

# Guide of Differentiated care model in Sierra Leone: Who feels it knows it

May 2018

**“Who feels it knows it”**

**“U wae wer u sus na u  
knowawidaeburn u”**



# Foreword

According to recent global estimates, 77% of all people diagnosed with HIV are on ART; however, 40% of all people with HIV remain undiagnosed. In Sierra Leone, over 50% of its 61,000 people living with HIV are undiagnosed and not on antiretroviral therapy. Furthermore, 25% of adult patients on antiretroviral therapy are lost to follow up 24 months after initiation of treatment.

In 2015, WHO recommended that all people living with HIV start ART irrespective of clinical or immune status, and most national guidelines have adopted this recommendation. Sierra Leone adopted this “test all and treat all” strategy in April, 2017.

However, the country’s mode of service delivery has provided little differentiation of how ART is provided to people with differing clinical needs. Based on the findings of the recently concluded situation analysis of the status of implementation of differentiated care model within the treatment and care programme, there is need for the development of an operational guide to support the implementation of the recommendations. This innovative strategy is needed in order to achieve UNAIDS 90-90-90 ambitious global target by 2020.

The guide is not a treatment guideline for the country but aimed to complement the existing standard operating procedures (SOP) to support implementation of HIV services at communities and health facilities.

Health workers providing treatment are an integral part of the prevention of HIV/AIDS paradigm. It is hoped that these guideline will be resourceful to them and complement their wealth of knowledge and experience in providing professional care and treatment to their clients.

I wish to recognize the role played by the National HIV/AIDS Control Programme in the Ministry of Health and sanitation in providing coordination for the development of this guidelines, the International and National Consultants for providing Technical Assistant (TA) and the Expanded Technical Working Group (ETWG) for their technical input in to the guidelines. It is hoped that this guidelines will serve its purpose of contributing to the national effort of mitigating the suffering of People Living with HIV (PLHIV), ranging from community ART for stable clients to those with advanced disease.



Dr. Samuel P. E. Massaquoi  
Programme Manager  
National HIV/AIDS Control Programme  
Ministry of Health and Sanitation



# Acknowledgement

This guideline is a product of several months of work by professional medical practitioners in treatment of HIV/AIDS cases in and out of Sierra Leone. In view of the need to increase access and quality of care to people living with HIV in Sierra Leone, this guideline also reflects the World Health Organization's 2016 HIV/AIDS treatment guidelines.

At this point, I wish to commend the team of professionals who compiled this guideline to set the pace and basis for community ART for stable clients and for those with progressed disease. Many organizations and institutions represented in the Expanded Technical Working Group (ETWG) contributed to the development of this guideline. In particular, the technical inputs from SOLTHIS, Kings Sierra Leone, APHL and the involvement of Network of HIV Positives in Sierra Leone provided the pathway for Differentiated Service Delivery in Sierra Leone.

We would like to especially express special thanks to the Joint United Nations Programme on HIV and AIDS (UNAIDS) Technical Support Facility (TSF) for Western and Central Africa for providing technical and financial assistance to support the process. We also acknowledge the assistance provided by the consultants by Ms. Golda S. VC de Oliveira and Dr. Sulaiman Lakoh. The contributions of Dr. Wole of SOLTHIS, Dr. Hannah of Kings Sierra Leone Partnership, Dr. Harding, Dr. Vitto of APHL, Dr. Louisa Ganda of WHO, and the entire NACP staff are appreciated.

Finally, I must thank the Government of Sierra Leone, the UN Family, National HIV/AIDS Secretariat and Global Fund for providing the financial support to the National HIV/AIDS Control Programme to develop and produce this guidelines. It is my fervent hope that the guidelines would be useful and contribute towards improvement of quality of care delivered to people living with HIV/AIDS in Sierra Leone.



**Abdul Rahman C. Sessay**  
**Director General**  
**National HIV/AIDS Secretariat**





# Index

<b>Acronyms .....</b>	<b>7</b>
<b>1 Introduction .....</b>	<b>10</b>
1.2 Three elements to consider when differentiating care .....	11
1.3 Pre-Test and Post-Test Services.....	12
1.4 Men continue to lag behind.....	12
1.5 Adolescents are underserved .....	13
1.6 Increasing access for key population .....	14
1.7 Adjusting for patients with advance disease and unstable patients.....	15
<b>2 Objective .....</b>	<b>17</b>
2.1.2 Guide development methodology: .....	17
2.1.3 Target audience .....	18
2.1.4 How to use this Guide? .....	18
2.2 Differentiated care models .....	19
2.2.1 Differentiate HIV testing.....	20
2.2.2 Differentiated ART Delivery .....	23
2.2.3 Why do we need differentiated ART delivery? .....	23
2.2.4 Challenges according to specific population.....	26
2.2.5 Differentiating Viral load approach.....	27
<b>3 Differentiated care model in Sierra Leone.....</b>	<b>31</b>
Summary of differentiated care in Sierra Leone.....	32
3.1 Differentiated HIV testing for General Population.....	33
3.1.1 Differentiated Testing model for men.....	36
3.1.2 Differentiated HIV Testing for Adolescents.....	37
3.1.3 Differentiated HIV testing for Key population .....	39
3.2.1 Linkage to ART services.....	41
3.3.1 Differentiated ART initiation .....	42
3.3.2. Models of ART delivery for Stable patients .....	46
3.3.2.a Model 1: ART delivery stable patients .....	47

3.3.2.b Model 2: ART delivery <b>stable patients</b> in health facility: .....	48
3.3.3 Differentiated ART delivery for <b>stable</b> children's and adolescents .....	49
3.3.3.a Example of model .....	51
3.3.4 ART delivery to patients with advance disease/ Children under 5 .....	54
3.4 Differentiated care on Viral Load.....	55
3.4.a Model of differentiated viral load .....	56
Recommendations for further review.....	57
Bibliography .....	58





## Acronyms

**ART-** Anti Retroviral Therapy

**HIV-** Human Immunodeficiency Virus

**HTS** – HIV Testing Services

**SWOT-**Strengths, Weaknesses, Opportunities and Threats

**WHO-** World Health Organization

**M&E-** Monitoring and Evaluation

**PMTCT-** Prevention of Mother to Child Transmission

**NHPSP-** National Health Policy Strategic Plan

**SWAASL-** Society for Women and AIDS in Sierra Leone

**NETHIPS-** Network of HIV Positives in Sierra Leone

**EVD-** Ebola Virus Disease

**ARV-** Antiretroviral

**AIDS-** Acquired Immuno-Deficiency Syndrome

**NAS-** National HIV/AIDS Secretariat

**PLHIV-** People Living with HIV

**WHO-** World Health Organization

**CHW-** Community Health Worker

**STI-** Sexually Transmitted Infections

**NSP-** National Strategic Plan

**CSO-** Civil Society Organization

**CBO-** Community Based Organization

**DHMT-** District Health Management Team

**NDC-** National Differentiated Care

**HTC-** HIV Counselling and Testing

**HF-** Health facility

**LAB-** Laboratory

**APHL-** Association of Public health Laboratories

**TA-**Technical Assistant

**ETWG-** Expanded Technical Working Group

**UNICEF-** United Nation Children's Fund

**NACP –** National AIDS Control Programme

**VL-** Viral Load

**GFATM-** The Global Fund for HIV/AIDS, TB and Malaria

**PrEP-** Pre-Exposure Prophylaxis

**PCR-** Polymerase chain reaction

**PHU-** Peripheral Health Unit

**KP-** Key Population

**CARKAP-** Consortium for the Advancement of Rights of Key Affected Populations

**TAT-** Turnaround time

**HCW-** Health Care Worker





# PART 1

# 1 Introduction

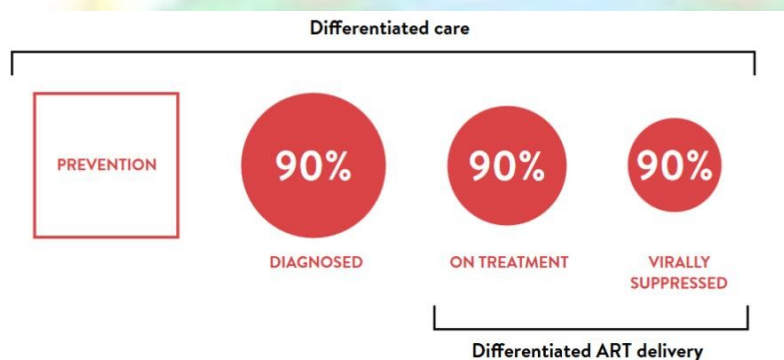
Differentiated service delivery, also referred to as differentiated care, is an approach to service delivery centered on people living with HIV, that simplifies and adapts HIV services across the cascade of care, to reflect the preferences and expectations of various groups of people living with HIV, while reducing unnecessary burdens on the health system.

The approach involves assessing individuals to determine the level of care they need and matching them to appropriate services. It includes offering less intensive and less frequent services that are more easily accessible for people who are clinically stable on antiretroviral therapy (ART); this reduces the barriers to treatment and care for people living with HIV and, at the same time, refocuses health system resources on people who require more intensive care and follow-up.

Similarly, it includes offering more intensive care for people who are clinically unstable and/or have advanced disease. Differentiated service delivery applies across the HIV care continuum, including HIV prevention, testing, linkage, ART initiation, ART delivery and chronic care<sup>1</sup>.

Differentiated care, applies across the HIV continuum and all three of the 90-90-90 targets (90% of people living with HIV should know their status; 90% who know their status should be on ART; 90% of those on ART should be virologically suppressed). In other words, differentiated care is comprehensive: from testing people unaware of their HIV status to viral suppression of HIV clients enrolled in care (Fig1).

**Fig. 1 Differentiated care is applicable across the HIV care continuum**



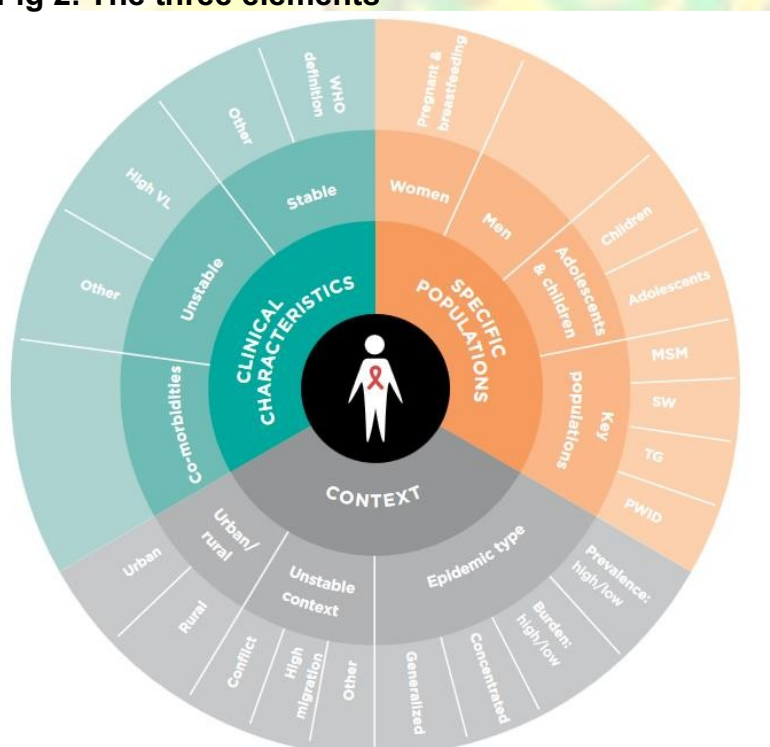


## 1.2 Three elements to consider when differentiating care

In order to provide client-centered care, you need to consider the clinical characteristics, specific population(s) and context of your clients (Fig.2). This will allow you to adapt or build appropriate models of ART delivery:

- 1- Based on clinical characteristics, clients can be defined as: stable; unstable; and clients with co-morbidities or co-infections. A client can be determined as stable according to WHO's definition or another definition. Unstable clients may have a high viral load or another characteristic, such as a mental health condition or recently initiated on ART, that classifies them as unstable.
- 2- ART delivery should be differentiated based not only on clinical characteristics, but also by considering the challenges of specific populations. Differentiating ART delivery for specific populations can help improve access to HIV care by addressing the structural barriers and adherence issues that specific populations often face. Each specific population will require a unique and comprehensive package of health care services to overcome particular challenges.
- 3- In order to maintain quality ART delivery in specific contexts, modifications to how ART is delivered are required. In addition to the consideration of contextual stability, the prevalence of HIV in a given setting will also impact on the specific challenges faced by clients and the appropriateness or extent of specific interventions.

