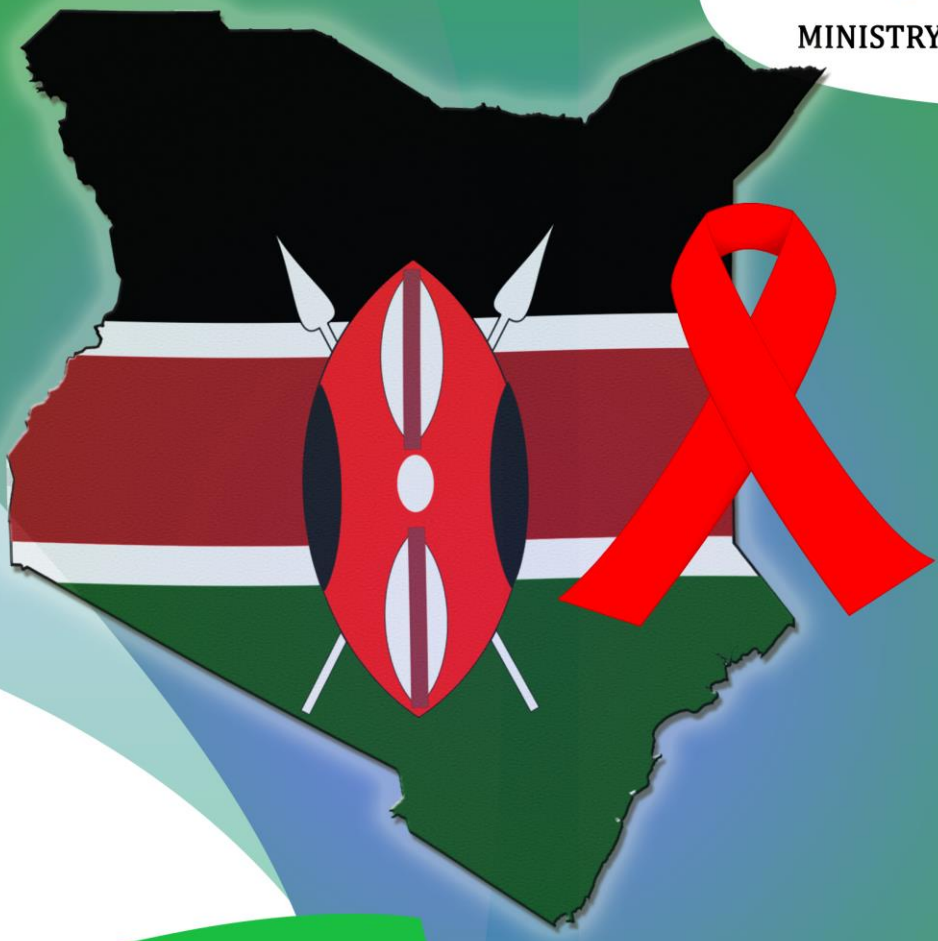
MINISTRY OF HEALTH



Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV in Kenya

2018 Edition

Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya

2018 Edition

The Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya 2018 edition contain relevant information required by healthcare providers in the use of ARVs as of the date of issue. All reasonable precautions have been taken by NASCOP to verify the information contained in this guideline document.

For clarifications contact National AIDS and STI Control Program (NASCOP) at P. O. Box 19361 - 00202, Nairobi Kenya, Tel: +254 (020) 2630867, Email: info@nascop.or.ke, Website: www.nascop.or.ke

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Foreword

HIV is a public health threat globally. An estimated 1.5 million Kenyans are living with HIV, of whom 1,136,000 were on antiretroviral therapy by December 2017.
The 2018 edition of the 'Guidelines on Use of Antiretroviral Drugs for Treating and Preventing HIV Infection in Kenya' is an update of the comprehensive HIV prevention and treatment guidelines released in 2016. The MOH releases updated HIV prevention and treatment guidelines in line with emerging evidence every 2 years. These guidelines are aligned with the Ministry of Health's mission of providing the highest standard of health for all Kenyans and one of the Government of Kenya's Big Four Agenda on universal health coverage.

The theme of the 2018 guidelines is optimizing HIV prevention and treatment services through introduction of better medicines, diagnostics and patient centered approaches in service delivery. There is emphasis on integration of reproductive health and HIV as well as informed decision making by PLHIV on available antiretroviral therapy. Further, recommendations to strengthen the management of PLHIV with advanced HIV disease has been included.

Key areas covered in these guidelines include HIV testing services and linkage to prevention and treatment; initial evaluation and follow up of PLHIV; standard package of care for PLHIV; adherence preparation monitoring and support; antiretroviral therapy in infants, children, adolescents and adults; prevention of mother to child transmission of HIV; TB/HIV coinfection; Hepatitis B & C/HIV co-infection; use of ARVs for post and pre-exposure prophylaxis for HIV uninfected populations; and HIV services for people who inject drugs.

These guidelines are an important tool meant to be used by Kenyan service providers at all levels of the health sector. They are presented in a simplified manner using a public health approach to HIV prevention and treatment.
It is my hope that this guidance document provides the much-needed framework and impetus to move towards universal access for HIV services and the agenda of ending AIDS by 2030 as a key national health strategic objective.

Dr. Jackson Kioko
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Acknowledgements

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I acknowledge with appreciation institutions, both local and international, government ministries and departments whose staff spent many hours in the review, writing and finalization of this document.

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Acronyms and Abbreviations

Abbreviations and Names of Antiretroviral Drugs

3TC	Lamivudine
ABC	Abacavir
ATV	Atazanavir
ATV/r	Atazanavir/ritonavir
AZT	Zidovudine
DRV	Darunavir
DRV/r	Darunavir/ritonavir
DTG	Dolutegravir
EFV	Efavirenz
ETR	Etravirine
FTC	Emtricitabine
LPV	Lopinavir
LPV/r	Lopinavir/ritonavir
NVP	Nevirapine
RAL	Raltegravir
RTV	Ritonavir
TDF	Tenofovir Disoproxil Fumarate

Other Acronyms and Abbreviations

ACE-I	Angiotensin-converting enzyme inhibitor
ADR	Adverse drug reaction
AIDS	Acquired immunodeficiency syndrome
ALT	Alanine transaminase
ALP	Alkaline Phosphatase
ANC	Antenatal care
A&E	Accident and Emergency
ARB	Angiotensin-receptor blocker
ART	Antiretroviral therapy
ARV	Antiretroviral drug(s)
AST	Aspartate transaminase
BD	Twice daily
BF	Breastfeeding
BMI	Body Mass Index
BP	Blood Pressure
CAG	Community ART Groups
CCC	Comprehensive Care Centre
CHV	Community Health Volunteer
CITC	Client-initiated HIV testing and counselling
CM	Cryptococcal meningitis
CMV	Cytomegalovirus
CNS	Central nervous system
CPT	Cotrimoxazole Preventive Therapy
CrCl	Creatinine Clearance
CTX	Cotrimoxazole
CYP450	Cytochrome P450
DAAs	Direct acting antiviral therapies
DBS	Dried Blood Spot
DMS	Director of Medical Services

DNA	Deoxyribonucleic acid
DOT	Directly observed therapy
DS	Double strength
DRT	Drug Resistance Testing
ECP	Emergency contraceptive pill
EID	Early Infant Diagnosis
eMTCT	Elimination of Mother to Child Transmission
EPTB	Extra-pulmonary Tuberculosis
FBC	Full Blood Count
FBS	Fasting Blood Sugar
FDC	Fixed Dose Combination
FLP	Fasting Lipid Profile
FP	Family Planning
GIT	Gastro-intestinal tract
GOK	Government of Kenya
GBV	Gender-Based Violence
Hb	Hemoglobin
HBV	Hepatitis B virus
HBsAg	Hepatitis B surface antigen
HCV	Hepatitis C virus
HCW	Health Care Worker
HEI	HIV Exposed Infant
HIV	Human immunodeficiency virus
HIVST	HIV self-testing
HTS	HIV Testing Services
ICF	Intensified case finding
IEC	Information, education and communication
INH	Isoniazid
INSTI	Integrase Strand Transfer Inhibitor
IPD	In-Patient Department
IPT	Isoniazid Preventive Therapy
IRIS	Immune Reconstitution Inflammatory Syndrome
ITN	Insecticide treated mosquito nets
IUD	Intrauterine device
KEPI	Kenya Expanded Program of Immunization
KS	Kaposi's sarcoma
LEEP	Loop electrosurgical excision procedure
L&D	Labor and Delivery
LLV	Low Level Viremia
LP	Lumbar Puncture
MAC	Mycobacterium Avium Complex
MAT	Medically Assisted Therapy
MNCH/FP	Maternal, neonatal and child health/family planning
MDT	Multi-disciplinary team
MEC	Medical Eligibility Criteria
MOH	Ministry of Health
MSM	Men who have sex with men
MUAC	Mid-upper arm circumference
NACS	Nutritional Assessment, Counselling and Support
NASCOP	National AIDS and STI Control Program

NCD	Non-Communicable Diseases
NHRL	National HIV Reference Laboratory
NNRTI	Non-nucleoside reverse transcriptase inhibitor
NRTI	Nucleoside reverse transcriptase inhibitor
NSP	Needle and syringe programmes
NRTI	Nucleotide reverse transcriptase inhibitor
OD	Once daily
OI	Opportunistic infection
OPD	Outpatient department
OST	Opioid substitution therapy
OVC	Orphans and vulnerable children
PCP	Pneumocystis jirovecii pneumonia
PCR	Polymerase chain reaction
PEP	Post-exposure prophylaxis
PGL	Persistent generalized lymphadenopathy
PHQ-9	Patient Health Questionnaire-9
PHDP	Positive Health, Dignity, and Prevention
PI	Protease inhibitor
PITC	Provider initiated HIV testing and counselling
PLHIV	People living with HIV
PLLV	Persistent low-level viremia
PML	Progressive multifocal leukoencephalopathy
PMTCT	Prevention of mother-to-child transmission
PPE	Papular pruritic eruptions
PrEP	Pre-exposure prophylaxis
PTB	Pulmonary tuberculosis
PWID	People who inject drugs
NHCSC	National HIV Clinical Support Centre
RNA	Ribonucleic acid
RPR	Rapid Plasma Reagin
sCrAg	Serum cryptococcal antigen
SRH	Sexual and Reproductive Health
SS	Single strength
STI	Sexually transmitted infection
TB	Tuberculosis
TT	Tetanus Toxoid
TWG	Technical Working Group
ULN	Upper Limit of Normal
VIA	Visual Inspection with Acetic Acid
VILI	Visual Inspection with Lugol's Iodine
VL	Viral Load
VMMC	Voluntary Medical Male Circumcision

1. Summary of Key Recommendations

1.1. HIV Testing Services (HTS) and Linkage to Treatment and Prevention

- HIV testing should be voluntary and conducted ethically in an environment where Consent, Confidentiality, Counselling, Correct results and Connection (linkage) can be assured
- To optimize access to testing services, HIV testing can be conducted in 3 different settings
    - Facility-based
    - Community-based
    - Self-testing
- All HIV-exposed infants (HEI) should have DNA PCR at 6 weeks and if negative repeat at 6 months and 12 months. An antibody test should be done at 18 months and then repeated every 6 months during breastfeeding. The final antibody test should be performed 6 weeks after complete cessation of breastfeeding
- The package of HIV testing services consists of
    - A pre-test session
    - HIV test
    - Assessment for other health-related conditions or needs (while HIV tests are running)
    - A post-test session (includes assisted partner notification services (aPNS) and child testing)
    - Referral and linkage to other appropriate health services (as part of the post-test session)
- HTS providers should adopt the 6 approaches which are known to improve linkage to treatment and prevention
    - Provide information
    - Support disclosure
    - Address barriers to linkage
    - Establish systems to facilitate linkage
    - Coordinate and integrate service
    - Document actions (using linkage registers)

1.2. Initial Evaluation and Follow-up for PLHIV

- Initial clinical evaluation of PLHIV entails
    - Providing counseling, assessing for ART readiness, and providing/linking to psychosocial support
    - Taking a complete medical history
    - Conducting a thorough physical examination
    - Appropriate laboratory investigations, although laboratory assessment is not a prerequisite to ART initiation
- CD4 monitoring, which is recommended for
    - Baseline investigation for all PLHIV
    - Any patient with suspected treatment failure
    - Any patient on fluconazole maintenance therapy or on dapsone as prophylaxis, to determine when prophylaxis can be discontinued

- Frequency of routine VL monitoring
    - For PCR positive HEIs: at baseline at the time of ART initiation
    - Age 0-24 years old: every 6 months
    - Age ≥ 25 years old: at month 6, 12, and then annually
    - Pregnant or breastfeeding: at confirmation of pregnancy (if already on ART) or 3 months after ART initiation (if ART initiated during pregnancy/breastfeeding), and then every 6 months until complete cessation of breastfeeding
    - Before any drug substitution (if no VL result available from the prior 6 months)
    - Three months after any regimen modification (including single-drug substitutions)
- PLHIV should receive differentiated care based on initial evaluation (advanced vs. well) and follow up (unstable vs. stable)

1.3. Standard Package of Care for PLHIV

Consists of 8 components:

1. Antiretroviral Therapy
    - All PLHIV are eligible for ART irrespective of CD4 cell count or percentage, WHO clinical stage, age, pregnancy status, or comorbidities
    - ART should be initiated as soon as the patient is ready to start, preferably within two weeks from time of HIV diagnosis (except for patients with cryptococcal meningitis or TB meningitis)

2. Positive Health, Dignity, and Prevention, GBV/IPV & Health Education and Counselling
    - All patients should be counselled and supported for disclosure of HIV status; partner/ family testing and engagement; condom use; family planning; sexually transmitted infections screening; and treatment adherence services
    - All females aged 15-49 years and emancipated minors accessing HIV care services should be screened for Intimate Partner Violence (IPV) as part of the standard package of care
    - All PLHIV should be provided with HIV education and counselling

3. Screening for and Prevention of Specific Opportunistic Infections
    - All PLHIV should receive lifelong cotrimoxazole preventive therapy (CPT) unless they have allergy to sulfa drugs or develop toxicity from CPT
    - During pregnancy, CPT should be initiated irrespective of the gestational age and should continue throughout pregnancy, breastfeeding, and thereafter for life
    - When dapsone (as a substitute for CPT) is being used as PCP prophylaxis, it is only recommended for patients in WHO Stage 4 and/or absolute CD4 count ≤ 200 cells/mm^3 (or CD4% ≤ 25% for children ≤ 5 years old), and should be discontinued once a patient achieves viral suppression and a sustained CD4 count of > 200 cell/mm^3 (or > 25% for children ≤ 5 years old) for at least 6 months
    - All PLHIV should be screened for TB at every visit using the Intensified Case Finding (ICF) tool and assessed for Isoniazid Preventive Therapy (IPT) if screened negative for TB
    - All adolescent and adult PLHIV with a baseline CD4 count of ≤ 200 cells/mm^3 should be screened for cryptococcal infection using the serum CrAg test

4. Reproductive Health Services
   - All PLHIV should be screened for STI at every clinic visit
   - Pregnancy status should be determined for all women of reproductive age at every visit and their contraception need determined and met
   - All HIV positive women between the ages of 18 - 65 years should be screened for cervical cancer

5. Screening for and Management of Non-Communicable Diseases
   - All PLHIV should be screened for hypertension, diabetes mellitus, dyslipidaemia, and renal disease
   - Lifestyle modifications are always the first line of prevention and management for hypertension, diabetes mellitus, and dyslipidaemia

6. Mental Health Screening and Management
   - All PLHIV should receive basic screening for depression before initiating ART, and annually thereafter, and whenever there is a clinical suspicion
   - All adults, adolescents should be screened for alcohol and drug use before initiating ART and regularly during follow-up
   - All caregivers should also receive baseline and follow-up screening for depression and alcohol/drug use

7. Nutrition Services
   - All PLHIV should receive nutritional assessment, counselling, and support tailored to the individual needs of the patients
   - All infants irrespective of HIV status should be exclusively breastfed for the first 6 months of life, with timely introduction of appropriate complementary foods after 6 months, and continued breastfeeding up to 24 months or beyond

8. Prevention of Other Infections
   - PLHIV (including children) should receive vaccinations as recommended by the National Vaccines and Immunization Programme

1.4. Adherence Preparation, Monitoring and Support

- The adherence preparation, monitoring, and support that a patient requires should be tailored to their level of adherence and the stage of ART initiation and follow-up
- Whenever possible, follow-up should be provided by the same care provider or team of care providers (e.g. same clinician and counsellor) at every visit. This is particularly important during the first 6 months in care
- For all children/adolescents, the level of disclosure should be assessed at the first visit. Ongoing care should include a plan for age-appropriate disclosure
- All patients are at risk of new or worsening barriers to adherence, so adherence monitoring, counselling and support should continue despite viral suppression
- Every service delivery point that is providing ARVs for patients (whether ART, PEP, or PrEP) must have a functional system for identifying patients who miss appointments and for taking action within 24 hours of a missed appointment
- In patients failing ART, do not change regimens until the reason/s for treatment failure have been identified and addressed (which should be done urgently using a case-management approach)

1.5. Antiretroviral Therapy in Infants, Children, Adolescents, and Adults

- The goal of ART is to suppress viral replication with the aim of reducing the patient's VL to undetectable levels
- **All individuals with confirmed HIV infection are eligible for ART, irrespective of CD4 count/%, WHO clinical stage, age, pregnancy or breastfeeding status, co-infection status, risk group, or any other criteria, provided that the individual is willing and ready to take ART and adhere to follow-up recommendations**
- ART should be started in all patients as soon as possible (preferably within 2 weeks of confirmation of HIV status)
- **Preferred first-line ART for infants, children, adolescents and adults**
    - Birth to 4 weeks: AZT + 3TC + NVP
    - 4 weeks - < 3 years: ABC + 3TC + LPV/r
    - 3 - 14 years (and < 35 kg body weight): ABC + 3TC + EFV
    - ≥ 15 years (or ≥ 35 kg body weight): TDF + 3TC + DTG (or TDF + 3TC + EFV for women and adolescent girls of childbearing potential)
- Adolescents who are virally suppressed on first line ABC + 3TC + EFV should transition to TDF + 3TC + DTG once they reach a weight of 35 kg or an age above 15 years to reduce pill burden and improve regimen durability and tolerability
- All patients **who are virally suppressed on a first line regimen** should be considered for optimization towards the current recommended first line regimen
- Treatment failure is suspected when a patient has a high VL ≥ 1,000 copies/ml after at least 6 months of using ART
- Treatment failure is only confirmed when VL is ≥ 1,000 copies/ml after assessing for and addressing poor adherence or other reasons for high VL, and then repeating VL after at least 3 months of excellent adherence to allow for viral re-suppression
- Persistent low-level viremia (PLLV) is defined as having a detectable VL (above the LDL value) but < 1,000 copies/ml on two or more consecutive measures. These patients are at increased risk of progression to treatment failure, development of ARV resistance and death and therefore require a similar case management approach as patients with VL ≥ 1,000 copies/ml
- All PLHIV with a detectable VL (any value above LDL): assess for and address potential reasons for viremia, including intensifying adherence support, repeat the VL **after 3 months of excellent adherence**
    - If the repeat VL is ≥ 1,000 copies/ml, change to an effective regimen
    - If the repeat VL is detectable but < 1,000 copies/ml consult the Regional or National HIV Clinical TWG
    - If the repeat VL is undetectable then continue routine monitoring

1.6. Prevention of Mother to Child Transmission of HIV

- Prevention of mother-to-child transmission of HIV (PMTCT) should be offered as part of a comprehensive package of fully integrated, routine antenatal care interventions
- **Lifelong ART should be initiated in all pregnant and breastfeeding women living with HIV, regardless of gestational age, WHO clinical stage and at any CD4 count**
- ART should be started, ideally, on the same day as HIV diagnosis is made with ongoing enhanced adherence support
- The preferred first line ART regimen for pregnant and breastfeeding women is TDF + 3TC + EFV
- Pregnant and breastfeeding women who are virally suppressed on a different first-line regimen should continue their current regimen until complete cessation of breastfeeding, after which they can be considered for regimen optimization
- For pregnant and breastfeeding women newly initiated on ART, obtain VL 3 months after initiation, and then every 6 months until complete cessation of breastfeeding
- For HIV positive women already on ART at the time of confirming pregnancy or breastfeeding, obtain a VL irrespective of when prior VL was done, and then every 6 months until complete cessation of breastfeeding
- For pregnant or breastfeeding women with a detectable VL (any value above LDL): assess for and address potential reasons for viremia, including intensifying adherence support, repeat the VL **after 3 months of excellent adherence**
  - If the repeat VL is ≥ 1,000 copies/ml, change to an effective regimen
  - If the repeat VL is detectable but < 1,000 copies/ml consult the Regional or National HIV Clinical TWG
  - If the repeat VL is undetectable then continue routine monitoring
- All HEI should receive infant ARV prophylaxis consisting of 6 weeks of AZT + NVP and thereafter NVP should be continued until 6 weeks after complete cessation of breastfeeding
- All infants irrespective of HIV status should be exclusively breastfed for the first 6 months of life, with timely introduction of appropriate complementary foods after 6 months, and continued breastfeeding up to 24 months or beyond

1.7. TB/HIV Co-infection Prevention and Management

- All healthcare settings should implement TB infection control recommendations to reduce the risk of transmission of TB among patients, visitors and staff
- Symptom-based TB screening using the ICF tool MUST be performed for all PLHIV at every clinic visit
    - Patients who are screened negative should be evaluated for isoniazid preventive therapy (IPT)
    - Patients who are screened positive (presumptive TB) must complete definitive diagnostic pathways
        - **The GeneXpert MTB/Rif test is the preferred test for diagnosis of TB and rifampicin resistance in all presumptive TB cases**
        - TB-LAM can be used as an adjunct rapid point-of-care diagnostic test for all PLHIV: with advanced HIV disease (WHO stage 3 or 4 or CD4 count ≤ 200 cells/mm^3 (or CD4% ≤ 25% for children ≤ 5 years)) with presumed TB, or; any danger signs of severe illness, or; currently admitted to hospital
- Those who are diagnosed with TB/HIV co-infection should be on CPT as part of the comprehensive package of care for TB/HIV co-infection
- Patients diagnosed with TB/HIV co-infection should start anti-TB treatment immediately and initiate ART as soon as anti-TB medications are tolerated, preferably within 2 weeks
- Patients with TB/HIV co-infection who are already on ART should start anti-TB treatment immediately and continue ART, making any required adjustments to the ART regimen based on known drug-drug interactions
- Always assess for ART failure in patients who develop TB after being on ART for ≥ 6 months

1.8. HBV/HIV and HCV/HIV Co-infection Prevention and Management

- All HIV positive adolescents and adults should be screened for HBV infection, using serum HBsAg, as part of initial evaluation; children who did not complete routine childhood immunizations should also be screened for HBV
- PLHIV without evidence of hepatitis B infection (HBsAg negative) should be vaccinated against hepatitis B
- The recommended first-line ART for adults with HIV/HBV co-infection is TDF + 3TC + DTG (or TDF + 3TC + EFV for women and adolescent girls of childbearing potential)
- HCV serology should be offered to individuals at risk of HCV infection
- Direct acting antiviral therapies (DAAs) for treatment of HCV have simplified the management of HIV/HCV co-infection

1.9. ARVs for Post-exposure Prophylaxis (PEP)

- PEP should be offered as soon as possible (< 72 hours) after high risk exposure
- The recommended ARV agents for PEP are
    - 0-14 years (and < 35 kg): ABC + 3TC + LPV/r
    - ≥ 15 years old (**or** ≥ 35 kg): TDF + 3TC + DTG (or TDF + 3TC + ATV/r for women and adolescent girls of childbearing potential)

1.10. Oral Pre-Exposure Prophylaxis (PrEP)

- Oral PrEP should be offered to HIV negative individuals at substantial ongoing risk of HIV infection (including the seronegative partner in a discordant relationship)
- The recommended ARV regimen for use as PrEP is: TDF (300 mg) + FTC (200 mg) once daily
- PrEP does not eliminate the risk of HIV infection and it does not prevent STIs or unintended pregnancies
- PrEP should only be offered after assessment to establish eligibility, readiness for effective use, required follow-up (including HIV testing every 3 months) and absence of contraindications to TDF and/or FTC

1.11. People Who Inject Drugs (PWID) and HIV

- PWID should be offered regular HIV testing and counselling and be linked to comprehensive HIV treatment and prevention services including harm reduction counselling and support
- The recommended first-line ART for adult PWID is TDF + 3TC + DTG (or TDF + 3TC + ATV/r for women and adolescent girls of childbearing potential)
- PWID should be offered screening, diagnosis, treatment and prevention of STIs as part of comprehensive HIV prevention and care
- PWID should have the same access to TB prevention, screening and treatment services as other populations at risk of or living with HIV
- PWID should be screened for HBV (by HBsAg) and HCV (by HCV serology) at first contact
- All PWID should be linked to Needle and Syringe Programmes (NSP) to access sterile injecting equipment
- All PWID should be linked to Medically Assisted Therapy (MAT)

2. HIV Testing Services and Linkage to Treatment and Prevention

HIV testing services (HTS) provides the first critical link to comprehensive HIV treatment and prevention. Additionally, this initial step provides opportunities to offer other interventions such as sexual and reproductive health services, TB screening and referral, substance abuse screening and referral, information and referral for voluntary medical male circumcision, pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP) and other combination HIV prevention services.

HIV testing should be voluntary and conducted ethically in an environment where the five Cs of Consent, Confidentiality, Counselling, Correct results and Connection (linkage) can be assured.
For detailed recommendations refer to the national HTS guideline.

2.1. Settings for HIV Testing

Facility-based testing

- **Routine provider-initiated HIV testing and counselling (PITC) should be offered to ALL clients (including infants, children, adolescents and adults) visiting health facilities regardless of the reasons for contact with the health facility, using an opt-out approach**
- As much as possible, PITC should be integrated into care pathways at all service delivery points including adult and Paediatric inpatient units, outpatient units, maternal and child health clinics, SRH/FP clinics, TB clinics, specialty clinics, GBV care units and service delivery points for key and priority populations. Patients starting HIV care should receive disclosure counselling and support followed by family testing

Community–based testing

- Targeted community-based HTS offers additional opportunities to identify and link people to treatment and prevention. This setting is especially important for testing children and partners of index clients through family-based testing and counselling; assisted partner notification services; outreach to key populations as well as orphans and vulnerable children (OVCs), and; adolescents

HIV self-testing (HIVST)

- HIVST allows individuals to collect their own specimen, perform the test, and interpret the results on their own. If positive, a confirmatory test must be performed by a trained HTS provider (facility-based or community-based) following the national testing algorithm
- Uptake of HIVST is improved with availability of easy-to-use testing methods such as oral/ saliva-based tests. These can be issued from health facilities and pharmacies or through outreach programs
- HIVST may have the greatest benefit in reaching specific populations such as partners of newly diagnosed PLHIV; key populations; partners of pregnant women attending ANC; contacts of patients treated for STIs; highly stigmatized populations; healthcare workers; and frequent re-testers

Providing HTS for different populations and in different settings (Table 2.1) increases opportunities for access to knowledge of HIV status and to a range of HIV treatment and prevention services.

Table 2.1: Recommendations for HTS for Different Populations and Settings

Population	Recommendation
Birth testing of infants born to known HIV- positive mothers (Figure 2.2)	• Birth testing (HIV testing of infants at birth or at first contact within 2 weeks after birth) is undergoing a pilot and further implementation guidance will be provided based on the pilot results
HIV testing and counselling of infants and children aged less than 18 months (Figure 2.1)	• HIV exposure status of all infants should be established at first contact • To establish HIV exposure status of a child less than 18 months of age, conduct HIV antibody testing for mothers with unknown status or who previously tested negative during antenatal care at the 6-week immunization visit or first contact. If the mother declines to be tested or is not available for testing, then conduct a rapid HIV antibody test for the child to determine exposure (if antibody test is positive this confirms HIV exposure) • When HIV exposure is confirmed, ARV prophylaxis should be started immediately • **All HEIs should have DNA PCR testing at the 6 week immunization visit or first contact thereafter** • Infants with an initial positive HIV DNA PCR result should be presumed to be HIV infected and started on ART in line with national guidelines, **with a confirmatory HIV DNA PCR and baseline viral load taken at the time of ART initiation** (ART initiation is based on the first result) • All HEI with initial negative results should continue infant ARV prophylaxis and be followed as HEIs, including additional PCR testing at 6 months and 12 months, and antibody testing at 18 months and every 6 months during breastfeeding, and also 6 weeks after complete cessation of breastfeeding
HIV testing and counselling of children older than 18 months till age 9 years (Figure 2.3)	• Conduct HIV testing and counselling (with parental consent) for all children of unknown HIV status presenting to the health facility irrespective of reason for their visit to the health facility. If the child is known to be HIV negative from previous testing and has no new risk factors/ exposures then repeat testing is not required until adolescence • Conduct HIV testing and counselling for all children of HIV infected adults as soon as possible, within one month of confirming the HIV positive status of the adult
HIV testing and counselling of adolescents (10 - 19 years) (Figure 2.3)	• Conduct HIV testing and counselling for all adolescents presenting to the health facility irrespective of reason for their visit to the health facility. Adolescents aged 15 years and above and emancipated minors can provide self-consent. For younger adolescents, obtain their assent and parental/caregiver consent • For those that test negative, re-testing should be recommended annually unless there is a new exposure risk • Link HIV-negative adolescents to comprehensive HIV prevention services based on risk assessment • Link all adolescents identified as HIV positive to treatment and prevention services • All adolescents should be counselled about the potential benefits and risks of disclosure of their HIV status and empowered and supported to determine if, when, how and to whom to disclose • For sexually active adolescents with partners, HIV testing and counselling should be offered to their partners (and their children for HIV positive adolescents) • All uncircumcised adolescent males who test HIV negative should be counselled about the prevention benefits of VMMC and linked to VMMC services if they agree

Table 2.1: Recommendations for HTS in Different Settings (continued)

Scenario	Recommendation
HIV testing and counselling for pregnant and breastfeeding women	• All pregnant women (unless known HIV positive) should be counselled and tested for HIV during their first ANC visit and if negative, repeat testing in the third trimester • At labour and delivery, HIV testing should be done for all women with unknown HIV status and previously tested negative (even if tested negative in third trimester) • All breastfeeding mothers (unless known HIV positive) should be counselled and tested at the 6-week infant immunization visit. The HIV test (if negative) should be repeated every 6 months until complete cessation of breastfeeding (Table 2.4) • Mothers should be counselled about the schedule for repeat HIV testing in pregnancy and postnatal as part of routine ANC and postnatal education • All pregnant and breastfeeding women who are not tested, opt-out or decline HIV testing during the first contact should be offered HIV counselling and testing in subsequent visits with appropriate referral and linkage for prevention, care and support services • All HIV positive pregnant and breastfeeding women enrolled into care should receive counselling and support (assisted disclosure), case managed linkage and follow-up • All spouses/partners of pregnant and breastfeeding women should be offered HIV testing and counselling, as well as all children if the mother is HIV positive
HIV testing and counselling of sexual partners & children of index clients (HIV positive person who is newly diagnosed or already in HIV care) (Figure 2.4)	• All PLHIV enrolled into HIV care should receive disclosure counselling and be supported to disclose their HIV status (assisted disclosure) • HIV testing and counselling should be encouraged (facility-based or community-based) for all partners and children of index clients, with linkage to treatment and prevention services as appropriate
HIV testing and counselling of key and vulnerable populations	• Conduct HIV testing and counselling for all clients from key and vulnerable populations presenting to the health facility irrespective of the reason for their visit to the health facility, or through targeted outreach testing, or through testing at key and vulnerable population service delivery points (e.g. drop-in centres) • For key populations that test negative, re-testing should be recommended every 3 months • Link all who test HIV positive to treatment and prevention services • For sexually active adults with partners, HIV testing and counselling should be offered to their partners (and their children for those that are HIV positive) • All uncircumcised adult males who test HIV negative should be counselled about the prevention benefits of VMMC and linked to VMMC services if they agree
HIV testing and counselling of adults	• Conduct HIV testing and counselling for all adults presenting to the health facility irrespective of reason for their visit to the health facility • For those that test negative, re-testing should be recommended annually unless there is a new risk exposure • HIV positive adults should be counseled for ART initiation • Link all adults identified as HIV positive to treatment and prevention services • For sexually active adults with partners, HIV testing and counselling should be offered to their partners (and their children for those that are HIV positive) • All adult males who test HIV negative should be counselled about the prevention benefits of VMMC and linked to VMMC services if they agree

Settings	Recommendations
Community-based testing	• Targeted community-based HIV testing and counselling can be especially useful for children and partners of index clients; adolescents; as well as for outreach to key populations (sex workers, truckers, MSM, and PWID) and OVCs • All HTS clients should be linked to HIV treatment and prevention services
HIV self-testing (HIVST)	• HIVST can be offered to any adult or adolescent who wants to know their HIV status outside of a formal HTS setting, usually in private • HIVST may have the greatest benefit in reaching specific populations, such as: men; partner testing for ANC attendees; contacts of patients treated for STIs; highly stigmatized populations; healthcare workers; frequent re-testers; etc. • If positive, a confirmatory test must be performed by a trained HTS provider (facility-based or community-based) following the national testing algorithms • Assisted HIVST is recommended for adolescents: the adolescent is issued with the self-testing kit and guided by a trained tester, through the process of taking the test and interpreting the results, and then assisted with linkage to prevention and/or treatment services
Opt-out testing	• Opt-out HIV testing is the expected approach for all healthcare service delivery points (e.g. TB clinic, MCH, OPD, IPD, etc) except for early infant diagnosis, which is considered required testing • For early infant diagnosis, HIV testing of the parents follows an opt-out approach, but if the mother declines testing for herself (or is not available for testing) then testing of the infant is required

2.2. Age-Specific HIV Testing Algorithms

2.2.1. Early Infant Diagnosis

HIV Exposed Infant

HIV infection of an infant or child can occur in utero, at labour and delivery and through breast milk. HIV exposure of ALL children aged <18 months old should be ascertained at first contact. A positive HIV antibody test in a child younger than 18 months of age confirms HIV exposure.

Confirmation of HIV infection in HIV Exposed Infants and Children < 18 Months Old

All HEI should be tested with DNA PCR within 6 weeks of age or first contact thereafter; if negative then another DNA PCR at 6 months, and if negative then repeat DNA PCR again at 12 months. **This replaces previous guidelines to perform antibody testing for infants at 9 months.** An antibody test should be performed for all HEI at 18 months old and every 6 months thereafter during breastfeeding, and also 6 weeks after complete cessation of breastfeeding (Figure 2.1).

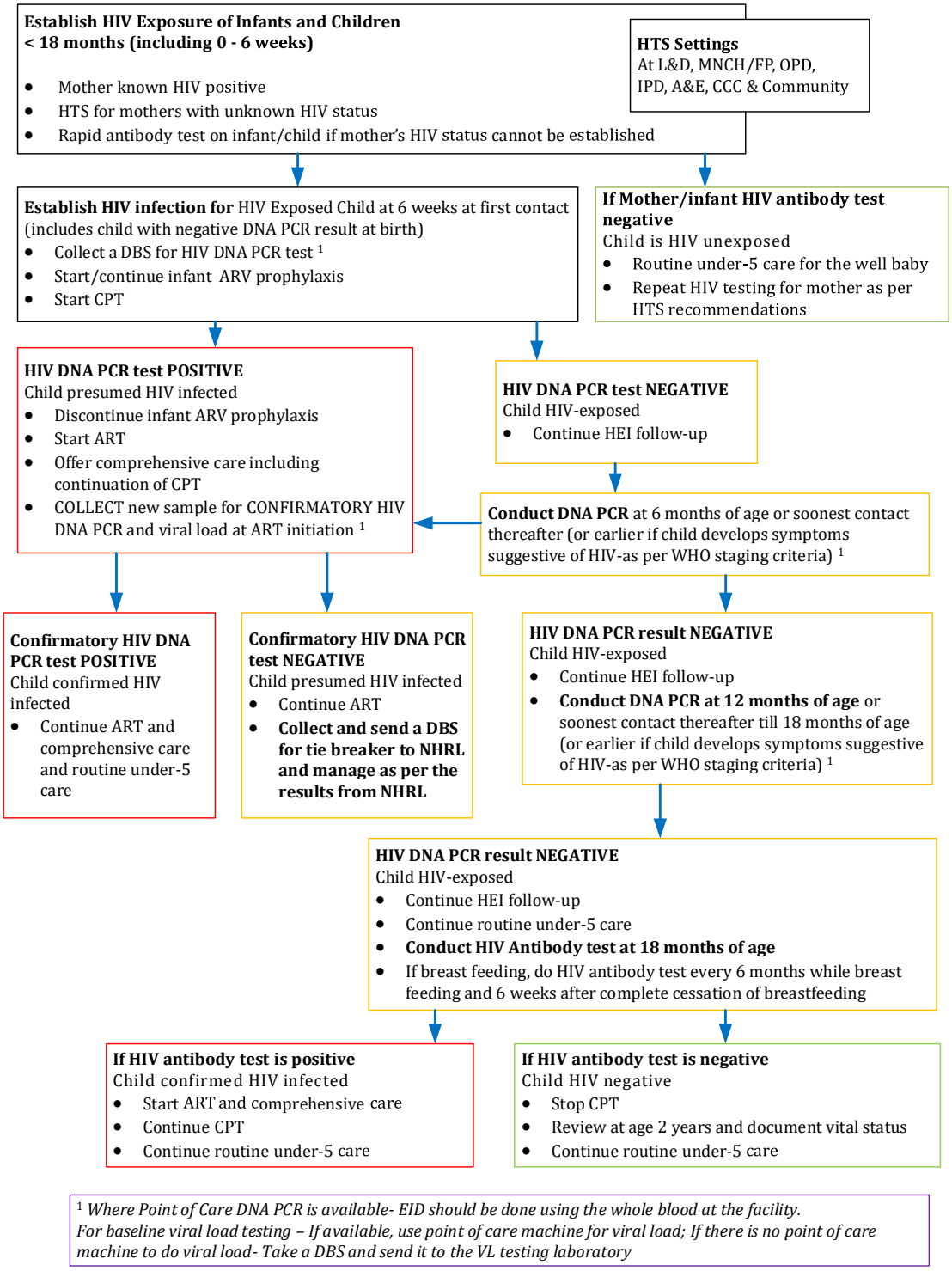


Figure 2.1 Algorithm for Early Infant Diagnosis in Infants and Children < 18 months of age

Presumptive Diagnosis of Severe HIV Disease in Children under 18 Months

Occasionally, children less than 18 months of age present to hospital with severe illness; and a rapid HIV antibody test confirms HIV exposure. Lack of immediate availability of HIV DNA PCR results for confirmation of HIV could result in undue delay in starting life-saving ART. In such children, a presumptive diagnosis of HIV infection can be made using the criteria in Table 2.2. ART can be initiated while awaiting HIV DNA PCR results to confirm HIV infection.

Table 2.2: Presumptive Diagnosis of HIV in children <18 months while awaiting DNA PCR Results

Child < 18 months of age; HIV antibody test positive and symptomatic with:
2 or more of the following:

- Oral candidiasis/thrush
- Severe pneumonia
- Severe sepsis

OR, any of the following

- Any WHO Clinical Stage 4 condition
- Recent maternal death (if likely to be have been HIV-related) or advanced HIV disease in mother
- Child's CD4% < 25%

2.2.2. Birth Testing

Birth testing is defined as HIV testing (with DNA PCR) at birth or first contact within 4 weeks after birth, for infants born to known HIV-positive mothers. Birth testing has the potential to greatly improve survival for infants who are infected during pregnancy and around labour and delivery by identifying them early for rapid ART initiation.

The national program is conducting a pilot for birth testing in select counties where all HEI will have a DNA PCR HIV test done. This pilot will inform operational guidance for scale up of birth testing nationally.

The following testing algorithm is being used during the pilot (Figure 2.2).

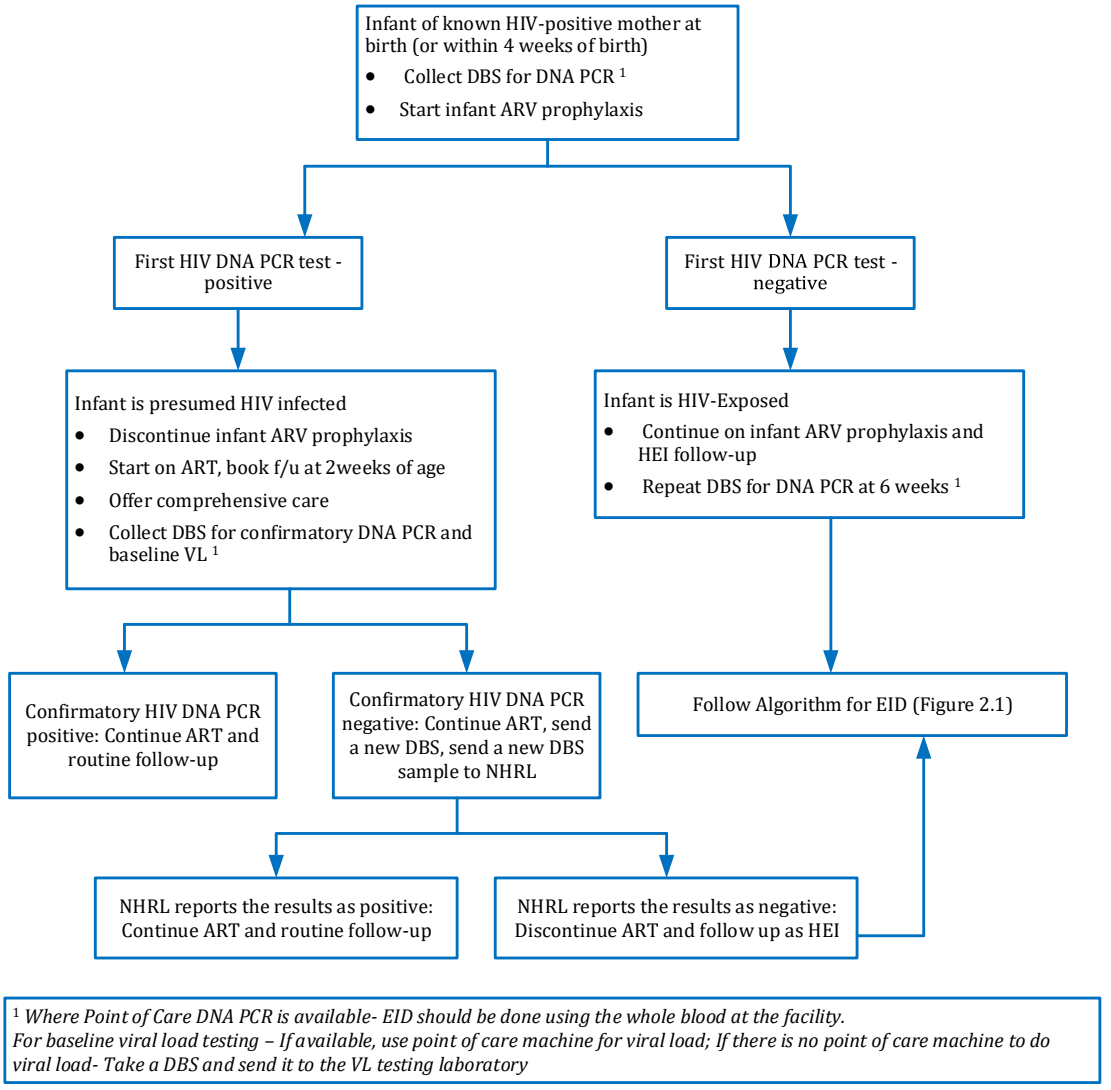


Figure 2.2: Birth Testing Algorithm

2.2.3. Diagnosis of HIV Infection in the Older Child (≥ 18 months), Adolescents and Adults

Serial testing, using approved rapid HIV antibody testing kits, is used to diagnose HIV infection in children older than 18 months, adults and adolescents (refer to Figure 2.3)

- Offer adequate information to all clients and obtain consent prior to the HIV test (verbal consent is adequate, but should be documented). Individuals 15 years and older and emancipated minors can provide self-consent. Clients who opt-out (i.e. refuse to test) should be counselled and continuously offered PITC with each visit and/or referred for community-based testing and/or offered HIV self-testing
- Clients who test HIV negative should be assessed and counselled on HIV risk reduction behaviors and linked to combination HIV prevention services (such as VMMC, RH/FP, condoms, PrEP, etc.) depending on individual risk profile. Table 2.4 provides recommendations for re-testing those who test HIV negative

For breastfed HEIs older than 18 months, the HIV antibody test should be performed every 6 months during breastfeeding and at least 6 weeks after complete cessation of breastfeeding (to factor in the window period of an infection that may occur around the time of cessation of breastfeeding).

