 | Sylivesta | Mattanda | CDC | | | | | X |
| 118 | Joan | Mayer | USAID RS Iringa | | | X | | |
| 119 | Willy | Mbawala | KNCV/PATH | | | X | | |
| 120 | Dr. Happiness | Mbeyela | Sinza Hospital | | | | | X |
| 121 | Sponsor | Mbilinyi | MED-Ilala | | | X | | |
| 122 | China | Mbilinyi | RS-Njombe | | | | X | |
| 123 | Gliment | Mboma | MOHCDGEC/NACP | | | X | | |
| 124 | Dr. Michael | Mboya | MOHCDGEC- PMCT | | | | | X |
| 125 | Tujanael | Mbwambo | MOHCDGEC/NACP | | | | X | X |
| 126 | Benedicta | Mduma | Freelance Consultant | | | X | | |
| 127 | Dr. Seif | Mhina | RAS Mbeya | | | X | X | |
| 128 | Lena | Mfalila | TNMC | | | | X | |
| 129 | Dr. Joseph | Mganga | RC Mukuranga | | | | | X |
| 130 | Jesca | Mgereeza | RMO Singida | | | | X | |
| 131 | Dr. Ernest G. | Mhando | RAS-Lindi | | | | X | X |
| 132 | Dr. Haika | Mhando | RAS-Arusha | | | | X | |
| 133 | Dr. Emilian | Michael | PHSRF | X | | X | | X |
| 134 | Dr. Mercy | Minde | BIPAI | | | X | | |

| | First Name | Surname | Institution/Organization | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 135 | Anna | Mkiramweni | Moringe Plus | | | | | X |
| 136 | Regina T. | Mkoma | Temeke Hospital | | | | | X |
| 137 | Fadhil | Mlagalila | xxx | | | X | | |
| 138 | Abbas I. | Mlawa | RAS-Njombe | | | | X | X |
| 139 | Dr Neema | Mlole | DED-Kinondoni | | | X | | |
| 140 | Benjamin | Mlopia | RAS-Mtwara | | | | X | |
| 141 | Fitina | Mohamed | TOCHA | | | X | | |
| 142 | Jehovaness J. | Mollel | RAS Pwani | | | | | X |
| 143 | Dr. Fernando | Moraces | ICAP | | | X | | |
| 144 | Dr. Eligy | Mosille | RAS-Kilimanjaro | | | | X | X |
| 145 | Michael | Mosses | SIPHA GROUP | | | | | X |
| 146 | Stella M. | Mpanda | CST | | | X | | X |
| 147 | George | Msalale | RAS Tabora | | | | | X |
| 148 | Dr. Selemani | Msangi | RAS-Tanga | | | | X | |
| 149 | Dr. Khalidi | Msangi | RAS-Singida | | | | X | X |
| 150 | Dr. Amos | Msheha | AGPAHI | | | X | | |
| 151 | Dr. Rehema | Msimbe | THPS | | X | X | | X |
| 152 | Pavel | Mtango | MOHCDGEC/NACP | X | X | X | | X |
| 153 | Felix | Muchira | AGPAHI | | | | | X |
| 154 | Fortunata | Mufundi | I-TECH | | X | | | X |
| 155 | Dr. Julian | Mugengi | RAS Kagera | | | | X | X |
| 156 | Stella | Mushi | MDH | | | X | | |
| 157 | Charles J. | Mushi | xxx | | | X | | |
| 158 | Jeremiah | Mushi | NACP | | | | X | |
| 159 | Caroline S. | Mushi | CDC | | | | | X |
| 160 | Ramadhan | Mussa | MOHCDGEC/NACP | | | X | | |
| 161 | Modesta | Mutegeki | RAS kagera | | | | | X |
| 162 | Dr. Aisa | Muya | MDH | | X | X | | |
| 163 | Dr. Martha | Mukaminega | EGPAF | x | | | | X |
| 164 | Dr. Atupele | Mwandiga | RS Iringa | | | | X | X |
| 165 | Jane | Mwanugu | Moringe Plus | | | | | X |
| 166 | Dr. Joseph J. | Mwasambili | RAS-Singida | | | | X | X |
| 167 | Ezra | Mwijarubi | USAID | | | X | | |
| 168 | Dr. Lumumba | Mwita | BIPAI | | | X | | |
| 169 | Leticia D. | Nchia | RAS-Mororgoro | | | | X | |
| 170 | Magnus | Ndalichimpa | JHPIEGO | | | | | X |