**Fig 2. The three elements**





To assess the country delivery, we will divide this document on 3 parts taking in to account the 90-90-90.

### 1.3 Pre-Test and Post-Test Services

HIV testing is the gateway to HIV prevention, treatment, care and other support services. People's knowledge of their HIV status through HIV testing services (HTS) is crucial to the success of the HIV response<sup>2</sup>.

Attaining the UN 90–90–90 targets depend on the first 90 – diagnosing 90% of people with an HIV infection. Many people with HIV have already been diagnosed, as evidenced by such achievements as the estimated 13 million people on ART worldwide. Many people needing care and treatment remain undiagnosed, however. Successful linkage from diagnosis to prevention, treatment and care services is also essential to reach the second and third 90s – which 90% of HIV-positive people who have been diagnosed are on ART and that 90% of people with HIV receiving ART have achieved viral suppression<sup>3</sup>.

Receipt of an HIV diagnosis empowers individuals to make informed decisions about HIV prevention, treatment and care that will affect both HIV transmission and an individual's health and survival. Therefore, linkage to appropriate services following diagnosis should be regarded as a key component of effective and comprehensive HTS.

According to recent estimates, 77% of all people diagnosed with HIV are on ART; however, 40% of all people with HIV remain undiagnosed<sup>4</sup>. Furthermore, despite the annual increases in HIV tests and HIV testing coverage<sup>2</sup>, in many settings HTS is not sufficiently focused. Many of those at highest risk, such as men, partners of people with HIV, adolescents and young people in high HIV prevalence settings and key populations worldwide, remain unreachable.

### 1.4 Men continue to lag behind

Globally, HTS uptake and coverage for men continues to be lower than for women<sup>5</sup>. Nearly 70% of adult HIV tests reported in 76 low- and middle-income countries in 2014 were conducted for women<sup>6</sup>. Global reporting suggests this is because HIV testing has been successfully integrated into reproductive health services, including antenatal care, but not consistently into other relevant clinic settings. Also, male partner testing is not widely implemented or, where offered, taken up<sup>5</sup>. As of June 2014, only half of 58 low- and middle-income countries surveyed had policies supporting couples HTS<sup>7</sup>. Fewer still reported couples HTS

rates over 20% in antenatal care settings, with the offer of partner testing being even less likely outside of these settings<sup>7</sup>; more than half of countries did not have policies recommending the offering of partner testing in all settings.

Barriers hindering men access to and uptake of HTS are often due to their perceptions that health services, particularly antenatal care settings, are not friendly to men<sup>8</sup>. Other socio-cultural beliefs and behaviours are also contributing factors. As a result, many men remain untested, and those who are HIV-positive continue to be undiagnosed and, therefore, linked to treatment and care late. Consequently, in many settings, males have a higher HIV-mortality rate than their female peers<sup>9</sup>.

Strategies are needed to increase men's uptake of HTS, including providing HTS in more accessible settings. Also needed are ways to encourage more testing of male partners in high prevalence settings and testing of male partners of women with HIV in all settings. As reported in recent systematic reviews, assisted HIV partner notification services, HIVST, male-focused interventions and outreach such as mobile or home-based HIV testing are particularly promising, having increased uptake of HTS among men in several settings<sup>10</sup>.

## 1.5 Adolescents are underserved

Adolescents, particularly girls, are also at significant risk of HIV infection. Risk is highest in sub-Saharan Africa, where nearly 90% of the world's HIV-positive adolescents (10–19 years of age) are estimated to be living<sup>11</sup>. Additionally, an analysis across 19 countries in sub-Saharan Africa reports that, regardless of gender, adolescent orphans are more likely to be HIV-positive than other adolescents<sup>12</sup>.

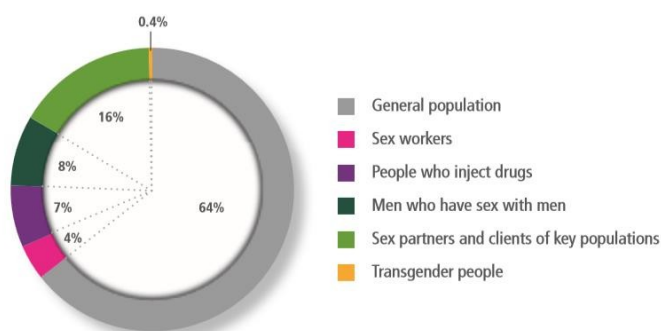
Poor access and uptake are often due to actual or perceived poor-quality services as well as to restrictive laws and policies – for example, age of consent laws for testing that prevent adolescents from accessing HTS<sup>13</sup>. Greater efforts are needed, in particular, to improve access to HTS among adolescents where HIV incidence is high, in sub-Saharan Africa and among young key populations in all settings.

## 1.6 Increasing access for key population

Key populations are also disproportionately affected by HIV. They comprise approximately 36% of the 1.9 million new adult HIV infections that occur each year (Fig. 4)<sup>14</sup> Although countries are increasingly including key populations in their national HTS guidelines, implementation remains limited, and coverage continues to be low in most settings<sup>6</sup>.

Fig. 4

Fig. 1.2. Global distribution of new HIV infections by population group, 2014



Source: UNAIDS, 2016 (12).

Poor coverage and low uptake of HTS among key populations is not only related to availability but also to acceptability of services. Low acceptability frequently reflects unfriendly services, fear of stigma, discrimination, and punitive laws and practices that criminalize behaviours and, thereby, discourage access to health services, including HTS<sup>15</sup>.

These challenges require a new focus and new approaches to reach people with undiagnosed HIV. Many countries and programmes are looking for innovative approaches to delivering HTS to achieve national and global testing targets<sup>2</sup>.

## 1.7 Adjusting for patients with advanced disease and unstable patients.

In 2015, WHO recommended that all people living with HIV start ART irrespective of clinical or immune status, and most national guidelines have adopted this recommendation<sup>16</sup>.

This shift towards earlier initiation of ART, together with improved access to HIV testing and treatment, has led to an overall improvement in health status at the start of ART<sup>17</sup>, as reflected by a gradual increase in the median CD4 cell count at the start of ART in most settings<sup>18</sup>.

Despite this progress, up to half of people living with HIV continue to present to care with advanced HIV disease – defined by WHO as having a CD4 cell count <200 cells/mm<sup>3</sup> or a WHO clinical stage 3 or 4 disease<sup>19</sup>.

People presenting with advanced HIV disease are at high risk of death, even after starting ART, with the risk increasing with decreasing CD4 cell count, especially with CD4 cell count <100 cells/mm<sup>3</sup><sup>20</sup>. Advanced HIV disease is also associated with increased health-care costs<sup>21</sup>.

The scaling up of ART has benefited from a public health approach that has emphasized standardized, simplified treatment protocols along with decentralization, integration and task sharing to support service delivery<sup>22</sup>.

To date, service delivery within a public health approach in resource-limited settings has provided little differentiation of how ART is provided to people with differing clinical needs.

The 2016 WHO consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection (hereinafter referred to as the 2016 WHO consolidated ARV guidelines) identifies four groups of people with specific needs:

- Individuals presenting or returning to care with advanced HIV disease (WHO stage 3 or 4 disease and/or CD4 < 200 cells/mm<sup>3</sup>); such individuals may be ART naive or have interrupted treatment;
- Individuals presenting or returning to care when clinically well (absence of WHO clinical stage 3 or 4 disease and/or CD4 cell count ≥200 cells/mm<sup>3</sup>); such individuals may be ART naive or have interrupted treatment;
- Individuals who are clinically stable on ART<sup>23</sup>; and
- Individuals receiving an ART regimen that is failing.

For each of these categories, services may be differentiated to ensure that a people-centered approach to ART delivery is provided within a public health approach. People who are stable on ART with a suppressed viral load may be seen less frequently and receive longer supplies of ART. For those with advanced HIV disease, more intensive follow-up and a package of interventions could reduce morbidity and mortality in this vulnerable group<sup>24</sup>.



---

# PART 2

---



## 2 Objective

In this consolidated guide document on Differentiated HIV prevention, diagnosis, treatment and care for Sierra Leone populations, we bring together all existing guidance relevant to six populations – Stable adults, Children, Adolescents, Pregnant women, unstable patients or patient with advance disease and Key population (men who have sex with men, people who inject drugs, people in prisons and other closed settings and sex workers) and updates selected guidance and recommendations.

This guide aims to: provide a comprehensive package of evidence-based HIV-related recommendations for these populations; increase awareness of the needs of and issues important to key populations; improve access, coverage and uptake of effective and acceptable services; and catalyse greater national and global commitment to adequate funding and services.

### 2.1.2 Guide development methodology:

A steering committee was set to realize a Situational Analysis on Sierra Leone care, providing a comprehensive overview of the care model being implemented in Sierra Leone, the HIV situation of the 1.5% of population living with HIV; especially regarding adults, children, adolescents, Key population, pregnant women and unstable patients.

It also presents an overview of the public policy and service delivery environment for this population, identifying areas in which progress needs to be made and making recommendations to the way forward.

Following the findings of the committee and a desk review performed, External Development Group was formed, comprising the majority of the Steering Group members along with some additional expert members.

An extensive review of the literature, including literature on HIV testing services, the effects of disclosure, self-testing and partner notification, differentiation on antiretroviral therapy delivery, chronic HIV patients care, and ART initiation was conducted to support the development of this Guide for Differentiated Care.

This new guide includes issues related to offering HTS and care to the following population groups:

- General populations
- Children
- Adolescents (10–19 years old) and young people (15–24 years old)
- Pregnant and postpartum women
- Key populations
- Unstable patients and patients with advanced disease (WHO classification)



### 2.1.3 Target audience

This Guide on Differentiated care are intended for national and sub-national HIV programme managers, particularly within Ministry of Health and Sanitation, who are responsible for the national health sector response to HIV, including HTS and prevention, care and treatment services, as well as officers at the national level responsible for other communicable diseases, especially other forms of sexually transmitted infections, tuberculosis and viral hepatitis.

Furthermore, these guidelines will be helpful to additional implementers of HTS, including international and national non-governmental organizations, civil society and community-based organizations. They can also serve donors as the normative guidance to support effective funding, planning, implementation, and monitoring and evaluation of the HIV cascade.

### 2.1.4 How to use this Guide?

The content of this guide follows the flow of the HIV care and treatment cascade from different entry points, through HIV testing to viral load monitoring of a client on ART. This Guide will be divided taking in to account the specificity of each group (stable population: adolescents, pregnant and breastfeeding women, key population and children/ clients with advanced disease).

## 2.2 Differentiated care models:

Global 90-90-90 targets and 2015 World Health Organization (WHO) guidelines call for universal access to and rapid scale-up in coverage of antiretroviral therapy (ART), at a time resources for HIV are constrained globally<sup>3</sup>. Donor HIV spending in low and middle-income countries declined by more than \$1 billion in 2015<sup>25</sup>. While domestic contributions have increased over the past decade, countries face barriers in terms of limited fiscal space, and human resources, infrastructure, and other health system constraints in scaling up HIV services<sup>26</sup>. With the need to treat more people and improve patient outcomes, developing countries and donors are calling for efficiency gains that can achieve more with the resources available. Some have suggested there is scope for improving efficiency due to wide differentials in observed unit costs of HIV interventions<sup>27</sup>.

A path to greater ART efficiency may be adopting service delivery models that reduce use of health system inputs while maintaining or increasing quality of care and hence patient outcomes. In this context, differentiated care models (DCMs) for ART, have been suggested to potentially maximize quality of care efficiently<sup>28</sup>.