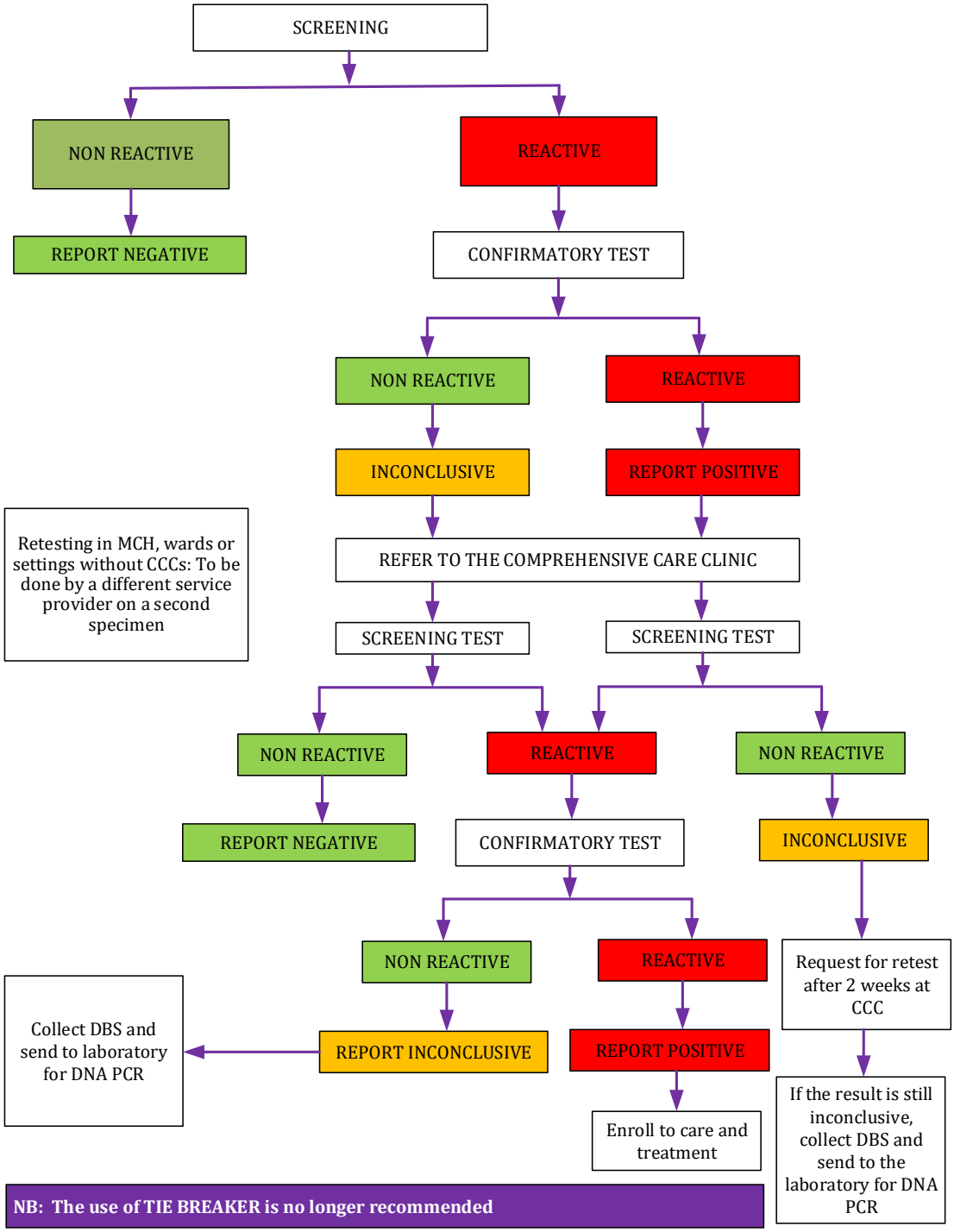


Figure 2.3: HIV Testing Services Algorithm

2.3. Package of HIV Testing Services

An HIV testing and counselling session consists of

- A pre-test session
- HIV test
- Assessment for other health-related conditions or needs (while HIV tests are running)
- A post-test session (including assisted partner notification services (aPNS) and child testing)
- Referral and linkage to other appropriate health services (as part of the post-test session)

The HIV testing service package is summarized in Table 2.3.

Table 2.3: Summary of HIV Testing Services Package

1. Pre- Test Information
• Introduction (Provider & Client) and provider role in HTS
• Contracting with the client
• Time the session likely to take
• Assure client confidentiality/shared confidentiality
  ○ Talk about the records and information to be gathered by the provider
• Benefit of HIV testing (to individuals, sexual partners and families)
• Consenting for the HIV services
• HIV package provided
  ○ HIV Combination Prevention
  ○ Assisted Partner Notification Services (aPNS) and HIV Self-Testing (HIVST)
  ○ Referral to HIV care and treatment and other integrated services

2. Pre-Test Counseling • HIV information • Risk assessment and reduction • Need for disclosure and importance to reach out to partners for HTS • Benefit of aPNS and HIVST • Discuss aPNS and HIVST, how it is related to HIV prevention, care and treatment services • Client preparation, testing process & interpretation of test results • Interpretation of test results using charts

3. Perform test
• During the 15 minutes as you wait for the test results
  ○ Discuss Combination Prevention e.g. PrEP, Risk Reduction, STI treatment, condom information & demonstration, Voluntary Medical Male Circumcision (VMMC), Elimination of Mother To Child Transmission of HIV (eMTCT)
  ○ Screen for and provide information and referrals for; Intimate Partner Violence (IPV), STI and cancer screening, Tuberculosis (TB), Family planning/contraceptive needs, etc.
  ○ Establishing number of sexual contacts and children
  ○ Document in the MOH 362
• ***Discus further on aPNS and HIVST as the confirmatory test is running for the clients who test positive with the screening test***

4. POST TEST COUNSELLING • Check if client is ready for results and help them to interpret • Check what the client understands by the results • Allow the client to share his/her initial reactions and verbalize their initial feelings • Explore and acknowledge client's immediate feelings and concerns • Offer necessary support

<table>
<tr>
<td>NEGATIVE RESULT
Review implications of being HIV negative and help client develop a risk reduction plan (see HTS guidelines)
Revisit aPNS and HIVST to determine partner notification plan/approach
Linkage to other HIV prevention initiatives
Client-specific recommendations for re-testing (Table 2.4)
Encourage disclosure of HIV negative status with sexual partner and need for couple counselling</td>
<td>POSITIVE RESULT
Review implications of being HIV positive and help index client develop a risk reduction plan
Discuss positive living
Review and support disclosure
Revisit aPNS and HIVST to determine partner notification plan/approach:
Provider referral
Contract referral
Client referral – provide the referral slip/s
Document details of index client in the HTS tracking log & fill referral forms & HIVST reporting tool
Collect all the PNS and HIVST related information about partners/contacts</td>
</tr>
<tr>
<td colspan="2">5. Assessment of other health related conditions
Conduct assessment for risk during aPNS and HIVST including intimate partner violence (IPV)
Assess risk for sexually transmitted infections (STIs) and opportunistic infections that would also require notification</td>
</tr>
<tr>
<td colspan="2">6. Referral and linkage to care
Physically escort the client for re-testing and linkage to ART/care
Obtain accurate locator information from the index client (physical location, phone number)
Document the outcomes of partner follow up(s)</td>
</tr>
</table>

Post-Test Counseling in the Era of Test-and-Treat

Post-test counselling should, at a minimum, include three key messages that being the ART treatment preparation process for all PLHIV:

- Treatment (called antiretroviral therapy or ART) is available and is recommended for everyone with HIV
- Starting treatment as soon as possible (preferably within two weeks from testing positive for HIV) reduces the chance of your illness getting worse or of passing HIV to others
- If you take your ART properly and do not miss pills you can expect to live a long and productive life

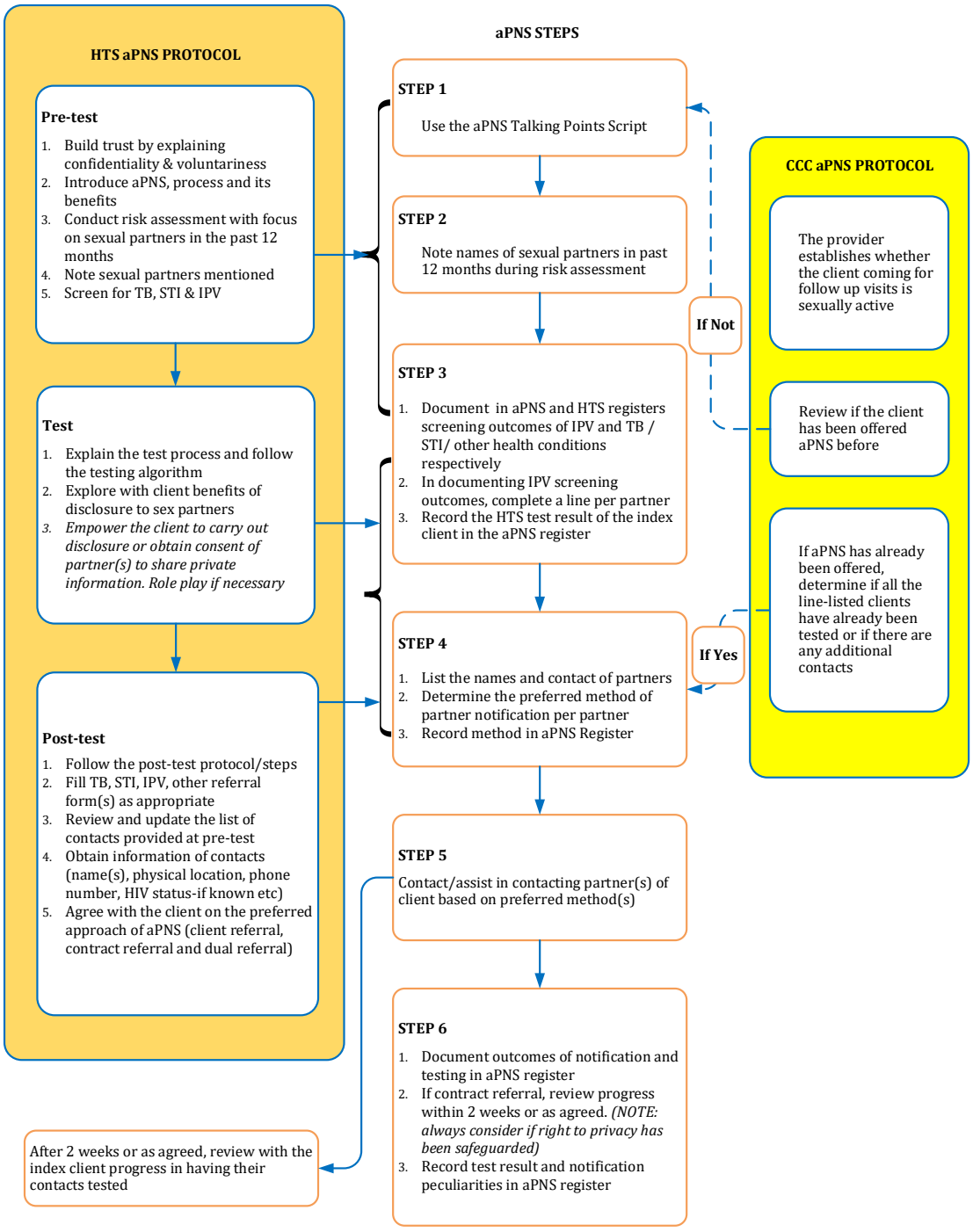


Figure 2.4: Assisted Partner Notification Services and Index Testing Algorithm

Table 2.4: Recommendations for Retesting HIV Negative Clients

Scenario/Population	Recommendation for Re-testing
General population	Re-test **at least annually** (for children, re-testing is only required if there is a new exposure)
Key populations (PWID, SW, MSM)	Re-test every 3 months in case of frequent instances of high risk exposure
Negative partner in discordant union	Re-test every 3 months until HIV-positive partner achieves viral suppression. Once viral suppression is confirmed re-testing can be performed every 6 months. Other prevention services should still be recommended, including consistent and correct use of condoms. Assess for eligibility and willingness for PrEP
Pregnant women	All pregnant women should be retested in the third trimester. At labour and delivery, HIV testing should be done for all women with unknown HIV status and previously tested negative (even if tested negative in third trimester)
Breastfeeding mothers	Re-test after delivery at the 6 week infant immunization visit, and then every 6 months until complete cessation of breastfeeding
HIV exposed infants	All HEI should have DNA PCR testing at 6 weeks, 6 months, and 12 months, and then HIV antibody testing at 18 months and then every 6 months thereafter if they continue breastfeeding. All HEI should have HIV antibody testing 6 weeks after complete cessation of breastfeeding
Persons who had a recent (e.g. less than a month) specific exposure incidence	Test at initial presentation and re-test at 12 weeks and then as per risk group
Patients with a confirmed or suspected STI	Test at initial presentation and re-test at 12 weeks and then as per risk group
Individuals on pre-exposure Prophylaxis (PrEP)	Re-test every 3 months

2.4. Linkage from HIV Testing to Treatment and Prevention

Every effort should be made to ensure patients with confirmed HIV infection are linked to treatment and prevention expeditiously. The HTS providers should manage this process actively by employing approaches known to improve linkage to care (Table 2.5) including: providing information, disclosure, addressing barriers to linkage, establishing systems to facilitate linkage, care coordination and integration, and using a linkage register.

Table 2.5: Approaches to Improve Linkage to Treatment and Prevention

Strategy	Action
Information	• Quality post-test counselling should include information about the nature and availability of additional HIV-related services, description of the next steps in treatment and prevention including entire treatment plan and follow-up visits and schedule • The benefits of immediate assessment and early initiation of ART should be emphasized • Involve the patient in the decision-making process regarding treatment and prevention (especially where and when to start ART)
Disclosure	• Disclosure to a trusted 'significant other' promotes linkage and adherence to treatment • Encourage and help the patient to discuss HIV status with a trusted friend or close relative • Encourage adolescents to identify and invite a supportive adult or friend to support them
Barriers to Linkage	• During post-test counselling, identify and address any barriers to linkage
Systems to Facilitate Linkage	• The HTS provider is responsible for linkage into care • Same day enrolment into care is expected • Linkage should be done to on-site treatment and prevention services through patient escorts. Where this is not possible (due to patient preference or the services are not available), the testing facility should book the appointment with the receiving facility and follow-up to ensure the patient registers at the receiving facility. Provide the patient with referral information, referral form and contact details of the facility • Deploy retention and loss-to-follow up tracking system to ensure linkage is successful. These include enlisting the help of peer or buddy systems, SMS reminders, phone calls and community outreach workers to escort HIV positive clients to enrolment • Early preparation and assessment for ART, with early initiation of ART strengthens engagement in care
Care Coordination and Integration	• Coordinate and treat mother-baby pairs, partners and families together. Integrate common services offered to PLHIV (TB diagnosis and treatment, SRH/FP, cervical cancer screening, nutrition etc.) • Where referrals are necessary, such referrals should be coordinated (communication and documentation between referring and receiving service delivery points)
Linkage Register	• Maintain a linkage register at all testing points in the facility and community • Track and report on progress with linkage on a monthly basis • Discuss linkage at MDT meetings

2.5. Approach to Patients on ART with a Discrepant HIV Test Result

HIV testing should not be performed for patients who are already enrolled into HIV care and on ART. However, some patients self-refer for HIV antibody testing without disclosing that they are known HIV positive and on ART. Figure 2.5 provides recommendations on managing patients who have a non-reactive antibody test while on ART.

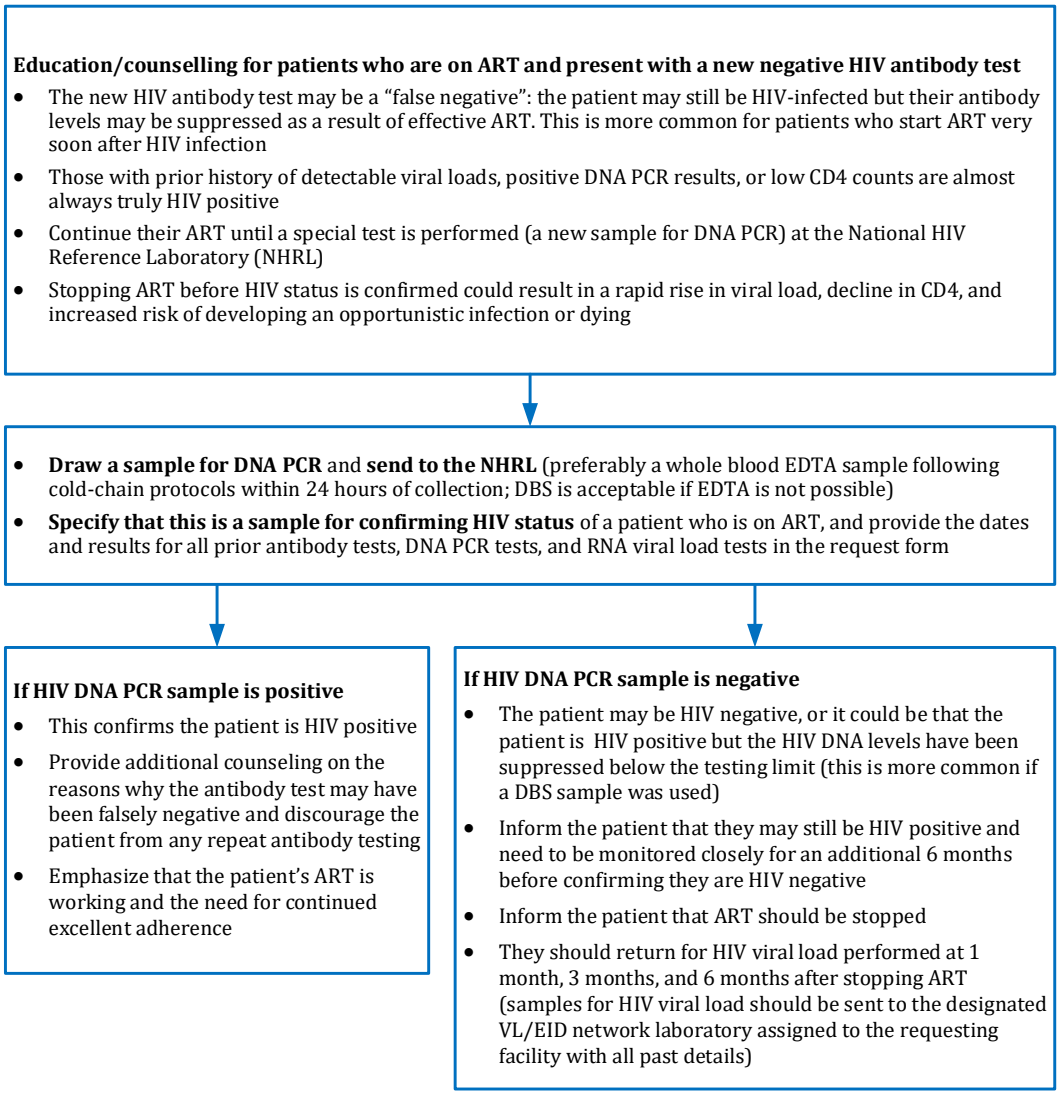


Figure 2.5: Managing Patients on ART Who Present with a New Negative HIV Antibody Test

3. Initial Evaluation and Follow-up for PLHIV

All PLHIV are eligible for ART irrespective of CD4 cell count or percentage, WHO clinical stage, age, pregnancy status, or comorbidities. ART should be initiated as soon as the patient is ready to start, preferably within two weeks from time of HIV diagnosis.

In order to provide targeted services based on clinical presentation, during the initial evaluation all PLHIV should be categorized as presenting with advanced HIV disease or as presenting well (Table 3.3). Patients with advanced disease require more intensive evaluation for and management of OIs, and once ART is started they are at higher risk for developing immune reconstitution inflammatory syndrome (IRIS, Annex 16).

Similarly, after at least 12 months on ART, PLHIV should be categorized as being either stable or unstable (clinically, virologically and psychosocially) in order to best meet the specific needs of each patient for treatment and follow-up and improve patient outcomes. Differentiated care minimizes inconvenience and unnecessarily frequent follow-up, thus reducing costs and time related to clinic visits. It also allows resources to be focused on those patients who require additional attention (Table 3.5).

3.1. Initial Clinical Evaluation of PLHIV

All patients enrolling into HIV care should have a complete medical history taken, a thorough physical examination and appropriate laboratory investigations. Findings from this initial evaluation should be documented legibly in a retrievable health record management format (electronic or paper-based) to facilitate long-term follow-up of the patient. Table 3.1 summarizes important aspects of the initial medical history and physical examination for PLHIV. Additional history should be taken and physical examination performed when clinically indicated.

Table 3.1: Initial Clinical Evaluation for PLHIV (History and Physical Examination)

History		Comments
Current and past medical history	The initial visit provides the opportunity to establish a meaningful patient-provider relationship; the clinician should elicit concerns and expectations with open, non-judgmental and clear communication	
	• Presenting complaints/current symptoms • Include symptoms of TB and TB contacts	• Inquire about symptoms due to co-existing HIV-related and non-HIV-related disease and co-morbidities that will require immediate intervention • Completion of the Intensified Case Finding (ICF) tool
	• Date of first positive HIV test • Past and current co-morbidities (e.g. TB, cryptococcal meningitis, hypertension, diabetes, kidney and liver disease) • Current medications, including herbs • Drug allergies, especially sulfa allergy • ARV exposure history • History of hospitalizations • Family history of chronic disease or cancer	• Document history of TB • Document previous or current ARV use (including for PMTCT, PEP, PrEP and ART) • Establish current medications (prescription, non-prescription, and herbal) likely to adversely interact with ARVs • Establish reasons for hospitalizations
Psychosocial history	• Education, employment, family, marital status • Past treatment for mental illnesses; current symptoms of depression • Disclosure and self-stigma • Substance use including alcohol, tobacco, miraa (khat), marijuana, narcotics, injection drug use • Nutritional history and adequacy of nutritional intake and household food security	• Establish and document social support structures • Establish possible presence of mental health concerns • Encourage disclosure to trusted close relations/friends and sexual partners • Elicit and begin to address possible barriers to adherence • Link to additional facility and community support resources, including psychosocial support groups, peer mentors, harm reduction services for PWIDs, etc
Sexual and reproductive history	• Past history of STIs • Current symptoms of STIs • Sexual practices • Partner HIV status and disclosure to sexual partner(s) • Pregnancy history and age of all living children • Menstrual history, family planning and plans for pregnancy • History of cervical cancer screening	• Discuss secondary prevention and avoidance of re-infection with STIs • HIV and ART status of sexual partner/s • Discuss pregnancy intention and contraception needs • Encourage contact tracing and HIV testing for sexual partners and all children of HIV-infected women and all children whose mothers' HIV status is unknown

Table 3.1 (Continued): Initial Clinical Evaluation for PLHIV (History and Physical Examination)

Physical Examination		Comments
General impression, vital signs and anthropometric measurements	Assess general mood, measure and record weight, height, MUAC (in children and pregnant women), temperature, pulse rate, BP, respiratory rate, pulse oximetry (if patient has respiratory complaints or has difficulty in breathing)	• Calculate BMI as: Weight (kg)/ Height^2(m) • Use z-scores for children • Monitor growth trends for children
General examination	Conjunctiva and palms for pallor or jaundice; swollen lymph nodes (cervical, axillary, inguinal); mouth (for Kaposi's sarcoma (KS) lesions, oral hairy leucoplakia, candidiasis, tooth decay); skin (for drug eruptions, herpes zoster, dermatitis, pruritic papular eruptions (PPE), folliculitis, fungal infections, molluscum, and KS)	• Prompt treatment of inter-current illness contributes towards success of ART and reduction in early morbidity and mortality • Asymmetric or rapidly enlarging lymph nodes will require fine needle aspiration cytology or biopsy • Cervical cancer screening (if not done in the past year), and appropriate management • Monitoring developmental milestones for children
Systemic examination	Central Nervous System (focal defects, retina); Mental State Examination (for mental status); abdomen (for liver or splenic enlargement); respiratory (for dullness to percussion; crackles or wheezes); cardiovascular (for peripheral pulses, oedema, heart sounds); if specific symptoms: genitourinary/ anorectal system (for ulcers, discharge, condylomata/warts, prostate examination for men ≥ 45 years of age). Speculum examination with cervical cancer screening for females	
Summary	Problem list with differential diagnosis and management plan for each problem (including investigations, treatment, referrals, and follow-up)	• Assign and document the initial WHO Clinical Stage and manage presenting illnesses • Growth and developmental milestone must be assessed and used for WHO staging in children • Differentiate between patients with advanced disease versus those who are clinically well, to guide acuity of follow-up
NOTE: Laboratory assessment is not a prerequisite to ART initiation. It should not cause a delay in starting ART		

3.2 Initial Laboratory Evaluation of PLHIV

The comprehensiveness of laboratory tests will depend on presence and/or type of suspected concurrent illness. Table 3.2 summarizes the recommended baseline laboratory investigations for all PLHIV.

Additional investigations should be based on clinical indication. ART should not be delayed if a laboratory test is not available.

Table 3.2: Baseline Laboratory Investigations for PLHIV

	Test	Comments
HIV specific	Confirm and document positive HIV test result	• Refer to Figure 2.3
	CD4 cell count	• **Recommended at baseline for all patients** (CD4% for children ≤ 5 years old) • If CD4 ≤ 200 cells/mm^3 (for adults and adolescents) then laboratory should automatically perform a serum cryptococcal antigen (sCrAg) on the same sample to screen for cryptococcal infection
	Viral load (HIV-1 RNA)	• Baseline viral load (VL) is only recommended for HEIs after 1st PCR test is positive. Specimen for baseline VL can be drawn at the time of initiating ART; obtaining a VL should not delay ART initiation
	Serum Cryptococcal Antigen (sCrAg)	• Obtain serum CrAg in all adults and adolescents with a CD4 count ≤ 200 cells/mm^3. This should be done as reflex testing by the laboratory • If positive, manage as per the cryptococcal meningitis screening algorithm (Figure 4.1)
	HIV Drug Resistance Testing (DRT)	• Not currently recommended as a baseline investigation
Others	Hb (preferably full blood count if available)	• Recommended for all patients • If baseline Hb < 9.5 g/dL then AZT should be avoided
	Pregnancy status	• Pregnancy status should be determined for all women of reproductive age (based on history of last menstrual period, and if uncertain, irregular, or delayed then a urine pregnancy test should be performed)
	Urinalysis (for protein & glucose)	• Recommended for all patients

	Creatinine	• Recommended for all patients
		• Calculate Creatinine Clearance (CrCl), Annex 15
		  ○ If HBV negative and CrCL ≤ 50 ml/min then TDF should be avoided (Table 6.7)
		  ○ If HBV positive and CrCl ≤ 50 ml/min then TDF should still be used (Table 9.3)
		  ○ CrCl is also used for dose adjustment of NRTIs, CTX and fluconazole (Table 6.7)

	Syphilis serology (VDRL, TPHA, or RPR)	• Recommended for all PLHIV with a history of being sexually active

Table 3.2: (continued): Baseline Laboratory Investigations for PLHIV

	Glucose	• Recommended for all patients
	Plasma lipid profile	• Recommended for all patients
	HBsAg	• Recommended for all adolescent and adult PLHIV (plus children who did not complete routine childhood immunizations) • If negative, patients should be immunized for HBV as soon as they achieve confirmed viral suppression (see Section 4.8.1 and Section 9) • If positive refer to Section 9 for management of HIV/HBV co-infection
	HCV antibody	• Recommended for PWID or for patients with history of injection drug use
	ALT	• Not a recommended as baseline investigation unless there is a specific clinical reason (e.g. patient with history of hepatitis, signs or symptoms of liver disease, or risk of liver disease - alcoholics, HBV or HCV infection, hepatotoxic drugs such as fluconazole, etc)

It is not possible for ALL facilities providing ART to offer all the laboratory tests recommended for HIV treatment. If a facility does not have on-site capacity to carry out any particular test, arrangements should be made to transport specimens to a local or regional reference laboratory.

3.3. Differentiated Care for Patients who Present with Advanced HIV Disease versus those who Present Well

Patients who present with advanced disease may require a different level of care than those who present while still clinically well.

Table 3.3: Differentiated Care Based on Initial Patient Presentation

Patients who Present with Advanced HIV Disease: WHO Stage 3 or 4, or CD4 count ≤ 200 cell/mm^3 (or CD4% ≤ 25% for children ≤ 5 years old)	

Package of Care	• Standard Package of Care (Section 4)
	• Intensive management of presenting illnesses and malnutrition
	• Priority for identification, management and prevention of OIs, including
	  ○ GeneXpert for TB diagnosis for all PLHIV with presumptive TB (Figure 8.2)
	  ○ TB-LAM (Figure 8.3), in addition to GeneXpert, for PLHIV with presumptive TB who
	  ▪ Have advanced HIV, or
	  ▪ Have signs of severe illness, or
	  ▪ Are currently admitted to hospital
	  ○ Cryptococcal antigen screening for adolescents and adults with CD4 ≤ 200 cells/mm^3 or clinical suspicion of meningitis (any age) (Figure 4.1)
	  ○ Cotrimoxazole Preventive Therapy (CPT)
	  ○ Isoniazid Preventive Therapy (IPT)
	• Priority for ART initiation (caution if suspected or confirmed TB, TB meningitis, or cryptococcal meningitis; Table 6.1)
	• Close monitoring for development of immune reconstitution inflammatory syndrome (IRIS, Annex 16)

Location of Services	• Management at any ART service delivery point; all facility levels; home visits may be required if unable to come to facility • Initial management and ART initiation by trained and experienced HCW • Consultation with MDT, TWG, mentors, and senior clinicians as needed (including telephone consultation with Uliza! Clinicians' HIV Toll-free Hotline (0800724848)) • Referral to a higher-level facility when feasible if consultation is not adequate to stabilize the patient
Focus of Treatment Preparation Counselling	• ART is required to prevent further damage to the immune system • Starting ART soon will decrease risk of disease progression, including wasting and other infections • ART is the most important treatment to restore health • ART will reduce the risk of transmitting HIV to others
Frequency of Follow-up	• Weekly follow-up until ART initiation, and then at week 2 and 4 after ART initiation, and then monthly until confirmed viral suppression • More frequent visits or hospitalization may be required to stabilize acute medical conditions and address psychosocial and other concerns
Patients who Present Well: WHO Stage 1 or 2, and CD4 count > 200 cell/mm^3 (or CD4% > 25% for children ≤ 5 years old)	
Package of Care	• Standard Package of Care (Section 4) • Same-day or rapid ART initiation (as soon as patient is ready, preferably within 2 weeks)
Location of Services	• Management at any ART service delivery point; all facility levels • Initial management and ART initiation by trained and experienced HCW
Focus of Treatment Preparation Counselling	• ART is the most important treatment to maintain good health and an active life • Starting ART soon will decrease risk of developing wasting and other infections • ART will reduce the risk of transmitting HIV to others
Frequency of Follow-up	• Weekly follow-up until ART initiation, and then at week 2 and 4 after ART initiation, and then monthly until confirmed viral suppression • Additional visits as required to address any medical or psychosocial concerns

3.4. Follow-up of PLHIV during the First Year of ART

Follow-up of patients on ART is determined by the duration the patient has been on treatment, how well they understand the treatment and their response to ART. Follow-up includes scheduled clinical appointments, unscheduled clinical assessments for patients with concerns/complaints, and routine and as-needed laboratory monitoring.

In order to initiate all PLHIV on ART within the shortest time possible (preferably within 2 weeks), newly enrolled patients should be seen in clinic every week until ART initiation.

After ART initiation, patients need to be monitored closely for development of adverse drug events, identify and address barriers to adherence, and development of IRIS (particularly for those who initiate ART with advanced HIV disease). A reasonable follow-up schedule for most patients is: 2 weeks and 4 weeks after ART initiation, then monthly until viral suppression is confirmed (Table 3.4). If VL is detectable at 6 months they will need additional assessments for and management of the reason/s for detectable viral load, with close follow-up until viral suppression is achieved (Section 5). Patients with confirmed viral suppression can be followed-up every 1-3 months based on patient preference and clinician judgment, with additional unscheduled visits any time the

patient has a concern. Clinical follow-up can be spaced further apart once the patient has been on ART for a year or more and meets the criteria as "stable" (Section 3.5). Children and adolescents should be followed up at least every 1-3 months.

When possible, follow-up for a particular patient should be provided by the same care provider or team of care providers (e.g. same clinician and same counsellor) at every visit. This is particularly important during the first 6 months in care.

Table 3.4 summarizes the recommended minimum routine follow-up schedule for PLHIV, however, additional clinical and laboratory follow-up should be performed whenever clinically indicated (based on history and physical examination, when the results of the investigations have the potential to change clinical management).

Table 3.4: Summary of Clinical and Laboratory Monitoring for PLHIV[1]

	Initial Visit	ART preparation	Week (after ART)		Months (after ART)					≥ 12 months
Appointment[2]		Every week[3]	2	4	2	3	4	5	6	Every 1-3 months, depending on stability	Every 3-6 months if stable[4]
History and physical exam[5]	✓	✓	✓	✓	✓	✓	✓	✓	✓	At each visit	At each clinical visit
Adherence assessment and support[6]	✓	✓	✓	✓	✓	✓	✓	✓	✓	At each visit	At each visit
TB Screening	✓	Every visit, using ICF screening tool									
CD4 count	✓	• Baseline, and then only if develops treatment failure (to assess for risk of OIs), or if defaults from care (off ART) for at least 6 months • For patients on secondary prophylaxis for cryptococcal meningitis (CM), repeat CD4 every 6 months until CD4 >100 cells/mm^3 for two consecutive measures 6 months apart and VL undetectable, after which CM prophylaxis and CD4 monitoring can be discontinued • For patients on prophylaxis using dapsone (documented CTX allergy), repeat CD4 every 6 months until CD4 >200 cells/mm^3 for two consecutive measures 6 months apart and VL undetectable, after which dapsone and CD4 monitoring can be discontinued									
HIV Viral Load		• For PCR positive HEIs: baseline at the time of ART initiation • Age 0-24 years: every 6 months • Age ≥ 25 years: at month 6 after ART initiation and month 12 then annually thereafter • For all: before any drug substitution for patients on ART for at least 6 months with no VL results from the last 6 months • For all: after any regimen change (including single drug substitutions), perform VL at months 3 after regimen modification, and then as per population group • For all: any patient with a detectable VL during routine monitoring, follow viral load monitoring algorithm (Figure 6.5)									
HIV Viral Load (pregnant/ breastfeeding)		• If on ART at time of confirming pregnancy: VL done at confirmation of pregnancy (regardless of when previously done), then every 6 months until complete cessation of breastfeeding • If starting ART during pregnancy or breastfeeding, VL at 3 months after initiation, and then every 6 months until complete cessation of breastfeeding • For all: any patient with a detectable VL during routine monitoring, follow viral load monitoring algorithm (Figure 6.5)									

CrAg	✓	Baseline for adults and adolescents with CD4 ≤ 200 cells/mm^3 (as reflex testing by laboratory), then only if clinical suspicion of CM
Hb	✓	Baseline then symptom directed; if on AZT, baseline then weeks 2, 4, and 12
Pregnancy Status	✓	At every visit for women of reproductive age (by history +/- urine pregnancy test)
Urinalysis (protein & glucose)	✓	Baseline, then annually if on TDF
Creatinine	✓	Baseline, then annually if on TDF
Glucose	✓	Baseline, then annually
Plasma lipid profile	✓	Baseline, then annually
HBsAg	✓	Baseline, followed by immunization for all patients who screen negative (after viral suppression is confirmed)
Syphilis serology (VDRL, TPHA, or RPR)	✓	Baseline, then annually in those at risk and as part of routine ANC profile
Drug Resistance Testing		Not recommended at baseline; DRT recommended once treatment failure confirmed on a PI-based 1st line regimen, or failure on 2nd line or subsequent regimens
ALT		Not recommended for routine baseline or follow-up unless specific clinical indication
Cervical Cancer	All women should be screened for cervical cancer following the national guidelines	
HCV	Baseline for PWIDs or with a history of injection drug use	

[1] Recommended investigation should not delay ART initiation

[2] This is the minimum recommended appointment schedule. Clinicians and patients should be encouraged to schedule additional appointments as needed. Patients should be encouraged to return to the HIV clinic for unscheduled appointment whenever an acute issue arises, instead of seeking care at another facility. Early after initiation of ART, **and after any regimen modification**, every appointment should include:

- Continued adherence counselling and support (started at the initial visit)
- Assessment of adherence and correct storage of medication
- Assessment for and management of early side effects of the drugs, and patient counselling on the same

[3] All PLHIV qualify for ART and should be initiated within 2 weeks, as soon as they meet ART readiness criteria. For patients who do not start ART on the same day as enrollment into HIV care, they should be followed up every week until ART initiation to address whatever issues are delaying ART initiation, for ongoing management of acute medical issues and for treatment preparation and ART readiness assessment

[4] See section 3.5 for appointment spacing for patients who are stable on ART

[5] In children and adolescents, weight and height should be measured and recorded at every visit, with weight-based dosing of ARVs confirmed at every visit.
In adults, weight and height should be measured at the initial visit to calculate BMI, and thereafter, weight should be measured at every visit to update the BMI calculation. BP, temperature and respiratory rate should also be measured and recorded at every visit. Measure and record oxygen saturation (by pulse oximetry) in patients with respiratory complaints

[6] The first 2-4 visits are critical for assessing and supporting adherence to ART, managing adverse drug reactions and treating any acute illnesses including IRIS. Adherence should be assessed at every contact with the clinic. See Section 5 for specific adherence preparation, monitoring and support procedures for each visit

Laboratory tests, though desirable, are not a pre-requisite for initiation and routine monitoring of ART. Targeted laboratory tests may be necessary to identify and manage inter-current diseases or adverse drug reactions.

3.5. Follow-up of PLHIV beyond the First Year of ART

3.5.1. Differentiated Care for Stable and Unstable Patients beyond the First Year of ART

After the first year of ART, most patients will have developed good adherence habits, have adequate coping mechanisms and support systems in place, and will have achieved full virological suppression. With their improved self-care, these "stable patients" require less frequent facility follow-up and monitoring than other patients, allowing facility resources to be focused on patients who have not achieved these milestones, as well as focus on those newly enrolling into HIV care (Table 3.5). Less intense follow-up for stable patients may also decongest health facilities, reduce patient costs and inconvenience, and improve quality of care by allowing more time for sick and/or unstable patients.

- Unstable patients require closer follow-up to address the issues that are leading them to be categorized as unstable
- Stable patients require less frequent facility follow-up, with up to six months between clinic appointments

Table 3.5: Differentiated Follow-up of Patients Beyond the First Year of ART

Unstable Patients	
Unstable Patients (any of the following) • On their current ART regimen for < 12 months • Any active OIs (including TB) in the previous 6 months • Poor or questionable adherence to scheduled clinic visits in the previous 6 months • Most recent VL: detectable (including low-level viremia and VL ≥ 1,000 copies/ml) • Has not completed 6 months of IPT • Pregnant or breastfeeding • BMI < 18.5 • Age < 20 years • Healthcare team has concerns about providing longer follow-up intervals for the patient* **Note: children and adolescents may be clinically stable, however follow-up appointment intervals beyond 3 months, when allowed, must take into consideration the need for weight-based dose adjustments, close monitoring of support systems, and the stability of caregivers.**	
Package of Care	• Standard Package of Care (Section 4) • Case management to address reason/s for not meeting stable eligibility criteria
Location of Services	• Management at any ART service delivery point; all facility levels • Consultation with MDT, CSC, mentors, and senior clinicians as needed (including telephone consultation with Uliza! Toll-free Hotline 0800-72-48-48) • Referral to a higher-level facility if consultation is not adequate to stabilize the patient
Focus of Counselling	• ART is the most important treatment to improve health and return to an active life • Targeted counselling to address reason/s they have not met stable eligibility criteria
Frequency of Follow-up	• Every 1-3 months, based on clinical judgment and the specific reason/s they have not met stable eligibility criteria • Additional visits as required to address any medical or psychosocial concerns

Stable Patients	
Stable Patients (must have achieved ALL of the following) • On their current ART regimen for ≥ 12 months • No active OIs (including TB) in the previous 6 months • Adherent to scheduled clinic visits for the previous 6 months • Most recent VL: undetectable (LDL) • Has completed 6 months of IPT • Non-pregnant/not breastfeeding • BMI ≥ 18.5 • Age ≥ 20 years • Healthcare team does not have concerns about providing longer follow-up intervals for the patient* **Note: some patients may not meet all eligibility criteria but could benefit from specific aspects of the stable-patient package of care, such as community-based ART delivery (e.g. patients with disabilities)**	
Package of Care	• Standard Package of Care (Section 4) • Viral load monitoring (and any other routine investigations) timed to coincide with patient appointments (e.g. the annual VL can be drawn 2-4 weeks before the patient's clinical follow-up visit so that the results are ready for discussion and decision-making during the visit) Re-assessment of criteria as a stable patient at every visit (and move to "unstable" category if any criteria not met)
Location of Services	• Clinical review and ART prescription from any ART service delivery point; all facility levels • Fast-track distribution of ART between clinical appointments, which can be facility-based or community-based
Focus of Counselling	• Encourage patient to continue with what is working; they are doing well • Reminders that any significant life event or change in daily routine could interfere with adherence
Frequency of Follow-up	• Maximum of 6-month intervals between clinical review • ART can be distributed for up to 3 months (through fast-track pick-up at facility or through community-based distribution) between clinical review appointments • Patients on injectable contraception should be provided FP through a fast-tracked process between clinical follow-up visits; oral contraceptives and condoms should be distributed with ART • Additional visits as required to address any medical or psychosocial concerns • Closer follow-up based on patient preference

*The healthcare team can consider other criteria such as mental illness, alcohol or substance abuse, unstable co-morbid conditions, inadequate support systems, etc., if they feel the patient requires closer follow-up, despite meeting the other criteria listed

3.5.2. Differentiated Care for Children, Adolescents and Pregnant/breastfeeding Women

Children, adolescents and pregnant/breastfeeding women should not be excluded from differentiated care (DC). The "stable/unstable" criteria in Table 3.5 are used to identify patients who qualify for longer follow-up periods vs. those that may benefit from closer follow-up.

For caregivers/parents who are enrolled in DC as stable patients, their children or adolescents who also meet "stable" patient criteria (other than the age criteria) can be considered eligible for DC. This should follow a family-centered approach in which the family is given aligned appointments with longer prescription periods.

As part of the case-management approach for children and adolescents, appointment spacing must be determined based on the specific needs and situation of the individual. For example, children and adolescents may need their ART refills and clinical reviews harmonized with school holidays.

Children require close monitoring of growth and developmental milestones, and weight-based dose adjustments of their ART and CPT (although this becomes less frequent beyond 2 years of age). If enrolled as stable patients with less frequent appointments, weight monitoring and dose adjustments should be incorporated in both the facility and community models (e.g. by using portable weighing scales if out of the health facility).

Adolescents have unique challenges with adherence related to their psychological development and social support systems. For those enrolled as stable patients with less frequent appointments, psychosocial support and ongoing adherence assessments and counseling should be aligned with clinic visits and community follow-up.

Pregnant/breastfeeding women may be clinically stable but it is recommended that their HIV clinic appointments are integrated with Focused Antenatal Care visits and with follow-up of the HIV-exposed infant.

3.5.3. ART Prescription, Dispensing, and Distribution for Stable Patients

ART should only be dispensed for up to 3 months at a time, to control for national and facility supply chains, safe drug storage and conditions that may reduce expiration period.

ART Refill Prescriptions for Stable Patients

For stable patients returning for clinical assessments more than 3 months apart, ART, CPT and condoms (and any other medications, such as oral contraceptive pills) should be dispensed for 3 months only; for stable patients an additional prescription should be provided to last until the next clinic visit (ART refill prescription).

To dispense/distribute ART refills outside of clinical follow-up appointments the health facility must have a system in place to track ART refills, and identify patients who default from the ART refill or receive the ART refill late (e.g. ART Refill Diary, similar to an appointment diary).

ART Refill Dispensing for Stable Patients

- ART can only be dispensed by a licensed healthcare professional
- ART can be dispensed in quantities of up to 3 months based on a valid prescription, and documented using the Pharmacy Dispensing Tool
- Dispensing of ART refills (prescriptions outside of the clinical follow-up appointments) must be accompanied by completion of the ART Distribution Form (Table 3.6)

ART Refill Distribution for Stable Patients

- ART for distribution must be **dispensed** (pre-packaged for individual patients) by a healthcare professional, as described above, and documented in the Pharmacy Dispensing Tool, with additional documentation of the person distributing the refill
- ART refills can be distributed by healthcare professionals or trained lay health workers (peer educators, community health volunteers, treatment supporters, etc.)
- ART can be distributed in quantities of up to 3 months
- Distribution of ART refills, whether facility-based or community-based, must be accompanied by completion of the ART Distribution Form

Table 3.6: ART Distribution Form for Stable Patients

<table>
<tr><td colspan="2">ART Distribution Form for Stable Patients</td><td rowspan="6">Complete at time of dispensing</td></tr>
<tr><td colspan="2">Client Name: _____ Client Unique No: _____
Date of ARV Distribution: DD _____MM_____YYYY_____

ART Refill Model: _____</td></tr>
<tr><td colspan="2">Patient Phone No: Treatment Supporter Phone No:</td></tr>
<tr><td colspan="2">ARVs regimen being distributed: Quantity (months):</td></tr>
<tr><td colspan="2">Other drugs/supplies being distributed and quantity</td></tr>
<tr><td colspan="2">☐ CPT / Dapsone, quantity (months): ☐ Oral Contraception, quantity (months): ☐ Condoms (yes/no):</td></tr>
<tr><td>☐ Other: quantity (days):</td><td>☐ Other: quantity (days):</td><td></td></tr>
<tr><td>Name of pharmacist/person dispensing:

Signature:</td><td>Name of ART distributor:

Signature:</td><td></td></tr>
</table>

Table 3.6 (Continued): ART Distribution Form for Stable Patients

<table>
<tr><td colspan="4">Patient review checklist (if yes to any of the questions below, confirm they have enough ART until they can reach the clinic and refer back to clinic for further evaluation; book appointment and notify clinic)</td><td rowspan="8">Complete at time of distribution</td></tr>
<tr><td colspan="4">Any missed doses of ARVs since last clinic visit: ☐Yes ☐No

If yes, how many missed doses: _____</td></tr>
<tr><td colspan="4">Any current/worsening symptoms:</td></tr>
<tr><td>Fatigue: ☐Yes ☐No

Cough: ☐Yes ☐No</td><td>Fever: ☐Yes ☐No

Rash: ☐Yes ☐No</td><td>Nausea/vomiting: ☐Yes ☐No

Genital sore/discharge: ☐Yes ☐No</td><td>Diarrhea: ☐Yes ☐No

Other:</td></tr>
<tr><td colspan="4">Any new medications prescribed from outside of the HIV clinic: ☐Yes ☐No

If yes, specify:</td></tr>
<tr><td colspan="2">Family planning: ☐Yes ☐No

Method used:</td><td colspan="2">Pregnancy status: ☐Pregnant ☐Not Pregnant ☐Not Sure</td></tr>
<tr><td colspan="4">Referred to clinic: ☐Yes ☐No

If yes, appointment date: DD____ MM____ YYYY _____</td></tr>
<tr><td colspan="4">Signature of patient upon receipt of the ART:</td></tr>
</table>

ART Refill Distribution Points for Stable Patients

The health facility is responsible for ART prescription, dispensing, and distribution for all patients enrolled into care. ART distribution for stable patients can take place at the health facility or through a community distribution system, depending on patient preference and health facility systems and resources. **No patient should be pressured into receiving ART at a community-based distribution point or through a fast-track process.**

Models of ART refill distribution for stable patients are summarized in Tables 3.7 and 3.8.