| | First Name | Surname | Institution/Organization | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 171 | Florence | Ndaturu | MOHCDGEC/NACP | | | | X | X |
| 172 | Dr. Protas | Ndayanga | CSSC-TUNAJALI | X | | | | |
| 173 | Dr. Mussa | Ndile | Tunajali | | | X | | |
| 174 | Mariam | Ngoja | Kibaha TC | | | | | X |
| 175 | Dr. Samwel L. | Nhiga | RAS Songwe | | | | X | |
| 176 | Dr. Mathias | Nkingwa | MOHCDGEC/NACP | | | X | X | X |
| 177 | Dr. Daniel | Nkonya | MOHCDGEC/NACP | | X | | | |
| 178 | Amos | Nsheha | AGPAHI | X | | | | |
| 179 | Dr. Maylad | Ntiro | MOHCDGEC/NACP | | | X | X | X |
| 180 | Berina | Nyekunga | MED-Ilala | | | X | | |
| 181 | Gregory | Nyoni | RAS Mara | | | | X | |
| 182 | Dr. Joseph J. | Odero | RAS-Geita | | | | X | X |
| 183 | Milembe | Panya | ICAP | | | X | | |
| 184 | John | Paschal | RAS Arusha | | | | X | |
| 185 | Eric | van Praag | FHI 360 | | | X | | |
| 186 | Dr. Angela A. | Ramadhani | MOHCDGEC /NACP | X | | X | | X |
| 187 | Violet | Rugangila | I-TECH | X | | X | | |
| 188 | Joan | Rugemalila | MNH | | X | X | | X |
| 189 | Dr. Mastidia | Rutaihwa | MOHCDGEC/NACP | X | X | X | X | X |
| 190 | Deogratius | Rutatwa | NACOPHA | | | X | | X |
| 191 | Dr. Paul | Luvanda | RAS Iringa | | | | | X |
| 192 | Noel | Rwambuga | PASADA | | | | | X |
| 193 | Dr. Anath | Rwebembera | MOHCDGEC/NACP | X | X | X | X | X |
| 194 | Andronicus Aloyse | Rwelamila | RAS-PWANI | | | X | | |
| 195 | Dr. Patiens | Rweyemamu | I-TECH | X | X | X | X | X |
| 196 | Sharon F. | Rwezaula | MOHCDGEC/NACP | | | X | | |
| 197 | Asha | Said | TANEPHA | | | X | X | |
| 198 | Dr. Mawazo A. | Salehe | RAS- Shinyanga | | | | X | |
| 199 | Dr. Brenda M. | Simba | Ilala MMOH | | | | | X |
| 200 | Saulo | Sarungi | MOHCDGEC/NACP | | X | X | | |
| 201 | Dr. Fredrick | Satimil | RAS-Songwe | | | | X | |
| 202 | Tawani | Selemani | RAS-Lindi | | | | X | |
| 203 | Baz | Semo | I-TECH | X | X | X | | |
| 204 | Jeremiah | Shayo | MOHCDGEC/NACP | | | | | X |
| 205 | Farida H. | Shemkande | MED-Ilala | | | X | | |

| | First Name | Surname | Institution/Organization | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| 206 | Alphonce | Shuka | RAS Mara | | | | | X |
| 207 | John | Simbamwaka | I-TECH | | | X | X | X |
| 208 | Chantal | Smith | EQUIP | | | X | | |
| 209 | Dr. Juma | Songoro | EGPAF | | | | | X |
| 210 | Dr. Hobokela | Stephen | URC/ASSIST | | | X | | |
| 211 | Davido | Stephen | RAS Mara | | | | X | X |
| 212 | Dr. Leonard | Subi | RAS-Mwanza | | | | X | |
| 213 | Dr. Patrick | Swai | USAID | | X | | | |
| 214 | Alison | Thorston | xxx | | | X | | |
| 215 | Mavere | Tukai | GHSC | | | X | | |
| 216 | Abela | Twinomujuni | TFNC | | | | | X |
| 217 | Peris | Urasa | MOHCDGEC/NACP | | | X | | X |
| 218 | Roland | van de Ven | EGPAF | | | X | | |
| 219 | John | Vedasto | Kinondoni | | | | | X |
| 220 | Dr. Salvio | Wikesi | Bagamoyo NC | | | | | X |
| 221 | Dr. Hosea | William | RAS -Kigoma | | | | X | |
| 222 | Felix | Zelote | RAS-Arusha | | | | X | |
| 223 | Dr. Frida | Mokiti | RAS Arusha | | | | X | X |
| 225 | Dr. Amos | Nsheha | AGPAHI | | | X | | |

## Annex 2: List of Field Visit Participating Health Facilities and Implementing Partners/Community Based Organizations (CBOs)

| Region | Health Facilities | Implementing Partners and CBOs |
|---|---|---|
| Arusha | 1. Mount Meru Regional Referral Hospital<br>2. Longido Health Centre/District Hospital<br>3. Namanga Dispensary | |
| Dar es Salaam | 1. Mnazi Mmoja Hospital<br>2. Sinza Hospital<br>3. Buguruni Dispensary<br>4. Infectious Disease Center (IDC) | 1. CAFLO<br>2. Dar es Salaam Shikamana Organization (DSO)<br>3. Pendo Development Association<br>4. Tanzania Youth Alliance (TAYOA)<br>5. Tanzania Network for Family Training (TANFAT) |
| Mbeya | 1. Mbeya Regional Referral Hospital<br>2. Rungwe District Hospital<br>3. Katumba II Dispensary<br>4. Tukuyu District Hospital | 1. KIHUMBE |
| Njombe | 1. Kibana Town Council Hospital<br>2. Njombe Health Centre<br>3. Msima Sayuni Health Centre<br>4. Njombe Clinical Assistant/Clinical Officer School | 1. COCODA<br>2. NJODINGO<br>3. SEEDCO |
| Shinyanga | 1. Shinyanga Regional Referral Hospital<br>2. Kahama Town Council Hospital<br>3. Lowa Health Centre<br>4. Kagongwa Dispensary | 1. Population Services International (PSI)<br>2. Tanzanian Red Cross<br>3. Faraja Center<br>4. Rafiki Social Development Organization (SDO) |
| Singida | 1. Singida Regional Referral Hospital<br>2. St. Gasper Referral Hospital<br>3. Sanjaranda Dispensary<br>4. Itigi Health Centre | |

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