These models would adapt treatment guidelines to patient characteristics, such as the patient's age, location, behaviour, and virological or immunological response to treatment. Under DCMs, ART patients who are stable require fewer clinical facility visits and laboratory tests, allowing health systems to focus resources on those more in need<sup>29</sup>. DCMs may combine multi-month scripting, where patients return to facilities at longer intervals, with community-based support for ART, such as adherence clubs or community antiretroviral (ARV) distribution points<sup>29</sup>.

Potential short-term efficiency gains from scaling up DCMs may include savings in health worker time and facility use through reduced visits for stable patients, rationalized use of diagnostic testing for patient management, and reduced costs to the patient in terms of transportation and time waiting to see a provider. The latter may improve adherence by reducing the patient's opportunity cost of acquiring ARV refills, especially if reinforcing messages are available in the community. Potential long-term cost savings stem from improved cohort-level outcomes such as reduced need for second-line therapy as patients adhere better to treatment and reduced need to conduct lost-to-follow-up tracing. These long-term benefits assume that quality of care is maintained or improved<sup>30</sup>.

## 2.2.1 Differentiate HIV testing.

Certain basic services should be provided prior to testing in all settings (both in health facilities and in the community), regardless of the approach used to deliver HTS. These services apply to all adults, couples or partners, and adolescents.

Health facilities	Community
Primary care clinics, inpatient wards and outpatient clinics, including specialist clinics such as STI and TB clinics, in district and provincial or regional hospitals and their laboratories and in private clinical services	HTS can be offered through home-based index testing or door-to-door outreach, in schools and other educational establishments and in workplaces, places of worship, parks, bars and other venues.

In addition, HIV self-testing (HIVST), a process in which an individual who wants to know his or her HIV status collects a specimen, performs a test and interprets the result by him or herself, often in private, is an emerging approach that can extend HTS to people who may be unable or reluctant to attend existing HTS as well as to people who frequently retest<sup>2</sup>.

Eight key entry points to HIV health services for infants, children and adolescents must be targeted.

Who should be offered an HIV test<sup>31</sup>?

Service	Test
ANC and PMTCT	
<ul style="list-style-type: none"> <li>• All pregnant women</li> <li>• All infants of HIV-infected mothers</li> <li>• All infants with mothers of unknown status</li> </ul>	<ul style="list-style-type: none"> <li>• HIV antibody (Ab) testing in the infant if the mother is of unknown HIV status</li> <li>• Virological assay for the infant if the mother is known to be positive or the infant tested HIV Ab positive: HIV DNA PCR</li> </ul>
Service	Test
Labour wards and delivery services	
	<ul style="list-style-type: none"> <li>• Rapid serological HIV assay on mothers to determine HIV status and infant exposure. If</li> </ul>

	infants HIV-exposed, for preventive treatment and virological HIV test at 6 weeks of age
Service	Test
EPI	
<ul style="list-style-type: none"> <li>• All infants of HIV-infected mothers (if not previously tested)</li> <li>• All infants with mothers of unknown status</li> </ul>	<ul style="list-style-type: none"> <li>• Virological assay: HIV DNA PCR*</li> <li>• HIV rapid antibody test; if positive confirmatory virological assay</li> </ul>
Service	Test
IMCI/Well-baby clinics/Nutrition services	
<ul style="list-style-type: none"> <li>• All infants of HIV-infected mothers (if not previously tested) whether symptomatic or not</li> <li>• All malnourished/underweight infants and children**</li> <li>• All children presenting with unusual/recurrent infections**</li> <li>• All children with signs and symptoms of HIV (see Table 3) **</li> <li>• All children with TB**</li> <li>• All children with siblings and/or family members who are HIV- or TB infected**</li> </ul>	<ul style="list-style-type: none"> <li>• Less than 18 months of age, status of mother or infant exposure unknown: establish exposure with serological test (HIV rapid test or HIV ELISA); if reactive confirm status with virological test (HIV DNA PCR) *</li> <li>• Less than 18 months of age, status of mother is known positive or known HIV-exposed infant: virological test (HIV DNA PCR) *</li> <li>• Older than 18 months: serological assay (HIV rapid test or HIV ELISA)</li> <li>• Previously negative but sick or breastfeeding: repeat test as appropriate for age</li> </ul>
Service	Test
TB services	
<ul style="list-style-type: none"> <li>• All infants, children and adolescents diagnosed with TB</li> </ul>	<ul style="list-style-type: none"> <li>• Less than 18 months of age and of unknown exposure status: establish exposure with serological test (HIV rapid test or HIV ELISA); if</li> </ul>



<ul style="list-style-type: none"> <li>• All infants, children and adolescents with suspected TB</li> </ul>	reactive, confirm status with virological test (HIV DNA PCR) * <ul style="list-style-type: none"> <li>• Less than 18 months of age and of known exposure status: virological testing. Consider initiating ART.</li> <li>• Older than 18 months: serological assay (HIV rapid test)</li> </ul>
Service	Test

### Sexual and reproductive health/family planning services

<ul style="list-style-type: none"> <li>• Adolescents presenting for contraception</li> <li>• Adolescents presenting with menstrual concerns</li> <li>• Adolescents presenting for treatment of STI</li> <li>• Adolescents presenting for male circumcision</li> </ul>	<ul style="list-style-type: none"> <li>• Serological assay (HIV rapid test or HIV ELISA)</li> </ul>
Service	Test

### Orphans and vulnerable children

<ul style="list-style-type: none"> <li>• Orphans in institutional care</li> <li>• Disabled children in institutional care</li> <li>• Children who are the victims of sexual abuse</li> </ul>	<ul style="list-style-type: none"> <li>• Less than 18 months of age: establish exposure with serological test (HIV rapid test or HIV ELISA); if reactive, confirm status with virological test (HIV DNA PCR) *</li> <li>• Older than 18 months: serological assay (HIV rapid test or HIV ELISA)</li> </ul>
Service	Test

### Adult HIV testing and treatment services

<ul style="list-style-type: none"> <li>• Children and partners of HIV-infected adults</li> </ul>	
--	--

\* When virological testing is unavailable, clinical algorithms along with serological testing allow for a presumptive diagnosis of HIV infection and for treatment with ART. If the mother is of unknown status, please either offer an HIV antibody test to mother or the infant. If the test is positive, then perform HIV virological testing.

\*\* If HIV infection is clinically likely and HIV rapid test is positive, may consider initiating treatment while HIV virological testing is being processed; this is particularly important in very young infants and children who have higher mortality from HIV infection.





## 2.2.2 Differentiated ART Delivery

Over the past decade, a range of innovative strategies to enhance retention and adherence to ART have been documented. These programmatic adaptations have been described as ways of “differentiating” how ART is delivered.

The core principle for differentiating care is to provide ART delivery in a way that acknowledges specific barriers identified by clients and empowers them to manage their disease with the support of the health system. WHO highlights the need for client-centered care to improve the quality of HIV care services<sup>2</sup>.

## 2.2.3 Why do we need differentiated ART delivery?

### 1. To improve clients' lives

Most importantly, differentiated ART delivery can improve the quality of care and access to treatment for PLHIV. It can better reach underserved populations and address issues surrounding stigma and discrimination that many PLHIV face when accessing HIV services. Differentiated ART delivery is responsive to the needs of PLHIV and often results in increased levels of adherence, client satisfaction and client empowerment<sup>32</sup>.

### 2. To improve health system efficiencies and outcomes

Supporting clients to initiate ART is critical, but it is not enough – retention in care and adherence to effective treatments is required to achieve viral suppression. Retention data from many countries demonstrate that ART programs globally face substantial challenges in maintaining clients on ART<sup>33</sup> with viral suppression<sup>34</sup>. Data from sites where differentiated ART delivery has been adopted highlight that such interventions can be part of improving retention and adherence and achieving the second and third “90” outlined in the UNAIDS global targets<sup>35</sup>.

When ART was first provided in resource-limited settings, the majorities of clients were treatment naïve and presented with advance disease and care was delivered in the same way for all clients, regardless of duration on ART, co-morbidities or other inter-current medical needs.

### 3. To support “treat all”

Worldwide, 36.7 million people are living with HIV and 18.2 million people are receiving ART<sup>36</sup>. With the implementation of the WHO 2015 recommendation to



“treat all” HIV-positive individuals on ART, health systems, often already under extreme pressure due to lack of human and financial resources, will have to re-examine how ART care is delivered.

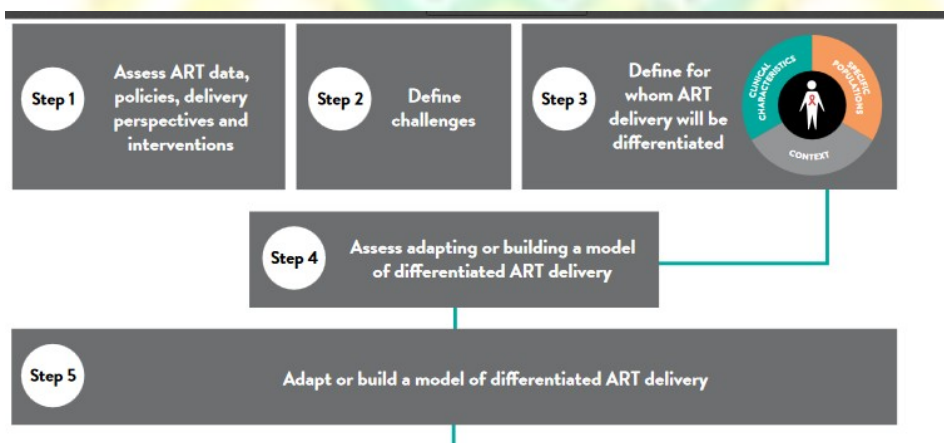
#### 4. To reach 90-90-90

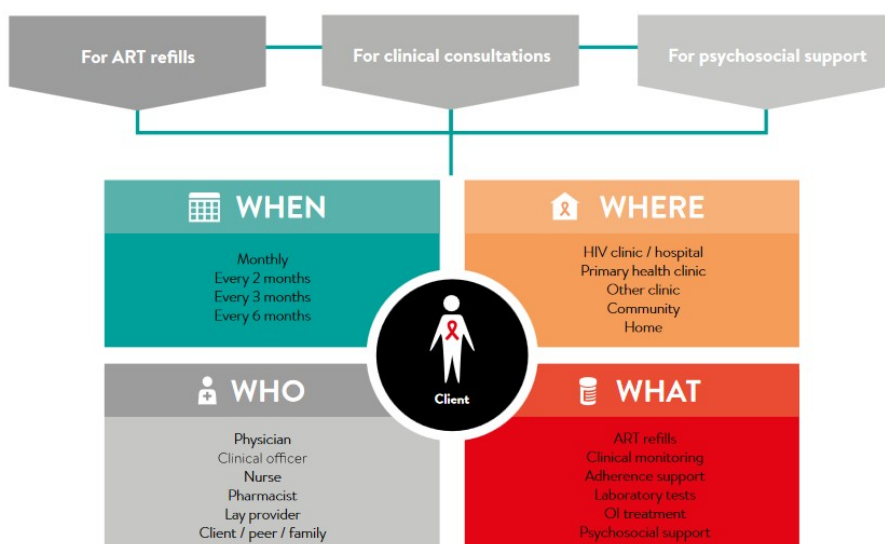
Although there are 18.2 million people on treatment, treatment coverage is still below 50%. Clients who are not currently on treatment need to access ART within a service delivery model that meets their needs and expectations. Further, the health care system must support double the number of ART clients.

To develop differentiated ART delivery model(s) for children, adolescents and PBFW and their infants, decisions at the national and local level may be necessary. For example, what works in an urban setting may not be suitable in a rural setting. Policy guidance should be developed at the national level and adopted at the sub-national level. Decisions regarding the most appropriate model(s) should be based on context and selected at the facility level to ensure ownership by both clients and health care workers.

The 5-step approach guides Ministry of Health and Sanitation in planning how to differentiate ART delivery for specific populations (Fig.5). While this outlines the approach for these specific populations, the 5-step process can also be done simultaneously for all populations (e.g., adults, key populations).