Table 3.7: Facility-based ART Refill Distribution for Stable Patients

Facility-based ART Refill Distribution for Stable Patients
• Facility-based ART refill distribution for stable patients should involve a fast-tracked process to minimize patient waiting times, preferably with medications pre-packed and patient labeled • Each facility must clearly define its fast track process and communicate this to staff and patients; the process should be reviewed quarterly for quality (waiting times, patient satisfaction, compliance to criteria (follow-up intervals; unstable patients are not fast-tracked), etc.) • The fast-track refill pick-up may operate during normal hours as well as on designated out-of-hours times/days (e.g. early mornings, weekends) • **If the patient has any concerns they should be encouraged to call the facility or come for an unscheduled visit** • If the patient has any red-flags raised on the ART Distribution Form they should be referred to the clinician for review • The Pharmacy Dispensing Tool, ART Distribution Form and ART Refill Diary are the minimum documentation that must be completed during the refill. The Pharmacy Dispensing Tool must be updated by a healthcare profession; the ART Distribution Form and ART Refill Diary can be completed by a healthcare professional or a trained lay health worker at the facility
Examples
• Patient goes directly to the pharmacy window to pick up ART refill, without stopping at reception, triage, etc.; ART Distribution Form and ART Refill Diary completed at the pharmacy window • Facility-based peer educator or CHV operates a fast-track distribution room at the facility: pharmacy dispenses and pre-packs ART for patients who are scheduled for refills for the day; peer educator/CHV takes all the patient packs for the day to a distribution room; peer educator/CHV distributes ART as patients arrive for refills, with completion of the ART Distribution Form and updating of the ART Refill Diary

Table 3.8: Community-based ART Refill Distribution for Stable Patients

Community-based ART Refill Distribution for Stable Patients
• Community-based ART distribution for patients can take various forms depending on the health facility resources and systems, community-based support structures, and patient preferences • **Patient must voluntarily enroll into any community-based refill distribution program** • Each patient must specify who is allowed to distribute the ART to them (or who can pick up the ART refill on their behalf; if someone is picking up the ART on their behalf, that person must bring the patient card and prescription to the facility at the time of refill pick-up) • If patient has any concerns they should be encouraged to call the facility or come for an unscheduled visit • If the patient has any red-flags raised on the ART Distribution Form they should be referred to the clinician for review • A system for communication between the distributor and facility must be clearly defined (e.g. reporting any problems identified during distribution, failure to deliver the ART, etc.) • The Pharmacy Dispensing Tool, ART Distribution Form and ART Refill Diary are the minimum documentation that must be completed each time a patient receives their ART refill. The Pharmacy Dispensing Tool must be updated by a healthcare professional; the ART Distribution Form and ART Refill Diary can be completed by a healthcare professional or a trained lay health worker
Examples
• CHVs are assigned specific patients; CHVs distribute ART and complete the ART Distribution Form during home visits; home visit/refill schedule is coordinated by the pharmacy team; CHVs maintain ART Refill Diary; Pharmacy Dispensing Tool updated at the facility • Community ART Groups (CAGs) are formed (preferably self-formed by patients); each CAG consists of around 6 patients; every month a different member picks up pre-packed ART for all other group members (patient packs that are dispensed from pharmacy); facility visit for ART pick-up coincides with that patient's 6-monthly clinical follow-up visit; person picking/distributing ART for the month completes the ART Distribution Form with each CAG member; ART Refill Diary and Pharmacy Dispensing Tool updated at the facility

Before implementing a community-based ART distribution program, a health facility must work with the CHMT to design a program that meets the criteria listed in Table 3.9, and the plan must be approved by the County HIV Technical Working Group before implementation (Annex 14).

Table 3.9: Criteria for a Health Facility to Implement a Community-Based ART Distribution Program

Health facilities should meet the following criteria before implementing a community-based ART distribution program*:

Leadership
- Community-based ART distribution plan reviewed and approved by the CHMT/County HIV TWG
- Focal person at facility identified to oversee community-based ART distribution

Finance
- Has sufficient financial resources to implement and monitor community-based ART distribution

Human Resources
- Has identified appropriate personnel for distributing ART, which could include
  - Healthcare professionals
  - Lay health workers/peers
- Has capacity to train and supervise ART distributors on the following minimum competencies
  - Modes of transmission of HIV
  - Basics of ART
  - Adherence requirements and support systems
  - Common and serious side effects of ART
  - Completion of the ART Distribution Form

Service Delivery
- Uptake of routine VL monitoring is ≥ 90%
- Has functional system in place for fast-tracked facility-based ART distribution for stable patients

Commodity Management
- Currently has ≥ 3 months stock of ARV on site
- Has capacity (including personnel and supplies) to pre-pack and label individual patient medications (including ART, CPT, condoms, and any other medications) for all patients who will receive community-based ART

Health Information Systems
- Has a functioning system in place to monitor and report patient-level outcomes (including retention, viral suppression, and mortality)
- Has capacity to monitor and report on community-based ART distribution outcomes, including collecting and compiling ART Distribution Forms for monthly summary reports

*None of these criteria are absolute requirements for implementation of community-based ART distribution; implementation can be considered even if some criteria are not met, as long as a plan is in place to address and monitor gaps

4. Standard Package of Care for PLHIV

All PLHIV should receive a package of services that are known to promote health, improve the quality of life, prevent further HIV transmission, and prevent HIV disease progression and mortality.

The standard package of care for PLHIV includes: antiretroviral therapy; Positive Health, Dignity and Prevention (PHDP) services; screening and providing support in cases of gender-based violence (GBV) or intimate-partner violence (IPV); screening and prevention of specific opportunistic infections; reproductive health services; screening for and management of non-communicable diseases; mental health screening and management; nutritional services; and prevention of other infections (Table 4.1).

The standard package of care should always be applied using a patient- and family-centered approach. Patient-centered care includes: considering the individual patient's health needs; eliciting and addressing the patient's concerns and expectations; involving the patient's (and their family and friends as appropriate) in decision-making, and; respecting the patient's values and preferences. Family-centered care identifies, engages and provides care to all HIV-positive family members, prevents new infections among family members at risk, and promotes family support and awareness.

Table 4.1: Components of the Standard Package of Care for PLHIV

Component of Standard Package of Care	Subcomponents
Antiretroviral therapy (ART)	• Patient preparation • ART • Monitoring (clinical and laboratory)

Positive health, dignity and prevention; gender-based violence (GBV) and intimate-partner violence (IPV) screening; and HIV education/counselling	• Positive health, dignity and prevention components
	  ○ Disclosure
	  ○ Partner/family testing
	  ○ Condom use
	  ○ Family planning
	  ○ STI screening, prevention, and treatment
	  ○ Adherence counselling and support
	• GBV/IPV screening and support
	• HIV education/counselling

Specific opportunistic infection screening and prevention	• Cotrimoxazole preventive therapy
	• Tuberculosis (TB)
	  ○ Intensified case finding
	  ○ Isoniazid preventive therapy
	  ○ ART for TB/HIV co-infected patients
	• Cryptococcal meningitis

Reproductive health services	• Sexually transmitted infections screening and management • Family planning and pre-conception services • Maternal healthcare • Cervical cancer screening
Non-communicable diseases screening and management	• Hypertension • Diabetes mellitus • Dyslipidaemia • Chronic kidney disease • Other NCDs
Mental health screening and management	• Depression • Alcohol and drug use/addiction
Nutritional services	• Assessment • Counselling and education • Management and support
Prevention of other infections	• Immunizations • Malaria • Safe water, sanitation and hygiene

Table 4.1 (continued): Components of the Standard Package of Care for PLHIV

Standard Package of Care for HIV-Exposed and HIV-Infected Infants

- Determine HIV status at first contact through HTS/EID and link to HIV care
- Provide ARV prophylaxis for all HEIs and ART for all HIV-infected children (**confirming correct weight-based dosing of ARVs at every visit**); perform baseline clinical and laboratory assessment
- Provide nutritional assessment, counselling and support (NACS, Section 4.7) and monitor growth and development of the child (Annex 3)
- Ensure that all immunizations are provided following the national schedule (Section 4.8.1)
- Assess clinically at every visit, treat infections early, identify and manage adverse drug reactions aggressively and refer appropriately where specialized care is required
- Screen for opportunistic infections and provide prophylaxis (cotrimoxazole, isoniazid), deworm every 6 months (starting at 1 year of age) and provide supplemental Vitamin A every 6 months (starting at age 6 months)
- Educate the caregiver on all aspects of care for the child including infant feeding, immunizations, personal hygiene, adherence, child disclosure, and follow-up requirements
- Provide age-appropriate psychosocial support for the family and child and refer to community-based support programmes as appropriate
- Ensure that the caregiver and family members are receiving appropriate care, support and treatment
- Provide intensive case management for mother/infant pair until 2 years postpartum; identify defaulters and prioritize this population for tracking

Standard Package of Care for Adolescents Living with HIV

Clinical care

- Provide immediate linkage to HIV care
- Provide ART to all HIV-infected adolescents
- Perform baseline clinical and laboratory assessment
- Assess clinically at every visit, treat infections early and refer appropriately where specialized care is required
- Screen for opportunistic infections and provide prophylaxis (cotrimoxazole, isoniazid)
- Provide NACS and monitor growth and development
- Provide/refer for HPV vaccine

Adherence and psychosocial support

- Perform a baseline psychosocial assessment
- Assess for and support disclosure of HIV status to the adolescent (Annex 5)
- Enrol in age-appropriate psychosocial support groups
- Provide treatment literacy and life skills counselling
- Provide adherence counselling
- Support appropriate transition into adult HIV treatment and prevention

Prevention of HIV transmission

- Encourage partner/family testing and support for disclosure
- Assess for and manage drug and alcohol use
- Perform a sexual risk assessment and STI screening and treatment, and linkage of sexual partner to PrEP where applicable
- Assess for and manage intimate-partner violence
- Provide reproductive health services, including pregnancy screening, pregnancy intention assessment, family planning and linkage to PMTCT for pregnant adolescents

Referrals, linkages and support for continuum of care

- Provide intra-facility & inter-facility referrals as needed e.g. for specialized care
- Link with youth community groups, targeting youth both in and out of school
- Link to other services: legal centers, paralegal services, gender-based violence recovery centers, educational institutions, bursary/scholarship programs, income generating activities, constituency development funds, vocational training centers for skills development, etc.

The "*Adolescent Package of Care in Kenya, 2014"* has detailed job aids for every step of the continuum of care of adolescents living with HIV.

4.1. Antiretroviral Therapy

ART is recommended for all PLHIV, regardless of WHO stage, CD4 count, age, pregnancy status, or comorbidities/co-infections. Once a diagnosis of HIV infection is confirmed, ART should be initiated within the shortest time possible (preferably within 2 weeks), once patient readiness has been determined. Other sections of these guidelines deal with initial evaluation and monitoring (Section 3), patient preparation and adherence support (Section 5), and specific recommended ART regimens (Section 6).

4.2. PHDP, GBV/IPV & Health Education/Counselling

PHDP is a framework that emphasizes the health and rights of PLHIV, including reducing risk of onward transmission of HIV. Within PHDP are 6 core domains of services that should be provided at the health facility to PLHIV and caregivers (Table 4.2). Complementary community-based PHDP should also be implemented.

Table 4.2: Domains and Components for PHDP Services

PHDP Domain	Components
Disclosure of HIV status	• Assessment of disclosure status, particularly to sexual partners • Assisted disclosure Note: for children and adolescents, it is also necessary to evaluate for and support age-appropriate HIV disclosure to the child/adolescent
Partner/family testing and engagement	• HIV testing of sexual partners and drug injection partners • HIV testing of other family members at risk • Enrolment of positive partners/family members into HIV care • Engagement of negative partners and family members in care and support for index patient
Condom use	• Risk reduction counseling • Correct and consistent condom use • Provision of condoms at every visit
Family planning	• Assessment of pregnancy intention • Pre-conception counselling • Dual contraception until ready for pregnancy (see Section 4.4.2, Reproductive Health Services for specific clinical guidelines)
Sexually transmitted infections	• Screening for symptoms of STIs • Prevention of STIs (see Section 4.4.1, Reproductive Health Services for specific clinical guidelines)

Treatment adherence	• Benefits/importance of:
	  ○ Adherence to clinical care
	  ○ Adherence to ART
	(see Section 5, Adherence Preparation, Monitoring and Support for specific tools and protocols)

Additional services that should be offered to PLHIV beyond the above components include screening for GBV and IPV and health education/counseling services.

4.2.1. Screening for Gender-Based Violence (GBV)/Intimate-Partner Violence (IPV)

National data shows that almost 50% of women aged 15-49 years have experienced physical or sexual violence in their lifetime. Resources for supporting patients who have experienced IPV are increasing in Kenya, but the first step is to identify patients who require this support. Basic screening questions for IPV have been found to be acceptable to patients and healthcare workers in Kenya if the provider shows a respectful attitude and when confidentiality is assured.

All females aged 15-49 years and emancipated minors accessing HIV care services should be screened for IPV as part of the standard package of care for PLHIV.

The following script can be used for Screening:

"Many people do not realize that violence can lead to all kinds of health problems. Because violence is so common in many women's lives, and because there is help available for women being abused, we now ask all female patients about their experiences with violence.

1. *Within the past year, has someone ever hit, kicked, slapped, or otherwise physically hurt you?*
2. *Has someone ever threatened to hurt you?*
3. *Has someone ever forced you to do something sexually that made you feel uncomfortable?*

If a patient answers yes to any of these questions: identify if they are in a relationship with the perpetrator and provide them with some immediate counselling support (supportive messages and support with problem-solving if they are currently in an abusive relationship), and refer to the nearest IPV or GBV Recovery Centre or mental health team for further assessment and counselling.

Supportive messages that may be helpful include:

- *"what happened to you is not your fault"*
- *"many women are in the same situation as you"*
- *"there are resources available to help you deal with the current difficulty"*
- *"if you feel like you are in immediate danger we can involve the police or local administration*"

Men, the elderly, and children may also suffer IPV or domestic abuse and should be assessed if there is any clinical suspicion. Key populations are particularly vulnerable to abuse, including MSM, transgender women, and prisoners. For children, screening is best done by observing the child when playing, drawing, telling stories, etc.

4.2.2. HIV Education/Counselling

All PLHIV and caregivers should receive focused education about HIV and its treatment to empower them to succeed in management of the infection. Self-management is critical to the successful treatment of any chronic illness, including HIV. Key messages for HIV education and adherence counselling are described in Section 5 of these guidelines.

In addition, psychosocial counselling and support for PLHIV and caregivers should include:

- Mitigation of fear, anger, self-stigma and discrimination
- Alleviation of grief, bewilderment and stress among partners and family members
- Behaviour change in support of healthy living and prevention of further HIV transmission
- Skills-building on how to live a healthy and productive life
- Identification and treatment of depression and substance abuse

HIV education and counselling can be offered in multiple settings, including: facility-based individual, couples, family, and/or group counselling, and through community-based counselling and peer support groups.

4.3. Specific Opportunistic Infection Screening and Prevention

4.3.1. Cotrimoxazole Preventive Therapy (CPT)

All PLHIV should receive lifelong CPT (Table 4.3) unless they have an allergy to sulfa drugs or develop toxicity from CPT. For HIV exposed and infected infants, CPT should start at 6 weeks of age. CPT is effective in preventing specific OIs for patients with low CD4 counts (PCP and toxoplasmosis), as well as reducing the risk of common bacterial infections, sepsis, diarrhoeal illness and malaria.

Table 4.3: Daily Dose of Cotrimoxazole Preventive Therapy

Weight (kg)	If using oral suspension (240mg per 5ml)	If using single strength tablet 480	If using double strength tablet 960 mg
1 – 4	2.5 ml	¼ SS tab	--
5 – 8	5 ml	½ SS tab	¼ DS tab
9 – 16	10 ml	1 SS tab	½ DS tab
17 – 30	15 ml	2 SS tabs	1 DS tab
> 30	20 ml	2 SS tabs	1 DS tab
Adult (any weight)		2 SS tabs	1 DS tab

Note: If CrCl 15-30 ml/min then use 50% of normal recommended dose; if CrCl < 15 ml/min then CTX should be avoided

During pregnancy, CPT should be initiated irrespective of the gestational age and should continue throughout pregnancy, breastfeeding, and thereafter for life. Additional intermittent preventive therapy (sulfadoxine-pyrimethamine (SP)) for malaria is not required in women already on CPT.

Cotrimoxazole can cause anaemia and neutropenia in some patients, as well as a skin rash.

Management of Patients with Cotrimoxazole Allergy

- A rash may occasionally develop, usually about 7-14 days following initiation of CPT. It is often a relatively mild maculopapular rash with or without pruritus. Infrequently, rash may develop with severe exfoliation of the skin and Stevens-Johnson syndrome. Rash severity should be assessed, with management based on severity (Table 4.4)
- Desensitization is effective in the majority of patients with mild to moderate rash (Table 4.5). The rapid desensitization regimen (Table 4.6) can be used in situations where treatment for PCP is needed

Table 4.4: Management of Drug-Associated Skin Rash

Severity	Characteristics	Action
Mild	Dry; erythema +/- fine papules; pruritus; affecting < 50% of body surface area	Continue CTX; close monitoring; symptomatic treatment with antihistamines +/- topical steroids (NOT oral steroids)
Moderate	Dry; erythema +/- fine papules; pruritus; affecting ≥ 50% of body surface area	Stop CTX; symptomatic treatment with antihistamines +/- topical steroids (NOT oral steroids); trial of desensitization after symptoms completely resolved
Severe	Mucosal involvement; blistering; associated fever; any % of body surface area	Stop CTX; admission to hospital for supportive management (IV fluids, wound care, pain control, infection control, monitoring for super-infection); **patient should NEVER be re-challenged with CTX or other sulfa-containing drugs;** document and report adverse event and issue patient alert card

Cotrimoxazole Desensitization Protocols (for patients who have fully recovered from moderate reaction)

Table 4.6: Standard Cotrimoxazole Desensitization Regimen (8 days)

Day	Dose of TMP/SMX Suspension (40/200 mg per 5ml)
Day 1	0.5 ml
Day 2	1 ml
Day 3	2 ml
Day 4	3 ml
Day 5	4 ml
Day 6	5 ml
Day 7	1 SS tablet
Day 8	2 SS tablets/1 DS tablet per day
Note: For children, continue up until they have reached their recommended weight-based dosage	

Table 4.5: Rapid Cotrimoxazole Desensitization Regimen (6 hours)

Hour	Dose of P/SMX Suspension (40/200 mg per 5ml)
Hour 0	0.5 ml
Hour 1	1 ml
Hour 2	2 ml
Hour 3	3 ml
Hour 4	4 ml
Hour 5	5 ml
Hour 6	1 SS tablet
Note: The rapid desensitization protocol should not be used for children because the cumulative dosage will be too high	

Dapsone as a Substitute for CPT

In situations of severe allergy to cotrimoxazole or when desensitization is not successful, dapsone can be used instead of CTX. It is primarily effective as prophylaxis against PCP but does not have the other prophylactic benefits of cotrimoxazole.

Dapsone will contribute to anaemia in most patients, and causes haemolytic anaemia in some patients, so patients should have a baseline Hb before starting dapsone and Hb monitored every 1-2 weeks for the first couple of months. Dapsone is not recommended during breastfeeding.

When dapsone (as a substitute for CPT) is being used as PCP prophylaxis, it is only recommended for patients in WHO Stage 4 and/or with absolute CD4 count ≤ 200 cells/mm^3 (or CD4 % ≤ 25% for children ≤ 5 years old), and should be discontinued once a patient achieves a sustained CD4 count of > 200 cells/mm^3 (or > 25% for children ≤ 5 years old) for at least 6 months.

Dose of Dapsone

- Available as 25 mg and 100 mg tabs
- Children: 2 mg/kg once daily (maximum dose: 100 mg) OR 4 mg/kg once weekly (maximum dose: 200 mg)
- Adults: 100 mg once daily

4.3.2. Tuberculosis (TB) Prevention and Management for PLHIV

All PLHIV should be screened for TB at every visit using the Intensified Case Finding (ICF) tool (symptom-based TB screening).
All PLHIV older than 12 months of age who screen negative for TB should be provided with 6 months of Isoniazid Preventive Therapy (IPT) unless they have a specific contraindication. All patients who receive a full course of IPT should have this clearly documented in their file (refer section 8.2 for detailed indications for provision of IPT).
For PLHIV who have presumptive TB, GeneXpert MTB/Rif assay is the preferred testing platform to confirm the diagnosis, with TB-LAM used as an adjunct bedside test while awaiting GeneXpert results. All PLHIV qualify for ART, including patients with HIV/TB co-infection.
Section 8 provides specific guidelines for ICF, IPT, use of gene and TB-LAM, and ART for patients with TB/HIV co-infection.

4.3.3. Cryptococcal Meningitis (CM) Screening and Treatment

All adult and adolescent PLHIV with a baseline CD4 count of ≤ 200 cells/mm^3 should be screened for cryptococcal infection (Figure 4.1). This should preferably be a reflex test performed by the laboratory as soon as the low CD4 count is noted, rather than requiring the clinician to order a special test for screening.

PLHIV, including children and adolescents, should receive cryptococcal screening if clinically suspected. For patients who are symptomatic for meningitis but screen serum CrAg negative, alternative diagnoses for sub-acute meningitis should be explored, such as TB meningitis. All patients with clinical meningitis should be assessed and managed at a facility that can perform lumbar punctures.

Whenever performing CSF CrAg for patients with symptomatic meningitis, CSF GeneXpert for TB should be performed at the same time, as well as urine TB-LAM.

Fluconazole use during pregnancy increases the risk of birth defects. All pregnant women who screen positive with serum CrAg should be offered a lumbar puncture (irrespective of symptoms) to determine if they have cryptococcal meningitis. If the CSF CrAg is positive they should be treated with 2 weeks of amphotericin B for induction (without fluconazole), while consulting Uliza! Toll-free Hotline (0800-72-48-48; ulizanascop@gmail.com) to discuss consolidation/maintenance. Pregnant women with negative CSF CrAg should start ART immediately (without pre-emptive fluconazole therapy) and be monitored for symptoms of CM.

Annex 7 provides detailed guidance on the use of amphotericin, fluconazole, and therapeutic lumbar punctures for the treatment of symptomatic cryptococcal meningitis

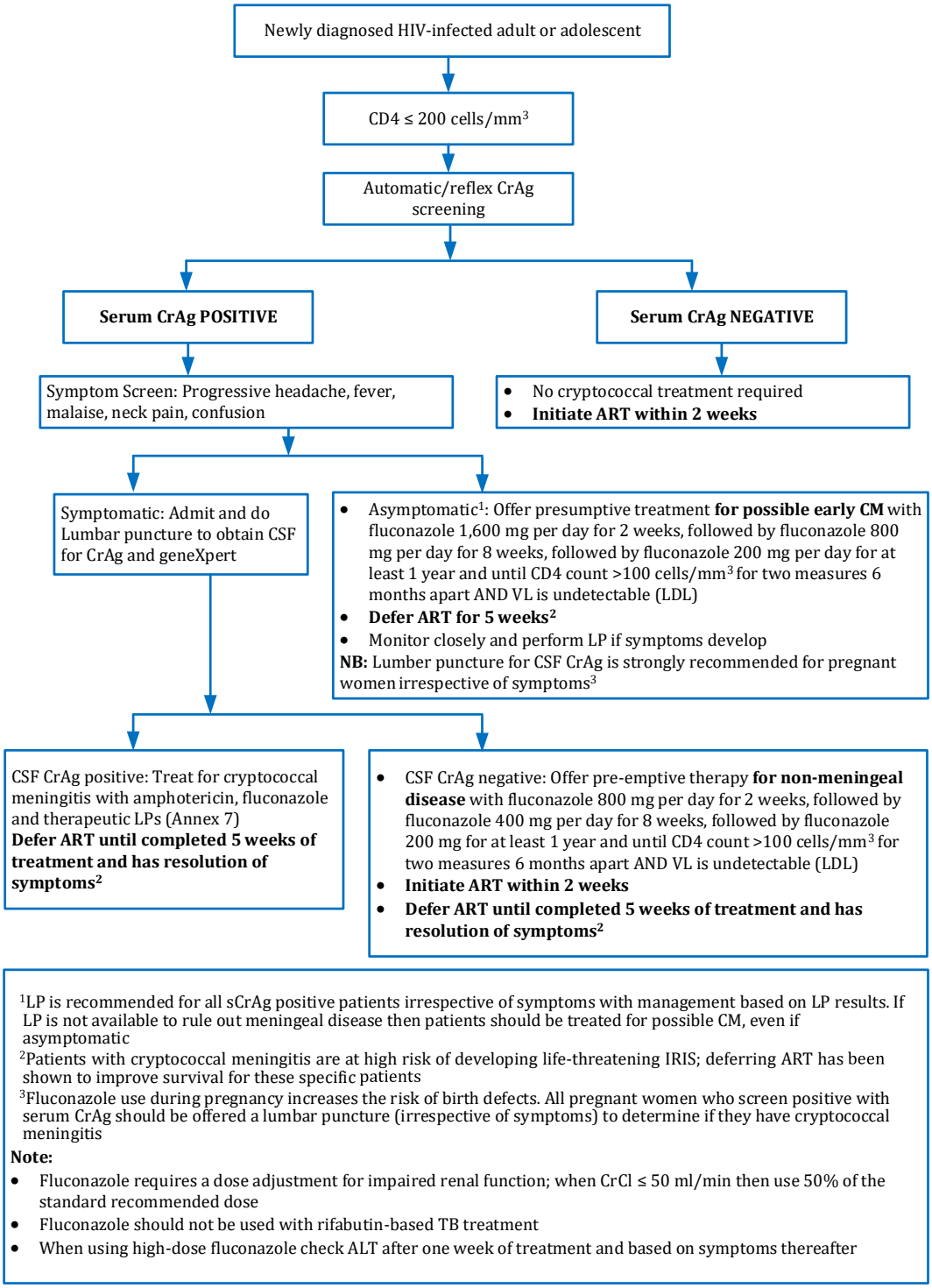


Figure 4.1: Routine Screening for Cryptococcal Meningitis for HIV-infected Adults and Adolescents

4.4. Reproductive Health Services

4.4.1. Sexually Transmitted Infections

Screening for syphilis using VDRL, TPHA, or RPR should be performed as a baseline investigation for all adolescent and adult PLHIV.

All PLHIV should be assessed for symptoms of STIs using the National Algorithms for Treating Common STI Syndromes. Sexual partners should be treated as well.

Risk reduction counselling and provision of condoms is an integral part of STI treatment.

Patients who have persistent signs and symptoms of STIs after syndromic treatment should undergo diagnostic evaluation for definitive diagnosis and treatment.

At initial diagnosis of HIV, all sex workers should be treated for presumptive gonorrhoea and chlamydia (following treatment recommendations of vaginal/urethral discharge syndrome as per national STI guidelines), with on-going assessment for STIs at least quarterly.

4.4.2. Family Planning and Pre-Conception Counselling

Pregnancy status should be determined for all women of reproductive age at every visit (based on history of last menstrual period and, if uncertain, irregular, or delayed, then a urine pregnancy test should be performed).

Pregnancy intention should be determined for all women of reproductive age and their partners so that appropriate family planning or pre-conception counselling can be provided.

For patients who do not have an immediate desire to become pregnant, dual contraception should be provided immediately with follow-up appointments scheduled to ensure no interruption in contraception provision. Table 4.7 outlines contraception options for PLHIV based on the ARVs they are using.

Table 4.7: Contraceptive Methods for PLHIV Based on WHO 2018 Medical Eligibility Criteria

Contraceptive Method		**ARVs Being Used**						**Anti-TB**
		NRTI (any)	NNRTI		PI/r (any)	INSTI		Rifampicin or Rifabutin
			EFV or NVP	ETR		RAL	DTG*	
IM medroxyprogesterone (DMPA; Depo Provera)		1	1	1	1	1	-	1
Norethisterone enanthate (NET-EN; norethindrone)		1	2	1	2	1	-	2
Implants		1	2	1	2	1	-	2
Combined oral contraceptive (pill)		1	2	1	2	1	-	3
Intrauterine device (IUD)	Initiation	• Category 2 for asymptomatic or mild HIV disease (WHO Stage 1 or 2, or any WHO Stage once they are stable on ART) • Category 3 for women with advanced and symptomatic HIV disease UNTIL they are stable on ART and asymptomatic						
	Continuation	Category 2 for all women regardless of symptomatic HIV (do not require IUD to be removed)						
Condoms		No restrictions; use encouraged in combination with a hormonal contraception method or IUD as part of dual FP to prevent STI/HIV transmission						
Emergency contraceptive pill (ECP)		No restrictions; can be started up to 5 days after intercourse						
Sterilization		No reason to deny; delay in case of acute HIV-related infection						
Fertility awareness-based (FAB) methods		Can use if menstrual cycle is regular, although reliability is not as good as hormonal contraceptive methods or IUD. Encourage to use in combination with condoms to prevent STI/HIV transmission						
Lactational amenorrhoea method (LAM)		Effective for women who are less than 6 months post-partum, are exclusively breastfeeding, and have not resumed menses. Encourage to use in combination with condoms to prevent STI/HIV transmission						
Spermicides and diaphragm		Use is not recommended; may increase risk of HIV transmission						

Category 1: No restriction for the use of the contraceptive method
Category 2: Advantages of using the method generally outweigh the theoretical or proven risks
Category 3: The theoretical or proven risks usually outweigh the advantages of using the method
*DTG was not included in the WHO 2018 MEC Guidelines, however, based on limited data, drug interactions between DTG and hormonal contraception are not anticipated

For patients who intend to become pregnant, the key pre-conception messages and services are presented in Table 4.8.

Table 4.8: Pre-Conception Counselling Messages and Services for PLHIV

Scenario	Key Counselling Messages	Pre-conception Services (in addition to the Standard Package of Care for PLHIV)

All women/couples with intention to conceive	• All PLHIV qualify for ART, with initiation preferably within 2 weeks of HIV diagnosis
	• Deferring pregnancy until confirmed viral suppression reduces risk of vertical transmission to the baby, improves infant outcomes, and reduces risk of cross-transmission to the sexual partner
	• Unprotected sex should be limited to days when ovulation is expected (based on basal temperature monitoring, fertility calendar based on menstrual cycles, and/or fertility calendar app)
	• Routine ANC and delivery by a skilled birth attendant improves outcomes for mother and baby
		• ART for all PLHIV, including those intending to become pregnant
		• Baseline investigations
		  ○ Hb (with management of anaemia)
		  ○ Syphilis screening
		  ○ Cervical cancer screening
		• STI symptom screening
		• Nutritional assessment, counselling, and support
		• Folic acid supplementation
		• Standard VL after 6 months on
		• ART to confirm viral suppression

Additional messages for discordant couples: male partner HIV positive	Defer unprotected sex until confirmed viral suppression in the HIV positive partner Discuss use of PrEP for the HIV-negative partner (see Section 11, Pre-Exposure Prophylaxis) In situations where viral suppression is challenging, consider specialist referral for additional options such as sperm washing and artificial insemination	
Additional messages for discordant couples: female partner HIV positive	Defer unprotected sex until confirmed viral suppression in the HIV-positive partner Discuss use of PrEP for the HIV-negative partner (see Section 11, Pre-Exposure Prophylaxis) Discuss self-insemination during the peri-ovulatory period, where appropriate/as preferred In situations where viral suppression is challenging, consider specialist referral for additional options such as artificial insemination	

4.4.3. Maternal Healthcare

Maternal healthcare begins with preconception counselling (Table 4.8), and continues throughout pregnancy and breastfeeding. The standard package of antenatal and postnatal services in the context of HIV is described in Section 7 of these guidelines.

4.4.4. Cervical Cancer Screening

Cervical cancer is a leading cause of cancer death for women in Kenya. The risk of developing cervical cancer is greatly reduced with the use of HPV vaccination (see Section 4.8 on immunizations). Even without the HPV vaccine, morbidity and mortality from cervical cancer can be reduced through early detection with routine screening.

- The national programme is moving towards HPV screening as the initial step in cervical cancer risk stratification
- All HIV positive women should be screened for cervical cancer following the national cervical cancer screening guidelines

4.5. Non-communicable Diseases Screening and Management

Screening, prevention and management of specific non-communicable diseases are included in the standard package of care for PLHIV because of their associated high morbidity and mortality. PLHIV are at higher risk for cardiovascular, liver and kidney disease because of the chronic inflammatory state associated with HIV infection itself, and also as a side-effect of some of the ARVs used to treat HIV.

Traditional risk factors for cardiovascular disease include: tobacco use and exposure to tobacco products, hypertension, dyslipidemia, diabetes, obesity, physical inactivity, family history of cardiovascular disease, age older than 45 years for men and 55 years for women.

HIV and other chronic diseases require health systems that support chronic care and adherence; their management should be integrated at the health facility, including at the primary care level.

Lifestyle modifications are always the first line of prevention and management for hypertension, diabetes mellitus, and dyslipidaemia (Table 4.9). These are recommended for all patients to prevent cardiovascular disease and should be integrated into routine HIV treatment and prevention. Recommendations for screening, diagnosis, and initial management of hypertension, type 2 diabetes mellitus, dyslipidaemia, and chronic kidney disease are provided in Tables 4.10-4.13.

For comprehensive guidelines on prevention, diagnosis and management of non-communicable diseases refer to national guidelines on non-communicable diseases.

Table 4.9: Lifestyle Modifications to Prevent and Manage Cardiovascular Disease in PLHIV

Smoking Cessation (Refer to Table 4.17 for tips to assist a client to quit smoking)

• Smoking cessation has multiple short-term and long-term benefits, including
  ○ Reduced premature aging/wrinkling of skin
  ○ Improved fitness and quicker recovery from common infections
  ○ Reduced risk of respiratory infections and chronic lung disease
  ○ Reduced risk of high blood pressure, diabetes, kidney disease, heart disease, and stroke
  ○ Improved infant outcomes (for pregnant women who smoke)
  ○ Reduced risk of cancers: lung, bladder, breast, mouth, throat, esophagus
  ○ Better response to ART (better viral suppression)
  ○ Reduced risk of developing TB or dying from TB
• Tobacco dependence treatment and cessation programs should combine behavioral/counseling support with pharmacotherapy treatment where necessary and available. For further details on cessation interventions, refer to the Kenya National Guidelines for Tobacco Dependence Treatment

Dietary Changes and Weight Loss
• Weight loss to maintain a healthy BMI (nutritionists to be engaged in patient care) • Drink 8 glasses of water per day • Reduce/abstain from alcohol • Cut down sugar intake • Cut down red meat intake • Cut down consumption of fatty foods, fat for flavoring, and fried foods • Increase intake of whole grains, vegetables, fruit, and beans • Increase intake of fish • Consume less than 5 g (just under a teaspoon) of salt per day
Physical Activity
• Active lifestyle with moderate-intensity physical activity • 30 minutes of aerobic activity such as brisk walking, at least 5 days per week

Table 4.10: Hypertension Screening, Diagnosis, and Initial Management for Adult PLHIV

Screening

- BP should be measured and recorded for every adult at every visit

Diagnosis

- Hypertension requiring intervention is defined as BP ≥ 140/90 mmHg on at least 3 different occasions

Additional Investigations for patients with hypertension

- Urinalysis: to assess for kidney disease and diabetes
- Creatinine, Na, K: to assess for kidney disease
- Blood glucose: to assess for diabetes
- Full blood count: anaemia may indicate chronic kidney disease
- Lipid profile: dyslipidemia is a cardiovascular risk factor
- ECG: to assess for cardiac pathology including cardiomegaly, ventricular dysfunction, ischemic heart disease, etc.

Management (treatment target is BP < 140/90 mmHg)

- If baseline BP is 120-139/80-89 (pre-hypertension)
  - Lifestyle modification, along with monthly BP monitoring
- If baseline BP is 140-159/90-99
  - Lifestyle modification (Table 4.9) for up to 6 months, along with monthly BP monitoring
- If does not meet treatment target with lifestyle modifications, then add drugs to lifestyle modification
  - In PLHIV without kidney disease or diabetes, first-line antihypertensive therapy is a thiazide diuretic such as hydrochlorothiazide starting at 12.5 mg OD (maximum dose 25 mg OD) **OR** a calcium channel antagonist such as amlodipine starting at 2.5 mg OD (maximum 10 mg OD)
  - In PLHIV **with** kidney disease or diabetes the first antihypertensive should be an ACE-I or ARB such as Enalapril 2.5-10 mg OD (maximum dose is 20 mg BD); Losartan 50 mg OD (maximum dose is 100 mg OD), with referral to a physician if available
  - Introduce one drug at a time. If the target blood pressure is not reached within one month after initiating therapy, the dosage of the initial medication should be increased. Titrate to maximum recommended dosage (if tolerated) before adding an additional drug
  - If inadequate response once dose has been titrated, an additional agent may be required e.g. hydrochlorothiazide starting at 12.5 mg OD (maximum dose 25 mg OD)
  - If inadequate response to two agents, consider consultation with or referral to a physician
  - **Note: Calcium-channel blockers have known drug interactions with PIs and NNRTIs and should be used with caution (Annex 13).** ACE-I and thiazide diuretics do not have significant interactions with ARVs

- **If baseline BP ≥ 160/100 mmHg**
  - **initiate lifestyle modifications and introduce anti-hypertensive medications concurrently**

Table 4.11: Type 2 Diabetes Mellitus Screening, Diagnosis, and Initial Management for PLHIV

Screening

- Blood glucose (fasting or random) should be evaluated at baseline for all PLHIV, then annually if baseline screening is normal; urine dipstick for protein and glucose can be used if blood glucose testing is not available

Diagnosis

- Diabetes Mellitus is defined as fasting blood sugar ≥ 7.0 mmol/L, or random blood sugar ≥ 11.1 mmol/L, or HbA1C > 6.5%, or oral glucose tolerance test ≥ 11.1 mmol/L
- Abnormal results should be repeated to confirm the diagnosis, particularly for patients without symptoms of diabetes (such as polyuria, polydipsia, polyphagia, weight loss)

Management (treatment target is HbA1C ≤ 7.0% or FBS 4-7 mmol/L)

- For patients with pre-diabetes (abnormal results but does not meet criteria above for diabetes) monitor FBS or HbA1C every 3 months and encourage lifestyle modifications (Table 4.9)
- For patients with diabetes, monitor HbA1C (or FBS if HbA1C not available) every 3 months
- Lifestyle modification (weight loss, nutritional support to manage portion sizes and calculate glycaemic index of various foods to help with control of blood sugar) for 3-6 months
- If does not meet treatment target with lifestyle modifications then add drugs
  - Metformin
    - Obtain baseline Creatinine; do NOT use metformin if creatinine clearance < 45 ml/min
    - Start with low dose (500 mg OD or BD) and titrate up every 1-2 weeks until reaches 1 g BD (or maximum tolerated dose if less than 1 g BD)
  - If does not meet treatment targets with metformin for 3-6 months at maximum tolerated dose then consider adding drug from another class (such as glyberide (glybenclamide)) and/or specialist consultation. Some patients may require insulin
  - Note: DTG may increase metformin plasma levels: monitor blood glucose levels; dose reduction of metformin may be required, and maximum daily dose of metformin should be 1g
  - At every visit: A thorough history (to elicit features of hypoglycemia, other cardiovascular disease risk factors, neuropathy, diabetic foot ulcers) and a physical exam (for BP, neuropathy, foot ulcers)
- Additional routine screening for patients with diabetes
  - Annual ophthalmology examination for diabetic retinopathy
  - Annual urinalysis: start on an ACE-I/ARB if proteinuria develops (even if BP normal)
  - Note: patients with DM are at increased risk of developing TB

Table 4.12: Dyslipidemia Screening, Diagnosis, and Initial Management for PLHIV

Screening

- Fasting lipid profile should be evaluated at baseline for all PLHIV, then annually if baseline screening is normal

Diagnosis

- Dyslipidemia is defined as high fasting total cholesterol (>5.2 mmol/L), LDL (>3.4 mmol/L) or triglycerides (>2.2 mmol/L)

Management

- Lifestyle modification for 3-6 months (Table 4.9)
- If the patient is on an ARV known to cause or exacerbate dyslipidemia (primarily LPV/r & EFV) then consider a single-drug substitution to a more lipid-friendly drug (such as from LPV/r or EFV to ATV/r or DTG) as the treatment of choice before adding a lipid-lowering drug. Rule out treatment failure before making single-drug substitutions (Figure 6.3)
- If does not meet treatment target with lifestyle modifications then add drugs
  - Atorvastatin: starting dose of 10 mg OD (maximum dose 20 mg if patient is on a PI/r; maximum dose 80 mg once daily if not on a PI/r)
  - Simvastatin and lovastatin are contraindicated in the presence of PI/r
  - Allow at least 3 months before repeating fasting lipids and titrating dose
- Once targets achieved can monitor lipids every 6-12 months

Patients at higher risk for renal disease and for developing TDF-associated renal toxicity include: pre-existing renal disease, hypertension, diabetes mellitus, severe wasting (weight below 60 kg in adults), age > 45 years, WHO stage 3 or 4, low CD4 count, high HIV viral load, and concomitant nephrotoxic agents.

Glomerular disease directly related to HIV infection, commonly known as HIV-associated nephropathy (HIVAN) is an important cause of chronic kidney disease among PLHIV.

Prevention, early identification, and management of kidney disease is important to reduce the burden of dialysis and other complications.

Table 4.13: Chronic Kidney Disease Screening, Diagnosis, and Initial Management for PLHIV

Screening
• Urinalysis (for protein) and serum creatinine should be evaluated at baseline for all PLHIV and monitored annually
Diagnosis
• Impaired renal function is defined as creatinine clearance < 90 ml/min, or dipstick proteinuria ≥ 1 (see Annex 15 for CrCl calculations) • Abnormal results should be repeated to confirm diagnosis • Chronic kidney disease is defined as evidence of kidney damage that persists for at least three months
Management
• Management depends on the cause of the renal impairment; additional investigations and/or specialist consultation may be required • Consultations with a physician is recommended • Treat dehydration promptly and aggressively • If on TDF-containing regimen, substitute with another ARV if CrCl<50 ml/min (see Section 6.5), with the exception of patients with HBV/HIV co-infection (Table 9.3 for renal dose adjustments of TDF and 3TC for patients with HIV/HBV co-infection) • Avoid nephrotoxic drugs (e.g. aminoglycosides and NSAIDS) • Evaluate for and treat hypertension • All NRTIs except ABC require dose adjustments for renal impairment, depending on the severity (Table 6.7 in Section 6 for specific dose adjustments). NNRTIs, PIs, and INSTIs do not require dose adjustments for impaired renal function • Note: DTG may cause a small rise in serum creatinine levels but this does NOT represent a decline in renal function

Other Non-communicable Diseases

PLHIV are at risk for a number of other non-communicable diseases, with increased risk compared to the general population for some of these. PLHIV are at increased risk for lymphoma compared to the general population, and females with HIV are also at increased risk for cervical cancer.

Cervical cancer is the most frequent cancer in women in Africa, followed by breast cancer, then liver cancer. Cervical cancer screening recommendations are described in Section 4.4.4.

Mammography is recommended annually starting at age 40 years, and every two years from age 55 years for screening of breast cancer. In settings where mammography screening is not feasible, Clinical Breast Examination (CBE) may be offered. CBE may be offered to asymptomatic, average-risk women at intervals of every 1–3 years for women aged 25–39 years and annually for women aged 40 years and older, in the context of an informed, shared decision-making approach that recognizes the uncertainty of additional benefits beyond screening mammography. CBE is recommended as part of evaluation of high-risk women and those with symptoms. Clients should generally be counseled about breast self-awareness and encouraged to notify their healthcare provider if they experience a change. Breast self-awareness is defined as awareness of the normal appearance and feel of one's breasts.

Prostate cancer is the most frequent cancer experienced by men in Africa, followed by liver and oesophageal cancers. All men aged ≥ 45 years should have an annual digital rectal examination and prostate specific antigen testing to screen for prostate cancer.

For screening, diagnosis, and management recommendations refer to national guidelines for prevention and management cancers. For individual patient management, referral to regional and national hospitals with capacity for comprehensive oncology services may be warranted.

4.6. Mental Health Screening and Management

PLHIV are susceptible to psychological disturbances due to HIV itself and perceptions regarding HIV in their environment. Some of the most common psychological disturbances include depression and suicide, anxiety, internalized stigma, post-traumatic stress disorder, cognitive difficulties such as dementia, and perceived lack of social support. Any of these can significantly interfere with a patient's sense of well-being and their adherence; however, depression and alcohol/drug addiction are the most significant.

4.6.1. Depression

Depression is one of the most common psychiatric illnesses in the world, and chronic illness (including HIV) is a strong risk factor for depression. PLHIV are 3-6 times more likely to suffer from depression than the general population, with significant disability and poorer treatment outcomes if it is not identified and managed. Depression can be a significant contributing factor to poor adherence and HIV treatment failure.

All PLHIV should receive basic screening for depression before initiating ART and thereafter annually using the following two questions:

- *During the past two weeks have you often been bothered by feeling down, depressed, or hopeless?*
- *During the past two weeks have you often been bothered by little interest or pleasure in doing things?*

All patients who answer yes to either of the questions above, and all patients with a detectable viral load after 6 or more months on ART (whether or not they had achieved viral suppression in the past), should undergo a more thorough screening for depression using the PHQ-9 screening tool, with management guided by the PHQ-9 score (Table 4.14).