**Fig 5. the 5-step process Sanitation in planning how to differentiate ART delivery**





The building blocks for differentiated ART delivery require consideration across four dimensions. When care is provided (visit frequency)? Where care is provided (location)? Who is providing care (service provider)? What care or services are provided (service package)? For clinically stable people living with HIV, these building blocks should be considered separately for ART refills, clinical consultations and psychosocial support.

### **Four general models of differentiated ART Delivery<sup>29</sup>**

<p><b>In facility-based individual models</b>, ART refill visits have been separated from clinical consultations. When clients have an ART refill visit, they bypass any clinical staff or adherence support and proceed directly to receive their medication.</p>	<p><b>In health care worker-managed group models</b>, clients receive their ART refills in a group and either a professional or a lay health care staff member manages this group. Health care worker-managed groups meet within and/or outside of health care facilities.</p>
<p><b>Out-of-facility individual models</b> describe those where ART refills and, in some cases, clinical consultations are provided to individuals outside of health care facilities. These models are inclusive of community pharmacies, outreach models and home delivery.</p>	<p><b>In client-managed group models</b>, clients receive their ART refills in a group, but this group is managed and run by clients themselves. Generally, client managed groups meet outside of health care facilities.</p>

Within these models, all clients continue to have clinical consultations as part of their package of care.

Multiple models can work in parallel so that a client can move between them during the course of their lifetime. Further, the models are flexible to accommodate clients who may want to or require up referral. By being up

referred, the intensity of care is increased to reflect the increased clinical needs of the client.

## 2.2.4 Challenges according to specific population

ART delivery should be differentiated by considering the challenges of each specific population (Fig.6).

**Fig.6 Challenges and potential solutions through differentiated ART delivery**

Challenges	Potential solutions through differentiated ART delivery
<b>Children</b>	
<ul style="list-style-type: none"> <li>• Period of physical growth and rapid cognitive development</li> <li>• Require dosage adjustments</li> <li>• Dependent on caregiver/s</li> <li>• Attending crèche/school/boarding school</li> <li>• Transitioning into adolescence</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity for caregiver mentoring and introducing peer support in group models</li> <li>• Less frequent clinical visits and longer ART refills after 2 years of age when dosage adjustments become infrequent</li> <li>• Aligning visits with school holidays and caregiver appointments</li> <li>• Transitioning from paediatric to adolescent care as part of an ART delivery and psychosocial support group</li> </ul>
<b>Adolescents</b>	
<ul style="list-style-type: none"> <li>• Period of rapid cognitive, social and sexual development</li> <li>• Attending school</li> <li>• Pushing for independence while still requiring caregiver support</li> <li>• New and changing SRH needs</li> <li>• Increased prevalence of mental health challenges</li> <li>• Transitioning to early adulthood</li> </ul>	<ul style="list-style-type: none"> <li>• Opportunity for peer mentoring in group models</li> <li>• Visits outside of school time to support both school and clinic attendance</li> <li>• Additional services related to mental health and SRH needs can be incorporated</li> <li>• Transitioning adolescent to adult care as part of an ART delivery and psychosocial support group</li> </ul>
<b>PBFW and their infants</b>	
<ul style="list-style-type: none"> <li>• Adapting to additional clinical needs of pregnancy or postnatal period</li> <li>• Demands of exposed young infant, including clinical infant follow up</li> <li>• Increased frequency of health visits during pregnancy and postnatally</li> <li>• Many women diagnosed with HIV during pregnancy but also increasing numbers of women already stable on ART when conceiving</li> </ul>	<ul style="list-style-type: none"> <li>• Alignment of clinical visits for mothers and their children</li> <li>• Integration of maternal, newborn and child health (MNCH) care, including testing of exposed infants and maternal ART delivery services within model</li> <li>• Access to differentiated ART delivery models post-delivery if stable</li> <li>• Opportunity for women stable on ART at conception to remain within their differentiated ART delivery model</li> </ul>

As highlighted within the 2016 WHO guidelines, different packages of care are essential to address these diverse needs – *it's time to deliver differently*.

### 2.2.5 Differentiating Viral load approach.

It is critical for sustainability of antiretroviral therapy (ART) programmes in sub-Saharan Africa that the approach to monitoring people on therapy is optimized with regard to effectiveness and cost.

Currently, in most countries patients, are required to attend clinics every 1–3 months for clinical assessment, with the costs of providing for such clinic attendances – for personnel, infrastructure and maintenance - being comparable with costs of the antiretroviral drugs themselves<sup>37,38</sup>. In most settings, patients are monitored with CD4 count measurement every 6 months with clinical observation at least every 3 months but are rarely switched to second-line regimens. A reduction in visit frequency in patients who are adherent to ART and doing well would benefit programmes by reducing costs and patients by saving travel costs and time away from work, possibly leading to reduced rates of defaulting from care<sup>39</sup>. To achieve this, it is necessary to be able to identify objectively who is doing well on ART.

The biomarker which most directly measures the on-going effect of ART is the HIV ribonucleic acid (RNA) level in plasma (“viral load”). If viral load is suppressed, it indicates good adherence to drug taking and lack of drug-resistant virus<sup>40</sup>.

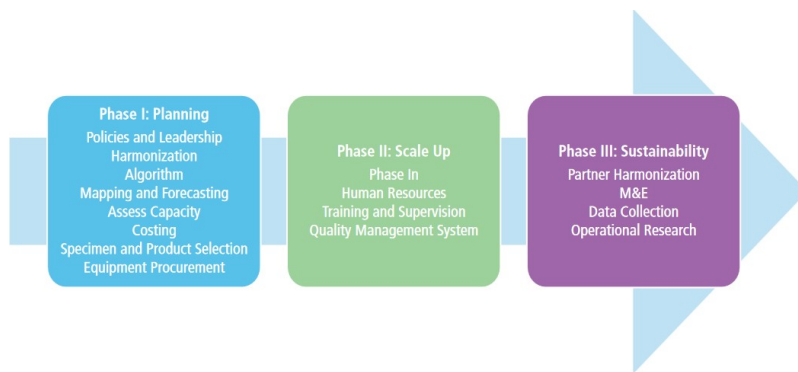
Viral load is recommended as the preferred monitoring approach to diagnose and confirm treatment failure. If viral load testing is not routinely available, CD4 count and clinical monitoring should be used to diagnose treatment failure, with targeted viral load testing to confirm viral failure where possible.

Experience in high income countries suggests that after 1–2 years on ART with viral load suppression visit frequency can be reduced. If viral load is unsuppressed this suggests the need for improved adherence and/or a switch in regimen. In most countries in sub-Saharan Africa, measurement of viral load is not so far widely available. Quantification of HIV RNA requires sophisticated facilities and skilled staff and costs have been high, although they have decreased substantially recently<sup>41</sup>.

To implement the scaling up viral load testing there is a three-phased approach: (1) planning; (2) scale-up; and (3) sustainability (Fig.7). The significant challenge to successfully implementing and scaling up viral load testing to reach everyone receiving ART is adequate strategic planning.



**Fig.7 Phased implementation on viral load testing<sup>42</sup>**



Although continual advancement is being made with existing and new technologies, some viral load testing platforms still have limitations in viral load measurement using dried blood spot specimens.

Key points include the following:

- Using plasma specimens for viral load testing is the preferred monitoring approach to determine viral failure at the threshold of 1000 copies/ml among people living with HIV in accordance with the 2013 WHO consolidated antiretroviral drug guidelines<sup>2</sup> and remains the gold standard.
- However, where logistical, infrastructural or operational barriers to performing viral load testing using plasma specimens have not yet been resolved, dried blood spot specimens for viral load testing can be used effectively at the threshold of 1000 copies/ml on most laboratory-based platforms.
- Dried blood spot specimens can be prepared using EDTA and venous blood pipette onto dried blood spot collection cards or finger-stick blood delivered by micro capillary tube.

Some studies have shown that differentiated model on the viral load service its possible and cost-effectiveness.

Currently, the most feasible approach in most countries to begin to measure viral load is to collect samples as dried blood spots (DBS). DBS are stable at ambient temperature and can be prepared from capillary whole blood eliminating the need for phlebotomy services<sup>43</sup>. Using existing networks for early infant HIV diagnosis, they can be transported to a regional or national laboratory with results subsequently returned to the clinic by means such as SMS.

However, presence of cells and low sample volume in DBS specimens mean that sensitivity and specificity for detecting whether the level is above the 1000 cps/mL threshold used to define viral suppression are imperfect and it is unclear if the approach is adequate<sup>44,45</sup>. Looking to the future, it is anticipated that “point-of-care” (POC) tests - i.e. tests that enables a decision to be made about patient management at the same visit as the sample is taken - may become widely available, and this may facilitate scale-up and result in greater accuracy than use of DBS.

National programme managers are encouraged to use scientific evidence and to assess their programmatic needs to select an appropriate platform or assay for their viral load testing network<sup>42</sup>(Fig.8).

**Fig.8 Viral load informed differentiated care strategy output.**

Description of the seven main monitoring strategies modelled. The column heading is the short name given to the strategy.

	No monitoring	Clinical monitoring	Clinical monitoring VL confirmation	Clinical monitoring CD4 count confirmation	CD4 count monitoring (WHO)	CD4 count monitoring (< 200)	Viral load-informed differentiated care, using DBS
What the monitoring strategy entails (for people on first-line ART)	–	Check on presence of symptoms every 3m.	Check on presence of symptoms every 3m Measure viral load if WHO 4 condition diagnosed or 2 WHO 3 conditions diagnosed in 1 year.	Check on presence of symptoms every 3m Measure CD4 count if WHO 4 condition diagnosed or 2 WHO 3 conditions diagnosed in 1 year.	6 m CD4 count. If failure criteria appear to be met, re-measure to confirm (confirmatory CD4 count).	12 m CD4 count. If failure criteria appear to be met, re-measure to confirm (confirmatory CD4 count).	VL measure using DBS at 6m, 12m and every 12m thereafter. If VL > 1000 then give adherence intervention and re-measure VL 3 m later (confirmatory VL measure). No CD4 count measurements.
Failure criteria	–	WHO 4 condition diagnosed or 2 WHO 3 conditions diagnosed in 1 year.	VL > 1000 cps/mL	CD4 count <250/mm <sup>3</sup> .	CD4 count < pre-ART baseline or CD4 count < 100/mm <sup>3</sup> in confirmatory CD4 count	CD4 count < 200 after > 3 years on ART. CD4 < 100/mm <sup>3</sup> after > 1 year on ART in confirmatory CD4 count	VL >1000 cps/mL in confirmatory VL measure.
Reduction in clinical visit frequency (and hence reduction in non-ART programme cost)*	No	No	No	No	No	No	Yes, when most recent viral load < 1000 cps/mL, measured in past year.

\* We assume 3 monthly clinical visits for all strategies except under viral load-informed differentiated care when most recent viral load < 1000 cps/mL, measured in past year. More frequent clinical visits than 3 monthly are not modelled as the model advances in 3 month periods; cps = copies; VL = viral load; WHO 4 = WHO stage 4 condition; ART = antiretroviral therapy; 3m = 3 monthly, etc.

Philips et al.



---

# PART 3

---



### 3 Differentiated care model in Sierra Leone.

Although the country doesn't have a Guide on differentiated care, some approaches have been put in place taking in to account the client's needs.

- 1- In some facilities, including Bo District and Lungi town an HIV test is proposed to all clients who enter for consultation in the Health facilities (provider-initiated testing and counselling).
- 2- Home-base treatment and follow-up are available for some clients, this have been made by the CHW and NETHIPS volunteers.
- 3- Health providers deliver treatment in some areas for clients that are not able to go to the health facilities for some reasons (distance, availability, risk of stigma and discrimination)

Apart from these approaches, the country still need to reach other clients that haven't been included in these different services (adolescents, Key population, unstable patients and men).