Table 4.14: Patient Health Questionnaire-9 (PHQ-9) for Depression Screening

PHQ-9 Depression Screening Name: _____ Date: _____				
Ask the patient the questions below for each of the 9 symptoms and circle the response for each question. After asking all questions, add the points for each column at the bottom. The total score is the sum of the column totals. Interpretation and management recommendations are provided at the bottom of the table.				
Question: ***"Over the last 2 weeks, how often have you been bothered by any of the following problems?"***	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	**0**	**1**	**2**	**3**
2. Feeling down, depressed, or hopeless	**0**	**1**	**2**	**3**
3. Trouble falling or staying asleep, or sleeping too much	**0**	**1**	**2**	**3**
4. Feeling tired or having little energy	**0**	**1**	**2**	**3**
5. Poor appetite or overeating	**0**	**1**	**2**	**3**
6. Feeling bad about yourself, or that you are a failure, or that you have let yourself or your family down	**0**	**1**	**2**	**3**
7. Trouble concentrating on things (linked with patient's usual activities, such as reading the newspaper or listening to a radio programme)	**0**	**1**	**2**	**3**
8. Moving or speaking so slowly that other people could have noticed. Or the opposite, being so fidgety or restless that you have been moving around a lot more than usual	**0**	**1**	**2**	**3**
9. Thoughts that you would be better off dead or of hurting yourself in some way	**0**	**1**	**2**	**3**
Total ___ = (add the points from each column)	**0**	**+___**	**+___**	**+___**

Interpretation of PHQ-9 Score and Recommended Management		
Total Score	**Provisional Diagnosis**	**Recommended Management**
0-4	Depression unlikely	Repeat screening in future if new concerns that depression has developed
5-9	Mild depression	• Provide counselling support and continue to monitor; refer to mental health team if available • If patient is on EFV, substitute with a different ARV after ruling out treatment failure (Figure 6.3 in Section 6)
10-14	Moderate depression*	• Provide supportive counselling (refer to a psychologist if available) • If patient is on EFV, substitute with a different ARV after ruling out treatment failure (Figure 6.3 in Section 6) **and** • Begin antidepressant medication (or, if unfamiliar with use of antidepressants then refer to an experienced clinician) **and** • Refer to a medical officer, psychiatrist, or mental health team if available
15-19	Moderate-severe depression*	
20-27	Severe depression*	
*Symptoms should ideally be present for at least 2 weeks for a diagnosis of depression and before considering treatment with antidepressant medication. Severe depression may require patients to start on anti-depressants immediately		

Depression is a known adverse drug reaction with EFV although it is often mild and temporary. Patients on EFV who develop any persistent symptoms of depression should be switched to another ARV after ruling out treatment failure (Figure 6.3).

Supportive Counselling for Depression

Patients with mild depression should receive supportive counselling, which includes

- Psycho-education on the following key messages
  - Depression is common and can happen to anyone
  - Depressed people often have exaggerated negative opinions about themselves, their life and their future
  - Effective treatment is possible

- Counseling on self-management
    - Continuing ART as prescribed
    - Continuing activities that they used to find interesting/pleasurable
    - Maintaining a regular sleep cycle
    - Keeping physically active
    - Participating in community/social events
    - Returning to clinic if any thoughts of self-harm
- Addressing psychosocial stressors
    - Explore potential stressors in the patient's life
    - Assist in problem-solving to reduce stressors
    - Assess for and manage intimate partner violence
- Reactivation of or referral to social networks, including peer support groups
- Regular follow-up until symptoms improved and stable

Pharmacological Management of Depression

Patients with moderate depression or worse should be treated with supportive counselling plus an anti-depressant medication.
Fluoxetine is an antidepressant on the Kenya Essential Drug List. It does not have significant drug interactions with ARVs. Starting dose for an adult is usually 20 mg once daily taken in the morning (can start with a lower dose for patients who frequently have side-effects from medications). Dose can be titrated up by 20 mg every 2-4 weeks as needed, up to a maximum of 80 mg per day. Common side-effects include GI upset, headaches, insomnia, and disturbances of the menstrual cycle. These usually resolve after 1-2 weeks of continued use. As with all antidepressants, full effect is not achieved until around 4 weeks of continued use. Once symptoms of depression resolve, antidepressants should be continued for at least another 6 months. If/when the patient is ready to discontinue antidepressant therapy it should be discontinued as a weekly taper (e.g. if the maintenance dose is 60mg then taper to 40mg, then 30mg, then 20mg, then 10mg and then stop), with close monitoring for recurrence of symptoms.

4.6.2. Alcohol and Drug Use/Addiction

Alcohol and other drug use are common among the general population and among PLHIV. Alcohol and drug use can be a significant contributing factor to poor adherence and HIV treatment failure.

All adults and adolescents should be screened for alcohol and drug use before initiating ART and every year using the following three questions

- *During the past 12 months, did you drink any alcohol (more than a few sips)?*
- *During the past 12 months, did you smoke any marijuana?*
- *During the past 12 months, did you use anything else to get high?*

Patients who answer yes to any of the questions above, and all patients with a detectable viral load after 6 or more months on ART (whether or not they had achieved viral suppression in the past), should undergo a more thorough screening. For adolescents, use the CRAFFT Part B screening tool (Table 4.15). For adults, use the CAGE-AID screening tool (Table 4.16). Anyone who screens positive on these tools should have further assessment and management by clinical staff, ideally with experience managing alcohol and drug use disorders. Table 4.17 gives some general guidance on management of addictions. The National Protocol for Treatment of Substance Use Disorders in Kenya (2017) provides more in-depth guidance.

Table 4.15: CRAFFT Screening Interview Part B for Adolescents

CRAFFT Screening for Alcohol and Drug Use Disorders for Adolescents (Part B)		
Ask the patient the six questions below. Each question requires a yes/no response. Answering Yes to two or more questions indicates an alcohol or drug use problem and requires further assessment and management.		
"I'm going to ask you a few questions that I ask all my patients. Please be honest. I will keep your answers confidential"		
Question	No	Yes
1. Have you ever ridden in a **C**ar driven by someone (including yourself) who was "high" or had been using alcohol or drugs?		
2. Do you ever use alcohol or drugs to **R**elax, feel better about yourself, or fit in?		
3. Do you ever use **A**lcohol or drugs while you are by yourself, or alone?		
4. Do you ever **F**orget things you did while using alcohol or drugs?		
5. Do your **F**amily or **F**riends ever tell you that you should cut down on your drinking or drug use?		
6. Have you ever gotten into **T**rouble while you were using alcohol or drugs?		

Table 4.16: CAGE-AID Screening Questions for Adults

CAGE-AID Screening for Alcohol and Drug Use Disorders for Adults		
Ask the patient the four questions below. Each question requires a yes/no response. Answering Yes to two or more questions indicates an alcohol or drug use problem and requires further assessment and management.		
"I'm going to ask you a few questions that I ask all my patients. Please be honest. I will keep your answers confidential"		
Question	No	Yes
1. Have you felt you should **C**ut down on your drinking or drug use?		
2. Have people ever **A**nnoyed you by criticizing your drinking or drug use?		
3. Have you ever felt bad or **G**uilty about your drinking or drug use?		
4. Have you ever had a drink or used drugs first thing in the morning to steady your nerves or to get rid of a hangover (**E**ye opener)?		

If referral to the mental health team is not immediately possible for those who screen positive, or as a starting point in supporting a patient while referral is being made, an assessment of whether the patient wants to quit and targeted messages/support based on their stage of quitting may be beneficial (Table 4.17). The National Protocol for Treatment of Substance Use Disorders in Kenya (2017) provides additional resources for assessments and interventions.

Table 4.17: Addiction Support Based on Stages of Change

Stage of Change	Counselling Approach
Pre-contemplation: not currently considering quitting; no immediate desire to quit	Acknowledge that not everyone is ready to think about quitting Clarify that it is their decision Listen to them describe the benefits they get from their alcohol or drug use (their motivation for continuing to use) Explore why other people might think it is a good idea to quit Discuss the risks of continued alcohol or drug use
Contemplation: not sure if he/she wants to quit, or thinking about quitting but with no immediate plan to quit	Acknowledge that not everyone is ready to quite immediately Clarify that it is their decision Listen to them describe the benefits they get from the alcohol or drug use (their motivation for continuing to use) Listen to them describe the negative effects of their alcohol or drug use (their motivation for considering quitting) Discuss any ideas they have on how they could go about quitting
Preparation: would like to quit within the next month	Congratulate them on their decision to quit Listen to them describe the benefits they expect to get from quitting Discuss any plan they have to try quitting Discuss the challenges they may face with quitting Problem-solve with them on overcoming challenges, including identifying support systems Encourage small steps towards quitting (e.g. avoiding situations that trigger use) Acknowledge that they have the strength to succeed
Action: actively trying to quit, or has recently quit (within past 6 months)	Listen to their experience with quitting Congratulate them on the steps they have taken so far Problem-solve with them on overcoming challenges, including identifying support systems Review the long-term benefits of quitting
Maintenance: has quit (more than 6 months ago) and wants to remain abstinent	Congratulate them on their success so far Discuss potential for relapse and how to deal with it Review the long-term benefits of maintaining abstinence from drug or alcohol use
Relapse	Acknowledge that relapse is common Evaluate what triggered the relapse Reassess motivation to quit and barriers to quitting Problem-solve with them on overcoming challenges and what additional support systems and strategies can be used

4.7. Nutritional Services

Good nutrition is a critical component of management of HIV because it contributes to: reducing risk and frequency of other infections; delaying progression from HIV infection to AIDS; a healthy appearance and weight; gaining strength, maintaining and building muscle, and having energy to remain active, and reducing side effects of ART.

4.7.1. Nutritional Assessment, Counselling and Support (NACS)

All PLHIV should receive nutritional assessment, counselling, and support

All PLHIV should receive nutritional assessment, counselling, and support tailored to the individual needs of the patients, including:

- Nutrition assessment and diagnosis (timed with routine clinic visits, preferably monthly for the first year of life, and then quarterly up to 14 years old, and then every 3-6 months)
  - Anthropometric (Tables 4.18, 4.19 and 4.20 provide interpretation and required actions for anthropometric results for children and adults)
  - Biochemical (investigations as listed in Section 3, Table 3.2 for baseline and Table 3.4 for follow-up investigations)
  - Clinical (physical examination as described in Table 3.1 for initial evaluation)
  - Dietary (24-hour recall for food type/frequency and household food security)
  - Environmental and psychosocial
  - Functional (ability to care for self, bedridden, etc.)
- Counselling and education
  - Benefits of maintaining good nutritional status for a person living with HIV
  - Mother infant and young child nutrition (MIYCN) including exclusive breastfeeding
  - Reassuring the client that it is possible to
    - Attain/maintain good nutritional status
    - Look well and live a healthy life
  - Identifying locally available foods they can access given their own context, food safety and food preparation
  - Helping the client to plan meals and snacks with a variety of foods in order to meet their energy and nutrient needs and treatment plans
  - Identifying any constraints, the client may face and find ways to minimize them
  - Helping the client to understand the potential side effects and food interactions of the medicines they are taking, and help the client identify ways to manage these side effects
  - Exploring with the client the cause(s) of poor appetite and appropriate responses (type of food, disease, pain, depression, anxiety, or side effects of medications)
  - Counsel on critical nutrition practices

Messages: Critical Nutrition Practices (CNPs)

1. Have periodic nutritional status assessments
2. Increase energy intake through a balanced diet
3. Maintain high levels of sanitation and food hygiene
4. Practice positive living behaviors
5. Carry out physical activity or exercises
6. Drink plenty of clean, safe water
7. Seek prompt treatment for all opportunistic infections and manage diet-related symptoms
8. Manage drug-food interactions and side effects

- Support
  - Therapeutic and supplementary foods to treat clinical malnutrition (food by prescription, therapeutic feeds, fortified blended flour): Figures 4.3 and 4.4 provide malnutrition management recommendations for adults and children; Table 4.9 provides specific nutritional recommendations for patients with non-communicable diseases
  - Complementary foods for children aged 6 - 24 months to prevent malnutrition (Table 7.7 provides complementary feeding recommendations)
  - Micronutrient supplements to prevent vitamin and mineral deficiencies
  - Point-of-use water purification to prevent water-borne disease
  - Food security and linkage to community services, such as household food support, home-based care, agricultural extension services, and economic strengthening and livelihood support

Some aspects of nutrition support (such as prescription of therapeutic and supplementary foods) should be provided by a trained healthcare professional, however all aspects should be promoted and supported at the community level.

Table 4.18: Interpretation of MUAC Results for Children and Pregnant/Lactating Women

MUAC Level by Age (cm)			Classification	Action to Take
6-59 months	5-9 yrs.	10-17 yrs.		
< 11.5	< 13.5	< 14.5 cm	Severe acute malnutrition	Irrespective of clinical signs, admission (referral) for stabilization/therapeutic rehabilitation
11.5–12.5	13.5-14.5	14.5-18.5	Moderate acute malnutrition	Admission for supplementary feeding is recommended
12.6–13.5			Mild acute malnutrition	Nutritional education and counselling
> 13.5			Normal	Education and counselling of caregivers
Pregnant and Breastfeeding Women				
≤ 23			Malnourished	Provide nutritional support (Figure 4.3)
> 23			Normal	Education and counselling

Table 4.19: Interpretation of Z-scores for Children

Ratio	Indicator	Z-score	Severity
Weight/Age	Underweight	< - 3	Severe
Height/Age	Stunting	- 3 to - 2	Moderate
Weight/Height	Wasting*	> - 2 to - 1	Mild
		> - 1	Normal
*Children with weight/height z-score of -2 or less should be supported with therapeutic/supplementary foods			

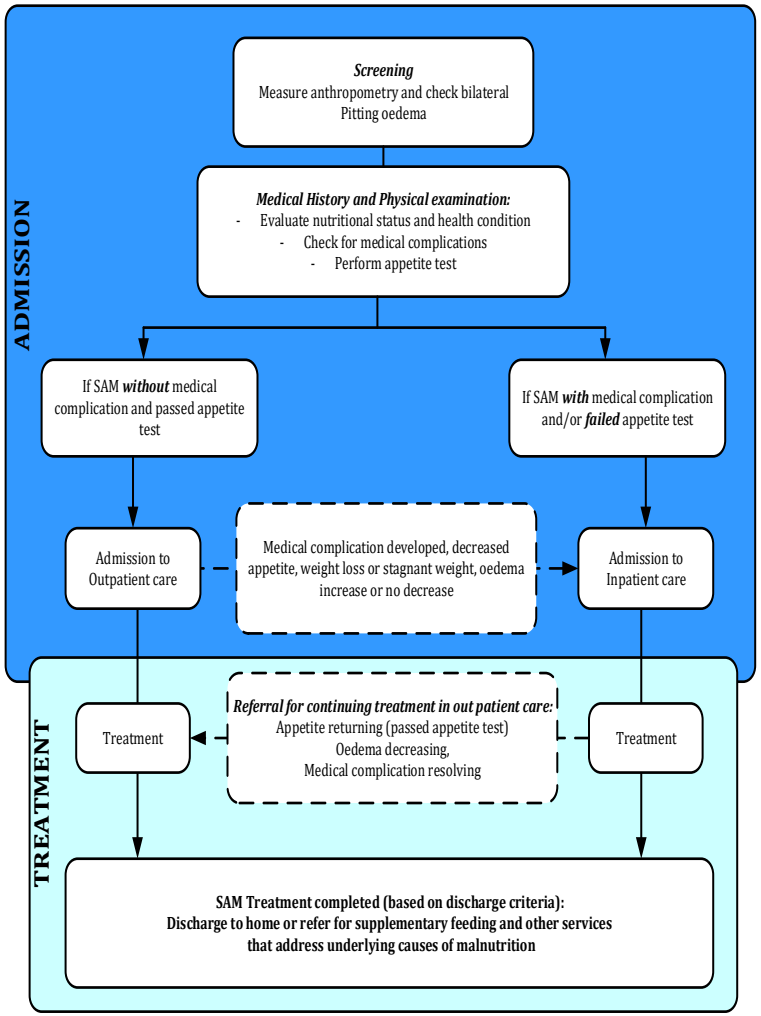


Figure 4.2: Management of Severe Acute Malnutrition in Children

Other medical complications that necessitate hospitalization
In addition to severe bilateral pitting oedema (+++), marasmic kwashiorkor and poor appetite, the following complications necessitate inpatient care:

- ✓ Intractable vomiting
- ✓ Convulsions
- ✓ Lethargy
- ✓ Unconsciousness
- ✓ Lower respiratory tract infection
- ✓ High fever
- ✓ Severe dehydration
- ✓ Severe anaemia
- ✓ Hypoglycaemia
- ✓ Hypothermia
- ✓ Eye signs of vitamin A deficiency
- ✓ Skin lesions

The following complications require referral of patient for further medical evaluation:

- ✓ No appetite (failed appetite test)
- ✓ IMCI danger signs
- ✓ Increase in or newly developed bilateral pitting oedema
- ✓ Weight loss because of diarrhoea (re-feeding or of other origin)
- ✓ Weight loss for three consecutive weeks
- ✓ Static weight (no weight gain) for five consecutive weeks
- ✓ Other signs of failure to respond to treatment

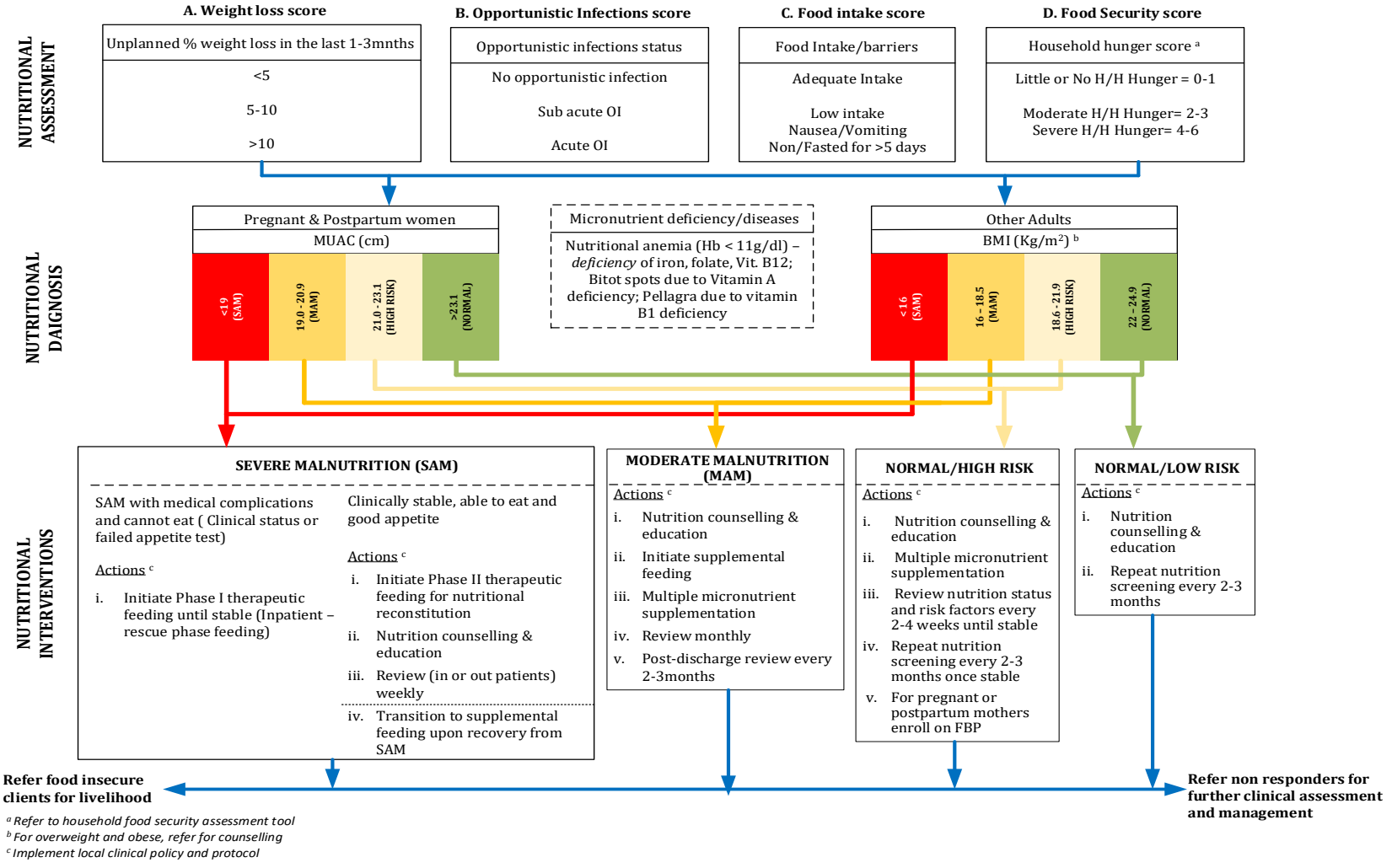


Figure 4.3: Management of Malnutrition in Adults with HIV

Table 4.20: Interpretation of BMI Results for Adults

BMI Level	Classification	Action to Take
< 16	Severe malnutrition	• Refer for facility-based therapeutic intervention; rehabilitation with therapeutic foods; counselling on intake issues and possible metabolic issues • Screen for TB
16.0–18.4	Mild/moderate malnutrition	• Nutritional counselling and supplementary feeding • Screen for TB
18.5–25.0	Normal/ recommended	Nutritional counselling, consistent exercise to build muscles
25.1–30	Overweight	Nutritional counselling to reduce energy intake; aerobic physical activity to reduce weight
>30	Obese	Counselling to change lifestyle and reduce energy intake; aerobic physical activity to reduce weight

4.8. Prevention of Other Infections

4.8.1. Immunizations

All children, regardless of HIV status, should be immunized following the full KEPI schedule, with a few exceptions for infants with severe immunosuppression (Table 4.21). For infants living with HIV and HEIs, an earlier dose of measles vaccines should be given at 6 months of age.

Table 4.21: Kenya Expanded Program on Immunizations 2016 Schedule

Age	Vaccines
Birth	OPV, BCG[1]
6 weeks	OPV[2], Pentavalent (DPT-HepB-HiB), Pneumococcal (PCV10), Rotavirus
10 weeks	OPV[2], Pentavalent (DPT-HepB-HiB), Pneumococcal (PCV10), Rotavirus
14 weeks	IPV, Pentavalent (DPT-HepB-HiB), Pneumococcal (PCV10)
6 months	Measles (for HIV exposed and infected infants); Vitamin A
9 months	Measles; Vitamin A; Yellow Fever[3]
18 months	Measles; Vitamin A
11-12 years	Tdap (tetanus, diphtheria and pertussis)

[1]Give OPV and BCG to all infants at birth or within the first two weeks of life. If missed in the neonatal period and the child has symptoms of advanced HIV disease (WHO Stage 3 or 4) or severe immunosuppression (CD4% < 25%) then defer BCG until virally suppressed on ART and with immune system recovery
[2]If HIV+ with symptoms of advanced HIV disease (WHO Stage 3 or 4) or severe immunosuppression (CD4% < 25%) then use IPV instead of OPV
[3]Yellow fever vaccine is only routinely used in certain counties as specified by National Vaccines and Immunization Programme; defer yellow fever vaccine if symptoms of advanced HIV disease (WHO Stage 3 or 4) or severe immunosuppression (CD4% < 25%), until virally suppressed on ART and with immune system recovery

PLHIV may have an inadequate response to immunizations, particularly before they achieve full viral suppression. The ideal timing, dose, and frequency of re-immunizations for children on ART are not well known. Providers will receive specific guidance or revaccination from the National Vaccines and Immunization Programme and NASCOP.

Recommended vaccinations for adolescents and adults living with HIV are listed in Table 4.22

Table 4.22: Vaccinations in Adolescents and Adults Living with HIV

Infection	Vaccine	Live (Y/N)	Course	Comments
Hepatitis B	Subunit	N	4 doses (at 0, 1, 2 and 6 months)	Use double dose if non-adjuvanted; use standard dose if adjuvanted
Pneumococcus	Conjugate	N	1 dose (PCV 13)	Preferable to polysaccharide
	Polysaccharide	N	1 dose	Use if >65 years and with co-morbidity other than HIV
Human Papillomavirus (HPV)	Virus-like particles	N	3 doses	Given over 6 months in girls 9 to 15 years (prior to sexual debut)
Influenza	Inactivated	N	1 dose	Annually
Hepatitis A	Inactivated	N	2 - 3 doses	3 doses if CD4 count < 350 cells/mm^3 at 0, 1 and 6 months. If CD4 count > 350 cells/mm^3, give 2 doses at 0 and 6 months. For those at continued risk, one booster dose every 10 years
Additional Vaccines for Special Circumstances				
Yellow fever	Live attenuated	Y	1 dose	Use only in patients <60 yrs of age **and** CD4 > 200 cells/mm^3
Typhoid	Polysaccharide	N	1 dose	Give the ViCPS parenteral. Repeat every 3 years
Cholera	Subunit	N	2 doses	As indicated (usually in epidemics). 2 oral doses of the non-replicating vaccine given 1-6 weeks apart with a single booster dose at 2 years from primary vaccination

4.8.2. Malaria

Children and adults living with HIV suffer heavier parasitaemia and more malaria morbidity with advanced HIV disease. Further, people with advanced immunosuppression are at risk of failure of anti-malarial treatment. In pregnancy, there is increased risk of placental malaria, severe anaemia, premature delivery and perinatal mortality. Drug interactions between ARVs and antimalarial drugs may further complicate management.

Recommendations for malaria prevention for PLHIV include:

- Offer cotrimoxazole preventive therapy (CPT) to all PLHIV for protection against malaria infection (Section 4.3.1)
- In areas of stable malaria transmission, PLHIV should have access to insecticide treated mosquito nets (ITNs) or indoor residual spraying to reduce exposure to mosquito bites and therefore malaria transmission
- PLHIV travelling from non-malarious zones to malaria endemic areas should sleep under ITNs
- Pregnant women with HIV living in areas of stable malaria transmission **who are not able to take CPT** should be given at least three doses of sulfadoxine-pyrimethamine (SP) intermittent preventive treatment for malaria as part of routine antenatal care; **SP should not be given to women who are taking CPT**
- PLHIV on CPT who develop fever should not be treated for an unconfirmed presumptive diagnosis of malaria. As far as possible, laboratory confirmation of malaria should be obtained prior to initiation of anti-malarial therapy
- PLHIV with malaria should receive standard antimalarial therapy according to national guidelines. However, those on CPT should not be given sulfa-containing anti-malarial drugs. Patients on ART receiving anti-malarial therapy should be monitored closely for adverse drug reactions

4.8.3. Safe Water, Sanitation and Hygiene

Diarrhoeal illnesses are common causes of morbidity and mortality among PLHIV. These diseases are often due to lack of access to safe drinking water, improper disposal of human and animal waste, and poor personal hygiene, leading to contamination of food and water.

Recommendations for prevention of faecal-orally spread illnesses include

- Offer CPT to all PLHIV for protection against some GI infections (Section 4.3.1)
- PLHIV should be counselled to wash their hands with soap and water after handling human or animal faeces, after using the toilet, and before food preparation or eating
- Facilities for proper disposal of human waste should be available to PLHIV and their households
- PLHIV should be trained on, and provided with household-based water treatment methods and water storage containers that prevent direct hand contact with drinking water

5. Adherence Preparation, Monitoring and Support

The individual and population benefits of ART are dependent on high levels of adherence to the prescribed medication, the accompanying medical advice and the follow-up plans. Adherence-enhancing strategies should be implemented beginning at the point of HIV diagnosis (as part of post-test counselling and linkage), continued during initial evaluation, and thereafter during the entire follow-up period for ART.

To avoid treatment failure and the need to switch patients to 2nd or 3rd line ART, it is key to have an adherence support strategy in place before ART initiation, anticipating common and individual barriers to good adherence. **Prevention of treatment failure starts before ART initiation.** This is particularly important with the current recommendation that all PLHIV qualify for ART, and ART should be initiated within 2 weeks of diagnosis. Adherence preparation must begin at time of HIV testing, and close follow-up is required after ART initiation.

The adherence preparation, monitoring, and support that a patient requires should be tailored to their level of adherence, the stage of ART initiation, and the follow-up stage that they are at (Figure 5.1).

Whenever possible, follow-up should be provided by the same care provider or team of care providers (e.g. same clinician and same counsellor) at every visit. This is particularly important during the first 6 months of HIV care.

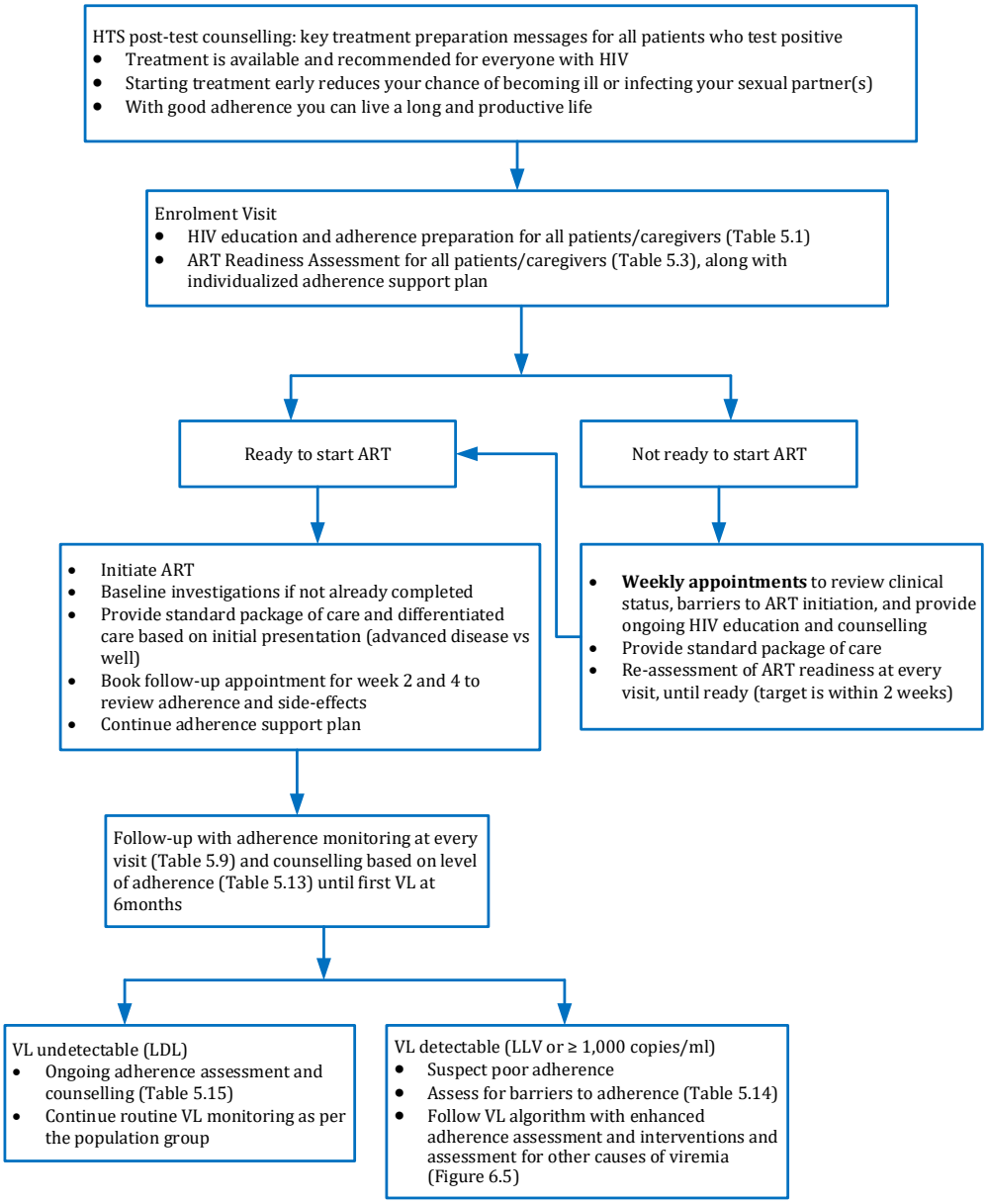


Figure 5.1: Adherence Preparation, Monitoring and Support until Viral Load after 6 Months on ART

Adherence is most difficult during the first few months of treatment: the patient is not yet in the habit of taking their medications every day, they are not familiar with common side-effects, and they have more challenges with disclosure and stigma, all of which can interfere with adherence. Poor adherence within the first few months of therapy is also the most risky period for development of resistance mutations, when the viral load is still high.

For these reasons, adherence preparation, monitoring and support must be emphasized during the first six months of ART until the patient achieves full virological suppression, after which adherence monitoring and support can continue at lower intensity.

Patient preparation and counselling should be a collaborative process between the provider and the patient or caregiver, to enable the patient to initiate and continue lifelong treatment. This is best done when the same adherence counsellor follows an individual patient throughout the preparation, initiation, and early ART period.

ART can be initiated concurrently with the first adherence counselling session, even during the enrolment visit, especially for infants and for pregnant women. This may also apply to patients with a good understanding of HIV and ART and strong motivation for immediate ART initiation. In these scenarios, closer counselling and support must be continued during the early follow-up visits.

Each member of the multidisciplinary team should have the requisite training to provide treatment education and offer appropriate support to address potential barriers to adherence. Treatment preparation and support can be offered at triage, consultation, pharmacy or any other clinic station where confidentiality and privacy is assured and providers are adequately trained. It should also be incorporated into health talks, peer support group activities, and group counselling sessions.

Before commencement of a counseling session, the counselor should ensure that adequate space is available to conduct the counseling, that confidentiality can be maintained, and that tools such as psychosocial assessment forms, treatment literacy flip charts, PHDP flip charts, and tools to document the counseling sessions are available.

Persons living positively (adolescent and adult peer educators who can share personal experiences when needed) should be incorporated to support patient education as indicated in the operational guidance below.

Operational Guidance: Meaningful Involvement of People Living with HIV
For best patient outcomes, PLHIV themselves should be engaged to lead facility-based and community-based HIV education and support systems. They are often referred to as "peer educators", "mentor mothers", and "lay health workers" in these roles. PLHIV have successfully and significantly contributed to: improving identification of people at risk for HIV or infected with HIV; increasing linkage from testing to treatment; reducing onward transmission of HIV; providing psychosocial support, and improving adherence and retention to care and ART.

Identifying PLHIV to offer peer-led patient support
- PLHIV on ART for ≥ 1 year
- Good adherence and undetectable VL
- Positive attitude and interest in supporting peers

Preparing and supporting PLHIV to play a role in patient support systems
- **Must be trained for the role they are expected to provide**
- Must have job aids and IEC material appropriate for their role
- Must be supervised by healthcare professionals

Potential roles for PLHIV include
- Providing HIV testing services
- Acting as peer linkage supporters
- Leading or contributing to facility-based or community-based support groups
- Providing individual or group HIV education
- Providing individual or group adherence counselling
- Distribution of ART refills for stable patients

Compensation for PLHIV who contribute to patient support systems
- Recognition (e.g. ID badges; certificates of service; acknowledgement at community forums)
- Training opportunities with certification
- Financial compensation (e.g. stipends; transportation allowances; salaries)
- Priority consideration for employment opportunities

5.1. ART Adherence Preparation and Support

Preparation for ART begins at the time of HIV diagnosis and continues until initiation of ART.

5.1.1. Treatment Preparation as Part of HIV Testing Services

With the current treatment guidelines recommendation that all PLHIV qualify for ART, post-test counselling by the HTS provider should now include three key messages that begin the ART treatment preparation process for all PLHIV

- Treatment (called antiretroviral therapy (ART)) is available and is recommended for everyone with HIV
- Starting treatment as soon as possible (preferably within two weeks of testing positive for HIV) reduces the chance of your illness getting worse or of passing HIV to others
- If you take your ART properly and do not miss pills you can expect to live a long and productive life

5.1.2 ART Treatment Preparation

ART treatment preparation involves HIV education and counselling, including a discussion of support systems to overcome possible barriers to adherence. The education and counseling sessions should be documented in patient charts.

HIV Education and Counselling

HIV education and adherence preparation should be a standard component of the enrolment visit. Prior to ART initiation, all patients/caregivers must be provided with enough information to make an informed choice about ART initiation and adherence (Table 5.1), including for patients who initiate ART during the enrolment visit. A detailed content guide for HIV education and adherence counselling is provided in Annex 8. This information can be provided through group or individual counselling. The ART Readiness Assessment and the management plan should be completed for each patient individually (Table 5.3).

Table 5.1: Components of HIV Education and Adherence Counselling (see Annex 8B for detailed content guide)

Component	Questions to be Covered
HIV	• What is HIV • How is HIV transmitted • Why should partners and family members be tested for HIV
Viral load	• What is viral load • How often is viral load measured • What do viral load measurements mean, including the goal of achieving viral suppression
CD4 cells	• What are CD4 cells • How are CD4 cells affected by HIV • What happens when CD4 cells decrease • How often is CD4 cell count measured
Antiretroviral therapy (ART)	• What is ART • What are the benefits of ART • When is ART started • Does ART cure HIV • Can you still give HIV to others while taking ART • How long is ART taken
Treatment failure	• What happens if you stop taking ART • What happens if you do not take ART regularly • What happens if the viral load increases • What happens in treatment failure
ART side effects	• What are the side-effects of ART • What should you do if you notice any side effects
Adherence	• What is adherence • How should ART be taken • What usually interferes with good adherence • What might make it difficult for you individually to take your ART as prescribed • What can help you take ART as prescribed • What happens if you miss an appointment
Other medications	• What other medications will you take, in addition to ART (e.g. CPT, IPT)

Nutrition	• Why is nutrition important • What can you do to improve your nutrition
Follow-up	• How often will you need to come to clinic • What will we be checking for during your clinic visits
ART readiness assessment	• Are you ready to start ART today
Management plan	• Which investigations will you have today • Which medications will you start today • What else is required as you start or as you prepare to start ART • When should you return to the clinic

Adherence Support

Psychosocial support for PLHIV and their families is essential for their well-being and good health outcomes. HIV affects virtually every aspect of one's life, as well as the lives of those close to them. PLHIV need psychological and social support to deal with various issues that are common to chronic illness as well as those that are unique to HIV. These include stigma, bereavement, self-image, loss of earning capacity, life skills, and chronic illness, among others. Providing psychosocial support entails identifying any needs that they may have and addressing them. In some cases, some of these needs can be anticipated and addressed even before they come to play in the individual's life.

The individualized patient management plan should include establishing appropriate adherence support interventions (Table 5.2).

Table 5.2: Adherence Support and Retention Interventions

Standard Adherence Support Interventions	
Structural interventions	• Conduct a baseline psychosocial assessment to explore the various aspects of the client's life that may influence their adherence to treatment and prevention, and their general well-being and tease out issues that need to be explored in detail during the counselling session e.g. disclosure, family planning, living circumstances • Use a multidisciplinary team approach to develop and implement treatment plans for each patient • Engage peer educators to lead HIV education and support services • Adequately prepare and assess the patient's readiness to initiate and continue with ART • Implement a system for identifying and taking action when patients miss an appointment • Formalize a system for providing health talks and treatment literacy classes for patients • Formalize a system for linking patients to community-based resources, including: community support groups, religious groups, CBOs, groups supporting income-generating activities, organizations providing food support, NEPHAK, child welfare societies, community health volunteers/units, schools, children's homes

HIV education and counselling	• Remind the patient about HIV disease, how ART works, the importance of high level adherence and the consequences of non-adherence
	  ○ Risk of ill health caused by HIV
	  ○ Role of ART in restoring and maintaining good health
	  ○ Link between adherence and viral load, CD4 and health
	  ○ Side effects of medications and how to avoid, recognize and manage them. Manage side effects aggressively
	  ○ Address misconceptions and beliefs about HIV and ART
	• Discuss and agree on a treatment plan with the patient. Gain commitment from the patient to follow through
	• Discuss use of alcohol and drugs and how to prevent these from affecting the treatment plan
	• It is important to maintain a non-judgmental attitude, establish trust with parents/caregivers, and involve the child as they mature

Disclosure and stigma	• Respect patient privacy and confidentiality • Discuss with the patient the role of disclosure to close family members/trusted friend in promoting adherence • Offer to facilitate disclosure • For children/adolescents, discuss age-appropriate disclosure with the caregiver and offer to support the process (Annex 5) • Conduct stigma assessment and support appropriately
Treatment supporter	• Encourage the patient to identify a treatment supporter/buddy who will provide the patient with encouragement and social support and even remind the patient to take medication • Invite the treatment supporter to at least one of the adherence counselling sessions • Obtain consent from the patient to contact the treatment supporter if needed

Support group	• Link the patient to psychosocial support groups and other community-based support mechanisms (preferably through direct introduction)
	  ○ Support groups give confidence and encouragement and promote positive attitude towards HIV status and may promote disclosure
	  ○ Support groups offer opportunities for additional counselling and experience sharing and are an avenue for developing/strengthening life skills
	  ○ Some support groups engage in economic empowerment activities
	  ○ Support groups can be used for ART distribution to improve convenience to the patient
	• Develop population-specific support groups when possible (e.g. youth groups with peer educators for adolescents; children's clubs; caregiver support groups)
	• MDT members should be patrons to the support groups, to guide activities in line with intended objectives
	For more information, refer to the National Guidelines for the Formation and Management of Support Groups, 2013

SMS reminder system	• Enroll patients into an automated SMS reminder system with their consent • Review the type of messages the patient may receive, the frequency of messages, and any actions the patient should take when receiving the message • Ensure the system and messages maintain patient privacy and confidentiality
Other reminder strategies	• Encourage patient/caregiver to set a specific time of day to take ART, and to associate ART time with a specific event/s in their daily schedule • Encourage patient/caregiver to set an alarm on their phone

5.1.3. Age-Specific Treatment Preparation and Support

Treatment preparation must be customized to the patient's age, gender, needs and clinical status: for patients who present with advanced/symptomatic disease, the focus is on getting better; for patients who present clinically well, the focus is on staying healthy. Specific needs for children, adolescents, caregivers and men should also be taken into consideration.

The HIV education and counselling sessions should be provided at every visit until the patient is ready and willing to start ART, as determined using the ART Readiness Assessment Form (Table 5.3). Each repeat session should begin with a review of what the patient remembers from the previous session as well as any key issues the counsellor documented in the patient's chart, so the session can be customized to meet their needs. ART preparation should not take more than 1-2 weeks except for special circumstances such as with uncontrolled mental health issues or untreated drug addictions. However, once the patient has initiated ART, continued HIV education, counselling and adherence support must be provided. The counselling sessions should preferably be conducted by the same counsellor, peer educator, social worker, nurse, community health volunteer, and/or clinician who is professionally certified to counsel based on a NASCOP curriculum, and they possess the requisite competencies to provide quality counselling. In order to prepare children and adolescents for ART, the counsellor should be trained in providing psychosocial support to this age group.

Table 5.3: ART Readiness Assessment Form

Criteria	Y	N*
A. Psychosocial/Knowledge Criteria (applies to patients and caregivers)		
1. Understands the nature of HIV infection and benefits of ART?		
2. Has screened negative for alcohol or other drug use disorder, or is stable on treatment (see Section 4.6)		
3. Has screened negative for depression or other psychiatric illness, or is stable on treatment (see Section 4.6)		
4. Is willing to disclose/has disclosed HIV status, ideally to a family member or close friend?		
5. Has received demonstration of how to take/administer ART and other prescribed medication?		
6. Has received information on predictable side effects of ART and understands what steps to take in case of these side effects?		
7. For patients dependent on a caregiver: caregiver is committed to long-term support of the patient, daily administration of ART, and meets the criteria above?		
8. Other likely barriers to adherence have been identified and there is a plan in place to address them (e.g. frequent travel for work, plan to deal with unexpected travel, distance from clinic, etc)?		
9. Patient/caregiver has provided accurate locator information and contact details?		
10. Patient/caregiver feels ready to start ART today?		
B. Support Systems Criteria (applies to patients and caregivers)		
1. Has identified convenient time/s of day for taking ART, and/or associated dose/s with daily event/s?		
2. Treatment supporter has been identified and engaged in HIV education, or will attend next counselling session?		
3. Is aware of support group meeting time/s?		
4. If facility has SMS reminder system: Has enrolled into SMS reminder system?		
5. Other support systems are in place or planned (e.g. setting phone alarm, pill box)?		
C. Medical Criteria (applies to patients)		
1. Newly diagnosed with TB: **defer ART until patient tolerates anti-TB medication; initiate ART as soon as possible preferably within 2 weeks; for TB meningitis consider delaying ART for up to 8 weeks); monitor closely for IRIS**		
2. Newly diagnosed cryptococcal meningitis (CM), or symptoms consistent with CM (progressive headache, fever, malaise, neck pain, confusion): **defer ART until completed 5 weeks of CM treatment and symptoms resolved, or until ruling out CM as the cause of symptoms; monitor closely for IRIS**		
***If the response to any of the psychosocial criteria or support systems criteria is "No": develop a strategy to address the issue as quickly as possible and consider assigning a case manager. ART may be initiated with adequate adherence support while the criteria is being addressed, on a case-by-case basis**		

At each visit up until ART initiation, every patient should be assessed for readiness to start ART (Table 5.3); with each patient/caregiver allowed to make the final decision on whether and when to start ART.

Children and adolescents depend on caregivers to support their adherence so there are special considerations for adherence preparation and support. All topics covered in the HIV Education and Adherence Counselling sessions (Table 5.1 and Annex 8) should be covered with the caregiver, with involvement of the child/adolescent as appropriate based on the stage of disclosure and their developmental stage (Table 5.4).

Table 5.4: Age-appropriate Involvement of Child/Adolescent in HIV Education and Adherence Counselling

Age	Counselling Approach
< 6 years old	The counselling sessions will focus on engaging all of the child's caregivers
6-12 years old	Both the caregiver and the child will be involved. The counselling will focus on the caregiver; younger children can be given a paper and pen and asked to draw their family, school, etc, and talk about their experiences. Disclosure of HIV status to the child should commence by 5 years of age and be completed by 10-12 years of age (Annex 5)
> 12 years old with caregiver present	Most of the counselling can focus on the adolescent, who is often fully responsible for medication administration. However, it is necessary to keep the caregiver coming and involved in supporting the adolescent. A recommended approach is to start with the caregiver alone, then see the caregiver and adolescent together, and then see the adolescent alone. Use the HEADSSS tool* to facilitate discussion
> 12 years old without the caregiver present	Use the HEADSSS tool* to facilitate discussion. Negotiate involvement of a treatment supporter

* HEADSSS assesses: Home; Education/Employment; Activities; Drugs; Sexuality; Suicide/depression/self-image; Safety

In addition to the standard HIV Education and Adherence Counselling topics, unique issues need to be addressed for caregivers, children and adolescents (Table 5.5).