## Summary of differentiated care in Sierra Leone.

The implementation of the proposed model should be done has a pilot on 3 Districts, and then start the scaling-up

### What is new in this Guide for Differentiated care in Sierra Leone:

- 1- Suggestion of new criteria for peer-navigators (HIV positive, accepted to disclose their status, part of one of the 6 populations targeted on this document).
- 2- After the confirmation of HIV-positivity, the presence of peer-navigator on the client path to live more positively with HIV is necessary (unless the client does not accept to receive this support). The Health Care worker must explain that the peer navigator is HIV-positive and explain which group he or she is a part of (SW, MSM, etc.)- to allow the client's identification and acceptance of the peer navigator.
- 3- Treatment delivery will be made by CHW and peer navigators
- 4- HIV test must be offered to all clients attending health facilities (provider-initiated HIV testing and counselling).
- 5- For stable patient's treatment refill can be prepared in the health facilities by a Health Care worker, identifying the patients, and then delivered to patients by a CHW or peer-navigator

### Where are HIV testing and ART services provided?

HIV testing and ART services will be decentralized in a phased approach to all hospitals, health centers and Community-based Health Planning and Services in Sierra Leone.

As a priority, all sites should provide HIV testing services.

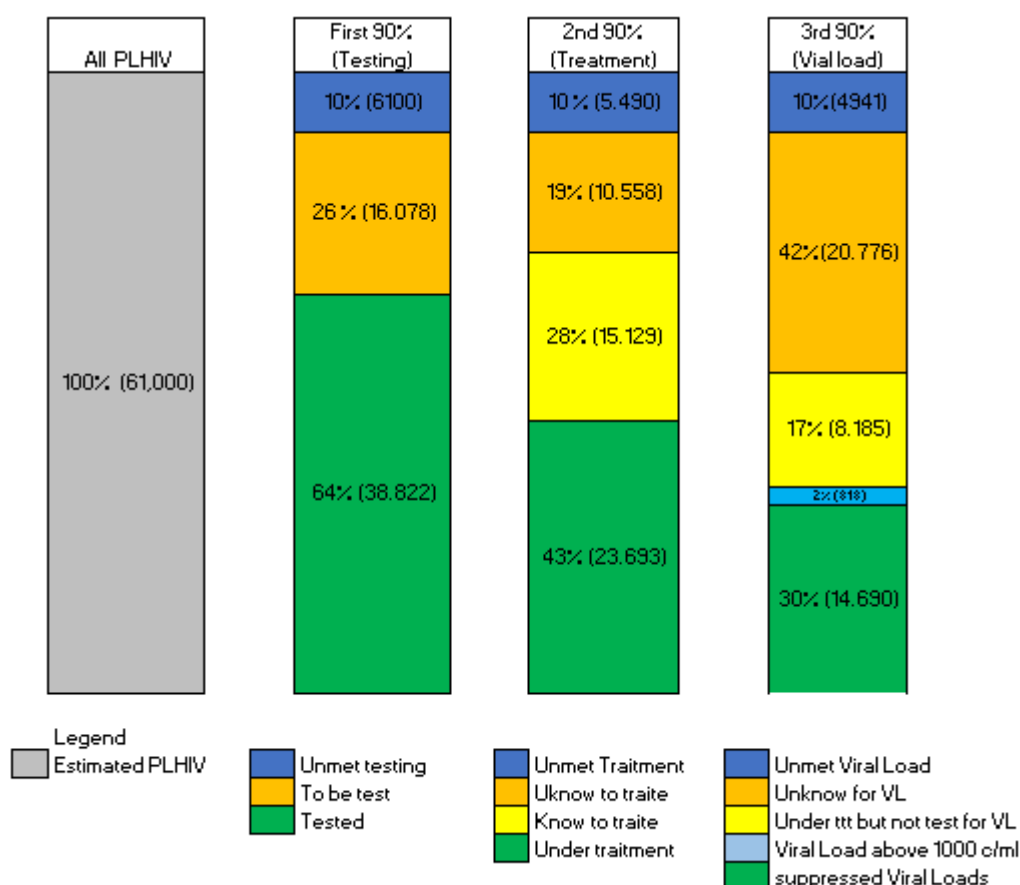
### Who provides HIV testing and ART services?

A task-sharing policy have been adopted supporting the role of nurses in the provision of testing and ART care and specific roles for lay providers.

### 3.1 Differentiated HIV testing for General Population

According to UNAIDS Spectrum 2017, 61000 persons are expected to be HIV positive in Sierra Leone, of them 38822 (64%) already know their results (HIV positive) (Fig.8).

**Fig. 8 Sierra Leone Cascade 2017**



This information shows that the country still has a long way to achieve the first 90. To achieve this the access to HIV test should be improved, but in addition differentiated testing models should be prioritized to identify those people living with HIV who do not yet know their status, in order to appropriately link them to HIV service. Hence, identifying high-yield testing strategies for the general population and supporting testing in specific populations with high HIV prevalence (SW, MSM, pregnant woman, adolescents) should be prioritized.

For the General Population, High-yield testing and counselling strategies should be prioritized include:



- Facility-based provider-initiated testing and counselling. All clients presenting to the health facility (different entry points) should be offered an HIV test.
- Index client contact testing both at facility and community (Fig. 9).

General population testing	Where	WHO	When	What services are provided during HTS
<b>Model</b>	<b>Facility based:</b> Inpatient testing (medical and surgical), OPD, ANC visit, under 5, adolescent friendly room, all services at the health facility, Labour ward, Post-natal ward, Paediatric wards, TB services, TFCs - all services at the health facility.	A trained HCW, HIV Counsellor, Laboratory tech.	24H	Pre and post-test counselling.  Rapid testing according to the National testing guidelines for clients more than 18 years.  - Retesting before ART initiation should be done.
	<b>Out of facility:</b> community outreaches, Home based, work, adolescent friendly room, Drop-in centers	A trained HCW, HIV Counsellor, Laboratory tech, CHWs	According to client needs	In community -based testing (including community-based index client testing of contacts of index client), an integrated approach to HTS should be taken. The following health screening activities may be offered as well: - Screening for mal nutrition. - BP check - Glucose check - TB screening - STI screening
<b>Disclosure</b>	A confidential environment in direct contact with the client.	Client, HCW on behalf of children under 15 yrs., CHW, peer navigators	Depends on client's readiness	- Pre-test counselling, - Adherence counselling - Peer navigator presentation if accepted.

**Partner Notification:** All clients, when tested HIV positive, should be advised to invite the following people for HTS:

- Their current and previous sexual partners if their status is unknown or they have not been tested within the past six months.
- Their children of any age if their status is unknown.
- Information on the status of partners and family members should be recorded in the client treatment book.
- Where the client agrees to notify and invite their current partner, previous partners and children to attend, they should be given one month to attend for HTS.
- Where the client does not agree to notify the current partner or previous partners, the healthcare

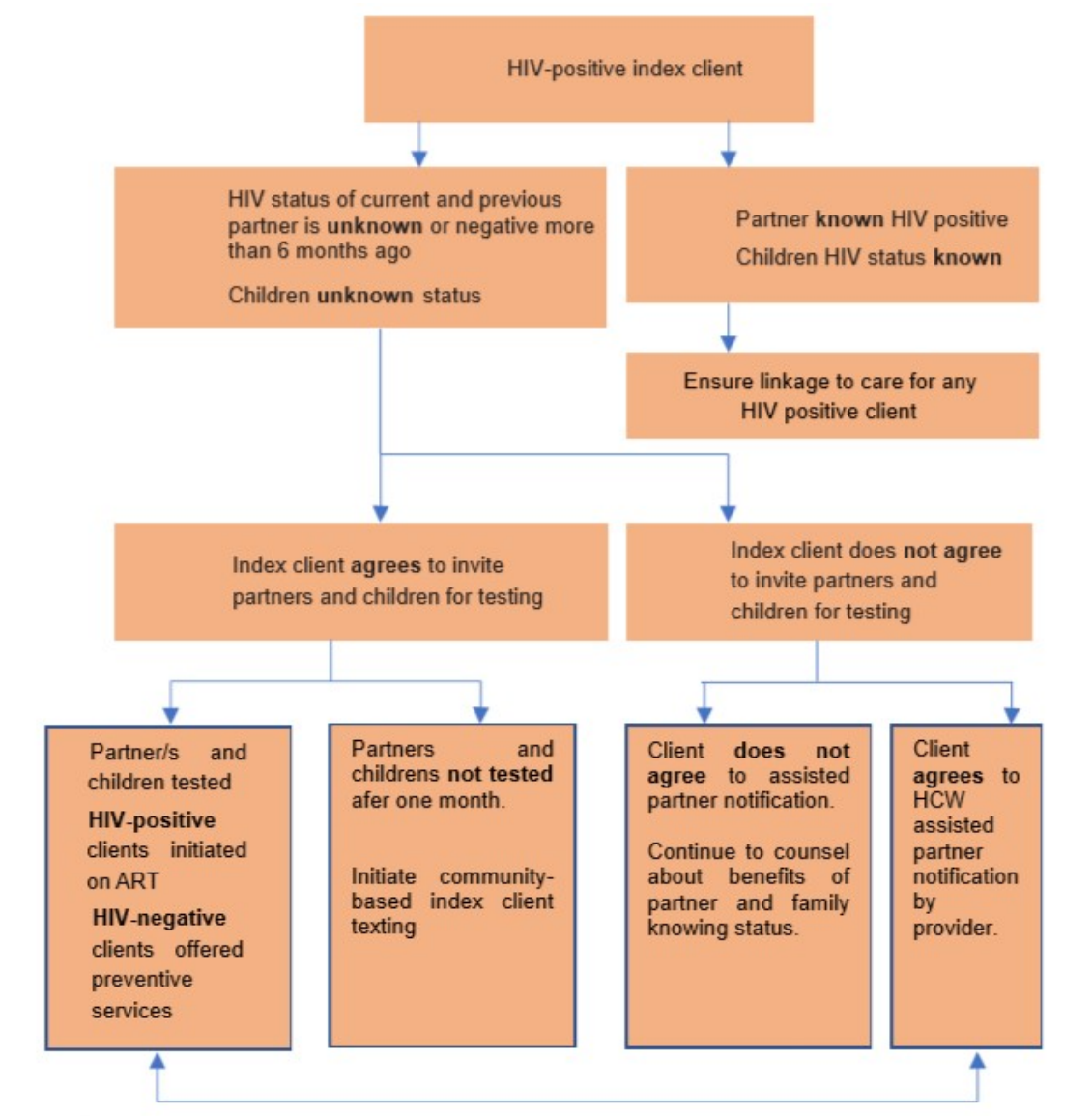


worker should offer to perform assisted anonymous or dual notification of the partner.

Where: HIV testing should be offered at home or in an agreed community location by the community health nurse or HIV counsellor as part of an integrated health screen, including screening for malnutrition, hypertension, diabetes, TB and STIs.

How: The person performing the test should then ensure linkage to ART services for any client who tests HIV positive.

**Fig.9 Index client test**



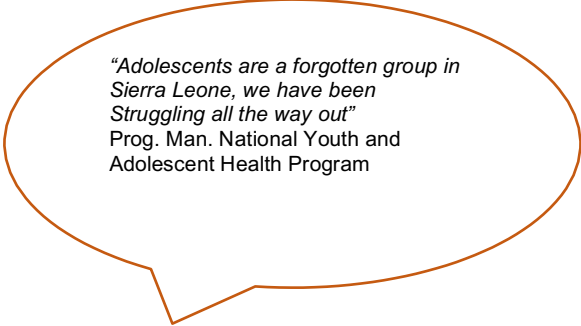
### 3.1.1 Differentiated Testing model for men.

To reach men, **community-based** workplace testing should be considered. HIV testing within military services and private firms, such as security services, should be integrated within the district's community testing strategy. Other hotspots for testing men during outreach may include testing of male partners at bars during moonlight activities for female sex workers(FSW).

#### Model of testing for men

When:	Where
During working hours, as agreed with employers. Integrate within any routine medical performed or run annual screening campaign at workplace. During evening activities linked with key population HTS services.	Workplace testing (military, security firms, etc.)  Hotspots (bars)
Who	What
Mobilization: health personnel within the workplace. In community: where feasible, a male HIV-positive client. Testing: any trained healthcare worker.	Aim to offer as part of an integrated health screening package with nutrition, BP, diabetes, TB and STI

### 3.1.2 Differentiated HIV Testing for Adolescents



*"Adolescents are a forgotten group in Sierra Leone, we have been Struggling all the way out"*  
Prog. Man. National Youth and Adolescent Health Program

Sierra Leone country population is mostly young, with an estimated 41,7% under 15.

According to the HIV National Strategic Plan to achieve the expected outcomes, activities will be based on a combination of prevention with other packages that maximize mutual reinforcement and collective impact. A beneficiary-focused and participatory approach will be prioritized in the design and delivery of combination prevention interventions focused on different socio- demographic categories.

**Adolescents and young people:** ensuring safe and successful sexual and reproductive transition; with focus on three key elements:

- a. Access and utilization of integrated SRH services: female and male adolescents and young people have sustained access and increasing utilization of comprehensive sexual and reproductive health and other HIV prevention services.
- b. Sexual behaviour formation and change: female and male adolescents and young people adopt planned and evidence-based sexual and reproductive life choices.
- c. Life planning and livelihood: female and male adolescents and young people have life planning skills; life goals and livelihood mean that enhance resistance to pressures for transactional, short-term and high risk sexual relations.

HIV prevention, diagnosis, treatment and care interventions for adolescents should, as far as possible, be integrated with those for adults and for children.<sup>1</sup> At the same time, the health sector must be able to respond effectively to the specific needs of adolescents in general (e.g. adolescent-friendly health services) by utilizing non-judgmental staff who like and understand adolescents and by addressing issues such as accessibility of care and confidentiality.

The model proposed for this group needs to take place between community-based health, education and social welfare services and government services, staff and other local stakeholders. Partnerships and collaborations between state and civil society/ communities are essential to expanding access to services and assuring the quality of services and a continuum of care at every level.

### Model of Testing for adolescents

<p><b>Where</b></p> <p><b>Test:</b> Inpatient testing, OPD, community outreaches, SRH services, Home-based and specified adolescent friendly facilities</p> <p><b>Disclosure:</b> A confidential environment in direct contact with the client</p>	<p><b>When</b></p> <p>As soon as there is consent</p> <p>The <b>disclosure</b> will depend on the client readiness.</p>
<p><b>Who</b></p> <p>A Nurse, HIV Counsellor, Laboratory tech,</p>	<p><b>What</b></p> <p>HIV testing services should have linkage with prevention, treatment and care.</p> <p><b>Disclosure:</b></p> <p>Should be encouraged during pre and post-test counselling.</p> <p><b>If positive:</b> a peer-navigator should be presented.</p>

### 3.1.3 Differentiated HIV testing for Key population

Sierra Leone HIV Strategic Plan took in to account the differences between different populations, and plan on how to work with each one respecting these differences.

An HIV zero-prevalence study conducted in 2015 among Key Affected Populations (KAP) revealed an HIV prevalence rate of 14% among MSM; 22.4% among TGs; 85% among PWID; and 6.7% among FSWs. These key populations together constitute only 4% of the total population; but account for 44% of the total incidence of HIV in the country. A projected total of 1,000 new cases of HIV have occurred in Sierra Leone in 2015; directly linked to these key population groups. The key interventions targeting this population are:

- a. Risk reduction behaviour change, primarily in relation to sexual behaviours that are associated with higher HIV transmission and their underlying determinants (e.g., poverty and sex trade, abuse of alcohol and other intoxicating substances, etc.). It also includes behaviours with a direct relationship to non-sexual transmission of HIV, especially recreational injection of drugs.
- b. Timely, targeted and confidential delivery of the full continuum of biomedical or health services for HIV detection, prevention, care and treatment to enable uninterrupted access for these hard-to-reach and often mobile/migrant population groups.
- c. Addressing the structural and socio-economic factors that influence the adoption (especially among adolescents and young people) of specific behavioural practices that increase HIV risk; and the factors that inhibit access to and sustained utilization of health and other social services.

These activities had started already, but the impact is still slow, in that case we suggest made the country to undertake the listed activities in a different way.

- Voluntary HTC should be routinely offered to all key populations in both the community and clinical settings.
- Community-based HIV testing and counselling for key populations, with linkage to prevention, care and treatment services, is recommended, in addition to provider-initiated testing and counselling.
- Couples and partners should be offered voluntary HTC with support for mutual disclosure.
- Presence of peer-navigator should be proposed.




## Model of testing for key population

<p><b>Where</b></p> <p><b>Test:</b> Inpatient testing, OPD, community outreaches, Home based and Drop in centers (DICs)</p>	<p><b>When</b></p> <p>1<sup>st</sup> contact, 6 weeks and every 6 months</p>
<p><b>Who</b></p> <p>A Nurse, HIV Counsellor, Laboratory tech, Peer navigators to DICs and Health facilities</p>	<p><b>What</b></p> <p><b>HTS</b> should be routinely offered to all KPs in the community, enclosed settings such as prisons and in facility-based settings.</p> <p><b>Community based HTS</b> for KP should be linked to prevention, treatment and care services.</p> <p><b>Sensitization</b> of KP by peer navigators should be linked to prevention, treatment and care services</p> <p><b>Re-testing</b> should be more frequent as compared to the general population</p> <p><b>If positive:</b> a peer-navigator should be presented.</p>



### 3.2.1 Linkage to ART services



All clients testing HIV positive should be proactively linked to ART services.

- The person performing the HIV test should ensure that the client is linked to ART services.
- With the client's consent, their contact details should be documented in the HTS register and the client's chosen ART site recorded.

- In large facilities, linkage may require escorting the client to be registered in the clinic where ART services are offered (for example, by peer-navigator or other staff member).
- Where the client's preferred ART site is not the same as the testing site, they must be referred (ideally with a peer navigator) and followed up to ensure they have attended.

- For clients identified as HIV positive when they are inpatients ART should be initiated in the ward (unless delayed initiation is indicated due to clinical reasons, such as treatment of cryptococcal meningitis) and a clear referral plan made with the client's preferred ART site, supervised by a peer-navigator).

- Where the client has been tested in the community, the healthcare worker or lay cadre performing HIV testing should discuss options for ART sites and the client should, with their consent, be linked to a peer-navigator from their community (group).

- Clients who tested HIV positive in the previous month should be followed up to ensure that they have linked to care either through cross-reference in the ART register or by contacting the client by phone (contact the peer-navigator assigned if it's the case).

- If the client has not linked to care, they should be provided with further counselling if reached by phone.

- Where they are not contactable by phone, nurse, CHW or peer-navigator should schedule a home visit as part of routine health promotion activities to encourage the client to access services.

### 3.3.1 Differentiated ART initiation

For all clients (including those initiating ART after a period of treatment interruption), assessment of both clinical and psychosocial readiness should be made before initiating ART.

#### Timing of ART initiation

- Unless there is a clinical indication for delaying ART (such as treatment of TB or cryptococcal meningitis), all clients should aim to be initiated within seven days from diagnosis, providing the necessary counselling support.
- Where assessed as both clinically and psychosocially ready, ART may be offered on the same day as diagnosis. Ongoing treatment literacy counselling should be offered at subsequent visits.

#### ART initiation and refill.

- ☐ Initiating ART in hospitals or peripheral health facilities and maintaining in peripheral health facilities
- ☐ Initiating ART at peripheral with maintenance at the community level
- ☐ ART initiated at KP specific clinics
- ☐ ART maintenance at KP community-based organisations.
- ☐ At the six-monthly clinical visit, two three-month prescriptions should be made indicating the next refill date in three months and the next clinical visit in six months.
- ☐ To standardize client, follow up and supply chain planning, refills of four and five months should be avoided.
- ☐ Refill duration may be adapted for clients who are travelling or children attending boarding school.
- Children's and their mothers should be allowed to receive the refill in the same site to avoid lost of follow up and economic problems to the family.

For stable patient's refills will be made by lay providers on the community (the HCW will pre-pack the ART plastic bag (the quantity will depend on the practitioner decision 3-6 month), the bag will be properly labelled and will contain ARV and CPT.

This delivery will be accompanied by the data collection tool that will allow both client and practitioner to make a proper follow-up (documentation should reflect the date of visit, medication dispensed and date of next visit).

### Laboratory investigation

- Performance of any routine baseline laboratory investigation should not delay initiation of ART if the client is otherwise clinically and psychologically ready to initiate ART.
- 'Baseline' means tests done in the early stages of ART initiation and not only tests done prior to initiation

### Where clinically indicated:

- CD4 may be performed, if available, at baseline to determine whether the client has early or advanced HIV disease.
- Other baseline investigations should be performed as clinically indicated.
- Where there is no immediate clinical indication, baseline laboratory tests (as defined in the Antiretroviral Treatment Guidelines in Sierra Leone 2017) may be performed after initiation.

For clients with advanced HIV disease (WHO Stage 3 or 4 and/or CD4 <200 cells/mm<sup>3</sup>), an additional package of interventions should be offered at initiation.

Involvement of a peer-navigator is encouraged but is not compulsory for ART to be initiated.

The preparatory steps for ART initiation (clinical assessment, baseline investigations counselling preparation) are described in Antiretroviral Treatment Guidelines in Sierra Leone 2017.

### For all clients, the following points should be considered:

- ☐ Screen for TB with the TB screening tool and diagnose TB with Gene Expert MTB/Rif.
- ☐ Provide TB preventive therapy if TB screening is negative.
- ☐ Same-day initiation may be offered if the client is assessed to be clinically and psychologically ready (in some groups).
- ☐ Where initiation is considered, the focus of the counselling should be on making an adherence plan, the benefits of ART and how to deal with ART side effects. Recapping of basic HIV and ART knowledge can then be made at the subsequent ART follow-up visits.

**Clients with advanced HIV disease:** should receive an additional package of interventions to decrease mortality during the first months on ART according to the National guidelines:

- ✓ History, examination, investigation and treatment of any symptomatic opportunistic infections (OIs), such as TB, cryptococcal meningitis and toxoplasmosis.
- ✓ Delay in ART initiation, as follows, if TB or cryptococcal disease is diagnosed:
  - TB treatment is started first, followed by ART as soon as practical within two weeks but not later than eight weeks after starting TB treatment.
  - Treatment for cryptococcal disease is started first, followed by ART.
  - ART initiation should be deferred until after four weeks of induction and consolidation treatment with amphotericin B or after 4-6 weeks of treatment with high-dose fluconazole induction and a consolidation regimen.
  - Provision of cotrimoxazole prophylaxis (for adults with Stage 3 or 4 disease and/or CD4 <350 cells/mm<sup>3</sup>; for all adults where malaria and severe bacterial infections are endemic; and for all children with priority for those under 5 years)
- ✓ Where available, cryptococcal antigen (CrAg) screening for clients with CD4 <100 cells/mm<sup>3</sup> and treatment with pre-emptive fluconazole if CrAg positive.
- ✓ Increased frequency of follow up during the first three months on ART, including linking with a community health nurse and/or peer-navigator who is able to perform home visits to ensure that the client's clinical status has not deteriorated, and the client is adhering to ART, prophylaxis and OI medication as prescribed.



**It is important to emphasize that, if at any point the client has additional clinical needs, they can be seen by the clinician at any time.**

Clients must be educated on what symptoms and signs they should report in between appointments. These include:

- Symptoms and signs of TB: current cough, fever, weight loss, night sweats or other signs suggesting extrapulmonary TB, such as enlarged lymphnodes
- Persistent diarrhoea or vomiting
- Ongoing or severe headache
- Persistent fever
- New rashes

Symptoms and signs related to side effects of medications



### 3.3.2. Models of ART delivery for Stable patients

Decentralization of ART delivery has been shown to improve retention in care and is strongly recommended by WHO.

Decentralization of ART delivery can reduce the burden/cost to the health system and reduce the burden of transport costs for the client.

In Sierra Leone, district HIV focal points, in collaboration with NACP leadership, should undergo an assessment to determine the need for additional approved ART sites in their district and drop-in-centers (all sites should offer HTS).

Where it is decided that a site (including CHPS sites) should not yet become an approved ART site, the health centre, CHPS or drop-in-centre may still be offered to clients from these sites.

At the end of 2016, there were 155 certified ART sites in Sierra Leone, most them in district hospitals. In addition, a further 2 748 sites provide prevention of mother-to-child transmission (PMTCT) services to HIV-positive pregnant and breastfeeding women. Once discharged from PMTCT services (when the baby is 18 months old), these women are then referred to their nearest ART site.