Table 5.5: Unique Considerations for Caregivers, Children and Adolescents

Caregiver Barriers to Adherence
• Frequently changing or multiple simultaneous caregivers
• Absent or sick caregiver
• Poor understanding of HIV management due to inadequate counselling, elderly, or illiterate caregiver
• Depression, alcohol and other drug use
• Living far from the health facility
• Economically unstable
• Lack of affection between caregiver and child
• Lack of support systems for the caregiver
Child/Adolescent Barriers to Adherence
• Level of disclosure (is the child/adolescent aware of their HIV status?)
• Lack of understanding of disease/treatment
• Developmental stage and emotional state
• Child refusal to swallow medicine (do not allow refusal to take medicines: all activities should be stopped for the child until the dose is swallowed)
• Stigmatization and discrimination
• Low self-esteem
• Depression
• Defiance related to a troublesome caregiver-child relationship
• Inadequate structures at school (day or boarding) to support adherence
• Lack of support systems for the child/adolescent
Treatment Barriers to Adherence
• Large volumes of syrups
• Bad taste of syrups
• Pill burden
• Confusing regimens combining syrups and tablets
• Side effects
• Dose adjustment requirements as the child grows

For all children/adolescents, the level of disclosure should be assessed at first visit and the management plan should include a plan for age-appropriate disclosure (Annex 5). Treatment preparation and support sessions should be customized to the patient's age (Tables 5.6-5.8).

Table 5.6: Treatment Preparation and Support for Children (≤ 9 years) and Caregivers

Visit	Standard of Care
At enrolment into care	Use the 5As (Assess, Assist, Advice, Agree, Arrange) • Perform a psychosocial assessment at enrolment to evaluate for possible psychological, emotional and social adherence boosters and barriers • Assess growth and developmental milestones (Annex 3) to rule out growth retardation, developmental challenges such as autism, deafness and any other physical challenge. Any child with developmental challenges should be referred for appropriate care • Identify the primary caregiver as soon as possible after diagnosis of HIV in a child. In the absence of a caregiver, link the child to a community health volunteer or a peer educator while a more permanent solution is sought • The child and their caregiver, if also infected, should be enrolled in the same clinic • Provide HIV education and counselling to caregiver (and child as appropriate for age, Table 5.4) as outlined in Table 5.1 • Identify and establish appropriate adherence support interventions (Table 5.2), including linkage to pediatric and caregiver support groups • Discuss benefits of disclosure of HIV status of the child and formulate a disclosure plan for children aged 5 years and above (Annex 5) • Conduct readiness assessment to initiate ART (Table 5.3); ART should be initiated same day or the date of initiation agreed upon • Review ART dosing and timing (including having the caregiver demonstrate how they measure and administer the ART) • Conclude the session by agreeing on a treatment and follow-up plan • Where ART is initiated at enrolment, book the child to return within two weeks. Those unwilling to initiate should return weekly for further counselling on barriers to initiation (Annex 9C) • Document session in the patient's chart
Two weeks after ART Initiation	• Review and reinforce the messages delivered at enrolment; confirm the caregiver's understanding of key messages • Review ART dosing, timing and reminders (including having the caregiver demonstrate how they measure and administer the ART) • Explore any barriers to adherence • Revisit benefits of disclosure and the individualized age-appropriate disclosure plan • Document the session in the patient's chart
Four weeks after ART Initiation, and further follow-up visits	• Review and reinforce the messages delivered in previous sessions; confirm the caregiver's understanding of key messages • Review ART dosing, timing and reminders (including having the caregiver demonstrate how they measure and administer the ART) • Explore any barriers to adherence • Revisit benefits of disclosure and the individualized age-appropriate disclosure plan • Document the session in the patient's chart

Table 5.7: Treatment Preparation and Support for Adolescents (10-19 years)

Visit	Standard of care
At enrolment into care	Use the 5As (Assess, Assist, Advice, Agree, Arrange) • Perform a psychosocial assessment at enrolment to evaluate for possible psychological, emotional and social adherence boosters and barriers • Assess growth and developmental milestones to rule out growth retardation, developmental challenges such as autism, deafness and any other physical challenge. Any adolescent with developmental challenges should be referred for appropriate care • Identify the primary caregiver as soon as possible after diagnosis of HIV in an adolescent. Adolescents older than 15 years and emancipated minors may not have or may not want the presence of a caregiver. In this case, the clinical team should explore alternative options to support the adolescent until they are ready to disclose to their caregivers/guardian or identify someone to disclose to. The alternative options include adolescent mentors, peer educators, social worker, nurses or community health volunteers as may be appropriate. An adolescent can have both private and joint sessions with the caregiver when deemed appropriate • The health provider should explore Sexual and Reproductive health (SRH) understanding, fears and needs of the adolescent and prioritize interventions as appropriate. SRH counseling should be introduced in a one-to-one session with the adolescent. The care giver can be excused from the sexual and reproductive health session to enable adolescent to open up during the session • The adolescent and their caregiver, if also infected, should be enrolled in the same clinic • Provide HIV education and counselling to caregiver (and adolescent as appropriate for age, Table 5.4) as outlined in Table 5.1 • Identify and establish appropriate adherence support interventions (Table 5.2), including linkage to adolescent and caregiver support groups • Discuss benefits of disclosure of HIV status of the adolescent (if not aware of status) and formulate a disclosure plan for adolescents (Annex 5) • Conduct readiness assessment to initiate ART (Table 5.3); ART should be initiated same day or the date of initiation agreed upon • Review ART dosing and timing (including having the adolescent and/or caregiver demonstrate how they measure and administer the ART) • Conclude the session by agreeing on a treatment and follow-up plan • Where ART is initiated at enrolment, book the adolescent to return within two weeks. Those unwilling to initiate should return weekly for further counselling on barriers to initiation (Annex 9C) • Document session in the patient's chart
Two weeks after ART initiation	• Review and reinforce the messages delivered at enrolment; confirm the adolescent's and/or caregiver's understanding of key messages • Review ART dosing, timing and reminders (including having the adolescent and/or caregiver demonstrate how they measure and administer the ART) • Explore any barriers to adherence, including issues related to the school environment • Review support systems (including adolescent support group) • Revisit benefits of disclosure and the individualized age-appropriate disclosure plan • Review SRH needs • Document the session in the patient's chart
Four weeks after ART initiation, and further follow-up visits	• Review and reinforce the messages delivered in previous sessions; confirm the adolescent's and/or caregiver's understanding of key messages • Review ART dosing, timing and reminders (including having the adolescent and/or caregiver demonstrate how they measure and administer the ART) • Explore any barriers to adherence, including issues related to the school environment • Review support systems (including adolescent support group) • Revisit benefits of disclosure and the individualized age-appropriate disclosure plan • Review SRH needs • Document the session in the patient's chart

Table 5.8: Treatment Preparation and Support for Adults

Visit	Standard of care
At enrolment into HIV care	Use the 5As (Assess, Assist, Advice, Agree, Arrange) • Perform a psychosocial assessment to evaluate adherence boosters and barriers e.g. mental, emotional and social status assessments; refer for appropriate care if mental disorder diagnosed • Identify a treatment buddy (family member, friend, peer educator, community health volunteer, etc) and involve them in HIV education and adherence counselling • Provide HIV education and counselling to caregiver (and child as appropriate for age) as outlined in Table 5.1 • Identify and establish appropriate adherence support interventions (Table 5.2), including linkage to a support group • Discuss benefits of disclosure of HIV status to a trusted family member/friend; how to disclose; and establish a disclosure plan • Discuss importance of child and sexual partner testing as well as assisted partner notification services (aPNS) • Discus prevention methods such as condoms, PrEP, PEP, STI screening and treatment • Conduct an assessment of readiness to initiate ART (Table 5.3); ART should be initiated same day or the date of initiation agreed upon • Review ART dosing and timing • Conclude the session by agreeing on a treatment and follow-up plan • Where ART is initiated at enrolment, book the patient to return within two weeks. Those unwilling to initiate should return weekly for further counselling on barriers to initiation (Annex 9C) • Document session in the patient's chart
Two weeks after ART initiation	• Review and reinforce the messages delivered at enrolment; confirm the patient's understanding of key messages • Review ART dosing, timing and reminders • Explore any barriers to adherence • Review support systems • Revisit benefits of disclosure, the disclosure plan and progress in aPNS • Document the session in the patient's chart
Four weeks after ART initiation, and further follow-up visits	• Review and reinforce the messages delivered in previous sessions; confirm the patient's understanding of key messages • Review ART dosing, timing and reminders • Explore any barriers to adherence • Review support systems • Revisit benefits of disclosure the disclosure plan, and progress in aPNS • Document the session in the patient's chart

5.2. Adherence Monitoring, Counselling and Support During the First 6 Months of ART

5.2.1. Adherence Monitoring

Once ART has been initiated, adherence should be assessed non-judgmentally by a trained provider during each visit (Table 5.9). The objectives of this assessment are to evaluate and reinforce the patient's adherence to ART, to elicit any barriers to the same, and to develop a plan with the patient/caregiver to address any of the barriers identified. These may include incorrect knowledge of HIV infection and ART, unsupportive psychosocial factors, difficult home or school environment, substance use and poor motivation for taking medication. Patients/caregivers need to be counselled on the importance of being honest about their adherence in order for the healthcare team to serve them better.

Adherence monitoring requires a combination of interventions. At every clinical visit, the MMAS-4 should be administered as well as pill counts. MMAS-8 should be administered any time a healthcare worker suspects adherence problem (e.g. patients with suspected or confirmed treatment failure; patient who misses an appointment).

Table 5.9: Adherence Monitoring Strategies

Adherence Monitoring Strategy	Technique	Frequency
Subjective (self-reported adherence)		
Morisky Medication Adherence Scale-4	Use Table 5.10 to assess adherence using a standardized questionnaire, and take action as required	Every patient, every visit
Morisky Medication Adherence Scale-8	Use Table 5.11 to assess adherence using a standardized questionnaire, and take action as required	Any time a healthcare worker suspects adherence problems (e.g. patients with suspected or confirmed treatment failure; patient who misses an appointment)
Adherence Monitoring Strategy	**Technique**	**Frequency**
Objective		
Pill counts	Ask the patient to bring all their pills with them to follow-up visits. Calculate how many pills should be remaining based on the previous prescription date and amount prescribed, and compare to how many pills are actually remaining. Excess pills are assumed to be missed doses. Use Table 5.12 to calculate adherence rate and take action as required	• At every visit until confirmed viral suppression • Any time a healthcare worker suspects adherence problems
Pharmacy refill records	Compare drug pick-up date with expected date of pick-up (based on number of pills dispensed at last visit). If drug pick-up date is later than expected, it is assumed the patient is missing doses equivalent to the number of days late	• At every drug pick-up • Any time a healthcare worker suspects adherence problems
Viral load	Follow the viral load monitoring algorithm (Figure 6.5). Undetectable VL is the best available confirmation of adequate adherence	• Age 0-24 years: every 6 months • Age ≥ 25 years: at month 6 after ART initiation and month 12 then annually • For pregnant and breastfeeding women: at first ANC visit if already on ART, or 3 months after ART initiation if starting ART during pregnancy, and then every 6 months

Home visit	Observe where and how a patient stores and takes their medications and assess if they have extra medications because of missed doses. Home visits may also provide a better understanding of a patient's living situation and specific barriers to adherence. Unscheduled home visits may be more revealing, but should only be conducted if the patient consented to home visits previously (preferably at the time of enrolment or initiation)	For patients with suspected or confirmed treatment failure, patients who default from care, or any time the MDT feels a home visit will contribute to patient management

Accurately assessing adherence requires clinicians to develop a collaborative and non-judgmental relationship with patients. This is best done when one provider follows an individual patient longitudinally. The key to asking patients about their adherence is not in the specifics of the tool used but in taking the time to ask about adherence regularly and doing so in an open and truly inquisitive manner. Otherwise, many patients will simply state what they believe the clinician wants to hear: perfect adherence.

Every provider in each ART service delivery point should receive training and gain confidence in assessing adherence and providing adherence support and counselling to the majority of patients who do not have significant barriers to adherence. However, patients with significant adherence challenges and multiple barriers to adherence should be referred to providers with additional training and time to offer dedicated and enhanced adherence support and counselling. Involving experienced colleagues at the same health facility should be done as soon as a concern is identified, and the patient should be discussed by the MDT to generate as many solutions as possible. Consultation with Mental Health Teams or regional or national mentors may be required for complex situations.

Table 5.10: Morisky Medication Adherence Scale (MMAS-4)

MMAS-4: Ask the patient each question below. Circle the corresponding score for each response. After completion of all questions, add up all the points that you have circled for the total score.		
Question	Yes	No
1. Do you ever forget to take your medicine?	1	0
2. Are you careless at times about taking your medicine?	1	0
3. Sometimes if you feel worse when you take the medicine, do you stop taking it?	1	0
4. When you feel better do you sometimes stop taking your medicine?	1	0
Total Score (sum of all items)		

Interpretation of MMAS-4 Score		
MMAS-4 Score	Adherence Rating	Action Required
0	Good	Continue with routine monitoring, counselling and support
1-2	Inadequate	• Discuss as an MDT • Assign a case manager • Assess for and address barriers to adherence (Table 5.14) • Engage treatment supporter in adherence counselling sessions • Follow up in 2-4 weeks
3-4	Poor	• Discuss as an MDT • Assign a case manager • Assess for and address barriers to adherence (Table 5.14) • Engage treatment supporter in adherence counselling sessions • Implement DOTs • Follow up in 1-2 weeks

Table 5.11: Morisky Medication Adherence Scale (MMAS-8)

MMAS-8: Ask the patient each question below. Circle the corresponding score for each response. After completion of all questions, add up all the points that you have circled for the total score.		
Question	Yes	No
1. Do you ever forget to take your medicine?	1	0
2. Are you careless at times about taking your medicine?	1	0
3. Sometimes if you feel worse when you take the medicine, do you stop taking it?	1	0
4. When you feel better do you sometimes stop taking your medicine?	1	0
5. Did you take your medicine yesterday?	0	1
6. When you feel like your symptoms are under control, do you sometimes stop taking your medicine?	1	0
7. Taking medication every day is a real inconvenience for some people. Do you ever feel under pressure about sticking to your treatment plan?	1	0
8. How often do you have difficulty remembering to take all your medications? (Please circle the correct number) _____A. Never/Rarely _____B. Once in a while _____C. Sometimes _____D. Usually _____E. All the time	Points: A. 0 B. ¼ C. ½ D. ¾ E. 1	
Total Score (sum of all items)		

Interpretation of MMAS-8 Score		
MMAS-8 Score	Adherence Rating	Action Required
0	Good	Continue with routine monitoring, counselling and support
1-2	Inadequate	• Discuss as an MDT • Assign a case manager • Assess for and address barriers to adherence (Table 5.14) • Engage treatment supporter in adherence counselling sessions • Follow up in 2-4 weeks
3-8	Poor	• Discuss as an MDT • Assign a case manager • Assess for and address barriers to adherence (Table 5.14) • Engage treatment supporter in adherence counselling sessions • Implement DOTs • Follow up in 1-2 weeks

Table 5.12: Adherence Rate Based on Pill Counts

Missed Doses per Month		% of Medications Taken	Adherence Rating	Action Required (see Table 5.10 for more details)
For once-daily regimen	For BD regimen			
1 dose	1-3 doses	≥ 95%	Good	Continue with routine monitoring, counselling and support
2-4 doses	4-8 doses	85-94%	Inadequate	• Discuss as an MDT • Assign a case manager • Assess for and address barriers to adherence (Table 5.14) • Engage treatment supporter in adherence counselling sessions • Follow up in 2-4 weeks
≥ 5 doses	≥ 9 doses	< 85%	Poor	• Discuss as an MDT • Assign a case manager • Assess for and address barriers to adherence (Table 5.14) • Engage treatment supporter in adherence counselling sessions • Implement DOTs • Follow up in 1-2 weeks

5.2.2. Adherence Counselling and Support During the First 6 Months of ART

All patients recently initiated on ART need careful adherence monitoring and support to ensure they achieve virological suppression. This is particularly important in the context of rapid ART initiation. The intensity of counselling and support are dependent on the patients' level of adherence as assessed by the methods described in section 5.2.1.

Table 5.13 summarizes adherence counselling and support for patients from the time of ART initiation until the 6-month viral load results are available. For patients who have inadequate or poor adherence, Table 5.14 describes the assessment for barriers to adherence.

Table 5.13: Adherence Counselling and Support During the First 6 Months of ART

No adherence concerns (based on adherence assessment and healthcare team opinion)	
Counselling: Group or Individual, at every visit (can be done by any member of the healthcare team, including the clinician)	• Review patient/caregiver HIV knowledge (Table 5.1, Annex 8) and address any gaps • Review patient/caregiver understanding of ART administration (dosing, timing, frequency) and address any gaps • Elicit any concerns the patient/caregiver has about ART, other medications, visit schedule, or health. Address any concerns or engage another care team member who can address them • Explore any major recent or expected changes in the patient's/caregiver's life or daily routine that could disrupt adherence • Update patient locator and contact information
Support	• Encourage the patient/caregiver to continue with the support systems discussed and implemented pre-ART • Encourage introduction of additional standard support systems (Table 5.2), including supporting disclosure as needed
Inadequate or poor adherence (based on adherence assessment or healthcare team opinion)	
Counselling: Individual, at every visit until adherence is good (preferably by someone trained on adherence counselling)	• **Assess for and address potential barriers to adherence (Table 5.14)** • Review patient/caregiver HIV knowledge (Table 5.1, Annex 8) and address any gaps • Review patient/caregiver understanding of ART administration (dosing, timing, frequency) and address any gaps • Elicit any concerns the patient/caregiver has about ART, other medications, visit schedule, or health. Address any concerns or engage another care team member who can address them • Explore any major recent or expected changes in the patient's/caregiver's life or daily routine that could disrupt adherence • Update patient locator and contact information
Support	• Review effectiveness of support systems they already have in place • Encourage introduction of additional standard and enhanced support systems (Table 5.2), including supporting disclosure as needed, assigning a case manager and considering DOTs

Table 5.14: Assessment for Barriers to Adherence

Theme	Assessment
Awareness of HIV status	• Has the patient/caregiver accepted HIV status? • For children/adolescents: is age-appropriate disclosure underway/complete?
Understanding of HIV infection and ART	• How HIV affects the body and risk of transmission to sexual partners and children during pregnancy and breastfeeding • ART and how it works • Understanding of side effects and what to do in case of side effects ○ *"Have you experienced any side effect since your last visit? Has this affected the way you take your medicine?"* • Benefits of adherence • Consequences of non-adherence including drug resistance and treatment failure

Daily routine	• Review the patient's/caregiver's daily routine: *"Tell me about your typical day"*
	• Review how the patient takes medicine or how the caregiver administers it
	  ○ *"Please tell me how you take each of your medicines?"*
	  ○ *"How does taking your medicine fit into your daily routine?"*
	• If the patient's/caregiver's daily routine conflicts with medication schedule, work with them to find a new medication schedule that will be more appropriate
	• Remind the patient/caregiver to take/give missed or delayed doses as soon as he/she remembers (up to 12 hours late if on a once-daily regimen, or up to 6 hours late if on a twice-daily regimen). The next dose should be taken at the usual time
	• *"What do you do in case of visits or travel?"*
	• Remind the patient/caregiver to plan travel well, pack sufficient medicine; but should their medication get finished before they return, advise them to visit the closest ART centre and show their appointment card to get a refill
	• For orphans it is critical to assess who the primary caregiver is and their commitment

Psychosocial circumstance	Home environment:
	• *"Who do you live with?"*
	• *"Who is aware of your HIV status? Are there people in your life with whom you've discussed your HIV status and ART use?"*
	  ○ Discuss the usefulness of enlisting the support of family members, friends or a treatment supporter/buddy in reminding them to take medication (for children/adolescents, this includes teachers and/or supportive peers at school); offer assisted disclosure
	  ○ Encourage the patient to identify and bring a treatment supporter during the next visit
	• Support system (treatment buddy, psychosocial support groups, etc)
	• Changes in relationships with family members/friends
	• Screen the patient/caregiver for alcohol and substance abuse (Tables 4.15 and 4.16)
	  ○ Discuss impact on ability to remember to take medication
	  ○ Explore motivation to stop and offer support/referral
	  ○ Encourage limiting use and planning ahead so as not to forget to take medication
	• Screen for intimate partner violence (Section 4.2.1)
	• Stigma and discrimination
	  ○ *"Does it bother you people might find out about your HIV status?"*
	  ○ *"Do you feel that people treat you differently when they know your HIV status?"*
	• Discuss if stigma is interfering with taking medication on time or with keeping clinic appointments
	• Beliefs: has the patient tried faith healing? Has the patient ever stopped using medication because of religious beliefs?

Mental Health Screening	• Screen patient/caregiver for depression using the PHQ-9 (Table 4.14) and manage/refer as required
Referrals	• Establish if the patient has been referred to other services (including nutrition, psychosocial support services, other medical clinics, substance use treatment, etc) • Did he/she attend the appointments? What was his/her experience? Do the referrals need to be re-organized?

5.3. Adherence Monitoring, Counselling and Support for Patients with Undetectable Viral Load (LDL)

Once a patient has confirmed viral suppression (with VL below the Lower Detection Limit (LDL)) this is confirmation of adequate adherence to ART. The patient can be reassured that they will do well if they continue to adhere. However, **all patients are at risk of new or worsening barriers to adherence, so adherence monitoring, counselling and support should continue despite viral suppression, but at a lower intensity and frequency unless concerns are identified (Table 5.15).** These patients should also be educated on and assessed for qualification as "stable patient" services such as less frequent facility visits, fast-track or community-based ART distribution, etc (Table 3.5).

Table 5.15: Adherence Counselling and Support for Patients with Undetectable Viral Load

No adherence concerns (based on adherence assessment or healthcare team opinion)	
Counselling: Group or individual, every visit (can be done by any member of the healthcare team, including the clinician)	• Elicit any concerns the patient/caregiver has about ART, other medications, visit schedule, or health. Address any concerns or engage another care team member who can address them • Explore any major recent or expected changes in the patient's/caregiver's life or daily routine that could disrupt adherence • Update patient locator and contact information
Support	• Encourage the patient/caregiver to continue with the support systems that are in place already
Inadequate or poor adherence (based on adherence assessment or healthcare team opinion)	
Counselling: Individual, at every visit until adherence is good (preferably by someone trained on adherence counselling)	• **Assess for and address potential barriers to adherence (Table 5.14)** • Review patient/caregiver HIV knowledge (Table 5.1, Annex 8) and address any gaps • Review patient/caregiver understanding of ART administration (dosing, timing, frequency) and address any gaps • Elicit any concerns the patient/caregiver has about ART, other medications, visit schedule, or health. Address any concerns or engage another care team member who can address them • Explore any major recent or expected changes in the patient's/caregiver's life or daily routine that could disrupt adherence • Update patient locator and contact information
Support	• Review effectiveness of support systems the patient already has in place • Encourage introduction of additional standard and enhanced support systems (Table 5.2), including supporting disclosure as needed, assigning a case manager and considering DOTs

5.4. Adherence Monitoring, Counselling and Support for Patients with Detectable Viral Load

Treatment failure should be suspected whenever a patient has been on ART for at least 6 months and has: a detectable viral load; a decline in CD4 count or; any new or worsening clinical condition. Treatment failure is confirmed as per the viral load monitoring algorithm (Figure 6.5). Poor adherence is often the most important factor in developing treatment failure, though there can be other causes. Adherence must be thoroughly assessed and all issues must be addressed before switching patients to the next line of ART. **Do not change regimens until the reason/s for treatment failure have been identified and addressed, and a repeat VL is ≥ 1,000 copies/ml after 3 months of good adherence.** For patients with persistent low-level viremia (detectable VL but < 1,000 copies/ml), consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com).

5.4.1 Enhanced Adherence Assessments

As soon as treatment failure is suspected the patient/caregiver should be discussed by the facility multi-disciplinary team to develop a plan for assessing barriers to adherence (including scheduling a home visit), and assessing other potential causes of treatment failure (e.g. inadequate dosing/dose adjustments, drug-drug interactions, drug-food interactions, impaired absorption e.g. chronic severe diarrhoea).

Patients with suspected or confirmed treatment failure should undergo adherence assessments as described in Table 5.10, including the MMAS-8 and the home visit. If the patient has a caregiver, treatment buddy, and/or spouse/partner who is enrolled in HIV care, that person's file should also be reviewed to confirm their most recent viral load results and adherence.
All patients with suspected or confirmed treatment failure should have a thorough assessment of potential barriers to adherence (Table 5.14).

5.4.2. Enhanced Adherence Counselling

The goal of Enhanced Adherence Counselling is to assess possible barriers to adherence in a non-judgmental way and to help the patient construct an adherence plan with concrete objectives. It is important not to focus solely on knowledge of HIV and ART but also to review psychological, emotional, and socio-economic factors that may contribute to poor adherence. In addition, exploring the patient's motivation for taking medication often highlights reasons for poor adherence.

Three sessions of Enhanced Adherence Counselling are recommended as the minimum number of sessions, but additional sessions can be added as needed (Table 5.16). If the adherence is evaluated as adequate, a repeat viral load is done after three months of good adherence, and another Enhanced Adherence Counselling session is conducted to discuss the viral load results. A detailed content guide for Enhanced Adherence Counselling is provided in Annex 9.

It is preferable to have the patient go through all adherence counselling sessions with the same counsellor in order to provide continuity, and that the session is documented to ensure follow-up of all issues identified.

Table 5.16: Components of Enhanced Adherence Counselling Sessions (Annex 9A for detailed content guide)

Enhanced Adherence Counselling Sessions: Overview	

Session 1	• Review understanding of viral load (VL) and discuss why the patient's VL is high
	• Review cognitive, behavioral, emotional and socio-economic barriers to adherence
	  ○ Treatment literacy
	  ○ Medications: dosage, timing, storage
	  ○ Side effects
	  ○ Discuss risk reduction (e.g. for substance abuse)
	  ○ Motivation
	  ○ Mental health screening (screen for depression using PHQ-9, Table 4.14)
	  ○ Discuss patient's support systems
	• Referrals and networking
	• Assist patient to develop adherence plan to address the identified issues

Session 2	• Review adherence plan from the first session and discuss any challenges • Identify other possible gaps and issues emerging • Referrals and networking • Assist patient to modify the adherence plan to address the identified issues

Session 3	• Review adherence plan from the first and second session and discuss any challenges
	• Identify other possible gaps and issues emerging
	• Assist patient to modify the adherence plan to address the identified issues
	• Decision on repeat VL based on current adherence
	  ○ If the adherence is good: plan repeat VL testing after three months of good adherence and explain possible ways forward, emphasizing role of the patient and the health facility
	  ○ If adherence challenges persist: plan further Enhanced Adherence Counselling sessions before repeating the VL

Session to Discuss Repeat Viral Load Results	• Discuss result of the second VL test
	• Plan the way forward:
	  ○ If VL now undetectable: continue current regimen with enhanced adherence, repeat VL after 6 months
	  ○ If VL ≥ 1,000: prepare patient for change of regimen (Figure 5.2)
	  ○ If VL is detectable but < 1,000: may continue to monitor or may prepare for change of regimen, pending MDT discussion and consultation with Regional or National HIV Clinical TWG

Enhanced Adherence Support Interventions (for patients failing or at high-risk of failing treatment)	

Case management	• Assign a case manager to all children and adolescents (those not achieving optimum treatment outcomes); pregnant women, orphans, patients with alcohol and substance abuse, patients with mental illness, patients with suspected or confirmed treatment failure, and any patients who the healthcare team feels has poor adherence or is at high risk of defaulting from care
	• The case manager is the link between the patient and the MDT
	• Roles of the case managers include:
	  ○ Coordinating multidisciplinary management for patients under case management
	  ○ Following up on appointment-keeping for their patients
	  ○ Organizing patient reminders (SMS, calling the day before) and other support systems
	  ○ Ensuring appropriate defaulter tracing
	  ○ Coordinating home visits to their patients

Directly observed therapy	• Patients with suspected treatment failure should have DOTs to ensure good adherence before a viral load is repeated to confirm treatment failure • DOTs involves a healthcare provider, family member, treatment supporter or any trained peer observing the patient ingesting their prescribed ART on a daily basis • DOTs can be tapered off once the patient adopts consistent adherence-enhancing behaviours and barriers to adherence are overcome

Home visits	• Observe where and how a patient stores and takes their medications, and assess if they have extra medications because of missed doses • Home visits may also provide a better understanding of a patient's living situation and specific barriers to adherence • Unscheduled home visits may be more revealing, but should only be conducted if the patient consented to home visits previously (preferably at the time of enrolment or initiation)
Monthly "high viral load" clinics	• Patients with suspected treatment failure should be booked for dedicated monthly high viral load clinics • Children and adolescents in school who are unable to attend clinic monthly may attend dedicated monthly clinics during mid-term and school holidays (at least every 6 weeks) • Comprehensive clinical and psychosocial evaluation should be conducted at each visit, appropriate investigations done and any opportunistic infections treated • Enhanced adherence counseling sessions should be conducted at each visit • Support groups for patients with viremia can be timed with "high viral load" clinic days

5.4.3. Enhanced Adherence Support systems

Adherence support systems will need to be adapted to patients' specific needs and the context (Table 5.16). Special attention needs to be given to children, adolescents, pregnant and breastfeeding women, patients with mental health disorders and substance users.

Case Manager

All patients with suspected or confirmed treatment failure should be assigned a case manager. The case manager is the link between the patient and the MDT, and can coordinate other adherence support systems that may best serve the patient (Table 5.16).

Directly Observed Therapy/Daily Witnessed Ingestion

For patients with a detectable VL, the patient should have DOTs (somebody watching the patient actually swallow their medicine every day) to confirm good adherence for 3 months before repeating the viral load. DOTs can be provided by: healthcare workers, CHVs, peer educators, caregivers, or family members.

Special Support Groups

For health facilities with several patients who are failing treatment or who are on 2nd line ART, special support groups can be established so these patients can work through their adherence challenges together. Community support groups can also be engaged and linked to the facility for supporting patients with adherence challenges.

Home Visits

Home visits should be conducted to observe where and how a patient stores and takes their medications, and assess if they have extra medications because of missed doses. Home visits may also provide a better understanding of a patient's living situation and specific barriers to adherence. Unscheduled home visits may be more revealing, but should only be conducted if the patient consented to home visits previously (preferably at the time of enrolment or initiation).

Viremia Clinics

If the health facility has several patients with detectable VL, or on 2nd or 3rd line regimens, then having the patients booked on the same day for a dedicated clinic with full MDT support may be beneficial. Support groups for viremic patients can also be scheduled for these days.

5.5. Treatment Preparation for 2nd Line or 3rd Line ART

After confirming treatment failure and making the decision to start 2nd line or 3rd line ART (based on discussion as an MDT, and in consultation with the Regional or National HIV Clinical TWG), the patient requires targeted counselling and education to prepare them for the new regimen and to support ongoing adherence (Figure 5.2).

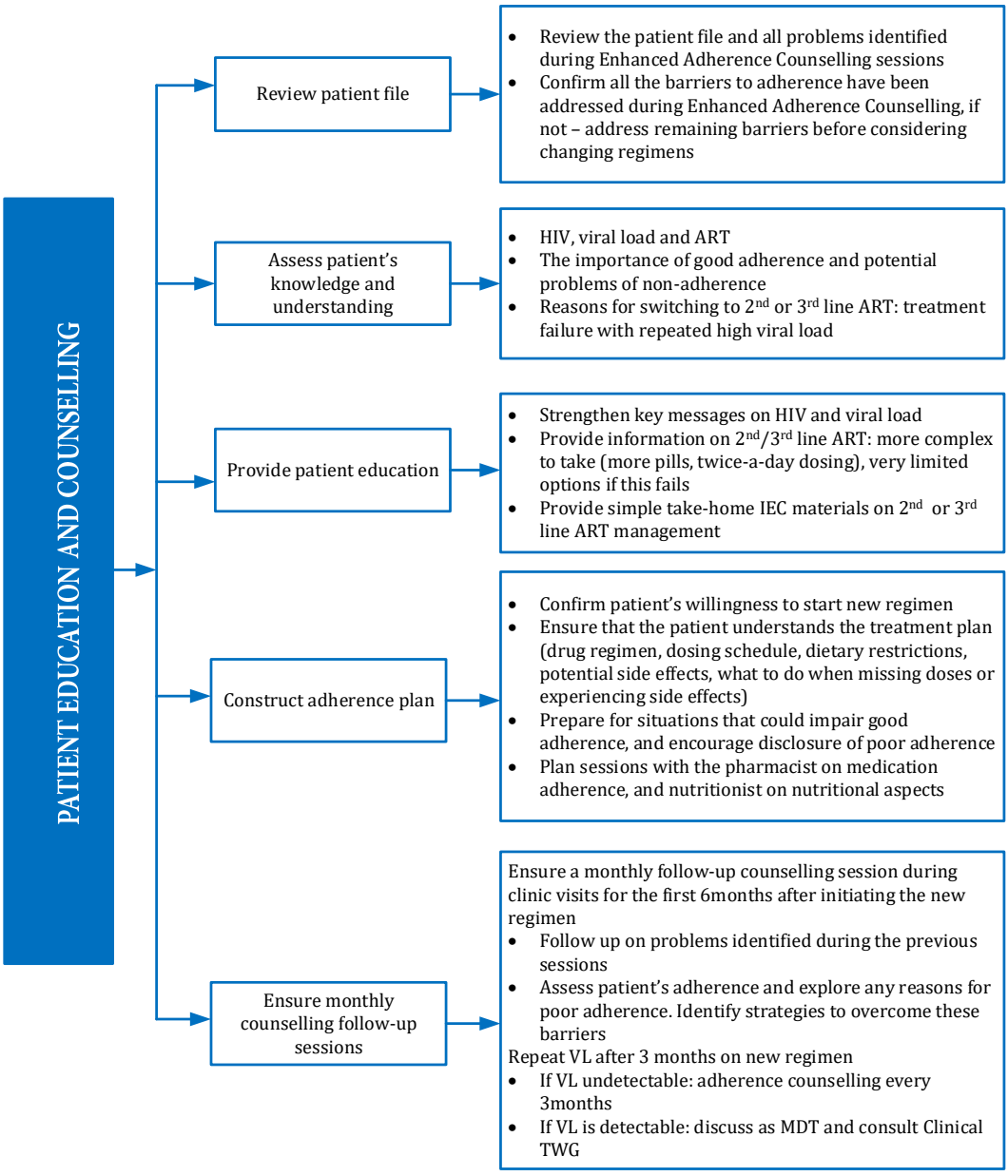


Figure 5.2: Adherence Counselling and Education for Patients Preparing to Initiate 2nd Line or 3rd Line ART

5.6. Identifying, Tracing, and Supporting Patients who Default from Care

Every service delivery point that is providing ARVs for patients (whether ART, PEP, or PrEP) must have a functional system for identifying patients who miss appointments and for taking action within 24 hours of a missed appointment (Figure 5.3).

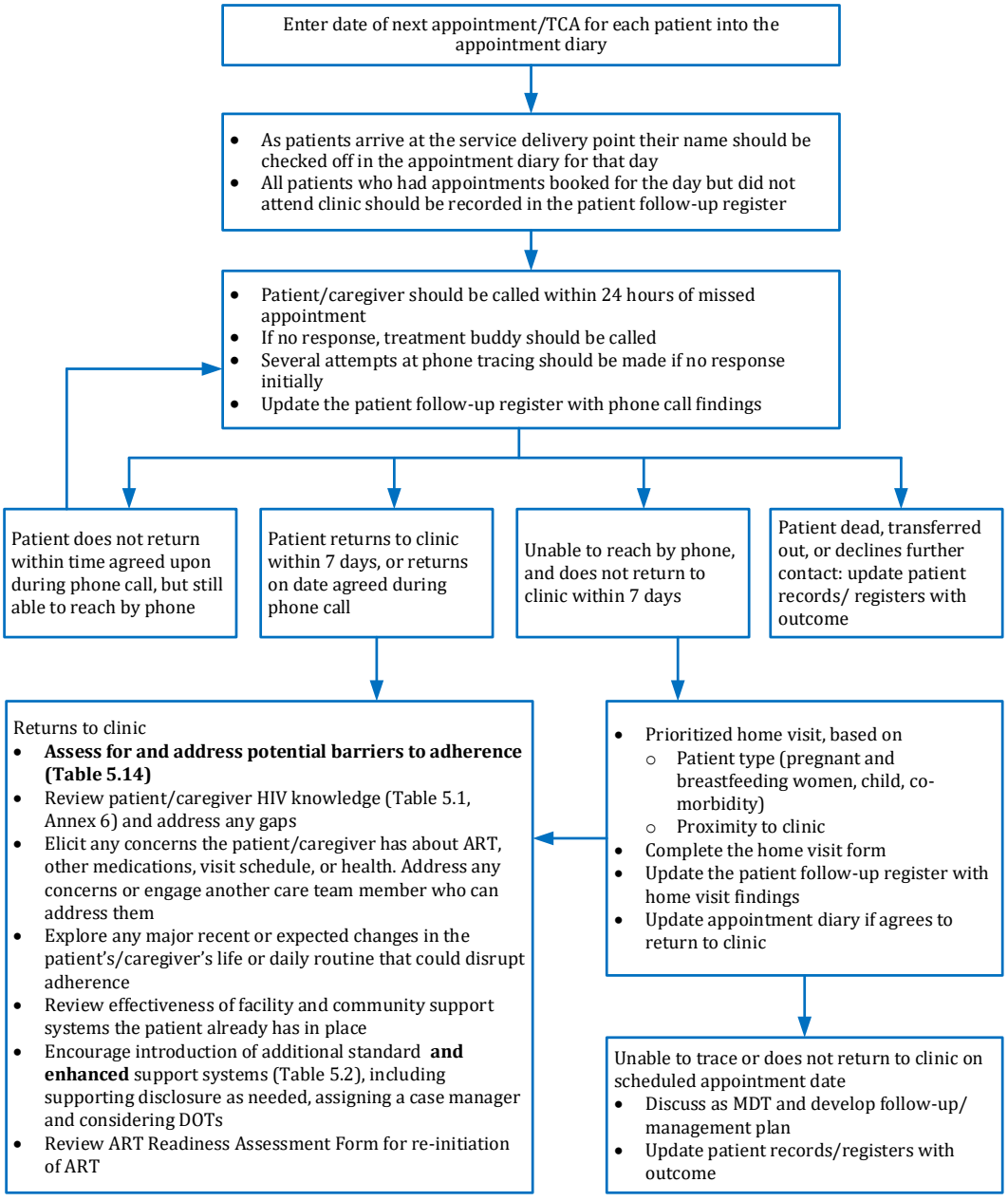


Figure 5.3: Identifying, Tracing and Supporting Patients who Default from Care

6. Antiretroviral Therapy in Infants, Children, Adolescents, and Adults

ART, while very effective in managing HIV disease, cannot cure HIV infection. The goal of ART is to suppress viral replication with the aim of reducing the patient's VL to undetectable levels. Uninterrupted ART with ongoing strict adherence will help maintain undetectable VL levels thereby preventing damage to the body's immune system and restoring and maintaining healthy living, as well as reducing the risk of sexual and vertical transmission of HIV.

6.1. Eligibility for ART

All individuals with confirmed HIV infection are eligible for ART irrespective of CD4 cell levels, WHO clinical stage, age, pregnancy or breastfeeding status, co-infection status, risk group, or any other criteria.

6.2. Timing of ART Initiation

ART should be started in all patients as soon as possible, preferably within 2 weeks of confirmation of HIV status.

ART can be initiated as soon as patients meet the ART Readiness Criteria (Table 5.3), even on the same day as testing positive for HIV. ART initiation on the same day as testing HIV-positive has additional benefits for HIV prevention (e.g. for pregnant and breastfeeding women, and the HIV positive partner in a discordant relationship), and is associated with improved retention, viral suppression, and survival. Special considerations for timing of ART initiation are listed in Table 6.1.

Table 6.1: Special Considerations for Timing of ART Initiation

Population	Timing of ART Initiation	Comments
Pregnant and breastfeeding women	Support ART initiation on the same day as testing positive for HIV	Intensive adherence counselling and close follow-up required because of limited time for patient preparation
Infants (< 12 months old)	Support ART initiation on the same day as testing positive for HIV	Intensive adherence counselling and close follow-up required because of limited time for caregiver preparation
Patients with strong motivation to start ART immediately	Support ART initiation as soon as they meet ART Readiness Assessment criteria, even if on the same day as testing positive for HIV	Intensive adherence counselling and close follow-up required because of limited time for patient preparation
Patients with newly diagnosed TB	Start anti-TB treatment immediately and initiate ART as soon as anti-TB medications are tolerated, preferably within 2 weeks. For TB meningitis consider delaying ART for up to 8 weeks	Monitor closely for IRIS (Annex 16)
Patients with cryptococcal meningitis	Defer ART until after completing 5 weeks of CM treatment and symptoms have resolved	Monitor closely for IRIS (Annex 16)

Patients for whom adherence will be particularly challenging	Start ART as soon as adequate support systems are in place for adherence (e.g. enrolling a PWIDs into a methadone program; psychiatric treatment for a patient with mental illness; caregiver identified for an orphan)	A case manager should be assigned to all patients with complex adherence challenges
All other patients	Start ART within 2 weeks of HIV diagnosis, once they meet ART Readiness Assessment criteria	Adequate ART preparation, and continued adherence monitoring and support is recommended after ART initiation for all patients

6.3. First-Line ART for Infants, Children, Adolescents and Adults (including Pregnant and Breastfeeding Women)

The recommendations below apply to patients who are starting ART for the first time. Preferred and alternative first line regimens are shown in Tables 6.2 and 6.3. ARVs for infant prophylaxis are presented in Tables 7.3 to 7.6.

All patients must have their weight documented at every visit. Children and adolescents must have correct weight-based dosing of ARVs confirmed at every visit.

Infants and children depend on their caregivers for adherence to medication. Caregivers should be adequately prepared for their role of administering ARVs to infants and children, including addressing anticipated challenges such as drug palatability.

Caregivers should always be shown and then asked to demonstrate how to measure and administer ARVs. This should be done at the time of prescribing the ART (by the clinician) and at the time of dispensing the ART.