At all times, the patient should remain with the choice of which facility they would like to visit to receive ART, allowing those clients who wish to access ART at a site nearer their workplace or choose a site away from their community to overcome issues of stigma.

As decentralized ART sites are approved, and additional drop-in-centers set up, clients already on ART at existing centralized sites should be offered the choice to transfer to a facility closer to their home or work. New clients should be encouraged to access ART at their nearest ART facility but should always be offered a choice.

### 3.3.2.a Model 1: ART delivery stable patients

What	Where	Who	When
ART Delivery.  Individual facility-based model	Health Facilities	Clinicians	According to national guidelines and then up to the practitioner.
ART refill.	Health Facilities. Another place chosen by the client.  Community ARV delivery points.	Physicians, Nurses, HIV counsellors, CHWs,	3-6 months up to the practitioner.
	Drop-in-centers Home, adolescents friendly room	Nurses, HIV counsellors, CHWs, Trained and supervised lay providers and peer-navigators	Up to the practitioner.
Laboratory investigation. TB, CD4, Viral Load OIs (Hb, E/U/Cr, LFTs, urinalysis)	ART Clinics, laboratories.  One day in the week in the drop-in-center.	Physicians and Lab technicians	6-12 months depending on the type of test and the practitioner.
Psychosocial support	NETHIPS. Adolescents friendly room, key population offices	Social worker, CHW, expert-client, peer-navigator	At least once a month with different themes and target group

### 3.3.2.b Model 2: ART delivery stable patients in health facility:

**Individual facility-based fast-track refill:** This is a facility-based individual model.

*Target duration 30 minutes*

Clients are seen individually every six months by a trained clinician (nurse, physician's assistant, HIV counsellor or doctor) and prescribed two three-month scripts of ART.

**If the supply chain is ensured**, clients may also be given the choice of receiving between three to six months of ART.

Where the refill is three monthly, clients collect their refills directly from the dispensing point and, when pre-packed, these may be distributed by a lay worker.

They do not queue to see the clinician. The client can collect the medication at any time during clinic opening hours on his/her refill day.

*This model has most value in health facilities where dispensing is performed in a separate room and by a different HCW to the clinical consultation.*

### 3.3.3 Differentiated ART delivery for stable children's and adolescents.

By December 2017, the estimated ART coverage for children in Sierra Leone was 22%. Identification of children with HIV is a priority, but targeted strategies should be employed to ensure efficient use of resources.

HTS for children older than five years and adolescents presenting to the OPD should be offered if the adolescent/guardian answers “yes” to any of the following questions:

- Has the child ever been treated for TB?
- Has the child had recurring skin problems (such as herpes zoster)?
- Has the child had recurrent ear discharge?
- Has the child presented with significant weight loss?
- Has one or both of the child's natural parents died?

If a child has previously been tested, re-testing is not indicated unless there is suspicion of recent exposure (multiple blood transfusions, sexual abuse or new symptoms).

Testing children for HIV often poses challenges for healthcare workers regarding the management of disclosure and the issue of consent. In Sierra Leone, the age of consent for HIV testing is 18 years. However, for children below this age, two important principles should be applied:

#### *Principle 1: The mature minor*

The consent of a parent or caregiver is required before performing an HIV test on a child who is younger than 18 years. However, any person who is between 14 and 18 years and is sexually active, married, pregnant, a parent or requests HTS is considered to be a mature minor and is able to give full informed consent.

#### *Principle 2: The best interests of the child*

If a parent or caregiver will not or cannot give consent for a child younger than 18 years and the child is not classified as a mature minor, the healthcare worker can exercise the “best interests of the child” principle and seek approval from the person in charge of the clinic or hospital to perform the HIV test. This includes when:

- A child is ill and HIV diagnosis will facilitate appropriate care and treatment.
- A child is a survivor of sexual abuse.
- A child is sexually active.
- A child is concerned about mother-to-child transmission.



- A child has been exposed to HIV through vertical or sexual transmission
- A child expresses concern that, given an HIV-positive result, he or she will be denied access to care and treatment by a parent/caregiver.

### *Where is ART provided?*

- Paediatric ART initiation and management should be decentralized to all ART and PMTCT facilities, ensuring that there are trained health service providers.
- A family approach should be taken. In facilities where ART care and MCH services are separate, follow up of both the mother and the child should be performed in MCH until the child is five years old.
- After five years of age, a family approach should be implemented in the ART/OPD setting, which ensures that the mother and child are seen on the same day.
- Adolescents should be seen in the OPD/ART clinic but booked on the same day and offered group refill options.

### *Who provides ART?*

- Healthcare workers, including nurses, should receive specific training to provide ART follow up for children and adolescents.

### *Who provides psychosocial support?*

- Psychosocial support for children and adolescents is particularly important. Ongoing assessment of disclosure status should be made each time the child is reviewed with the aim of achieving full disclosure by the age of 12.
- Every clinic should have at least one healthcare worker trained to perform paediatric disclosure counselling and one healthcare worker who is focused on providing adolescent-friendly services. One of the most important factors is for healthcare workers to approach adolescents and young adult clients in a non-judgmental manner.
- Adolescent or young adult peer educators have been shown to provide additional support for adherence and retention.
- Larger sites should try to identify 2-3 adolescent champions who should receive some basic training and may support treatment literacy activities and tracing of those clients who default.
- Adolescent peers may be based at facility level to help facilitate clinic activities on child and adolescent clinic days and engage with clients in the community to provide additional adherence support.

### *When is ART delivered for children?*

*Clinics should book HIV-positive children and their mothers on the same day to enable peer support for both the guardian and the older children and adolescents.*

To be eligible for 6-monthly clinical visits, a stable child is defined as:

- Older than five years of age
- VL <1 000 copies/ml (if VL is not available, then there should be no evidence of immunological failure or a decreasing CD4count)
- No concurrent OIs
- Caregiver/client has a good understanding of lifelong adherence to medication and regular appointment attendance
- On adult ART doses
- Fully disclosed.

### **3.3.3.a Example of model**

#### *Facility -based adolescent group refill*

Once stable and fully disclosed, adolescents may receive their ART through a group approach. This approach provides additional peer support and should integrate tailored adolescent health education activities (including SRH education) alongside collection of ART. As HIV care is decentralized, the numbers of adolescents in any given facility are likely to be small, but a group approach should still be offered where possible. If an adolescent does not choose to join a group, they will continue to receive three-monthly refills via the standard ART clinic follow up.

#### **What preparation is needed before implementing this refill model?**

- Healthcare workers should be trained on specific facilitation methodologies for adolescents.
- If feasible, 1-2 peers should be identified. These peers will co-facilitate the group sessions and provide additional support as required in the community, including tracing of defaulters.
- Pre-packing of medication will facilitate groups being led by lay workers.
- These groups will function as a support group while also providing ART refills.

### When?

The group meets every three months. Each group is booked at a specific time to collect their refill. Ideally, the group should select the timing of their refill. Groups may be booked after school hours or at weekends.

### Who?

- The healthcare or lay worker facilitates the group. Where possible, an adolescent peer may also facilitate the group discussion.
- How are the groups formed?
- Groups can be made up of between five and twenty clients. In order to facilitate group formation, a designated healthcare worker in the clinic should be allocated to coordinate group formation. Groups are formed primarily by the healthcare worker.
- They may be formed as the healthcare worker screens clients and determines them as eligible, as consent has been provided by the caregiver, and as referral is made to the designated focal point for the groups. Groups may be formed from existing support groups.
- It is suggested that children and adolescents are grouped according to their age groups (10-14, 15-19 and 20-24). The list of group members with the contact details should be kept in the facility-held ART group register (Appendix 2). Each group should be given a specific group number, which is indicated on the front of the client care booklet and on their appointment card

### What happens during the refill?

Once group members have arrived (a maximum of 15 minutes after the booked time for the group meeting should be given before the activities start), the healthcare worker leading the group should facilitate discussion. Clients are asked as a group if they have any specific clinical problem or TB symptoms, such as any coughs, sweats or weight loss.

Any client with a clinical issue is then directed to see the healthcare worker. There should be a specific activity for the day chosen from a selection of topics that can be rotated at each group meeting. The choice of topics should recognize the age and developmental status of each group. Topics may include the following:

- Growing up: changing bodies, changing emotions, feeling good about ourselves
- Coping with difficult situations, problem solving
- Sex and relationships: love and sex, safer sex, social pressures to have sex
- Unwanted pregnancy and use of contraception; PMTCT
- Living with HIV
- ART and adherence
- Disclosure
- Relationships with family and friends.

There should also be time allocated for recreational activities, such as singing and games.

The length of the discussion depends on the participants, but the entire session should not take longer than 90 minutes.

The healthcare worker then distributes pre-packed and labelled medication to each group member individually.

#### *What happens at the six-monthly clinical visit?*

All the group members should be aligned to receive their clinical review at the same time. For stable adolescents, this should be twice a year. At this visit, they still meet as a group for the discussion and activities, but the healthcare worker also sees them individually. Once a year, the HIV viral load sample is drawn. Aligning the clinical visit for the group facilitates uptake of viral load testing and allows the group to discuss viral load results and other issues that are raised at the clinical review.

#### *How are the client care book filed?*

The client care book should be filed together in a file indicating the group number. This facilitates pulling of files on days when group refill options are booked.

### 3.3.4 ART delivery to patients with advanced disease/Children under 5

<b>What</b> WHO and country guidelines of the package of care for advanced disease.  Priority population to be attended at HTS and ART sites.	<b>Who</b> Doctors Task-sharing to nurses and other mid-level healthcare workers
<b>Where</b> Hospital and peripheral sites according to clinical status of the person (ambulatory or requiring hospital admission).	<b>When</b> At first contact with the health facility,  Close follow-up required





### 3.4 Differentiated care on Viral Load.

Until 2017 30% of the PLHIV had a viral load suppressed.

Having a functional laboratory is only one part of the strategy to ensure viral load scale up. In addition, the following aspects must be implemented:

- Healthcare worker education on how and when to take viral load samples and interpretation of viral load results
- Healthcare worker education on the delivery of enhanced adherence counselling for clients with a viral load >1 000 copies/ml
- Implementation of programmatic clinic systems to ensure uptake of viral load and action on results (for example, flagging systems).
- Client education to raise awareness, create demand for testing and ensure understanding of VL results.

#### Client education

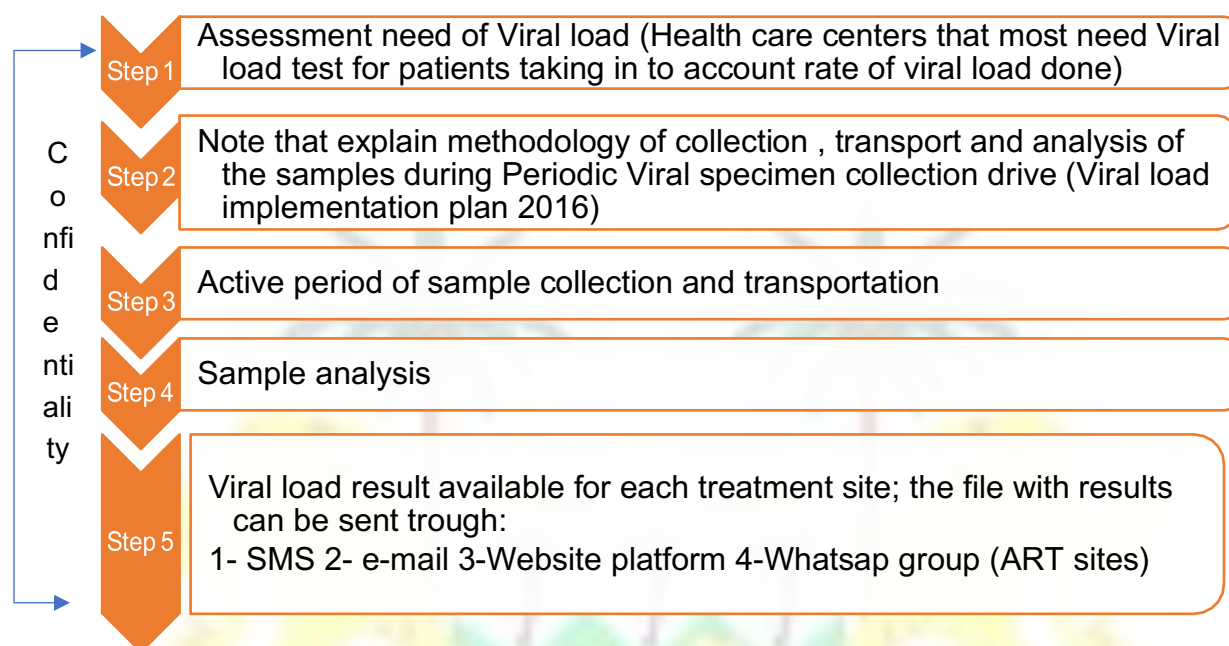
Client education on viral load is an essential step in the VL implementation plan. Clients should know:

- When their viral load should be taken
- Why it is being taken
- How to interpret the results

### 3.4.a Model of differentiated viral load

#### Periodic Viral specimen collection drive:

This activity can be done 3 times a year, taking in to account has priority the sites that have low rate of Viral load test on HIV positive patients.



<b>What</b>	<b>When</b>
Viral load test Drive combined with EID test	3 times a year
<b>Who</b>	<b>Where</b>
Healthcare worker trained on how to take viral load samples	All the country at the same time (health facilities and community)

## Recommendations for further review.

To assure the success of the proposed model some measures needs to be taken in to account:

- ✓ Assure the validation and proper dissemination of all the manual and protocols already under review.
- ✓ Update the National ART guidelines to include and allow the utilization of the Self testing and the Prep.
- ✓ Update the National Guidelines for the cryptococcal disease to allow the utilization of amphotericin B has the recommended treatment according to WHO Guidelines (fluconazole monotherapy, is no longer recommended by WHO as an acceptable regimen).



## Bibliography

- <sup>1</sup> Key considerations for differentiated antiretroviral therapy delivery for specific populations: children, adolescents, pregnant and breastfeeding women and key populations. Geneva: World Health Organization; 2017.
- <sup>2</sup> Consolidated guidelines on HIV testing services. Geneva: World Health Organization; 2015
- <sup>3</sup> 90–90–90. Ambitious treatment targets: writing the final chapter of the AIDS epidemic – a discussion paper. Geneva: Joint United Nations Programme on HIV/AIDS; 2014.
- <sup>4</sup> Guidance on couples HIV testing and counselling - including antiretroviral therapy for treatment and prevention in zero discordant couples: recommendations for a public health approach. Geneva: World Health Organization; 2012
- <sup>5</sup> Global health sector response to HIV, 2000-2015: focus on innovations in Africa: progress report. Geneva: World Health Organization; 2015.
- <sup>6</sup> Factsheet to the WHO consolidated guidelines on HIV testing services. Geneva: World Health Organization; 2015.
- <sup>7</sup> Global update on the health sector response to HIV. Geneva: World Health Organization; 2014.
- <sup>8</sup> Koo K, Makin J, Forsyth B. Barriers to male-partner participation in programs to prevent mother-to-child HIV transmission in South Africa. *AIDS Educ Prev.* 2013; 25:14-24.
- <sup>9</sup> Bor J, Rosen S, Chimbindi N, Haber N, Herbst K, Mutevedzi T, et al. Mass HIV treatment and sex disparities in life expectancy: demographic surveillance in rural South Africa. *PLoS Med.* 2015;12(11): e1001905.
- <sup>10</sup> Hensen B, Taoka S, Lewis J, Weiss H, Hargreaves J. Systematic review of strategies to increase men's HIV testing in sub-Saharan Africa. *AIDS.* 2014; 28:2133-45.
- <sup>11</sup> The AIDS epidemic continues to take a staggering toll, especially in sub-Saharan Africa. New York: United Nations International Children's Emergency Fund; 2016
- <sup>12</sup> Kidman R, Anglewicz P. Are adolescent orphans more likely to be HIV-positive? A pooled data analyses across 19 countries in sub-Saharan Africa. *J Epidemiol Community Health.* 2016.
- <sup>13</sup> HIV and adolescents: guidance for HIV testing and counselling and care for adolescents living with HIV. Geneva: World Health Organization; 2013.
- <sup>14</sup> Prevention gap report. Geneva: Joint United Nations Programme on HIV/AIDS; 2016
- <sup>15</sup> Consolidated guidelines on HIV prevention, diagnosis, treatment and care for key populations. Geneva: World Health Organization.
- <sup>16</sup> Guideline on when to start antiretroviral therapy and on pre-exposure prophylaxis for HIV. Geneva: World Health Organization; 2015.
- <sup>17</sup> Tymejczyk O, Brazier E, Yiannoutsos C, Wools-Kaloustian K, Althoff K, Crabtree-Ramirez et al. The impact of HIV treatment guideline expansion on the timeliness of ART initiation following enrollment in HIV care. 21st International Workshop on HIV and Hepatitis Observational Databases, Lisbon, Portugal, 30 March–1 April 2017. Abstract 30.

- 
- <sup>18</sup> LeDEA and ART Cohort Collaborations ARTC et al. Immunodeficiency at the start of combination antiretroviral therapy in low-, middle-, and high-income countries. *J Acquir Immune Defic Syndr*. 2014;65: e8–16.
- <sup>19</sup> Waldrop G, Doherty M, Vitoria M, Ford N. Stable patients and patients with advanced disease: consensus definitions to support sustained scale up of antiretroviral therapy. *Trop Med Int Health*. 2016;21:1124–30.
- <sup>20</sup> Hogg RS, Yip B, Chan KJ, Wood E, Craib KJ, O'Shaughnessy MV et al. Rates of disease progression by baseline CD4 cell count and viral load after initiating triple-drug therapy. *JAMA*. 2001; 286:2568–77.
- <sup>21</sup> Krentz HB, Auld MC, Gill MJ. The high cost of medical care for patients who present late (CD4 <200 cells/μL) with HIV infection. *HIV Med*. 2004; 5:93–8.
- <sup>22</sup> Gilks CF, Crowley S, Ekpini R, Gove S, Perriens J, Souteyrand Y et al. The WHO public health approach to antiretroviral treatment against HIV in resource-limited settings. *Lancet*. 2006; 368:505–10.
- <sup>23</sup> Global AIDS update 2016. Geneva: UNAIDS; 2016
- <sup>24</sup> Guidelines for managing advanced HIV disease and rapid initiation of antiretroviral therapy, July 2017. Geneva: World Health Organization; 2017. License: CC BY-NC-SA 3.0 IGO.
- <sup>25</sup> Kates J, Wexler A, Lief E. Financing the response to HIV in low- and middle-income countries: international assistance from Donor Governments in 2015. Menlo Park (CA): Kaiser Family Foundation; 2016.
- <sup>26</sup> Dutta A, Barker C, Kallarakal A. The HIV treatment gap: estimates of the financial resources needed versus available for scale-up of Antiretroviral Therapy in 97 Countries from 2015 to 2020. *Plos Med*. 2015;12(11): e1001907
- <sup>27</sup> Siapka M, Remme M, Obure CD, Maier CB, Dehne KL, Vassall A. Is there scope for cost savings and efficiency gains in HIV services? A systematic review of the evidence from low-and middle-income countries. *Bull World Health Organ*. 2014;92(7):499–511AD.
- <sup>28</sup> Phillips A, Shroufi A, Vojnov L, Cohn J, Roberts T, Ellman T, et al. Sustainable HIV treatment in Africa through viral-load-informed differentiated care. *Nature*. 2015;528(7580): S68–76.
- <sup>29</sup> The International AIDS Society Differentiated care for HIV: A decision framework for Antiretroviral Therapy Delivery. Geneva, Switzerland; 2016.
- <sup>30</sup> Barker, Catherine, Arin Dutta, and Kate Klein. "Can Differentiated Care Models Solve the Crisis in HIV Treatment Financing? Analysis of Prospects for 38 Countries in Sub-Saharan Africa." *Journal of the International AIDS Society* 20. Suppl 4 (2017): 21648. *PMC*. Web. 4 May 2018
- <sup>31</sup> Operational guidelines on HIV testing and counselling of infants, children and adolescents for service providers in the African region. Brazzaville: World Health Organization Regional Office for Africa; 2011.
- <sup>32</sup> Duncombe C, Rosenblum S, Hellmann N, Holmes C, Wilkinson L, Biot M, et al. Reframing HIV care: putting people at the centre of antiretroviral delivery. *Trop Med Int Health*. 2015;20(4):430-47.
- <sup>33</sup> Fox MP, Rosen S. Retention of Adult Patients on Antiretroviral Therapy in Low- and Middle-Income Countries: Systematic Review and Meta-analysis 2008-2013. *J Acquir Immune Defic Syndr*. 2015;69(1):98-108.
- <sup>34</sup> Boender TS, Sigaloff KC, McMahon JH, Kiertiburanakul S, Jordan MR, Barcarolo J, et al. Long-term Virological Outcomes of First-Line Antiretroviral



---

Therapy for HIV-1 in Low- and Middle-Income Countries: A Systematic Review and Meta-analysis. Clin Infect Dis. 2015;61(9):1453-61.

<sup>35</sup> UNAIDS MSF. Community-based antiretroviral therapy delivery: experiences from MSF. Geneva: UNAIDS, 2015.

<sup>36</sup> UNAIDS. Get on the fast-track: The life-cycle approach. Geneva: UNAIDS, 2016.

<sup>37</sup> Siapka M, Remme M, Dayo Obure C, Maier C, Dehne KL, Vassall A. Is there scope for cost savings and efficiency gains in HIV services? A systematic review of the evidence from low- and middle-income countries. Bull World Health Organ. 2014; 92:499–511AD

<sup>38</sup> Menzies NA, Berrutia AA, Berzon A, Filler S, Ferris R, Ellerbrock TV, et al. The cost of providing comprehensive HIV treatment in PEPFAR-supported programs. AIDS. 2011; 25:1753–1760. [PubMed: 21412127]

<sup>39</sup> Ware NC, Wyatt MA, Geng EH, Kaaya SF, Agbaji OO, et al. Toward an Understanding of Disengagement from HIV Treatment and Care in Sub-Saharan Africa: A Qualitative Study. PLoS Med. 2013; 10(1): e1001369.doi: 10.1371/journal.pmed.1001369 [PubMed: 23341753]

<sup>40</sup> Phillips A., Shroufi A., Vojnov L., Cohn J., Roberts T., et al. Sustainable HIV treatment in Africa through viral-load-informed differentiated care (2015) Nature, 528 (7580) , pp. S68-S76.

<sup>41</sup> UNAIDS. Landmark HIV diagnostic access program will save \$150m and help achieve new global goals on HIV. <http://www.unaids.org/en/resources/presscentre/pressreleaseandstatementarchive/2014/september/20140925prviralload>

<sup>42</sup> World Health Organization, Centers for Disease Control and Prevention (U.S.), United States. Agency for International Development, Global Fund to Fight AIDS, Tuberculosis and Malaria & African Society for Laboratory Medicine. (2014). Technical and operational considerations for implementing HIV viral load testing: interim technical update. World Health Organization.

<sup>43</sup> Hamers RL, Sawyer AW, Tuohy M, Stevens WS, Rinke de Wit TF, Hill AM. Cost-effectiveness of laboratory monitoring for management of HIV treatment in sub-Saharan Africa: a model-based analysis. AIDS. 2012; 26:1663–72. [PubMed: 22695297]

<sup>44</sup> Rutstein SE, Hosseinipour MC, Kamwendo D, Soko A, Mkandawire M, Biddle AK, et al. Dried Blood Spots for Viral Load Monitoring in Malawi: Feasible and Effective. PLoS ONE. 2015; 10(4):e0124748.doi: 10.1371/journal.pone.0124748 [PubMed: 25898365]

<sup>45</sup> Johannessen A, et al. Dried blood spots perform well in viral load monitoring of patients who receive antiretroviral treatment in rural Tanzania. Clin Infect Dis. 2009; 49:976–81. [PubMed: 19663598]