Table 6.2: Preferred First-line ART Regimens and Dosing for Children, Adolescents and Adults [1]

Age	Preferred Regimen	Dosing[2] (correct weight-based dosing must be confirmed at every visit)
Birth - 4 weeks	AZT + 3TC + NVP[3]	Refer to Annex 10C for weight-based dosing
4 weeks - < 3 years	ABC + 3TC + LPV/r[4,5]	**3-5.9kg**: ABC/3TC (120/60mg): 0.5 tab BD, **plus** LPV/r (80/20mg/ml): 1 ml BD
		6-9.9kg: ABC/3TC (120/60mg): 0.5 tab AM and 1 tab PM, **plus** LPV/r (80/20mg/ml): 1.5 ml BD
		10-13.9kg: ABC/3TC (120/60mg): 1 tab BD, **plus** LPV/r (80/20mg/ml): 2 ml BD, **or** LPV/r (100/25mg): 2 tabs AM and 1 tab PM
		14-19.9kg: ABC/3TC (120/60mg): 1 tab AM and 1.5 tabs PM, **plus** LPV/r (80/20mg/ml): 2.5 ml BD, **or** LPV/r (100/25mg): 2 tab BD
3 - 14 years (and < 35 kg body weight)	ABC + 3TC + EFV[6,7]	**10-13.9kg**: ABC/3TC (120/60mg): 2 tabs once daily**, plus** EFV (200mg): 1 tab once daily
		14-19.9kg: ABC/3TC (120/60mg): 2.5 tabs once daily, **plus** EFV (200mg): 1.5 tabs once daily
		20-24.9kg: ABC/3TC (120/60mg): 3 tabs once daily, **plus** EFV (200mg): 1.5 tabs once daily
		25-34.9kg: ABC/3TC (600/300mg): 1 tab once daily, **plus** EFV (200mg): 2 tabs once daily
≥ 15 years (**or** ≥ 35 kg body weight)	TDF + 3TC + DTG[8] **or** TDF + 3TC + EFV[9]	TDF/3TC/DTG (300/300/50mg): 1 tab once daily **or** TDF/3TC/EFV (300/300/400mg): 1 tab once daily

[1] Patients currently on regimens that are not included in the indicated preferred (Table 6.2) or alternative (Table 6.3) regimens should be considered for regimen optimization as per Section 6.5.1
[2] See Annex 10A-C for weight-based dosing of all single-drug and fixed-dose combination formulations
[3] Infants who initiate ART at less than 4 weeks of age should initiate on AZT+3TC+NVP irrespective of previous NVP exposure; metabolism of other ARVs is not well known for this age group. As soon as these infants become 4 weeks old, they should switch to ABC/3TC+LPV/r. This may become available as a 4-drug FDC (dosing included in Annex 10A). Consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48, ulizanascop@gmail.com) in case of pre-term infants
[4] Once pediatric formulations of DTG become available it may replace LPV/r and EFV for children
[5] ABC/3TC 120/60mg can also be administered once daily (refer to Annex 10B)
[6] An ABC/3TC/EFV (150mg/75mg/150mg) FDC is expected to become available soon
[7] Once adolescents reach 15 years or 35 kg, if virally suppressed they should be considered for transition as per Figure 6.1 and Table 6.4
[8] DTG is not currently recommended for women and adolescent girls of childbearing potential because of possible risk of birth defects when DTG is used around the time of conception. Women who are on effective contraception may opt to use DTG and should be supported in their decision
[9] Female PWID/HIV of childbearing potential, use TDF + 3TC + ATV/r as preferred first line ART

Table 6.3: Use of Alternative ARVs in First-Line Regimens [1]

Age	Scenario and ARV Affected	Alternative ARV to Use
< 4 weeks	NVP: Develops hypersensitivity reaction	Use RAL
	AZT: Infant Hb < 9.5 g/dL	Defer ART until 4 weeks of age, then start ABC+3TC+LPV/r
4 weeks - < 3 years	ABC: Develops ABC hypersensitivity reaction[2]	Use AZT (if Hb ≥ 9.5 g/dL); if Hb < 9.5 g/dL consults Regional or National HIV Clinical TWG (call 0800 72 48 48; ulizanascop@gmail.com)
	LPV/r: Unable to tolerate LPV/r	The alternative regimen is RAL at x2 standard weight-based BD dosing until 2 weeks after TB treatment then continue with RAL standard weight-based BD dosing
	LPV/r: Currently on anti-TB medications	For children ≥ 2 year who cannot tolerate LPV/r + RTV (usually because of GI side-effects), the alternative regimen is RAL at x2 standard weight-based BD dosing until 2 weeks after TB treatment then continue with RAL standard weight-based BD dosing
	For children whose mother is on PI-based regimen at time of suspected transmission	Consult Regional or National HIV Clinical TWG (call 0800 72 48 48; ulizanascop@gmail.com)
3 - 14 years (and < 35 kg body weight)	ABC: Develops ABC hypersensitivity reaction[2]	Use AZT (if Hb ≥ 9.5 g/dL); if Hb < 9.5 g/dL consults Regional or National HIV Clinical TWG (call 0800 72 48 48; ulizanascop@gmail.com)
	EFV: Unable to tolerate EFV (severe CNS side effects or moderate-severe rash); psychiatric history	Use LPV/r
≥ 15 years (**or** ≥ 35 kg body weight)	TDF: Impaired renal function (CrCl ≤ 50 ml/min)	Use ABC
	DTG: Unable to tolerate DTG	Use EFV (for PWID who cannot tolerate DTG use ATV/r)
	DTG: Currently on anti-TB medications	Give TDF/3TC/DTG FDC am + DTG 50 mg pm for duration of rifampicin-containing TB treatment and for an additional 2weeks after TB treatment is completed then revert to TDF/3TC/DTG FDC OD [4]
	EFV 400 mg: Currently on anti-TB medications	Give TDF/3TC/EFV 400 mg FDC + EFV 200 mg for duration of rifampicin-containing TB treatment and for an additional 2weeks after TB treatment is completed then revert to TDF/3TC/EFV 400 mg FDC OD [4]
	EFV (for women and adolescent girls of childbearing potential) Unable to tolerate EFV (severe CNS side effects or moderate-severe rash); psychiatric history	Use ATV/r

[1] For other scenarios that are not covered in this table, discuss as an MDT and consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com)
[2] ABC hypersensitivity reaction (AHR) is rare in the Kenyan population. Table 6.10 provides the definition and management of AHR
[3] Use "super-boosted" LPV/r by adding additional ritonavir suspension to manage the drug interaction between LPV/r and rifampicin (see Table 8.8 for dosing recommendations). **Two weeks after TB treatment is completed the child should go back to standard LPV/r dosing**. For children who cannot tolerate LPV/r + RTV (usually because of GI side-effects), the alternative regimen is Raltegravir and continue with this regimen after TB treatment
[4] The additional 2 weeks of higher-dose DTG is to counter the ongoing liver enzyme induction effect of rifampicin, which continues for a short period after TB treatment is completed

6.4. Dosing and Administration of Dolutegravir (DTG)

DTG is preferred in first line ART in combination with two other ARVs for adolescents and adults. DTG is not recommended for women and adolescent girls of childbearing potential. Women and adolescent girls who are on effective contraception may opt to use DTG and should be support in their decision. DTG is well tolerated, has a high genetic barrier to resistance and fewer drug-drug interactions.

Table 6.4: Dosing and Administration of Dolutegravir

Recommended Dosing of DTG

- ≥ 15 years (**or** ≥ 35 kg body weight): DTG 50 mg once daily, preferably as a morning dose
- For patients taking rifampicin: increase dose to DTG 50 mg twice daily until 2 weeks after completion of TB treatment, then reduce to DTG 50 mg once daily again (the additional 2 weeks of higher-dose DTG is to counter the ongoing liver enzyme induction effect of rifampicin, which continues for a short period after TB treatment is completed)
- For patients with suspected or confirmed INSTI resistance (e.g. patients with prior history of failing a RAL-based regimen): use DTG 50 mg twice daily
- DTG can be taken with or without food
- Dosing guidance for children and adolescents < 35 kg will be provided once appropriate formulations are available

Common Side Effects of DTG

- The most common side effects of DTG are headache, nausea and diarrhea. These side effects usually resolve after continued use for 1-2 weeks. It is critical to inform patients about these potential side effects and their temporary nature, and encourage them to continue their ART and consult a HCW if concerned
- Some patients on DTG are more likely to develop insomnia. This may be reduced by taking DTG as a morning dose, or by taking DTG with a low-fat meal or on an empty stomach
- DTG may cause a small rise in serum creatinine levels but this does NOT represent a true decline in renal function
- All adverse events should be reported through the national pharmacovigilance mechanism (http://www.pv.pharmacyboardkenya.org/)

Pregnancy Safety of DTG

- DTG may be associated with increased risk of neural tube defects if taken around the time of conception. This potential risk is still under evaluation, but to be cautious DTG is not currently recommended for women with any childbearing potential
- DTG is safe during pregnancy and breastfeeding if initiated 8 weeks after conception (although women need to be counseled on the risk of becoming pregnant while breastfeeding and provided with effective contraception)

Important Drug Interactions with DTG

- Rifampicin
  - Rifampicin lowers DTG levels: increase DTG to 50 mg twice daily for patients on rifampicin
  - There are no significant drug interactions between DTG and other currently used anti-TB medications (including for MDR-TB)
- Mineral supplements, including: antacids containing calcium, zinc, magnesium or aluminum; iron supplements; prenatal vitamins (which contain iron and calcium)
  - These supplements decrease the absorption of DTG: administer DTG at least 2 hours before or 6 hours after taking any of these supplements
  - Dose separation is not required for calcium and iron supplements (including prenatal vitamins) if DTG is taken with a meal
  - **It is critical to educate patients about this important drug interaction because many patients get these supplements and antacids over-the-counter without informing their healthcare provider**
- Carbamazepine, phenobarbital, phenytoin
  - These anticonvulsants decrease DTG levels: use a different anticonvulsant if available
  - If DTG must be co-administered with these drugs then increase to DTG 50 mg twice daily, although there is little data to guide this
- Metformin
  - DTG increases levels of metformin; the levels of DTG are not affected: use a lower dose of metformin (often 50% of usual dose) and monitor glycemic control. Use a maximum daily dose of metformin 1 g
- Other drug-drug interactions with DTG
  - See Annex 13C

Contraindications for use of DTG

- DTG is not currently recommended for women and adolescent girls of childbearing potential
- DTG is contraindicated for any patient with a history of hypersensitivity reaction to DTG
- DTG is not currently recommended for patients with end-stage renal disease or end-stage liver disease because it has not been evaluated in these populations

6.5. Monitoring and Changing ART

The objectives of clinical and laboratory monitoring during ART are to identify and treat inter-current illnesses, assess for and manage adverse drug reactions, and evaluate response to treatment. Routine laboratory monitoring recommendations are described in Table 3.4; however, additional investigations should be ordered whenever there is clinical suspicion for which a laboratory test result may alter patient management.
Indications for changing ART include optimizing therapy for patients who have undetectable viral load, managing adverse drug reactions or toxicity, drug-drug interactions, co-morbidity and treatment failure, and responding to pregnancy intention.

6.5.1. Optimizing Therapy for Patients who have undetectable viral load on First Line ART

Patients who are virally suppressed on first line ART may benefit from regimen modification even if they are currently tolerating their regimen well and have no drug-drug interactions requiring a change. Regimen modifications may be done for age/weight transitions among children and adolescents and to simplify a regimen, prevent long-term toxicity and improve cost-effectiveness.

Adolescents and adults with undetectable viral load on first line ART and not on the recommended first line regimen as per Table 6.2 should be considered for optimization as per Figure 6.1 and Table 6.5. This also includes PLHIV who recently initiated non-standard therapy (less than 6 months ago, before the first VL is due). Decisions on regimen modification should be made following discussion with the patient and be based on their informed preferences.

Always discuss the possibility of new side effects when changing to a new ARV, particularly side effects common to all ARVs (headache, nausea, diarrhea) and any side effects specific to the new ARV. Reassure patients that most side effects resolve with continued use after 1-2 weeks.

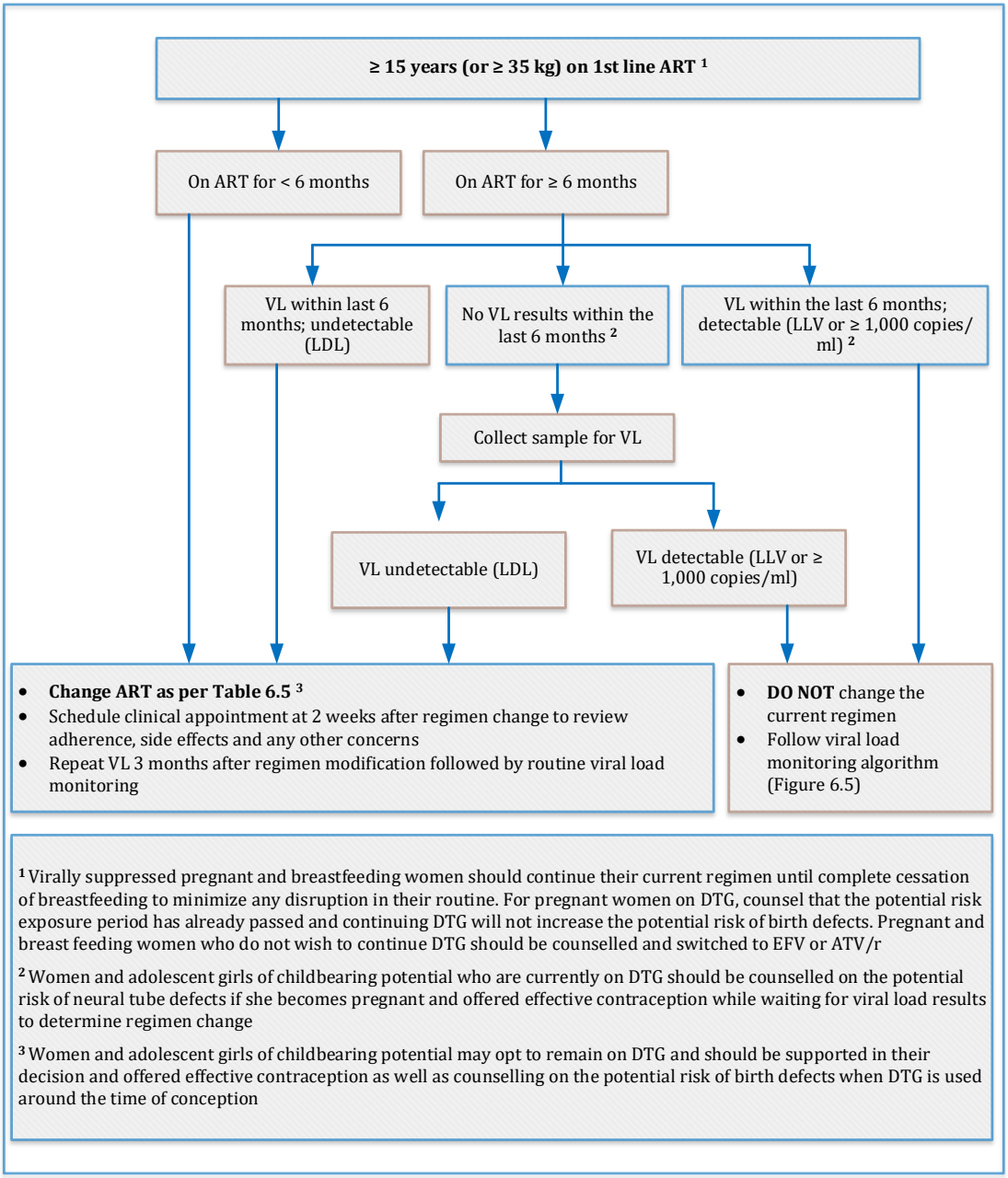


Figure 6.1: Optimizing ART Regimens for Adolescents and Adults (≥ 15 years) on First Line ART

Table 6.5: Optimizing ART Regimens for Adults who are Virally Suppressed on First Line ART [1,2]

Current ARV that is being changed	Preferred ARV to switch to	Alternative, if contraindication or intolerance to preferred ARV[3]
EFV	DTG (if currently on rifampicin-containing TB treatment then continue EFV until TB treatment is completed before switching to DTG)	Continue on EFV
NVP	DTG	Switch to ATV/r
LPV/r	DTG	Switch to ATV/r
ATV/r	DTG	Continue on ATV/r
DTG (among women and adolescent girls of childbearing potential)[4]	EFV	Switch to ATV/r
AZT	TDF	If pre-existing renal disease (with eGFR < 50 ml/min): switch to ABC instead of TDF[5]

1 If there are no VL results within the last 6 months then perform VL to confirm suppression; if VL is detectable then manage as suspected treatment failure as per Figure 6.5. Repeat VL three months after any change in ART regimen to confirm viral suppression is maintained

2 Virally suppressed pregnant and breastfeeding women should continue their current regimen until complete cessation of breastfeeding to minimize any disruption in their routine. After complete cessation of breastfeeding, counsel on ART optimization as per this table

3 For any patient with a contraindication or intolerance to a recommended and alternative ARV then consult the Regional or National HIV Clinical TWG for guidance (Uliza Toll-free Hotline 0800 72 48 48, ulizanascop@gmail.com)

4 DTG is not recommended for women and adolescent girls of childbearing potential who are not on effective contraception because of possible risk of birth defects when DTG is used around the time of conception.

5 TDF + 3TC should be used despite renal impairment (with renal dose adjustments) for patients who have HIV/HBV co-infection as per Section 9.1.3 (HBV/HIV Co-infection)

6.5.2. Changing ARVs Due to Adverse Drug Reactions

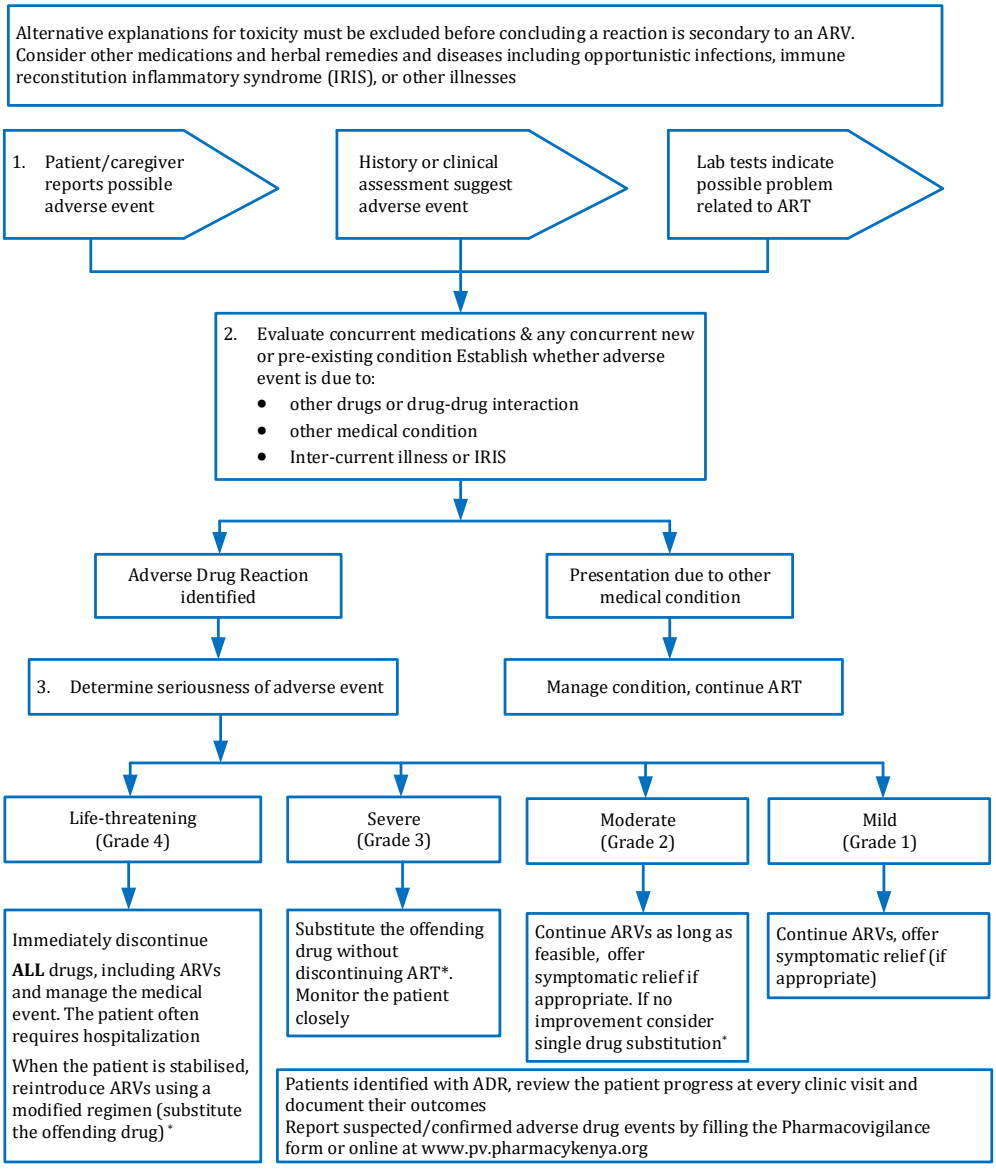
Patients starting ART should be educated on the potential side effects of ART and all other prescribed medication.

ADRs can have a significant impact on patient adherence and must be identified early and managed aggressively. All ADRs should be reported to the Pharmacy and Poisons Board using existing pharmacovigilance tools (http://www.pv.pharmacyboardkenya.org/). Pharmacovigilance is particularly important for monitoring ADRs associated with DTG, as this is a drug for which there is limited experience in Kenya. While clinical trials have shown DTG to be better tolerated and more effective than EFV, rare ADRs may appear in routine care in new settings, which were not observed in the highly selected patients participating in clinical trials.

The most common significant ADRs associated with ARVs that may require a drug substitution are summarized in Table 6.6. General principles for managing ADRs are outlined in Figure 6.2. Managing specific ADRs is described in Tables 6.7 to 6.10.

Table 6.6: Common Significant Adverse Drug Reactions

ARV Agent	Adverse Drug Reaction	High Risk Situations/Comments
NRTIs		
ABC	ABC hypersensitivity reaction (see Table 6.10)	Do not re-challenge
AZT	Anaemia, neutropenia (see Table 6.8)	Risk factors: CD4 count < 200 cells/mm^3; BMI < 18.5 (or body weight < 50 kg); anaemia at baseline; concurrent use of other drugs with similar ADR (cotrimoxazole, gancyclovir, ribavirin)
	Lactic acidosis	Risk factors: Pregnancy; obesity
	Lipoatrophy	Risk factors: Low CD4 count
TDF	Renal dysfunction (see Figure 6.4)	Risk factors: Underlying renal disease; age > 40 years; BMI < 18.5 (or body weight < 50 kg); diabetes; hypertension; concomitant PI use or nephrotoxic drug
NNRTIs		
All NNRTIs	Rash/hypersensitivity (NVP>>EFV>ETR)	Risk factors: for NVP hypersensitivity, women with CD4 count > 250 cells/mm^3, men with CD4 count > 400 cells/mm^3 Manage rash as per Table 4.4
EFV	CNS side-effects	Risk factors: Pre-existing psychiatric disorder
	Gynaecomastia	Switch from EFV to an alternative, and consult if gynecomastia does not improve
NVP	Hepatotoxicity (see Table 6.9)	Risk factors: HBV or HCV co-infection; concomitant use of hepatotoxic drugs; women with CD4 count > 250 cells/ mm^3; men with CD4 count > 400 cells/mm^3
PIs		
All PIs boosted with RTV	GI intolerance (LPV/r>DRV/r>ATV/r)	Consult
	Dyslipidaemia (LPV/r>DRV/r>ATV/r)	Risk factors: Obesity; sedentary lifestyle; diet high in saturated fats and cholesterol
ATV/r	Hyperbilirubinemia	This only requires drug substitution if cosmetic effect of jaundice is likely to interfere with patient adherence
DRV/r	Rash/hypersensitivity	Risk factors: sulfa allergy
INSTIs		
DTG	Insomnia	Give in the morning; if no improvement then try giving with low fat meal or on empty stomach
All INSTIs	Rash/hypersensitivity	Consult



1. At every clinic visit the patient on ART should be monitored clinically for toxicities using appropriate history (history of symptoms that suggest toxicity) and physical examination (relevant signs). Patients should be asked specifically about ADR known to be associated with their current ART. Targeted laboratory assessment may be used to confirm specific toxicities
2. Evaluate concurrent medications and establish whether the toxicity is attributable to an ARV, or to a non-ARV medication taken at the same time. Consider other disease processes (e.g. concurrent infectious processes or IRIS)
3. All toxicities should be graded. Manage the adverse event according to severity

* Follow single-drug substitution algorithm (Figure 6.3)

Figure 6.2: General Principles for Managing Adverse Drug Reactions

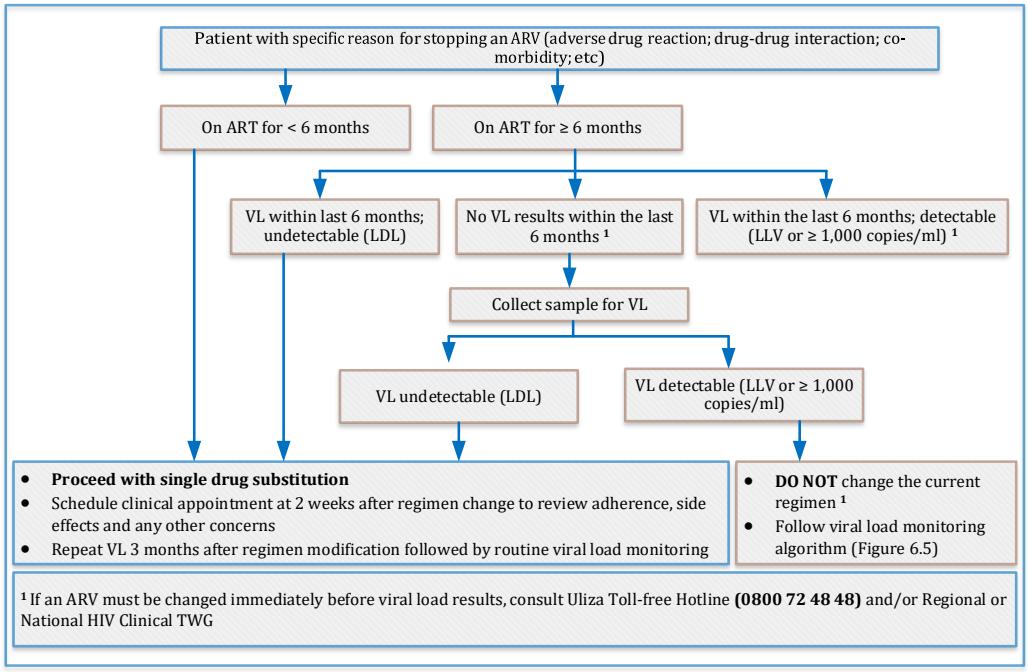
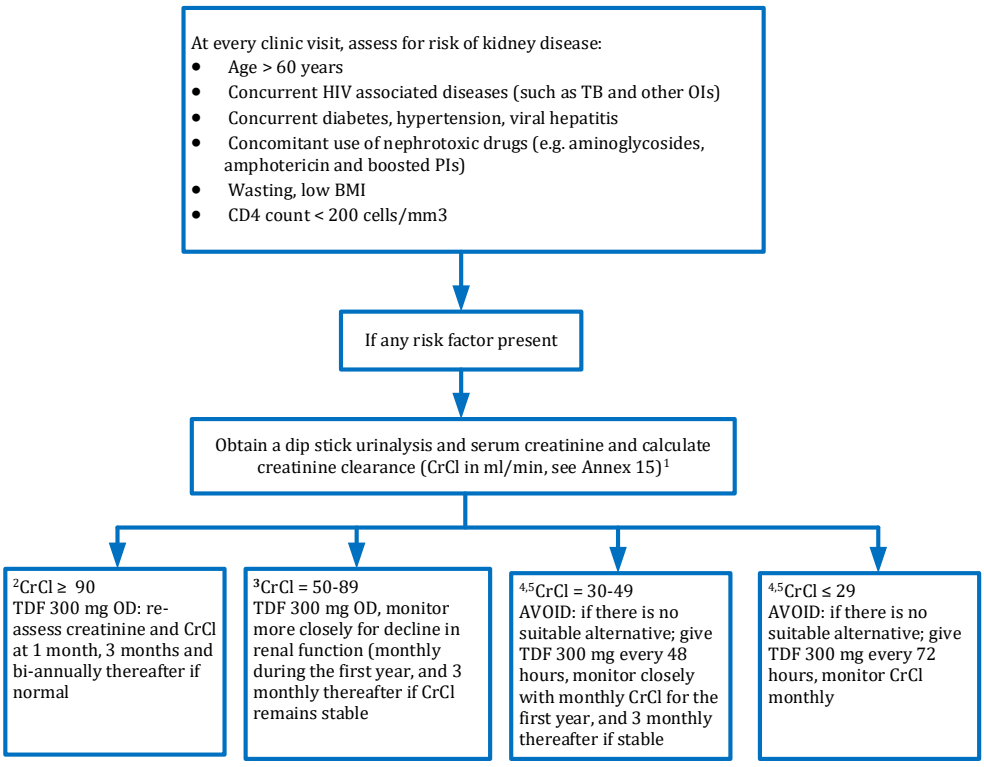


Figure 6.3: Managing Single Drug Substitutions for ART



[1] DTG may cause a small rise in serum creatinine levels but this does NOT represent a true decline in renal function
[2] Obtain biannual serum Cr and CrCl in patients at risk of renal disease and a CrCl ≥ 90 ml/min
[3] Patients with a CrCl ≥ 50 ml/min do not require TDF dose adjustment.
[4] AVOID the use of TDF in patients with CrCl < 50 ml/min unless there are no suitable alternatives, for example in HIV/HBV co-infection
[5] 3TC also required dose adjustment once CrCl < 50 ml/min

Figure 6.4: Managing TDF-Associated Kidney Toxicity

Table 6.7: ARV, CTX and Fluconazole Adjustments in Renal and Hepatic Impairment[1]

Drug	CrCl (ml/min)		Haemodialysis	Liver impairment
	10-50	<10		
ABC	No change			Reduce adult dose to 200 mg BD for moderate to severe liver impairment. AVOID in severe hepatic impairment
AZT	No change	300 mg/day	300 mg/day	Reduce dose by 50% or double interval of administration in moderate to severe impairment
TDF[2]	AVOID	AVOID	300 mg every 7 days	No change
3TC	150 mg OD	50 mg OD	50 mg first dose, then 25 mg daily	No change
LPV	No change			No change, use with caution in moderate to severe impairment
RTV				
ATV				
DRV				
RAL	No change			No change in mild to moderate impairment. Use with caution in severe impairment
DTG				
EFV	No change			Use with caution in mild to moderate liver impairment, avoid in severe impairment
NVP	No change			AVOID
ETV	No change			Use with caution in severe liver impairment
CTX	If CrCl > 30 ml/min then no dose adjustment required; if 15-30 ml/min then use 50% of normal recommended dose; if CrCl < 15 ml/min then CTX should be avoided			Use with caution in mild to moderate liver impairment, avoid in severe impairment
Fluconazole	If CrCl ≤ 50 ml/min then use 50% of normal recommended dose (no dose adjustment required for CrCl > 50 ml/min)			Use with caution

[1] Patients with evidence of renal or hepatic impairment should have access to regular monitoring of renal and liver function

[2] TDF and renal impairment:

- In acute kidney injury (AKI), interrupt TDF administration until the cause of AKI is established and corrected. Patients with baseline CrCl of ≤ 50 mL/min should not be initiated on TDF; patients who develop renal impairment (CrCL ≤ 50 mL/min) while on TDF should be switched to an alternate ARV (preferably ABC) following the single drug substitution algorithm (Figure 6.3)
- For patients with HBV co-infection, the benefit of TDF for treating HBV often outweighs the risks of renal impairment, so more severe levels of renal impairment are tolerated. See Table 9.3 for TDF dose adjustments for patients with HBV/HIV co-infection. These patients should be managed in consultation with an experienced clinician

Table 6.8: Management of AZT-Associated Bone Marrow Suppression

Test	Result	Action
Hb (g/dL)	> 8.5 (and decrease from pre-AZT baseline)	Retain AZT, repeat Hb at week 1, 2, 4 and 12 (if accessing follow-up Hb is difficult then consider substituting to an alternative ARV immediately)
	≤ 8.5	Switch from AZT to an alternative ARV
Neutrophils (x 10^9/L)	1.0 – 1.5 (and decrease from pre-AZT baseline, if available)	If receiving cotrimoxazole consider withholding unless essential. Retain AZT, repeat at week 1, 2, 4 and 12 (if accessing follow-up neutrophils is difficult then consider switching to an alternative ARV immediately)
	≤ 1.0	Switch from AZT to an alternative ARV

Note:

- Patients with baseline Hb of < 9.5 g/dL should not be initiated on AZT; patients who develop anaemia while on AZT should be managed as per this table
- AZT-associated bone marrow suppression occurs early in the course of treatment, usually within 3 months of initiating ART
- All patients with anaemia and/or neutropenia, whether on AZT or not, should be evaluated for other likely causes of anaemia/neutropenia and managed appropriately

Table 6.9: Management of Drug-Related Hepatotoxicity

ALT	<2.5 x Upper Limit of Normal (ULN)	2.5 – 5 x ULN	> 5 x ULN
Action	Retain regimen, repeat in 2 weeks	Retain regimen, repeat in 1 week	Discontinue offending drug/s

Note: All patients with acute increase in liver enzymes should be evaluated for other likely causes of hepatitis/hepatotoxicity and managed appropriately

Table 6.10: Diagnosis and Management of Abacavir Hypersensitivity Reaction

Diagnosis
Within 8 weeks of initiating an ABC-containing regimen, patient develops any 2 of the following symptom groups concurrently • Fever • Erythematous and/or pruritic rash • Respiratory symptoms (shortness of breath and/or sore throat and/or cough) • GI symptoms: nausea and/or vomiting and/or diarrhea • Extreme fatigue and/or body pain preventing normal activities AND: there is not a more likely alternative explanation for the symptoms
Management
• Stop ABC immediately and substitute with an alternative ARV • Patient must NEVER be re-challenged with ABC – a single dose could result in a fatal hypersensitivity Reaction. Issue an alert card. • Clearly mark file and educate patient about avoiding ABC in future

Note:

- ABC hypersensitivity reaction is rare in our population: always consider other more likely possible diagnoses
- Symptoms generally get worse within hours after each dose of ABC

6.5.3. Changing ARVs Due to Drug-Drug Interactions

Patients must be asked about other medications (including non-prescription and herbal medicine) they are taking at every visit. Some common drugs have specific drug-drug interactions that may require dose adjustment or substitution of the ARV or the other interacting drugs. Common medications that interact with specific ARVs include: rifampicin, rifabutin, antacids, multivitamin/mineral supplements, methadone, several anti-fungals, anti-convulsants, calcium-channel blockers, some anti-depressants, some statins, and some anti-malarials. Annex 13 provides common drug-drug interactions and management recommendations.

6.5.4. Changing ARVs Due to Treatment Failure

Viral load is the test of choice for monitoring response to ART and identifying treatment failure. Frequency of routine VL monitoring for specific populations is:

- Age 0-24 years old: every 6 months
- Age ≥ 25 years old: at 6 months after ART initiation, then at 12 months and then annually
- Pregnant or breastfeeding: at confirmation of pregnancy (if already on ART) or 3 months after ART initiation (if ART initiated during pregnancy/ breastfeeding), and then every 6 months until cessation of breastfeeding
- Before making any drug substitution (if no VL results from the prior 6 months)
- 3 months after any regimen modification (including single-drug substitutions), and then as per population group
- For any patient with a detectable VL follow the viral load monitoring algorithm (Figure 6.5)

Interpreting Viral Load Results and Defining Treatment Failure

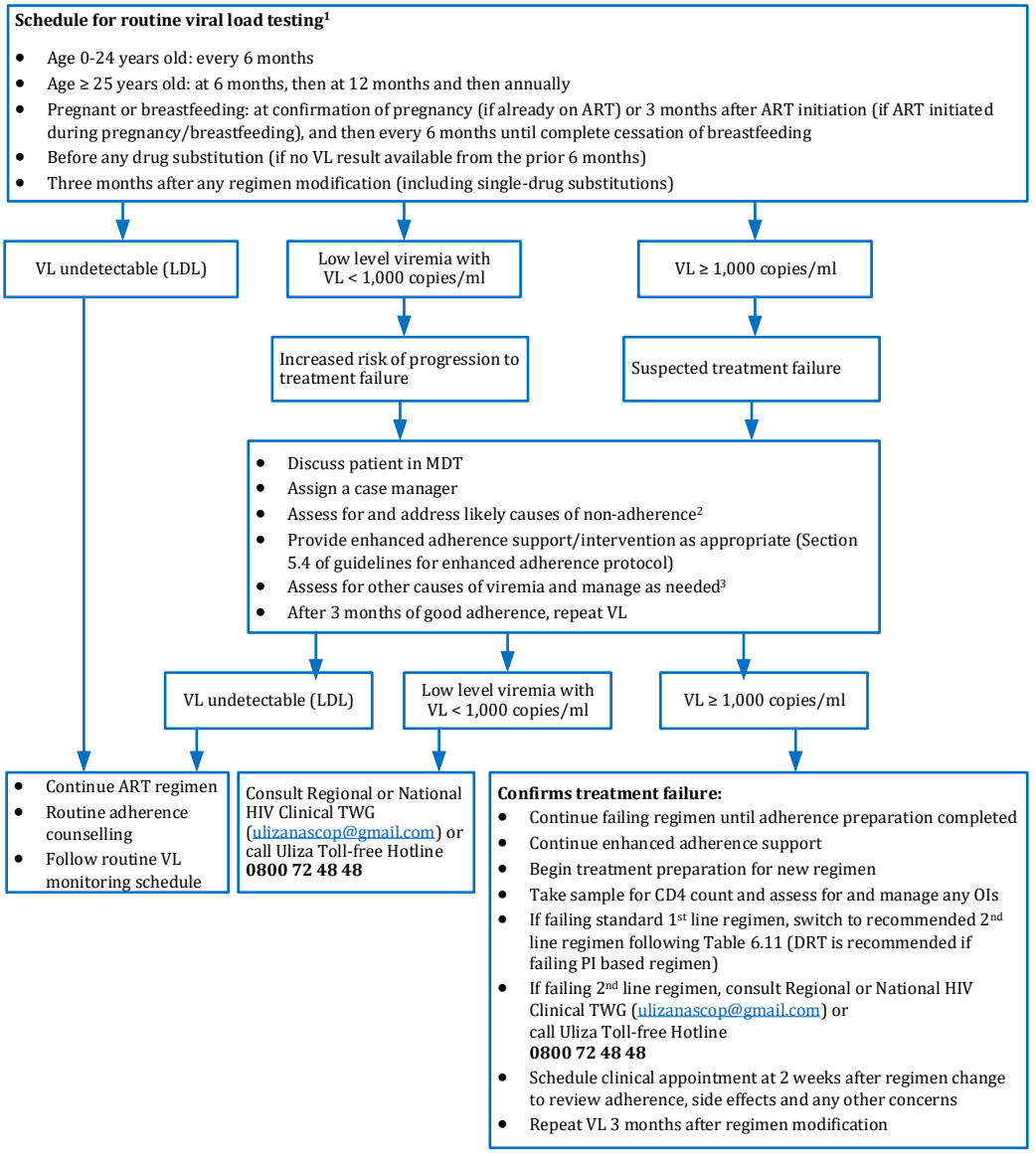
The goal for ART is to achieve sustained viral suppression defined as below the Lower Detection Limit (LDL). The specific LDL value depends on the specimen type and assay used to measure VL.

Persistent low-level viremia (PLLV) is defined as having a detectable VL (above the LDL value but < 1,000 copies/ml) on two consecutive measures. These patients are at increased risk of progression to treatment failure, development of resistance and death and therefore require a similar case management approach as patients with VL ≥ 1,000 copies/ml (Figure 6.5)

Treatment failure is suspected when a patient has a high VL ≥ 1,000 copies/ml after at least 6 months of using ART. Treatment failure is only confirmed when VL is ≥ 1,000 copies/ml after assessing for and addressing poor adherence or other reasons for high VL, and then repeating VL after at least 3 months of excellent adherence to allow for viral re-suppression (Figure 6.5).

Note: Treatment failure should be suspected when a new or recurrent HIV associated condition indicating severe immunodeficiency (WHO stage III or IV condition) develops after at least 6 months on ART (excluding IRIS occurring after initiation of ART), or when CD4 count fails to rise as expected or when CD4 count drops while on ART. Treatment failure should always be confirmed with VL testing.

Clinical and immunological criteria for identifying treatment failure have low sensitivity and specificity for diagnosing treatment failure. Every effort should be made to obtain a viral load test.



[1] As part of treatment preparation, patients should be informed that viral load (VL) is the recommended method of monitoring ART. VL results should always be discussed with patients, even when they are undetectable. The goals of treatment and definition of success should be discussed and adherence messaging reinforced

[2] Common causes of poor adherence include: stigma, non-disclosure, travel, toxicities, alcohol or drugs, mental health disorder, religious beliefs, inadequate treatment preparation, chaotic lifestyle, lack of support systems, and poor patient-provider relationship

[3] Other common causes of treatment failure (beyond adherence) include: inadequate dosing/dose adjustments, drug-drug interactions, drug-food interactions, impaired absorption (e.g. chronic severe diarrhoea)

Figure 6.5: Viral Load Monitoring of Patients on ART (1st Line or 2nd Line)

Non-adherence is the most frequent cause of treatment failure. As per the viral load monitoring algorithm (Figure 6.5), **adherence issues must be addressed BEFORE confirming treatment failure**. All adherence issues must be resolved before switching to a new regimen otherwise the patient will quickly fail the new regimen as well, and soon run out of viable ART options. An exception to this may be when the regimen itself is the primary cause of poor adherence (e.g. side effects from one of the ARVs are not manageable such as severe diarrhea with LPV/r that does not improve with symptom management), in which case the regimen may need to be modified to allow for perfect adherence. This should be done in consultation with the Regional or National HIV Clinical TWG.

Section 5 provides detailed guidelines on adherence preparation, assessment, and support.

Table 6.11: Recommended Second-line ART Regimens in Infants, Children, Adolescents and Adults, excluding TB/HIV co-infection [1]

Age/Scenario	First-line ART	Second-line ART
< 3 years	ABC (or AZT) + 3TC + LPV/r	DRT-based 2nd line[2]
	ABC + 3TC + NVP (or RAL)	AZT + 3TC + LPV/r
	AZT + 3TC + NVP (or RAL)	ABC + 3TC + LPV/r
3 - 14 years (and < 35 kg body weight)	ABC + 3TC + EFV (or RAL)	AZT + 3TC + LPV/r
	AZT + 3TC + EFV (or RAL)	ABC + 3TC + LPV/r
	ABC (or AZT) + 3TC + LPV/r	DRT-based 2nd line[2]
≥ 15 years (**or** ≥ 35 kg)	TDF (or ABC) + 3TC + DTG (or EFV)	AZT + 3TC + ATV/r[3]
	AZT + 3TC + DTG (or EFV)	TDF + 3TC + ATV/r[3]
	TDF (or ABC or AZT) + 3TC + ATV/r (or LPV/r)	DRT-based 2nd line[2]
Pregnant or Breastfeeding	TDF (or ABC) + 3TC + DTG (or EFV)	AZT + 3TC + ATV/r[3]
	AZT + 3TC + DTG (or EFV)	TDF + 3TC + ATV/r[3]
	TDF (or ABC) + 3TC + ATV/r (or LPV/r)	Take sample for DRT and change to AZT + 3TC + DRV/r + RAL; modify based on DRT results
	AZT + 3TC + ATV/r (or LPV/r)	Take sample for DRT and change to TDF + 3TC + DRV/r + RAL; modify based on DRT results
HIV/HBV Co-infection	Always maintain TDF in second-line instead of switching to a different NRTI and instead of adding an additional NRTI (e.g. if patient with HBV/HIV is failing TDF/3TC/DTG then switch to TDF/3TC+ATV/r)	
Contraindication to Recommended Second-line NRTI	Continue the first-line NRTIs while changing the other component to the recommended second-line ARV (e.g. if patient with anemia is failing TDF/3TC/DTG then switch to TDF/3TC+ATV/r)	
TB/HIV Co-infection	Refer to Table 8.7: Recommended ART Regimens for Patients who Develop TB while **Failing** 1st Line ART	

[1] If any drug in the recommended 2nd line regimen is contraindicated or not tolerated, consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com). Such patients may require DRT to select agents for the second-line ART. Additional drugs may be recommended on a case-by-case basis, including RAL, DTG, ETR, or DRV/r

[2] Patients failing PI-based first-line regimens should have a Drug Resistance Test (DRT) ordered as soon as treatment failure is confirmed. The patient summary and DRT results should be sent to the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com) to determine the most suitable second-line regimen for the patient. The DRT results will be used to determine if a PI will still be effective in 2nd line

[3] For patients who have a contraindication or intolerance to ATV/r, substitution with LPV/r can be considered

Important Considerations for First-line Treatment Failure in Children

- Second-line ART in infants and children is more complex to manage. These children and their caregivers should undergo thorough clinical and psychosocial assessment to rule out inter-current illness or non-adherence as the reason for a high viral load
- All children failing first-line should be discussed in the MDT and preferably with an experienced ART provider prior to change of ART to second-line. **However, this should not cause undue delay in switching a failing regimen**
- The choices for infants and children failing an alternative first-line regimen are limited and may need to be discussed with the Regional or National HIV Clinical TWG. Some of these children will require HIV DRT to determine the most suitable second-line regimen

Second-line ART Treatment Failure

The following general principles apply to managing patients failing 2nd line ART

- Patients failing second-line ART have limited options left. Agents used to construct a third-line regimen are often more expensive, will have increased pill burden and more side effects. These factors will exacerbate pre-existing poor adherence
- Second-line treatment failure should be confirmed by viral load testing following the viral load monitoring algorithm (Figure 6.5): after the first detectable VL (above LDL), assess for and address all causes of poor adherence, assess for all other possible causes of viremia. These patients should be discussed at an MDT session. Repeat the VL after 3 months of good adherence (preferably with daily witnessed ingestion of the ARVs by a treatment buddy, relative, CHV, etc). If the second VL is still is detectable (above LDL) then continue the failing second-line regimen and consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com) using the national case summary form (Annex 9B). These patients will likely require DRT in order for the TWG to design the most suitable third-line regimen
- Patients failing second-line ART require thorough assessment for barriers to adherence and ongoing enhanced adherence support including
    - Assigning a case manager
    - More frequent adherence counselling by a trained counsellor
    - Assessment and treatment of mental health and substance use disorders
    - Provision of adherence support such as modified directly observed therapy, a treatment supporter, home visits etc.

Table 6.12: Possible Third-line ART in Children, Adolescents and Adults

	Possible 3rd Line Regimen	Comment
Children	RAL (or DTG) + 3TC + DRV/r	DTG can be substituted for RAL in children once pediatric formulations of DTG are available and weight-based dosing bands are defined Regional or National HIV Clinical TWG may recommend reusing some of the ARVs the patient has already failed, even when resistance is present
	AZT + RAL (or DTG) + 3TC + DRV/r	
	ABC (or TDF) + RAL (or DTG) + 3TC + DRV/r	
	ETV + 3TC + DRV/r	
Adults	DTG + 3TC + DRV/r	
	DTG + AZT + 3TC + DRV/r	
	DTG + TDF + 3TC + DRV/r	
	DTG + TDF (or AZT) + 3TC	
	ETV + 3TC + DRV/r	

7. Prevention of Mother to Child Transmission of HIV

Routine antenatal care (ANC) offers an important opportunity to provide high quality combined HIV prevention through targeted health education and counselling; HIV testing for the woman, partners and family members; linkage to HIV prevention and treatment; and to discuss and plan for future contraception needs. Prevention of mother-to-child transmission of HIV (PMTCT) should be offered as part of a comprehensive package of fully integrated, routine antenatal care interventions (Table 7.1).

Table 7.1: Essential Package of Antenatal Care

Intervention	Recommendation/Description
Group & Individual Education	Include information on importance of at least 4 ANC visits, details of ANC services (including health checks and treatment of any illness, medical tests including HIV testing, monitoring of maternal and fetal wellbeing, etc.), nutrition, personal care, recognizing and responding to danger signs during pregnancy, birth preparedness including skilled birth attendance, post-natal care including immunization, family planning and maternal and infant nutrition, HIV prevention and treatment (HTS, preventing new infections during pregnancy, ART for those who are HIV positive, monitoring of ART and ARV prophylaxis and follow-up for HEIs)
Counselling	• Women who are newly diagnosed with HIV and/or newly initiating ART may require more intensive adherence counseling and HIV education, which may include a case manager and/or mentor mother • Birth preparedness: support the pregnant woman and her partner to develop an individual birth plan that includes place of delivery with skilled attendants, emergency transport, birth companionship and readiness for infant care • Pregnancy danger signs: offer information on returning to ANC as soon as possible in case they develop fever, lower abdominal pain, severe headache, swollen feet, convulsions • Maternal, infant and young child nutrition (MIYCN): All pregnant women should receive information on proper nutrition during pregnancy and breastfeeding, safe infant feeding and optimal nutrition practices. Promote exclusive breastfeeding for the first 6 months irrespective of HIV status, followed by complementary feeding (Table 7.7). During pregnancy, provide iron, folate and multivitamins; monitor for anaemia, advise on adequate caloric intake (HIV positive women require an additional 10% of recommended daily allowance (RDA)) • HIV testing services o All pregnant women (unless known HIV positive) should be counselled and tested for HIV during their first ANC visit and if negative, repeat testing in the third trimester o At labour and delivery, HIV testing should be done for all women with unknown HIV status or those previously tested negatives, even if tested during the third trimester o All breastfeeding mothers (unless known HIV positive) should be counselled and tested at the 6-week infant immunization visit. The HIV test (if negative) should be every 6 months until complete cessation of breastfeeding (refer to Table 2.4) o Mothers should be counselled about the schedule for repeat HIV testing in pregnancy and postnatally as part of routine ANC and postnatal education o All pregnant and breastfeeding women who are not tested, opt-out or decline HIV testing during the first contact should be offered HIV counselling and testing in subsequent visits with appropriate linkage and referral for prevention, care and support services o All HIV positive and breastfeeding women enrolled into care should receive counselling and support (including assisted disclosure), case managed linkage and follow-up for comprehensive treatment and prevention (including lifelong ART) o All spouses/partners of pregnant and breastfeeding women should be offered HIV testing and counselling and all children if the mother is HIV positive • All pregnant women should receive information on risk reduction • Post-partum contraception: counsel on contraception methods and help patient develop a plan for effective contraception to avoid unplanned pregnancies

Table 7.1: Essential Package of Antenatal Care (Continued)

Intervention	Recommendation/Description
PHDP, IPV and HIV education/ counselling	For HIV positive women, encourage and support disclosure of HIV status, partner/ family testing, condom use, post-partum contraception, STI screening, prevention, and treatment, adherence counselling and support, assessment for and prevention of Intimate Partner Violence (IPV) and continued HIV education/counselling
Clinical Evaluation	• History - including medical, obstetric and psychosocial history. Use of medication including herbal remedies, drug allergies • TB screening: All women presenting to ANC should be screened for TB infection using the symptom-based TB screening tool (Section 8) • Reproductive tract infections: screen for STI (abnormal genital discharge, genital ulcers, and history of pelvic inflammatory disease). Manage a positive screen as recommended for syndromic management of STIs • Physical examination - perform obstetric examination including vital signs, breast examination, abdominal and foetal examination, speculum and bimanual examination, cervical cancer screening, STI screening • For HIV positive women, obtain and record additional information using MOH 257
Antenatal Profile	Syphilis testing, Hb, HBsAg, blood group and rhesus, urinalysis, rapid HIV test for the pregnant woman and her partner, and if TB symptom screening positive, sputum for GeneXpert and smear microscopy
Additional tests for HIV positive	Refer to section 3
Offer appropriate preventive and treatment services	• Maternal TT immunization • Iron, folate and multivitamins • Syndromic STI treatment if indicated • Malarial prophylaxis (Note: women who are on CPT do not require SP) • Insecticide-treated nets • For HIV positive pregnant women: Start or continue lifelong ART (Section 6), IPT (isoniazid 300 mg once daily for 6 months) and CPT. Perform VL for women starting ANC while on ART

7.1. Antiretroviral Therapy for HIV-positive Pregnant Women and Infant Prophylaxis

The goal of ART for HIV positive pregnant women is two-fold: to restore and maintain the mother's immune function and therefore general health, and secondly, to prevent transmission of HIV in utero, at labour and delivery and during breastfeeding. To achieve this goal, the mother must take effective antiretroviral therapy to achieve viral suppression. Table 7.2 summarizes recommendations for use of ART for HIV positive pregnant women.

Table 7.2: Summary of Use of ART for HIV Positive Pregnant and Breastfeeding Women

Overall recommendations	
When to start	Same as for non-pregnant adults (section 6): ART should be initiated in all pregnant and breastfeeding women living with HIV, regardless of gestation, WHO clinical stage and at any CD4 cell count and continued lifelong. ART should be started, ideally, on same day as HIV diagnosis with ongoing enhanced adherence support including community-based case management and support
What to start with (first-line ART)	Start on TDF/3TC/EFV
Infant prophylaxis	Refer to Table 7.3
Monitoring	Review monthly until after delivery. Offer adherence support **Viral load monitoring during pregnancy and breast-feeding (Figure 6.5)** • For pregnant and breastfeeding women newly initiated on ART, obtain VL 3 months after initiation, and then every 6 months until complete cessation of breastfeeding • For HIV positive women already on ART at the time of confirming pregnancy or breastfeeding, obtain a VL irrespective of when prior VL was done, and then every 6 months until complete cessation of breastfeeding • For pregnant or breastfeeding women with a detectable VL (any value above LDL): assess for and address potential reasons for viremia, including intensifying adherence support, repeat the VL **after 3 months of excellent adherence** o If the repeat VL is ≥ 1,000 copies/ml, change to an effective regimen o If the repeat VL is detectable but < 1,000 copies/ml consult the Regional or National HIV Clinical TWG o If the repeat VL is undetectable then continue routine monitoring
Scenario	
Pre-conception planning for women already on ART (not yet pregnant)	Maintain ART unless using an ARV that is contraindicated in pregnancy (Note: DTG is not recommended in women and adolescent girls of childbearing potential because of potential risk of neural tube defects) Carry out a VL if not done in the prior six months to confirm viral suppression (Figure 6.5) Refer to Table 4.8 for pre-conception care for women on ART who desire pregnancy, including laboratory screening, TT immunization, folate, etc.
On ART at the time of confirming pregnancy/breastfeeding	Maintain ART unless using an ARV that is contraindicated in pregnancy (Note: DTG is not recommended in women and adolescent girls of childbearing potential because of potential risk of neural tube defects) If a woman is already on DTG at the time of identifying pregnancy she should continue the regimen until complete cessation of breastfeeding unless there is another reason to switch Carry out a VL at the time of identifying pregnancy, irrespective of when a prior viral load was done, to confirm viral suppression (Figure 6.5) Manage the baby as HEI (Figure 2.1 for EID, and Table 7.3 for infant prophylaxis)
Not on ART at the time of confirming pregnancy	Prepare the patient and start on ART as soon as possible (Note: DTG is not currently recommended for women of childbearing potential) Preferably on the same day HIV infection is confirmed. Perform VL 3 months after ART initiation
Not on ART at during labour and delivery	Start on ART during labour (Note: : DTG is not recommended in women and adolescent girls of childbearing potential because of potential risk of neural tube defects) After delivery, continue treatment preparation and support and continue ART Manage the baby as HEI (Figure 2.1 for EID, and Table 7.3 for infant prophylaxis)

Not on ART during post-partum/breastfeeding	Prepare and start on ART as soon as possible preferably on the same day HIV infection is confirmed (Note: DTG is not recommended in women and adolescent girls of childbearing potential because of potential risk of neural tube defects) Manage the baby as HEI (Figure 2.1 for EID, and Table 7.3 for infant prophylaxis)
Managing labour and delivery	Minimize vaginal examinations, use aseptic techniques to conduct delivery, avoid artificial rupture of membranes, monitor labour and avoid prolonged labour by use of the partograph, avoid unnecessary genital tract trauma Where available, consider elective caesarean section prior to onset of labour if the VL in late pregnancy (after 36 weeks gestation) is ≥ 1,000 copies/ml

Table 7.3: ARV Prophylaxis for HIV-Exposed Infants

Infant Scenario	Infant Prophylaxis	Maternal Scenarios

HIV Exposed Infant	• Infant prophylaxis
	  ○ AZT+NVP for 6 weeks, NVP should be continued until 6 weeks after complete cessation of breastfeeding
	  ○ Infant prophylaxis can be discontinued after a minimum of 12 weeks on NVP if the child is not breastfeeding (death of mother or separation with mother)
	  ○ The infant prophylaxis regimen applies to all infants irrespective of age when identifying HIV exposure (e.g. mother diagnosed HIV-positive in the postpartum period)
	• DBS or whole blood for PCR at 6 weeks at first contact, following EID algorithm (Figure 2.1)
		If mother not on ART, initiate ART as soon as possible (preferably same day)
		
		If mother is on ART for ≥ 3 months and the VL is detectable, intensify adherence, repeat the VL **after 3 months of excellent adherence** and if VL ≥ 1,000 copies/ml, change to an effective regimen. If detectable but < 1,000 copies/ml consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com)

Note: If child has contraindication or unable to tolerate NVP or AZT then give tolerated drug to complete a minimum of 12 weeks of infant prophylaxis and continue until maternal viral load suppression is confirmed.		

Table 7.4: Dosing of ARVs for Infant Prophylaxis from Birth to 12 Weeks of Age

Age/Weight	Dosing of NVP (10mg/ml) OD	Dosing of AZT (10mg/ml) BD
Birth to 6 weeks		
Birth weight < 2,000 g	2 mg/kg per dose, OD	4 mg/kg per dose, BD
Birth weight 2,000-2,499 g	10 mg (1 ml), OD	10 mg (1 ml), BD
Birth weight ≥ 2,500 g	15 mg (1.5 ml), OD	15 mg (1.5 ml), BD
> 6 weeks to 12 weeks of age*		
Any weight	20 mg (2 ml), OD	60 mg (6 ml), BD
> 12 weeks (Table 7.5 and 7.6)		

*Dose adjustment required once child reaches 6 weeks of age

Table 7.5: NVP Dosing for Infant Prophylaxis beyond 12 Weeks of Age *

Age	Dosing of NVP (10mg/ml) Once Daily
12 weeks – 6 months	25 mg (2.5 ml), OD
7 months – 9 months	30 mg (3 ml), OD
10 months – 12 months	40 mg (4 ml), OD
> 12 months	Consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com)

* If child presents to facility late and has to be on AZT and NVP beyond 12 weeks of age

Table 7.6: AZT Dosing for Infant Prophylaxis beyond 12 Weeks of Age *

Weight	Dosing of AZT: (10mg/ml syrup) Twice Daily
3.0-5.9 kg	6 ml, BD
6.0-9.9 kg	9 ml, BD
10.0-13.9 kg	12 ml, BD
14.0-19.9 kg	15 ml, BD

* If child presents to facility late and has to be on AZT and NVP beyond 12 weeks of age

7.2. Infant and Young Child Nutrition in the Context of HIV

- **Exclusive breastfeeding** involves giving the baby only breast milk with no other liquids (including water) or solids for the first six months of life. Giving of vitamins, mineral supplements or medicines are permitted if prescribed by a clinician
- **Mixed feeding** is giving other liquids and/or foods together with breast milk to infants under 6 months of age **and is not recommended.** Mixed feeding during this period is associated with significantly higher risk of mother-to-child HIV transmission, diarrhoeal and respiratory tract illnesses, among other consequences and should be prevented
- All infants irrespective of HIV status should be exclusively breastfed for the first 6 months of life, with timely introduction of appropriate complementary foods after 6 months, and continued breastfeeding up to 24 months or beyond
- All mothers, irrespective of HIV status, should be encouraged and supported to exclusively breastfeed for the first six months and continue breastfeeding with appropriate complementary feeding after 6 months, for a period of 24 months and beyond. Breastfeeding should ONLY stop once a nutritionally adequate and safe diet without breast milk can be sustained
- HIV positive mothers and HIV positive infants should always be on ART and given extra attention for adherence support, VL monitoring and optimal retention in care
- Breastfeeding mothers who do not know their HIV status or who previously tested HIV negative should be encouraged to be retested for HIV at the 6-week immunization visit, and then every 6 months thereafter until complete cessation of breastfeeding (Table 2.4)
- Access for HIV testing and STI/HIV prevention interventions should be reinforced for partners of pregnant and breastfeeding women
- Mothers who are diagnosed with HIV while breastfeeding should immediately start appropriate ART, giving extra attention to adherence support, VL monitoring, and optimal retention in care. The infant should immediately start ARV prophylaxis and receive PCR testing

- Mothers who decide to stop breastfeeding at any time should stop gradually within one month (and only when a nutritionally adequate and safe diet without breast milk can be sustained), and HIV positive mothers and HIV positive infants should continue with ART
- In special medical circumstances, determined by clinicians, where an infant cannot breastfeed, refer to current MIYCN Policy and Breast Milk Substitute (BMS) Regulation and Control Act, 2012

Complimentary feeding means giving other foods to complement breast milk after six months of exclusive breastfeeding. Complimentary feeds provide additional nutritional value to meet the child's increasing nutritional needs for growth. Furthermore, complementary feeding helps the child to gradually become accustomed to eating family foods while breastfeeding continues to be an important source of nutrients. Exclusive breastfeeding should continue up to 6 months of age. Complementary feeding should be introduced after 6 months as child continues breastfeeding (Table 7.7). It is worth noting that breastfeeding continues to have child growth/survival benefits for up to two years or longer.

Table 7.7: Complementary Foods for Children 6-24 Months Old

Foods to Offer			
Age	**Texture**	**Frequency**	**Amount of food per meal**
6 months	Start with thick porridge or well mashed foods	2 times per day	2 tablespoons each feed, increasing to 3 table spoons in the 3rd to 4th week
7-8 months	Mashed/pureed family foods By 8 months can begin finger foods	3 meals per day, plus frequent breastfeeds	Increase amount gradually to ½ of a 250 ml cup Use a separate plate/bowl
9-11 months	Finely chopped or mashed foods, and foods that baby can pick up	3 meals and 1 snack, plus frequent breastfeeds	¾ of a 250 ml cup/bowl Use a separate plate/bowl
12-23 months	Cut food into small, soft pieces that child can pick up, chew and swallow comfortably	3 meals and 2 snacks, plus breastfeeds	One 250ml cup/bowl Use a separate plate/bowl
24-59 months	Cut food into small, soft pieces that child can pick up, chew and swallow comfortably	3 meals and 2 snacks, plus breastfeeds if still breastfeeding	1 ½ - 2 cups of 250ml cup/bowl Use a separate plate/bowl

8. TB/HIV Co-infection Prevention and Management

TB is a leading cause of morbidity and mortality for PLHIV (Figure 8.1). Reducing this burden of illness requires identifying TB early, providing pre-emptive and preventive treatment for TB, and providing optimal treatment for both HIV and TB. Timely initiation of ART is an effective way to reduce the burden of TB in PLHIV.

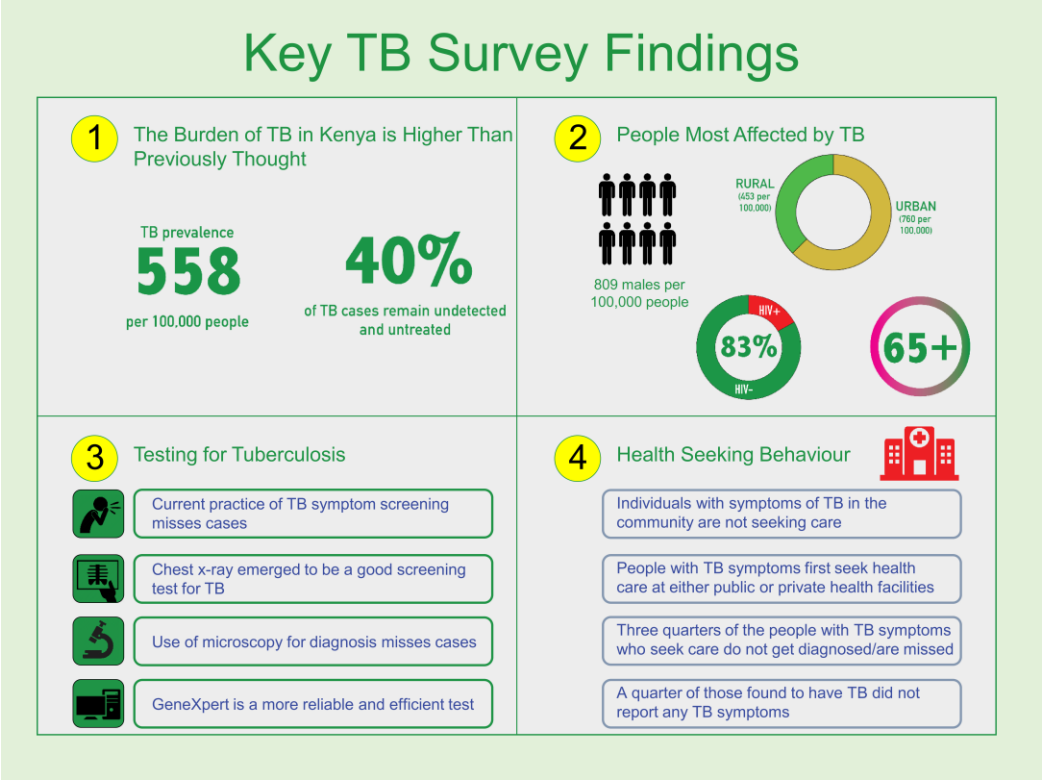


Figure 8.1: Key Findings from the Kenya Tuberculosis Prevalence Survey, 2016

All PLHIV should receive counselling about the risk of acquiring TB, strategies for reducing exposure to TB, recognizing clinical manifestations of TB and seeking care promptly, the risk of transmission of TB to others and TB preventive therapy to prevent TB disease.

Healthcare settings present suitable conditions for transmission of TB, particularly among vulnerable individuals like PLHIV. All healthcare settings should develop and implement TB infection control guidelines to reduce the risk of transmission of TB between patients, visitors and staff.

8.1. TB Screening for PLHIV: Intensified Case Finding (ICF)

TB screening and prevention services should be offered to ALL PLHIV at every clinical visit and to all household contacts of active TB patients. Symptom-based TB screening using the ICF tool MUST be performed for all PLHIV at every clinic visit to rule out active TB (Tables 8.1 and 8.2); patients who screen positive (presumptive TB cases) must complete definitive diagnostic pathways (Figures 8.2 and 8.3) and patients who screen negative should be evaluated for isoniazid preventive therapy (IPT).

Active Case Finding (ACF) differs from ICF. ICF refers to TB screening among PLHIV, whereas ACF refers to finding missing TB cases in the facilities beyond PLHIV.

Table 8.1: Paediatric Intensified Case Finding Screening Tool (0-14 years of age)

Screening Questions	Y/N
1. Cough of any duration (Y/N)	
2. Fever (Y/N)	
3. Failure to thrive or poor weight gain (Y/N) (based on z-score/BMI)	
4. Lethargy, less playful than usual (Y/N)	
5. Contact with a TB case (Y/N)	
• If "Yes" to any of the above questions, suspect TB, examine the child and use the pediatric TB diagnostic algorithm to evaluate for active disease. Rule out underlying conditions, refer if necessary • If "No" to all questions, initiate workup for IPT and repeat screening on subsequent visits	

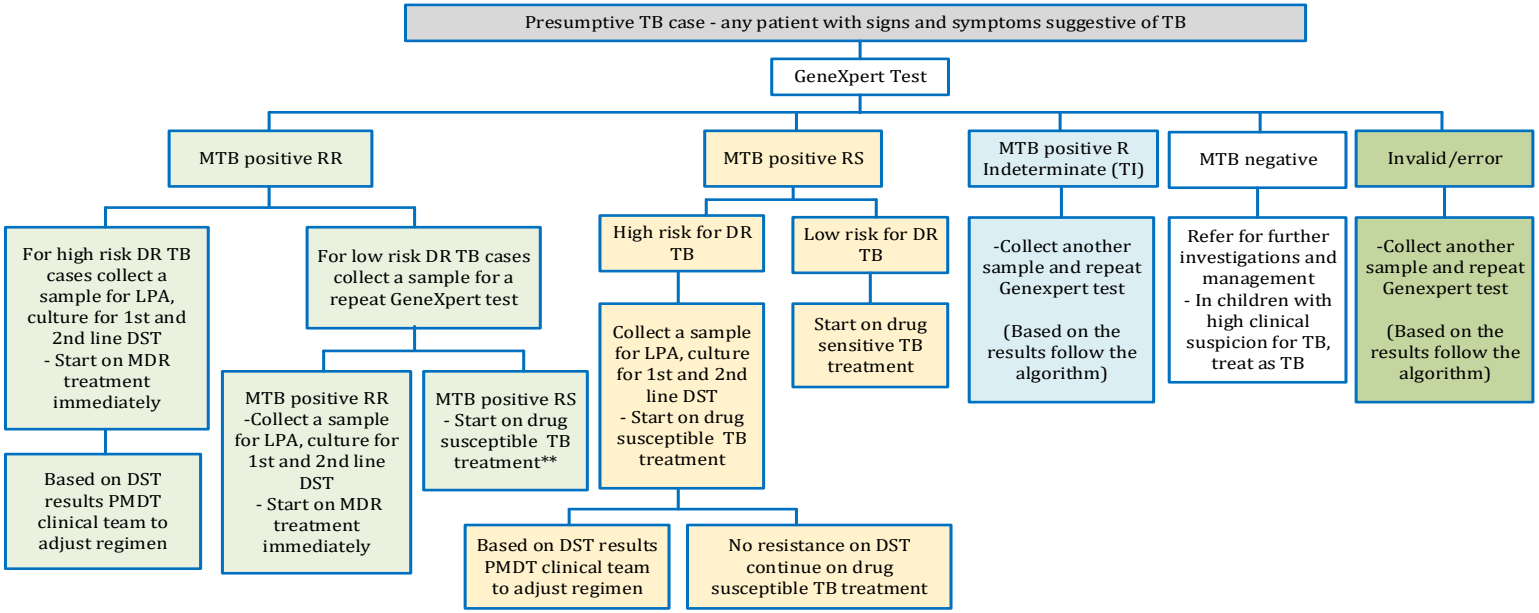
Table 8.2: Adolescent and Adult Intensified Case Finding Screening Tool (≥ 15 years of age)

Screening Questions	Y/N
1. Cough of any duration (Y/N)	
2. Fever (Y/N)	
3. Noticeable weight loss (Y/N) (based on BMI)	
4. Night sweats (Y/N)	
• If "Yes" to any question, take a detailed history, examine the patient and do sputum examination if coughing (sputum for GeneXpert and smear, Figure 8.2), and urine TB-LAM if meets criteria (Figure 8.3). Exclude underlying illnesses • If "No" to all questions, initiate workup for IPT and repeat screening on subsequent visits	

Note: draining lymph nodes are often due to TB.

GeneXpert is the preffered first test for TB diagnosis and identification of Rifampicin resistance in all presumptive TB Cases*

Patients diagnosed using GeneXpert should be followed up using smear microscopy



High risk for DR TB	**Low risk for DR TB**
• Previously treated TB patients: treatment failures, relapses, treatment after loss to follow up • Drug Resistant TB patient contacts • TB patients with a positive smear result at month 2 or month 5 of TB treatment • Patient who develops TB symptoms while on IPT or has had previous IPT exposure • Healthcare Workers with TB symptoms • Prisoners with TB symptoms • Refugees with TB symptoms	All presumptive TB cases who are not in the high risk group including: • People Living with HIV with TB symptoms • Children <15 years with TB symptoms • All presumptive TB cases with a negative smear microscopy result

*** In situations where GeneXpert is not available, smear microscopy may be used for initial TB diagnosis and concurrently, a sample specimen sent for GeneXpert test**

**** Evidence has shown that the patient is more likely to have drug sensitive TB**

KEY

MTB RR = Mycobacterium Tuberculosis positive, Rifampicin resistant
MTB RS= Mycobacterium Tuberculosis positive, Rifampicin sensitive
TI = Indeterminate GeneXpert results
MDI = Multidrug Resistant Tuberculosis
LPA = Line probe assay
DST = Drug suscep1ibility testing
PMDT = Programmatic Management of Drug Resistant Tuberculosis

Samples tor GeneXpert

- Sputum
- CSF
- Gastric aspirate
- Nasopharyngeal aspirate
- Pleural fluid
- Pericardial fluid
- Ascitic fluid
- FNA
- Lymph node biopsy

Drug Susceptible TB Treatment Regimen

TYPE OF TB	REGIMEN
Pulmonary TB	2RHZE/4RH
Extra pulmonary (all other except bone TB and TB Meningitis)	
Extra pulmonary (Bone TB and TB Meningitis)	2RHZE/10RH

- Follow up smears should be done for all bacteriologically confirmed TB cases at end of month 2.5 and 6 of TB treatment using smear microscopy
- Follow up of RR TB and DR TB should be done as per PMDT guidelines

POSITIVE SMEAR RESULT AT	ACTION
MONTH 2	• Request for GeneXpert (refer to GeneXpert algorithm) Con1inue drug susceptible TB treatment • Treat based on GeneXpert results • If there is no rifampicin resistance, repeat GeneXpert test at month 3 and treat according to GeneXpert results
MONTH 5	• Declare treatment failure • Request for GeneXpert (refer to GeneXpert algorithm) Treat based on GeneXpert results
MONTH 6	• Declare treatment failure • Request for GeneXpert (refer to GeneXpert algorithm) Treat based on GeneXpert results • Evaluate patient adherence to treatment and advice on next treatment options

Once TB treatment is started it should be completed regardless of duration of treatment

Figure 8.2: GeneXpert Algorithm

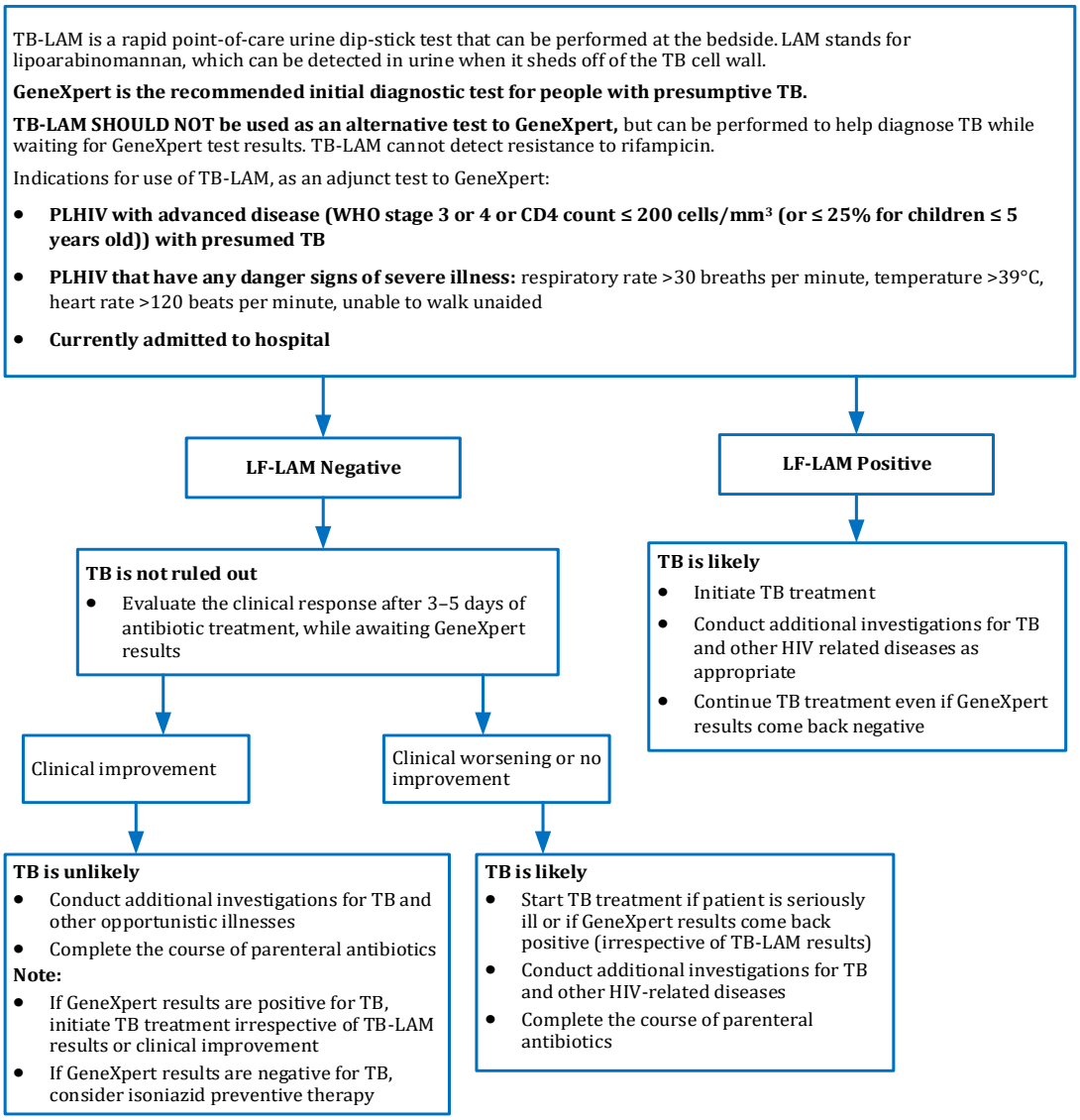


Figure 8.3: Use of TB-LAM for Diagnosis of TB among PLHIV

8.2. Isoniazid Preventive Therapy (IPT)

This section discusses the current national recommendations for treatment of latent TB for PLHIV, however TB guidelines may be updated to include regimens other than INH.

Refer to the *National Isoniazid Preventive Therapy Standard Operating Procedure.*

8.2.1. Indications for IPT

IPT should be provided to those patients in whom TB is excluded (using the ICF tool) and meet the eligibility criteria to initiate IPT. The following client categories are eligible for IPT

- All PLHIV above 12 months of age (children and adults including pregnant and breastfeeding women) who screen negative for active TB
- All children under 5 years old, irrespective of HIV status, who have had recent close contact with sputum positive TB disease with no evidence of active TB
- Neonates born to mothers with TB, or exposed to close contacts with TB should be given IPT once TB disease has been ruled out. BCG should be given 2 weeks after completion of IPT
- Prisoners who screen negative for active TB (irrespective of their HIV status)

8.2.2. Contraindications to IPT

Patients with the following should not receive IPT until the underlying issue/s are addressed

- Active tuberculosis disease
- Active hepatitis
- Active substance abuse and/or regular and heavy alcohol consumption
- Symptoms of peripheral neuropathy
- Poor adherence to CPT, ART or clinic appointments. Patients who currently have detectable VL after at least 6 months on ART should NOT be initiated on IPT until adherence has been addressed and they achieve viral suppression
- Poor understanding of IPT by parent/caregiver
- Previously completed a full course of IPT
- Exposure to MDR or XDR TB

Note: for eligible patients previously treated for TB, initiate IPT for 6 months upon completion their TB treatment.

8.2.3. Dose and Duration of IPT

IPT should be administered once in a lifetime for 6 calendar months as part of a comprehensive package of HIV care. Table 8.3 provides weight-based dosing of isoniazid.

Table 8.3: Dose of INH for Isoniazid Preventive Therapy

Weight (kg)*	Dose in mg	Number of 100mg INH tablets
< 5	50	½ tablet
5.1-9.9	100	1 tablet
10-13.9	150	1½ tablet (or ½ adult 300mg tablet)
14-19.9	200	2 tablets
20-24.9	250	2½ tablets
>25	300	3 tablets (or 1 adult 300mg tablet)

*Children should be weighed at each visit and correct weight-based dosing confirmed

Patients taking INH should also be given pyridoxine daily to reduce the risk of developing peripheral neuropathy. Table 8.4 provides the weight-based dosing for prophylactic pyridoxine.

Table 8.4: Dose of Pyridoxine for Patients on INH

Weight (kg)	Tablets of Pyridoxine
5-7	Half a tablet of 25 mg daily
8-14	A tablet of 25 mg daily
≥ 15	A tablet of 50 mg daily

8.2.4. Follow-up of Patients on IPT

- **Review patients on IPT monthly** to identify hepatotoxicity and review/reinforce adherence
- Screen for active TB during each clinic visit using the intensified case finding (ICF) tool
- Update ICF cards and IPT register at every visit and document outcome on completion of therapy
- Monitor for INH adverse effects, as per Section 8.2.5 (co-administer with pyridoxine to minimize adverse events)
- The facility should maintain a TB contact register

8.2.5. Identifying and Managing Adverse Events to IPT

The most common serious adverse events associated with INH are: drug-induced liver injury (DILI), peripheral neuropathy and rash

- Diagnosis of DILI
  - Abdominal pain, nausea, vomiting, jaundice
  - Abnormal liver enzyme (following a hepatitis pattern or mixed pattern)

Hepatitis pattern: ALT ≥ 3ULN and	$\frac{(ALT/ULN)}{(ALP/ULN)} \geq 5$
Cholestasis pattern: ALP ≥ 2ULN and	$\frac{(ALT/ULN)}{(ALP/ULN)} \leq 2$
Mixed pattern: ALT > 3ULN and ALP > 2ULN and	$\frac{(ALT/ULN)}{(ALP/ULN)} > 2 \text{ to } < 5$

- Management of DILI
  - Prompt discontinuation of the offending drug if symptomatic with liver enzymes > 3ULN, or if asymptomatic with liver enzymes > 5ULN
  - Check for other causes of hepatitis, including testing for HBV and HCV
  - Supportive and symptomatic therapy, including low-protein diet
  - Monitoring liver enzymes and liver function weekly to assess improvement or progression

- Diagnosis of Peripheral Neuropathy
  - Burning sensation, numbness, or tingling, usually starting at the feet on both sides
  - May have decreased sensation on examination
  - May develop weakness in severe cases

- Management of INH-induced Peripheral Neuropathy
  - Increase the dose of pyridoxine to 100mg per day (for children give double the standard weight-based dose)
  - If symptoms do not improve, or there is any worsening, then discontinue INH

- Skin Rash
  - Refer to Table 4.4 for classification and management of drug-induced skin rash

8.3. ART for TB/HIV Co-infection

As with all PLHIV, those who are diagnosed with TB/HIV co-infection should be on ART and CPT as part of the comprehensive package of care for PLHIV.

Timing of ART for TB/HIV Co-infection

- Patients who are not yet on ART
  - Start TB treatment immediately
  - Initiate ART as soon as anti-TB medications are tolerated, preferably within 2 weeks; for TB meningitis consider delaying ART for up to 8 weeks
  - Monitor closely for IRIS (Annex 16)

- Patients who are already on ART
  - Start TB treatment immediately
  - Continue ART, making any required adjustments to the ART regimen based on drug-drug interactions (Table 8.6)
  - Monitor closely for IRIS (Annex 16)

- Patient being treated concurrently for TB and HIV require close monitoring for toxicity
  - MDR TB and HIV co-infection should be managed in settings where close toxicity monitoring and follow up by experienced clinicians is possible
  - Patients on TDF and aminoglycosides are at high risk for renal toxicity and require close monitoring

Preferred ART regimens for patients with TB/HIV co-infection are summarized in Tables 8.5 - 8.7.

Table 8.5: Preferred ART Regimens for TB/HIV Co-infection for Patients Newly Initiating 1st Line ART [1]

Age	1st Line if TB/HIV Co-infection
< 4 weeks	Start anti-TB treatment immediately; start ART after 4 weeks of age, once tolerating anti-TB drugs (follow the regimen recommendations for children 4 weeks to < 3 years of age)
4 weeks - < 3 years	• ABC + 3TC + LPV/r + RTV[2,3] • After completion of TB treatment revert to the recommended first line regimen (ABC + 3TC + LPV/r)
3-14 years (and < 35 kg body weight)	ABC + 3TC + EFV
≥ 15 years (**or** ≥ 35 kg body weight)	• Give TDF/3TC/DTG FDC am + DTG 50mg pm for duration of rifampicin-containing TB treatment and for an additional 2 weeks after TB treatment is completed, then revert to TDF/3TC/DTG FDC OD • TDF + 3TC + EFV [4]
PWID/HIV ≥ 15 years	• Give TDF/3TC/DTG FDC am + DTG 50mg pm for duration of rifampicin-containing TB treatment and for an additional 2 weeks after TB treatment is completed, then revert to TDF/3TC/DTG FDC OD • Female PWID/HIV of child-bearing potential use ATV/r (with rifabutin-based anti-TB treatment) instead of DTG

1 Refer to Annex 10 for weight-based ARV dosing
2 Use "super-boosted" LPV/r by adding additional ritonavir suspension to manage the drug interaction between LPV/r and rifampicin (see Table 8.8 for dosing recommendations). **Two weeks after TB treatment is completed the child should go back to standard LPV/r dosing**. For children ≥ 2 year who cannot tolerate LPV/r + RTV (usually because of GI side-effects), the alternative regimen is RAL at x2 standard weight-based BD dosing until 2 weeks after TB treatment then continue with RAL standard weight-based BD dosing.
3 EFV is no longer being recommended for children < 3 years old because of highly variable EFV metabolism at this age group
4 DTG is not currently recommended for women and adolescent girls of childbearing potential because of possible risk of birth defects when DTG is used around the time of conception. Women and adolescent girls who are on effective contraception may opt to use DTG and should be supported in their decision

Table 8.6: Preferred ART Regimens for Patients who Develop TB while Virally Suppressed on 1st Line ART [1,2]

Current Regimen[3]	Age	Recommended Substitution
PI/r-based	< 3 years old	• Super-boost LPV/r with additional RTV[4] • After completion of TB treatment revert to the recommended **first line regimen (ABC + 3TC + LPV/r)**
	3 years – 14 years (and < 35 kg body weight)	• Super-boost LPV/r with additional RTV[4] • After completion of TB treatment revert to the recommended **first line regimen (ABC + 3TC + LPV/r)**
	≥ 15 years (**or** ≥ 35 kg body weight)	Switch from PI/r to DTG and continue this regimen even after completing TB treatment (give DTG 50 mg BD for duration of rifampicin-containing TB treatment, then reduce to DTG 50 mg once daily 2 weeks after TB treatment is completed) For women and adolescent girls of childbearing potential continue PI/r (with rifabutin-based anti-TB treatment) instead of DTG
EFV-based	Any age	Continue same regimen for duration of TB treatment. Consider for regimen optimization after completing TB treatment (Table 6.5)
NVP-based	< 3 years old	• Change NVP to LPV/r [5] • Super-boost LPV/r with additional RTV[4] • After completion of TB treatment revert to the recommended **first line regimen (ABC + 3TC + LPV/r)**
	≥ 3 years	Switch to EFV If ≥ 15 years old or ≥ 35 kg and not at risk for pregnancy then switch from NVP to DTG and continue this regimen even after completing TB treatment (give TDF/3TC/DTG FDC am + DTG 50mg pm for duration of rifampicin-containing TB treatment and for an additional 2 weeks after TB treatment is completed, then revert to TDF/3TC/DTG FDC OD)
RAL-based	All ages[6]	Give double the standard dose of RAL until 2 weeks after completion of rifampicin-based TB treatment, then reduce to standard weight-based dosing
DTG-based	All ages	Give TDF/3TC/DTG FDC am + DTG 50mg pm for duration of rifampicin-containing TB treatment and for an additional 2 weeks after TB treatment is completed, then revert to TDF/3TC/DTG FDC OD

1 Always assess for HIV treatment failure in patients who develop TB after being on ART for ≥ 6 months. For patients failing 1st line ART refer to Table 8.7 for recommended 2nd line regimens
2 For patients on 2nd line ART, subsequent regimens, or nonstandard drugs who require regimen change because of TB treatment, consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com)
3 NRTIs in the patient's current regimen do not require any adjustments with anti-TB treatment
4 Use "super-boosted" LPV/r by adding additional ritonavir suspension to manage the drug interaction between LPV/r and rifampicin (see Table 8.8 for dosing recommendations). **Two weeks after TB treatment is completed the child should go back to standard LPV/r dosing**. For children ≥ 2 year who cannot tolerate LPV/r + RTV (usually because of GI side-effects), the alternative regimen is RAL at x2 standard weight-based BD dosing until 2 weeks after TB treatment then continue with RAL standard weight-based BD dosing.
5 Guidelines recommend LPV/r for children < 3 years, however some children < 3 years maybe on NVP due to LPV/r toxicity, consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com)
6 Studies of RAL in the treatment of pediatric TB are ongoing. Initial data from older cohorts suggest that a double dose of RAL is safe and effective in the treatment of HIV in children receiving TB therapy containing rifampicin. However, there is no data on the treatment of TB in children under 2 years of age using RAL. Given the highly variable pharmacokinetics in this age group, caution is advised and routine VL monitoring must be followed

Table 8.7: Recommended ART Regimens for Patients who Develop TB while Failing 1st Line ART [1]

Age/Scenario	First-line ART	Second-line ART
< 3 years	PI/r-based 1st line	Start anti-TB immediately Super-boost the LPV/r [2] while following the viral load monitoring algorithm (Figure 6.5), including assessing for and addressing reasons for treatment failure Once treatment failure is confirmed and patient is ready to switch to 2nd line, switch to DRT-based 2nd line[2]
	ABC (or AZT) + 3TC + RAL (or NVP)	Start anti-TB immediately Switch to AZT + ABC + 3TC while following the viral load monitoring algorithm (Figure 6.5), including assessing for and addressing reasons for treatment failure Once treatment failure is confirmed and patient ready to switch to 2nd line, switch to AZT + 3TC + LPV/r (with super-boosted LPV/r [2] until 2 weeks after completion of TB treatment). If patient was on AZT-containing 1st line then switch to ABC in 2nd line
3 - 14 years (and < 35 kg body weight)	ABC (or AZT) + 3TC + EFV (or RAL)	Start anti-TB immediately Continue current regimen (if on RAL, then use double dose) while following the viral load monitoring algorithm (Figure 6.5), including assessing for and addressing reasons for treatment failure Once treatment failure is confirmed and patient ready to switch to 2nd line, switch to AZT + 3TC + LPV/r (with super-boosted LPV/r [2] until 2 weeks after completion of TB treatment). If patient was on AZT-containing 1st line then switch to ABC in 2nd line
	PI/r-based 1st line	Start anti-TB immediately Super-boost the LPV/r [2] while following the viral load monitoring algorithm (Figure 6.5), including assessing for and addressing reasons for treatment failure Once treatment failure is confirmed and patient is ready to switch to 2nd line, switch to DRT-based 2nd line[2]

≥ 15 years (**or** ≥ 35 kg body weight)	TDF (or ABC or AZT) + 3TC + DTG	Start anti-TB immediately Add DTG 50 mg pm to their current regimen while following the viral load monitoring algorithm (Figure 6.5), including assessing for and addressing reasons for treatment failure Once treatment failure is confirmed and patient ready to switch to 2nd line, switch to AZT + 3TC + ATV/r (if on TDF or ABC in 1st line) and change to rifabutin-based anti-TB treatment. If patient was on AZT-containing 1st line then switch to TDF in 2nd line
	TDF (or ABC or AZT) + 3TC + EFV (or NVP)	Start anti-TB immediately Continue current regimen (if on NVP, switch to EFV) while following the viral load monitoring algorithm (Figure 6.5), including assessing for and addressing reasons for treatment failure Once treatment failure is confirmed and patient ready to switch to 2nd line, switch to AZT + 3TC + ATV/r (if on TDF or ABC in 1st line) and change to rifabutin-based anti-TB treatment. If patient was on AZT-containing 1st line then switch to TDF in 2nd line
	PI/r-based 1st line	Start rifabutin-based anti-TB therapy immediately Continue current regimen while following the viral load monitoring algorithm (Figure 6.5), including assessing for and addressing reasons for treatment failure Once treatment failure is confirmed and patient is ready to switch to 2nd line, switch to DRT-based 2nd line[2]
Pregnant or Breastfeeding	Consult the Regional or National HIV Clinical TWG urgently (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com)	
HIV/HBV Co-infection	Always maintain TDF in second-line instead of switching to a different NRTI and instead of adding an additional NRTI	

1. For patients on 2nd line ART, subsequent regimens, or nonstandard drugs who require regimen change because of TB treatment, consult the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com)
2. Use "super-boosted" LPV/r by adding additional ritonavir suspension to manage the drug interaction between LPV/r and rifampicin (see Table 8.8 for dosing recommendations). **Two weeks after TB treatment is completed the child should go back to standard LPV/r dosing.** For children ≥ 2 year who cannot tolerate LPV/r + RTV (usually because of GI side-effects), the alternative regimen is RAL at x2 standard weight-based BD dosing until 2 weeks after TB treatment then continue with RAL weight-based BD dosing.

Table 8.8: Ritonavir Dosing for Super-Boosting LPV/r in Children Taking Rifampicin

Weight Range (kg)	Standard Dosing of Lopinavir/ritonavir (LPV/r) (Twice Daily)				Additional dosing of ritonavir for children taking rifampicin (Twice Daily)
	LPV/r 80/20 mg/ml solution	LPV/r 40/10mg pellets (number of pellets)	LPV/r 100/25mg tablets	LPV/r 200/50mg tablets	Ritonavir liquid (80mg/ml, in 90 ml bottle). Ritonavir dose is adjusted to nearest mark for the ease of measurement
3 - 5.9	1 ml BD	2 BD	Not recommended	Not recommended	1 ml BD
6 - 9.9	1.5 ml BD	3 BD	Not recommended	Not recommended	1 ml BD
10 - 13.9	2 ml BD	4 BD	2 am 1 pm	Not recommended	1.5 ml BD
14 - 19.9	2.5 ml BD	5 BD	2 BD	1 BD	2 ml BD
20 - 24.9	3 ml BD	6 BD	2 BD	1 BD	2.5 ml BD
25 - 29.9	Not recommended	7 BD	3 BD	2 am 1 pm	4 ml am 2 ml pm
30-34.9	Not recommended	8 BD	3 BD	2 am 1 pm	4 ml am 2 ml pm
≥35	Not recommended	10 BD	4 BD	2 BD	4 ml BD

Table 8.9: Drug Susceptible TB Treatment Regimen for Paediatrics, Adolescents and Adults

TB disease category	Recommended regimen	
	Intensive phase	Continuation phase
All forms of TB except TB meningitis, bone and joint TB (osteoarticular TB)	2 RHZE[1]	4 RH[1]
TB meningitis Osteoarticular TB	2 RHZE[1]	10 RH[1]
Drug resistant TB	**Refer to a DRTB Clinical Team**	

[1]Patients taking isoniazid containing regimen should also be given Pyridoxine (Vitamin B6) daily to reduce the risk of developing peripheral neuropathy

9. HBV/HIV and HCV/HIV Co-infection Prevention and Management

9.1. Hepatitis B/HIV Co-infection

HIV and HBV have shared transmission routes. Acute HBV infection in HIV positive people is associated with increased risk of chronicity, reduced chances of spontaneous clearance, higher rates of replication and reactivation and therefore increased incidence of chronic liver disease, cirrhosis and hepatocellular carcinoma (HCC). Additionally, HIV/HBV co-infection has been associated with rapid HIV disease progression and poorer HIV treatment outcomes. Other complications of HIV/HBV co-infection include increased incidence of drug-related hepatotoxicity, drug-toxin interactions and ART-related immune reconstitution hepatitis.

9.1.1. Screening

All adolescents and adults living with HIV (plus children who did not complete routine childhood immunizations) should be screened for HBV infection, using HBsAg, as part of initial evaluation. To promote population-wide prevention, hepatitis B prevention should be integrated into routine HIV prevention and care programs. In this setting, other indications for HBsAg screening could include

- Household and sexual contacts of HBsAg positive individuals
- Persons who inject drugs (PWID)
- Men who have sex with men
- Sex workers
- Prisoners
- Blood donors
- Unvaccinated healthcare providers

PLHIV on follow-up who present with signs of liver disease (jaundice, ascites, abnormal liver on palpation, other signs of cirrhosis) or unexplained and persistent ALT elevation should also be screened for HBV as part of their work-up.

9.1.2. Prevention

A. Vaccination: HBV vaccination reduces the risk of new (incident) HBV infection in PLHIV and also reduces the risk of new infections becoming chronic. Therefore,

- HIV positive infants, children, adolescents and adults without evidence of hepatitis B infection (HBsAg negative) should be vaccinated against hepatitis B (Table 9.1)
- HIV exposed infants (HEI) should also receive hepatitis B vaccination as part of childhood immunization (Table 4.22)
- As a strategy to reduce the population level burden of HBV infection, HIV prevention and treatment settings should integrate HBV prevention through vaccination. Thus, HBV vaccination is recommended for the following groups
    - Babies and young children (through EPI and catch-up immunization for those who missed EPI vaccination)
    - Household contacts of people who are HBsAg positive
    - Sexual contacts of HBsAg positive people
    - People on haemodialysis

- PWID
- Individuals with chronic liver disease and/or hepatitis C
- Inmates and prison personnel
- Healthcare workers

Table 9.1: Hepatitis B Vaccination Schedule for HIV-positive Adolescents and Adults

Vaccine	Dose (intramuscular)	Schedule
Non-adjuvanted formulation	Double the standard dose	0, 1, 2, and 6 months
Adjuvanted formulation	Standard dose	

B. General preventive measures: General measures for infection prevention adopted by PLHIV and in healthcare settings are effective in preventing HBV transmission. These include

- Hand hygiene
- Use of personal protective equipment
- Medical waste management including safe disposal of used sharps
- Disinfection and sterilization
- General health advice against sharing of personal effects like towels, tooth-brushes, razors, combs and other grooming equipment
- Harm reduction counselling and services for PWID as outlined in Section 12
- Safer sex practices

9.1.3. Treatment

A. When to start ART

All HIV infected patients who are co-infected with hepatitis B should be started on ART irrespective of CD4 cell count, WHO clinical stage or stage of liver disease

The general recommendations for treatment preparation, adherence counselling and support and monitoring of therapy for PLHIV apply. However, because HBV positive patients are at higher risk of hepatotoxicity, closer monitoring of liver function (with ALT) is advised. Table 9.2 provides a summary of areas of focus during initial evaluation for HIV/HBV co-infected patients initiating therapy.

B. Recommended first-line ART in HIV/HBV co-infection

The recommended first-line ART in adolescents and adults with HIV/HBV co-infection is TDF + 3TC + DTG (or TDF + 3TC + EFV for women and adolescent girls of childbearing potential)

Treatment with both TDF and 3TC is recommended as 3TC alone will result in rapid emergence of resistance. In case of renal impairment (as assessed by creatinine clearance), the dose of TDF and 3TC should be adjusted (refer to Table 9.3).

Table 9.2: Summary of Initial Clinical and Laboratory Evaluation in HIV/HBV Co-infection

	Findings	Action
History	Alcohol use, cigarette smoking, intravenous drug use, risky sexual practices, anorexia, right upper quadrant pain, jaundice, early satiety, haematemesis, dark stool, bleeding, pruritus	Assess, counsel and support to stop taking alcohol; counsel and support smoking cessation; counsel and provide or refer for harm reduction interventions
Physical examination	Enlarged liver, enlarged spleen, ascites, scratch marks	Evidence of established chronic liver disease, closer follow-up due to increased risk of hepatotoxicity, discuss or refer to a consultant for additional evaluation and management
ALT	If elevated, may point to active liver disease. Exclude other causes of elevation of liver enzymes	Every effort should be made to assess for liver function (albumin and INR), especially in symptomatic patients. However, this should not delay initiation of ART
Creatinine	Calculate creatinine clearance	In HIV/HBV co-infection, TDF is indicated even in patients with CrCl < 50 ml/min. In such patients, avoid FDCs. Instead administer the ART as single drugs to allow for dosage adjustment as shown in Table 9.3
Comorbidities	HCV antibody, random blood sugar, lipid profile, alcoholic and non-alcoholic liver disease, hepatocellular carcinoma (family history)	Refer the patient for additional investigations where these are suspected

Table 9.3: Dose Adjustment of TDF and 3TC in Patients with Impaired Renal Function [1]

Drug	Creatinine clearance (ml/min)			Haemodialysis
	50 - 80	30-49	10-29	
TDF 33 mg/g granules (=1scoop)	245 mg (7.5 scoops of granules or 245mg film-coated tablet) once daily	132 mg (4 scoops of granules) once daily	65 mg (2 scoops of granules once daily	16.5 mg (0.5 scoop) after each 4 hr session of dialysis
TDF 300 mg	Unchanged: 300 mg once daily	300 mg every 48 hrs	300 mg every 72 to 96 hours (twice weekly). For patients getting HD, administer 300 mg once weekly after completion of dialysis sessions [2]	
3TC	Unchanged: 300 mg once daily or 150 mg BD	150 mg once daily	150 mg once daily	50 mg first dose, 25 mg once daily

[1] Patients with impaired renal function in whom the benefits of continued use of TDF outweighs the risks (such as in the management of HIV/HBV co-infection) should be managed with input from a specialist in internal/paediatric or renal medicine

[2] Assuming 3 haemodialysis sessions per week, each of approximately 4 hours duration or after 12 hours cumulative haemodialysis

C. Follow-up, Monitoring

Follow-up of HIV/HBV co-infected patients should be as for all other patients on ART. However, consider more frequent monitoring (using ALT) for patients with active liver disease (jaundice, liver cirrhosis and features of portal hypertension) at baseline. The presence of co-infection also increases the risk of drug-related hepatotoxicity from all ARV drugs by 3-5 times, especially when anti-TB and ART are given simultaneously. Also, hepatic flare (AST > 5 times normal value) can occur, often in the initial 3 months. **ALT elevations 5-10 times normal can be tolerated in the first 3 months of ART as long as the patient is not severely symptomatic, remains stable without progression, and there is no evidence of synthetic dysfunction (INR normal, glucose normal, albumin normal)**. Subsequent laboratory monitoring after baseline should be conducted every 6 months. Patients should be counselled and supported to abstain from consuming alcohol.

D. Stopping treatment, treatment interruptions

TDF-containing ART should not be stopped in a patient with HIV/HBV co-infection as this may result in a flare-up of the hepatitis. If the regimen must be stopped and another alternative for suppressing hepatitis B cannot be found, liver enzymes should be monitored and treatment re-instated as soon as possible.

E. Second line for HIV/ HBV co-infected

Maintain TDF + 3TC in the ART regimen for patients switching from TDF-based-therapy.

The recommended second-line ART regimen in HIV/HBV co-infection is TDF + 3TC + ATV/r

HIV/HBV co-infected patients failing second-line ART should be discussed in the MDT and discussed with the Regional or National HIV Clinical TWG (Uliza Toll-free Hotline 0800 72 48 48; ulizanascop@gmail.com).

9.2. Hepatitis C/HIV Co-infection

In Kenya, the prevalence of HCV infection is high in PWID (estimated to be 10-30%). The prevalence in the general population and among PLHIV is low (estimated to be < 3%), but likely to be higher in HIV infected PWID due to shared routes of transmission. HIV/ HCV co-infection is associated with

- Rapid progression of liver fibrosis
- Higher risk of deteriorating liver disease even in the presence of controlled HIV disease
- Worsened hepatotoxicity as a result of ART and other drugs used in the treatment of comorbidities

Thus, HIV-positive persons at risk of HCV co-infection should be identified and offered HCV treatment. The recent introduction of direct acting antiviral therapies (DAAs) for treatment of HCV has simplified the management of HIV/HCV co-infection; making it possible to manage uncomplicated HIV/HCV infection safely even in primary care settings.

However, treatment for HCV is a rapidly evolving field of therapeutics. Providers are encouraged to seek regular updates on the subject and, when in doubt, to discuss individual cases with experienced providers or consult the National or Regional HIV Clinical TWG.

9.2.1 Screening

HCV serology should be offered to individuals at risk of HCV infection. These include

- People who inject or use intranasal drugs
- Persons who have had tattoos, body piercing or scarification procedures from settings of doubtful infection prevention precautions
- Children born to HCV positive mothers

Up to 45% of individuals who are infected with HCV spontaneously clear the infection. To confirm chronic HCV infection, HCV positive individuals should be offered nucleic acid HCV RNA testing to establish presence of chronic HCV infection.

9.2.2. Prevention

General measures for prevention of blood-borne infections are effective in preventing HCV transmission.

- Recommendations for healthcare settings
  - Hand hygiene: including surgical hand preparation, hand-washing and use of gloves
  - Safe handling and disposal of sharps and waste
  - Effective disinfection and sterilization
  - Provision of safe blood and blood products
  - Training of healthcare providers
- Recommendations for PWID
  - Harm reduction counselling and support (refer to Section 12)
- Recommendations for prevention of sexual transmission
  - Correct and consistent condom use
  - Access to prevention services for sex workers and other people at risk (including screening and treatment STIs, frequent testing for HIV and HCV testing)

9.2.3. Treatment of HIV/HCV Co-infection

Table 9.4: Summary of Initial Clinical and Laboratory Evaluation in HIV/HCV Co-infection

	Findings	Action
History	Alcohol use, cigarette smoking, intravenous drug use, risky sexual practices, anorexia, right upper quadrant pain, jaundice, early satiety, haematemesis, dark stool, bleeding, pruritus	Assess, counsel and support to stop taking alcohol, counsel and support smoking cessation; counsel provide and refer for harm reduction interventions
Physical examination	Enlarged liver, enlarged spleen, ascites, scratch marks	Evidence of established chronic liver disease, closer follow-up due to increased risk of hepatotoxicity, discuss or refer to a consultant for additional evaluation and management
HCV RNA PCR	For confirmation of chronic HCV infection	If available, at baseline
HCV genotype		Important for selecting appropriate DAA regimen
ALT	If elevated, may point to active liver disease. Exclude other causes of elevation of liver enzymes	Every effort should be made to assess for liver function (albumin and INR), especially in symptomatic patients. However, this should not delay initiation of ART
Comorbidities	HBV, random blood sugar, lipid profile, alcoholic and non-alcoholic liver disease, hepatocellular carcinoma (family history)	Refer the patient for additional investigations where these are suspected

Table 9.5: Recommended DAA for the Treatment of HCV without Cirrhosis

Genotype	DAA Regimen*	Duration of treatment	ART considerations
1, 2 & 3	Daclatasvir (60 mg) + Sofosbuvir (400 mg)	12 weeks**	If the ART regimen contains EFV, increase the dose of Daclatasvir to 90 mg once daily. When used concomitantly with boosted Atazanavir, the dose of Daclatasvir should be reduced to 30 mg once daily
4	Elbasvir (50 mg + Grazoprevir (100 mg)	12 weeks	Use with ARVs with minimal interactions: TDF, ABC, 3TC, FTC, RAL and DTG
5 & 6	Ledipasvir (90 mg) + Sofosbuvir (400 mg)	12 weeks	Avoid concomitant use of TDF and Ledipasvir if the CrCl is < 50 ml/min

* Start DAA HCV therapy under specialist supervision
**Treatment duration is extended to 16 - 24 weeks in patients with compensated cirrhosis

10. ARVs for Post-exposure Prophylaxis

Post-exposure prophylaxis (PEP) is short-term use of antiretroviral treatment to reduce the likelihood of HIV infection after potential exposure. People can be accidentally exposed to HIV through healthcare work or due to exposures outside healthcare setting, for example, through unprotected sex or sexual assault among adults and children. Healthcare workers are at increased risk of exposure to HIV through contact with contaminated blood and other body fluids containing HIV through needle stick injuries and injuries by other sharp objects or through non-intact skin and mucous membranes.

To avoid exposure to HIV, precautions should be taken when handling possibly contaminated body fluids including the use of appropriate barriers such as gloves, gowns and goggles; care with sharps including minimizing blind surgical procedures and proper handling and disposal of sharps; safe disposal of contaminated waste; safe handling of soiled linen; adequate disinfection procedures and universal Hepatitis B vaccination of non-immune at risk groups including HCWs, police, prison staff and rescue workers.

PEP should always be offered as soon as possible (and within 72 hours) after a high-risk exposure (as defined in Table 10.1). Three-drug regimens are preferred for PEP. However, if the person is unable to tolerate a drug (usually the PI/r), then 2 drugs can be used. Patients should be counselled and strongly encouraged to complete the full 28-day course of PEP once a decision has been made to initiate PEP. For occupational exposure, immediate care of the exposure site includes: wash the site with soap and water, and allow the wound to bleed freely for several minutes (but do not do anything that will increase tissue damage such as squeezing, scrubbing or cutting the site further).

Table 10.1: Post-exposure Prophylaxis

Considerations	Recommendation

Eligibility: Must meet all of the following criteria	• Exposed individual is HIV negative at baseline
	• Exposure must have occurred within the past 72 hours
	• Exposure must be high-risk (high-risk type AND material)
	  ○ Type: mucous membrane; non-intact skin, or; percutaneous injury
	  ○ Material: blood or bloody body fluids; breast milk; semen; vaginal secretions; synovial, pleural, pericardial, amniotic fluids; CSF, or; HIV cultures in lab
	Note: HIV status of the source is no longer part of the risk stratification for PEP, because even if the source tests HIV negative by rapid antibody test they may still be in the window period of acute HIV infection so should be assumed to be positive
	Note: if a breastfeeding mother starts PEP because of HIV exposure, the infant does **not** require PEP or infant prophylaxis as well. The infant should continue breastfeeding

Management at initial contact	• Counsel on risks and benefits of PEP and obtain verbal consent for HIV testing • Voluntary testing for both exposed and source individuals • Offer PEP as soon as high-risk exposure is established and exposed individual tests HIV-negative at baseline (if HIV testing not available, can provide 1-2 days of PEP to cover until HIV test performed) • Pregnancy testing • Cr (if TDF-containing regimen) and Hb (if AZT-containing regimen), however PEP should be offered even when lab tests are not available. Do not delay administration of PEP while waiting for lab results • Hepatitis B vaccination (if not previously immunized & not known HBV positive)

<table>
<tr><td rowspan="2">ARV regimen for PEP</td><td>≥ 15 years old (or ≥ 35 kg body weight): TDF + 3TC + DTG (or TDF + 3TC + ATV/r for women and adolescent girls of childbearing potential)</td><td rowspan="2">AZT can be used as an alternative when TDF or ABC cannot be used
For children who cannot tolerate LPV/r: RAL or DRV/r can be used instead</td></tr>
<tr><td>0-14 years and < 35 kg: ABC + 3TC + LPV/r</td></tr>
<tr><td>Time of initiation</td><td colspan="2">As soon as possible after exposure, but no later than after 72 hours</td></tr>
<tr><td>Duration of PEP</td><td colspan="2">28 days (dispense all 28 days of treatment at the first visit)</td></tr>
<tr><td>Dose of PEP</td><td colspan="2">Same as indicated for ART; use weight-based dosing for children</td></tr>
<tr><td>Follow-up</td><td colspan="2">Follow up client at 7 days, 14 days, 28 days, and 12 weeks after starting PEP
Follow-up HIV testing at 4 weeks, if negative, test again at 12 weeks after which test as per risk category
Assess for and manage side effects due to PEP</td></tr>
<tr><td>Counselling</td><td colspan="2">Adherence counselling, risk reduction, trauma and mental health counselling, social support and safety, safe sex practices</td></tr>
<tr><td>Other services for sexual assault</td><td colspan="2">STI prophylactic treatment to all (treat for vaginal/urethral discharge syndrome following the national STI algorithms)
Emergency contraception for non-pregnant women
Tetanus toxoid for any physical injury of skin or mucous membranes
Documentation of clinic evidence of assault and collection of forensic evidence
Refer to post-rape care guidelines for additional details</td></tr>
</table>

11. Oral Pre-Exposure Prophylaxis (PrEP)

Pre-exposure prophylaxis (PrEP) is the use of antiretroviral medication to prevent the acquisition of HIV infection by an uninfected person at substantial risk of acquiring HIV infection.

Oral PrEP containing TDF should be offered to individuals at substantial ongoing risk of HIV infection, as part of a package of combination prevention tailored to individual choice and risk profile as determined during initial and follow-up assessment and risk reduction counselling.

PrEP may be offered to the HIV seronegative partner in a sero-discordant relationship during attempts to conceive.

11.1. Recommended ARVs for PrEP

The recommended ARV regimen for use as PrEP is: TDF 300 mg and Emtricitabine 200 mg once daily (given as FDC). Alternatively, TDF 300 mg once daily or TDF 300 mg/ 3TC 300 mg may be used.

Table 11.1: Recommended Antiretroviral Agents for Oral PrEP

Preferred	Alternative
TDF/FTC (300 mg/200 mg) as FDC once daily	TDF 300 mg once daily
	TDF/3TC 300 mg/300 mg as FDC once daily

PrEP should only be offered after thorough assessment to establish eligibility, readiness for effective use, required follow-up and absence of contraindications to TDF +/- FTC (or 3TC).

11.2. Indications and Criteria for PrEP Indications

PrEP is offered to sexually active HIV-negative individuals who are at substantial risk of acquiring HIV infection as defined by any of the following

- Sexual partner is known HIV positive and: not on ART, or on ART < 6 months, or suspected poor adherence to ART, or most recent VL is detectable
- Sexual partner/s are of unknown HIV status and are at high-risk for HIV infection (has multiple sexual partners, has had STIs, engages in transactional sex, injects drugs, from high HIV burden settings)
- Engaging in transactional sex
- History of recent sexually transmitted infection
- Recurrent use of post-exposure prophylaxis
- History of sex whilst under the influence of alcohol or recreational drugs as a habit
- Inconsistent or no condom use or unable to negotiate condom use during intercourse with persons of unknown HIV status
- Injection drug use where needles and syringes are shared
- Sero-discordant couples trying to conceive

Criteria

To qualify for PrEP, patients must meet ALL of the following criteria

- Confirmed HIV negative (rapid antibody testing following the HTS algorithm on the day of PrEP initiation is adequate confirmation of HIV-negative status)
- Does not have a current or recent (within past one month) illness consistent with acute HIV infection (fever, sore throat, muscle or joint pains, swollen glands, diarrhoea or headache) in combination with a preceding high-risk exposure for HIV
- Assessed as ready to adhere to PrEP and willing to attend follow-up evaluations including repeat HIV testing and monitoring for side effects
- No contraindication to use of TDF +/- FTC (or 3TC)

PrEP does not eliminate the risk of HIV infection and it does not prevent STIs or unintended pregnancies. It should, therefore, be offered as part of a combination prevention package that includes risk reduction counselling, HIV testing, condoms and lubricants, STI screening and treatment, contraception, needle exchange and opioid replacement therapy.

11.3. Risk Behavior Assessment

Providers should make every effort to establish rapport with potential PrEP clients, provide adequate privacy and offer assurances of confidentiality. A non-judgmental attitude will contribute towards open conversations where clients will be free to share accurate information on risk (for risk assessment, see Table 11.2) and concerns about PrEP. PrEP should only be offered after thorough assessment to establish eligibility, readiness for effective use, commitment to adhere to required follow-up and absence of contraindications to TDF and/or FTC.

Table 11.2: Risk Behavior Assessment

- In the last 6 months:
- Have you been sexually active?
- Have you had more than one sexual partner?
- Have you had sexual contact where neither you nor your sexual partner was wearing a condom? How many of your sexual partners were HIV-positive or unknown HIV status?
- Have you had sex with HIV-positive partners or persons of unknown HIV status without a condom? Have you been treated for a sexually transmitted infection?
- Have you injected drugs that were not prescribed by healthcare provider? If yes, did you use syringes, needles or other drug preparation equipment that had already been used by another person?
- Have you had sex while you or your partner was under the influence of alcohol or drugs? History of GBV/IPV?
- Are you in a HIV discordant relationship newly diagnosed?

11.4. Minimum Required Laboratory Evaluation for PrEP

Before initiating PrEP, the following investigations should be performed:

- Rapid HIV test as per HTS guidelines
- Baseline creatinine is recommended but should not delay initiation of PrEP. For clients with pre-existing risk factor for renal impairment (such as age > 65 years, diabetes, uncontrolled hypertension, glomerulonephritis, HBV and HCV infection), every effort should be made to obtain a serum creatinine prior to initiation of PrEP
- Where available: HBsAg and HCV serology; if HBsAg is negative, offer HBV vaccination

The following investigations should be done for monitoring patients on PrEP

- Rapid HIV antibody test every 3 months
- Annual serum creatinine and CrCl

Table 11.3: Summary of Initial and Follow-up Assessment

Visit	Action
First (Screening Visit) Clinician Visit	• HIV testing and counselling • Evaluate for eligibility & willingness and readiness to take oral PrEP • Educate about the risks, benefits and limitations of PrEP • Educate client about recognizing symptoms of acute HIV infection and what to do if such symptoms occur (i.e. urgently return for HIV testing) • Behaviour risk assessment • STI screening, contraceptive counselling and services • LMP and contraceptive use (for women); if pregnancy suspected, obtain a pregnancy test. However, pregnancy is not a contraindication to PrEP • Adherence counselling • Discuss combination prevention • Laboratory Evaluation ○ CrCl, HBsAg, pregnancy test (baseline investigations should not delay initiation of PrEP) If no contraindication to TDF and the client is eligible and ready, prescribe TDF/FTC one tablet once daily for 30 days (alternative TDF/3TC one tablet once daily for 30 days, or TDF 300 mg once daily for 30 days); agree on a follow-up date before the prescription is finished
Visit 2 (Month 1) Counsellor/Clinician Visit	• Counsellor/ Clinician visit • Safety monitoring clinical assessment • HIV testing • Adherence and risk reduction counselling • Offer HBV vaccination if available and HBsAg negative (follow HBV vaccination schedule complete series, Table 9.1)
Visits Months 3, 9, 15, 18 Counsellor-led visits	• HIV testing and counselling • HIV risk review and assessment for PrEP continuation • Support adherence counselling
Visits for months 6, 12, 18, 24, 36 Clinician-led visit	• HIV test • Creatinine and creatinine clearance annual (earlier, if indicated) • Risk assessment review • Adherence support • Review for continuation or discontinuation of PrEP
During every visit • Reassess risk of HIV infection and offer risk reduction counselling. HIV testing should be repeated every 3 months • Assess for adverse effects and adherence **Remind PrEP users that it takes 7 doses of PrEP to achieve adequate levels of the ARVs in tissues to be effective. During these days, safer sex practices should be encouraged (including abstinence and condoms).**	

11.5. Contra-indications to Oral PrEP

- HIV infection or suspected acute HIV infection (i.e. flu-like symptoms in the last 4 weeks in combination with a preceding high-risk exposure for HIV)
- Adolescents < 35 kg or age < 15 years
- Impaired renal function (estimated creatinine clearance of <50 ml/min)
- Unable or unwilling to adhere to prescribed PrEP or follow-up schedule

Table 11.4: Managing Clinical and Laboratory Results on Initial and Follow-up Assessment

Screening	Action
HIV-positive at initial evaluation	Do not start PrEP, counsel and link to treatment and prevention
HIV-positive after initiation of PrEP	Discontinue PrEP, counsel and link to treatment and prevention
Positive STI Screen	Thorough genitourinary and anorectal examination, urine dipstick for urethritis, serological testing for syphilis, full STI evaluation of resources available (refer to STI algorithm). Refer to guidelines on syndromic management of STIs
HBsAg-negative	Offer HBV vaccination
HBsAg-positive	This is not a contraindication to PrEP. However, will require monitoring of liver function and referral for management of liver disease
Flu-like illness after initiating PrEP	Continue PrEP, test for HIV at first contact and after 28 days, and if negative, continue with usual follow-up
Side effects of PrEP	GIT - nausea, vomiting, weight loss: these are often mild, self-limiting and occur during the first 1-2 months. Provide supportive counselling, offer symptomatic treatment e.g. anti-emetics like metoclopramide 10 mg 8 hourly for 3 to 5 days Renal - transient increase in creatinine, and rarely proteinuria and Fanconi's syndrome (presenting as polyuria, bone pain and weakness). Measure creatinine (and calculate estimated creatinine clearance) at initiation of ART, at 1 and 4 months and annually thereafter (or whenever indicated (symptom directed)). If creatinine clearance (eGFR) < 50 ml/min do not start PrEP, recheck after 2 weeks. Refer for evaluation of underlying renal disease. If the renal function returns to normal, reassess for PrEP and initiate/ continue PrEP. When restarting PrEP, optimum protection is reached after 7 doses of PrEP. PrEP should not be prescribed for individuals using nephrotoxic drugs like acyclovir, aminoglycosides, retinoids, instead, offer alternative HIV prevention services
Pregnancy or breastfeeding	Pregnancy and breastfeeding are not contraindications to provision of PrEP. Pregnant or breastfeeding women whose sexual partners are HIV positive or are at high risk of HIV infection may benefit from PrEP as part of combination prevention of HIV infection. PrEP is also indicated for HIV-negative in discordant partnerships who wish to conceive. PrEP in these situations can be prescribed during the pre-conception period and throughout pregnancy to reduce risk of sexual HIV infection

11.6. Criteria for Discontinuing PrEP

PrEP should be discontinued if ANY of the following criteria are met

- Becomes HIV positive
- Change in risk status (low risk)
- Renal dysfunction with creatinine clearance below 50 ml/min
- Client request to stop
- Sustained non-adherence
- The HIV positive partner in a discordant relationship achieves confirmed undetectable viral load. But the couple should continue consistent condom use

Users discontinuing PrEP due to low risk or requesting to stop should continue PrEP for at least 28 days after the last potential exposure to HIV. Reasons for discontinuation should be documented in the client's record.

Table 11.5: Pre-Initiation Education Checklist

How PrEP works as part of combination prevention	Explain the need for baseline and follow-up tests including HIV testing
Limitations of PrEP • Link efficacy to adherence • PrEP reduces but does not eliminate the risk of acquiring HIV • PrEP does not prevent pregnancies and STIs	Discuss when and how PrEP may be discontinued
PrEP use • The medications used (show the client the pills) • How the medications are used (daily) • Number of daily doses required to achieve efficacy (7 doses) • What to do when doses are missed (continue daily doses) • Discontinuation of PrEP (need to continue for 28 days from last potential exposure to HIV) • Side effects and what to do in case these are experienced (consult the clinician)	Discuss what to do in case client experiences symptoms of seroconversion (acute HIV infection)
Long-term use and safety of PrEP	• Risk reduction counselling and Support Education (risk and safer sex practices) • Managing mental health needs • Couple counselling • Access to, and consistent use of condoms and lubricants • Access to and need for frequent HIV testing • Early access to ART • VMMC • STI screening and treatment • Harm reduction for PWID

Table 11.6: Pre-Initiation Assessment Checklist

Item	Y/N	Item	Y/N
HIV testing and counselling, HIV-negative		STI screening and treatment	
Symptoms of acute viral infection in last 6 weeks		**For Women**	
		Pregnancy test	
		Pregnancy and pregnancy intention	
		• Is the client currently using any contraception?	
		• If not, is she interested in using long-term hormonal contraception in addition to condoms?	
		• Is the client trying to conceive?	
		• Is the client pregnant or breastfeeding?	
Behaviour risk assessment		Plans for accessing PrEP	
Substance use and mental health screening		Serum creatinine and creatinine clearance > 50 ml/min	
Partner information		HBsAg	
Pre-initiation education and understanding of PrEP		HCV serology	
Readiness and willingness to adhere to prescribed PrEP and follow-up schedule		Medication history	

11.7. Who Should Provide PrEP and Where

PrEP must be prescribed by a healthcare professional who has completed training on the national guidelines for the use of ARVs as PrEP.

PrEP can potentially be offered in any setting that has trained healthcare professionals who have been trained on the national guidelines for use of ARVs as PrEP, and with systems and tools in place for the monitoring, documentation, and reporting of PrEP use.

PrEP implementation can be integrated in any setting that meets the conditions for initial evaluation and initiation including

- Drop-in Centers (DICEs) for key populations (including community and facility settings)
- HIV clinics (for HIV-negative partners before the HIV-positive partner achieves viral suppression)
- ANC/MNCH/RH and STI clinics
- Community settings meeting the criteria for initial client assessment and evaluation, e.g. integrated prevention centers and youth friendly outlets

12. People Who Inject Drugs (PWID) and HIV

12.1. Introduction

The use of ART for HIV in key populations should follow the same general principles and recommendations as for all adults. People in key populations may experience discrimination and marginalization that can impede their access to health care, including treatment for HIV, and frequently present late for treatment. It is important to ensure that people from key populations have equitable access to HIV treatment and care. Programs should ensure that missed opportunities are minimized and every single encounter with someone from a key population is optimally used. ART service delivery includes decentralization of HIV care and treatment and integrating ART services into other clinical services such as Medically Assisted Therapy and drop in centers where appropriate capacity exists.

People who inject drugs (PWID) are at increased risk of HIV infection. In Kenya, the HIV prevalence among PWID is up to 4 times that of the general population. PWID also suffer a higher burden of viral hepatitis (HBV and HCV), TB and sexually transmitted infections irrespective of HIV status. Despite this, PWID have limited access to HIV treatment and prevention services.

Every effort should be made to implement evidence-informed interventions in the comprehensive package of measures targeting PWID, either in combination or (depending on site capacity) singly, with linkage to comprehensive care (Table 12.1).

PWID have complex needs related to drug dependency, psychosocial and medical complications of injection and other substance use. When they require ART, anti-TB or any other therapy, they are at increased risk of adverse drug reactions and drug interactions and non-adherence. These patients are best comprehensively managed by providers who have received specific training in the management of injection drug users. Once identified, PWID should be counselled and linked to programs with the capacity to offer comprehensive care for such patients

Table 12.1: Comprehensive Package of Harm Reduction for PWID

Intervention	Comment/Recommendations
HIV testing services	PWID are at high risk of HIV infection, are diagnosed late and therefore have poorer treatment outcomes following ART initiation • PWID should be offered regular HIV testing and counselling and be linked to comprehensive HIV treatment and prevention services including harm reduction counselling and support • Retest for HIV every 3 months if there is ongoing risk
Targeted information, education and communication for PWID and their sexual partners	PWID and sexual partners should be provided with information and counselling on risks related to drug use and risky sexual behavior, and where and what harm-reduction services are available. Peer-based networks are effective in improving access and retention to harm reduction care
Condom provision	The correct and consistent use of condoms with condom-compatible lubricants is recommended for all PWID to prevent pregnancy and sexual transmission of HIV and STIs
Prevention and treatment of sexually transmitted infections	PWID may be at higher risk of STIs due to sex work or other risky sex practices. STIs, especially GUDs increase the risk of HIV infection and transmission, and are often a sign of unsafe sexual behavior or risk of HIV transmission. Screening, diagnosis, treatment and prevention of STIs should be offered routinely as part of comprehensive HIV prevention and care for PWID
Prevention, diagnosis and treatment of TB	Independent of HIV infection, PWID have an increased risk of TB. HIV infection further increases this risk. All PWID should be screened regularly for active TB using the symptom-based screening algorithm at each contact with healthcare workers. Once active TB is ruled out, IPT should be provided to PWID living with HIV for 6 months with support provided to ensure adherence. PWID with active TB should receive standard TB treatment as per the national guidelines and be supported to complete treatment. Anticipate and manage complications due to viral hepatitis or renal impairment. • PWID should have the same access to TB prevention, screening and treatment services as other populations at risk of or living with HIV

Prevention, vaccination, diagnosis and treatment for viral hepatitis	Hepatitis B and C disproportionately affect PWID due to overlapping risk factors of sexual transmission and sharing needles, syringes and other drug use items. Harm reduction and behavioral interventions are also effective in reducing risk of infection/transmission of HBV and HCV.
	• PWID should be screened for HBV (by HBsAg) and HCV (by HCV serology) at first contact
	  ○ Hepatitis B
	  ▪ Hepatitis B vaccination is recommended for those who are HBsAg negative. A higher-dose HBV vaccine should be used with the rapid regimen (day 0, 7, 21, and a booster at 12 months). If the rapid regimen is not available, the standard regimen should be offered. For PWID who are HIV positive, they should follow the dosing schedule in Table. 9.1
	  ▪ HBV/HIV co-infected PWID should be started on ART containing DTG + TDF + 3TC (or ATV/r + TDF + 3TC for women and adolescent girls of childbearing potential) in addition to harm-reduction interventions to optimize adherence and treatment outcomes
	  ○ Hepatitis C
	  ▪ HCV/HIV co-infected PWID should be initiated on ART. Specific HCV antiviral therapy is recommended in consultation with expertise in the management of HCV infection

Table 12.1 (Continued): Comprehensive Package of Harm Reduction for PWID

Intervention	Comment/Recommendations
Needle and syringe programmes (NSPs)	NSPs help decrease drug-related risk behaviors, reduce quantity of contaminated needles in circulation, reduce risk of new HIV infections and improve referrals and linkages to HTS and HIV treatment and prevention services. NSPs are effective means for introducing combination prevention to PWID including HTS, STI screening and treatment, condoms provision, OST, and HIV treatment and prevention **All PWID should be linked to NSPs to access sterile injecting equipment**
Opioid substitution therapy (OST)	OST using methadone or other suitable alternative is effective in The treatment of opioid dependency Reducing risk behaviors related to drug use and therefore Reducing HIV transmission Improving PWIDs' adherence to ART Identify and link all PWID for opioid substitution therapy
Antiretroviral therapy	ART is effective in managing HIV infection in PWID. However, poor adherence may interfere with ART success. Intensive support is required including OST, enhanced counselling techniques and DOT when available Close monitoring of ART is necessary because of risk of drug-drug interactions, renal and liver toxicity HIV-positive PWID should be offered comprehensive HIV treatment and prevention services including ART. When ART is provided with additional targeted support, PWID can achieve and maintain viral suppression similar to others' outcomes Oral PrEP (containing TDF) is recommended as an additional prevention choice for PWID at substantial risk of HIV infection as part of combination prevention and harm reduction approaches
Community outreach	PWID face barriers to accessing formal facility-based health services due to stigma, discrimination and fear of victimization among other factors. Outreach either directly from the facility or through collaborations with community-based groups is an effective means of delivering harm-reduction interventions in addition to HIV treatment and prevention services. Peer-led, community-based approaches are particularly useful in improving adherence and retention

12.2. ART in HIV positive PWID

Table 12.2: Summary of ART Recommendations for PWID

Care and Support	Recommendation/Additional Information
When to start ART in HIV positive PWID	ART should be initiated in all individuals with HIV regardless of WHO clinical stage or CD4 cell count
What to start with (first-line ART)	Irrespective of OST, PWID with HIV infection should be initiated on a first-line regimen of TDF + 3TC + DTG (or TDF + 3TC + ATV/r for women and adolescent girls of childbearing potential) • For PWID with TB/HIV co-infection on DTG, give TDF/3TC/DTG FDC am + DTG 50mg pm for duration of rifampicin-containing TB treatment and for an additional 2 weeks after TB treatment is completed, then revert to TDF/3TC/DTG FDC OD.
Second-line ART	Patients failing DTG-based first line ART (including PWID) should switch to ATV/r-based second ART as per Table 6.11 Patients failing ATV/r-based first line ART (including PWID) should have a DRT performed for selection of 2nd line regimens as per Table 6.11
Treatment preparation and adherence counselling and support	Injection drug use is not a contra-indication to ART initiation. OST, though important in contributing to the success of ART in PWID, should not be a pre-requisite to initiation of ART. However, these patients benefit from additional preparation and support to increase their chances of successful treatment including: • Harm reduction interventions • Thorough baseline assessment for important comorbid conditions like hepatitis, renal impairment, TB and depression or other psychiatric disorders • Negotiation for, and access to directly observed therapy • Community outreach

Preventing and managing drug-drug interactions	• ARV interactions with methadone
	  ○ NRTIs
	  ▪ TDF, 3TC, FTC: no significant interactions
	  ▪ AZT levels are increased, with higher risk of AZT toxicity
	  ▪ ABC levels are decreased and methadone levels are decreased
	  ○ NNRTIs
	  ▪ EFV and NVP: methadone levels are decreased, and may induce withdrawal symptoms
	  ○ PI/r: all boosted PIs decrease methadone levels
	  ▪ LPV/r and methadone increase risk for prolonged QT syndrome and sudden cardiac death
	  ○ INSTIs: no significant interactions
	• ARV interactions with buprenorphine
	  ○ ATV/r and DRV/r increase concentrations of buprenorphine or its active metabolites and may increase risk of toxicity
	  ○ EFV decreases buprenorphine levels substantially
	  ○ No known significant interactions with other ARVs
	• Rifampicin decreases levels of methadone and may induce withdrawal symptoms
	• Rifabutin and INH can be used safely with methadone or buprenorphine

Monitoring	PWID on ART require more frequent monitoring and support to ensure adherence to treatment and harm reduction interventions, assess for and manage adverse drug reactions or drug-drug interactions Ongoing monitoring should also include screening for other illicit substance/drug use.

13. Annexes

Annex 1: WHO Clinical Staging of HIV Infection in Infants and Children

Stage I • Asymptomatic • Persistent generalized lymphadenopathy (PGL) • Unexplained, asymptomatic hepatosplenomegaly	Stage II • Papular pruritic eruptions (PPE) • Seborrheic dermatitis • Fungal nail infections • Angular cheilitis • Linear gingival erythema • Extensive HPV or molluscum infection (>5% of body area/face) • Recurrent oral ulcerations (>2 episodes/ in 6 months) • Parotid enlargement • Herpes zoster (>1 episode/12 months) • Recurrent or chronic upper respiratory infection (URI): otitis media, otorrhoea, sinusitis (>2 episodes/6 months)
Stage III • Unexplained moderate malnutrition (-2SD or Z score) not responding to standard therapy • Unexplained persistent diarrhoea (>14 days) • Unexplained persistent fever (intermittent or constant, > 1 mo.) • Oral candidiasis (outside neonatal period) • Oral hairy Leucoplakia • Pulmonary tuberculosis • Severe recurrent presumed bacterial pneumonia (>2 episodes/12 months) • Acute necrotizing ulcerative gingivitis/ periodontitis • Lymphoid interstitial pneumonitis (LIP) • Unexplained anaemia (<8g/dL), neutropenia (<1,000/mm^3), or thrombocytopenia (<30,000/$mm^{3)}$ for >1 mo. • HIV-related cardiomyopathy • HIV-related nephropathy	Stage IV • Unexplained severe wasting or severe malnutrition (-3 SD or Z score) not responding to standard therapy • Pneumocystis pneumonia • Recurrent severe bacterial infections (>2 episodes/12 months, excluding pneumonia) • Chronic orolabial or cutaneous HSV (lasting > 1 mo) • Extra-pulmonary tuberculosis • Kaposi's sarcoma • Oesophageal candidiasis • CNS toxoplasmosis • Cryptococcal meningitis • Any disseminated endemic mycosis • Cryptosporidiosis or Isosporiasis (with diarrhoea > 1 month) • CMV infection of organ other than liver, spleen, lymph nodes (and onset age >1 month) • Disseminated mycobacterial disease other than tuberculosis • Candida of trachea, bronchi or lungs • Acquired recto-vesicular fistula • Cerebral or B-cell non-Hodgkin's lymphoma • Progressive multifocal leucoencephalopathy (PML) • HIV encephalopathy

NOTE: WHO Clinical Staging should be carried out only on children confirmed (by serology or DNA PCR) to be HIV infected

Annex 2: WHO Clinical Staging of HIV Infection in Adolescents and Adults

<table>
<tr>
<td>Stage 1
• Asymptomatic
• Persistent Generalized Lymphadenopathy (PGL)</td>
<td>Stage 2
• Moderate unexplained weight loss (< 10% of presumed or measured body weight)
• Minor mucocutaneous manifestations (seborrheic dermatitis, papular pruritic eruptions, fungal nail infections, recurrent oral ulcerations, angular cheilitis)
• Herpes zoster
• Recurrent upper respiratory tract infections (sinusitis, tonsillitis, bronchitis, otitis media, pharyngitis)</td>
</tr>
<tr>
<td>Stage 3
• Unexplained severe weight loss (over 10% of presumed or measured body weight)
• Unexplained chronic diarrhoea for longer than one month
• Unexplained persistent fever (intermittent or constant for longer than one month)
• Persistent oral candidiasis
• Oral hairy leukoplakia
• Pulmonary tuberculosis
• Severe bacterial infections (e.g. pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteraemia)
• Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis
• Unexplained anaemia (below 8 g/dl), neutropenia (below 0.5 x 109/l) and/or chronic thrombocytopenia (below 50 x 109 /l)</td>
<td>Stage 4
Conditions where a presumptive diagnosis can be made using clinical signs or simple investigations:
• HIV wasting syndrome
• Pneumocystis jirovecipneumonia (PCP)
• Recurrent severe bacterial pneumonia (≥ 2 episodes within 1 year)
• Cryptococcal meningitis
• Toxoplasmosis of the brain
• Chronic orolabial, genital or ano-rectal herpes simplex infection for > 1 month
• Kaposi's sarcoma (KS)
• HIV encephalopathy
• Extra pulmonary tuberculosis (EPTB) Conditions where confirmatory diagnostic testing is necessary:
• Cryptosporidiosis, with diarrhoea > 1 month
• Isosporiasis
• Cryptococcosis (extra pulmonary)
• Disseminated non-tuberculous mycobacterial infection
• Cytomegalovirus (CMV) retinitis or infection of the organs (other than liver, spleen, or lymph nodes)
• Progressive multifocal leucoencephalopathy (PML)
• Any disseminated mycosis (e.g. histoplasmosis, coccidiomycosis)
• Candidiasis of the oesophagus or airways
• Non-typhoid salmonella (NTS) septicaemia
• Lymphoma cerebral or B cell Non-Hodgkin's Lymphoma
• Invasive cervical cancer
• Visceral leishmaniasis
• Symptomatic HIV-associated nephropathy or HIV associated cardiomyopathy</td>
</tr>
</table>

Annex 3: Normal Developmental Milestones in Children

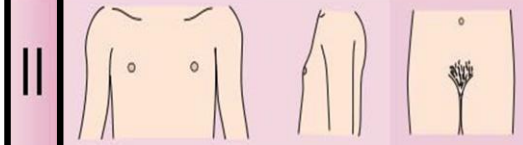
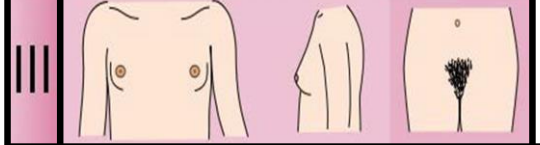
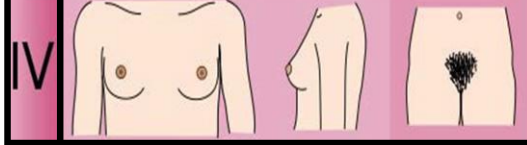
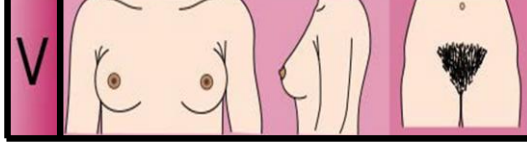
AGE	GROSS MOTOR	FINE MOTOR	WARNING SIGNS
 3 Months	**Supine:** • Pull to sit: • 45 ° head lag still present **Sitting: Propped up** • Flexed/C-Position • Hold head steady **Prone:** • Bears weight on flexed arms • Lifts head 45 ° turn head to side	**Eyes:** • Follow through 90 ° in lying **Hands:** • Open for longer • Shake a rattle when it is placed in the hand (not intentional) • Mouthing begins	• No visual fixation or following asymmetry of tone or movement. • Floppy/stiff • Consistent fisting • Unstable to turn or lift head • Failure to smile • Poor sucking & swallowing
 6 Months	**Supine:** • Pull to sit, no more head lag • Plays with feet • Rolls from back to tummy **Sitting:** • Unaided supported by arms **Standing:** • Bears weight on legs, equal both sides **Prone:** • Props self on straight arms, legs extended, toes turned outwards	**Eyes:** • Follow through 180 ° in lying • Focus on small objects **Hands:** • Hands on midline • Banging blocks against the table reaches and attains objects at will Holds and actively plays with rattle	• Floppiness • No head control • Failure to use both hands • Asymmetrical movement squint • Failure to turn to sound • Poor response to people
 9 Months	**Sitting:** • Sits without support lean forward • And sit up again without losing balance **Standing:** • Remain standing for a few seconds by holding onto an object, falls down again **Prone:** • Baby starts to crawl	**Eyes:** • Extremely accurate vision **Hands:** • Can pick up and button • Holds a block in each hand • Points	• Unable to sit • Failure to use both hands • Fisting • Squint • Persistence of primitive reflexes
 12 Months	**Sitting:** • Turns around to reach nearby toys • Sits down unaided from standing **Standing: (Walking)** • Walks forward if held by one hand • Walks around furniture sideways-cruising **Prone:(crawling)** • Crawls • Pulls up to standing by holding onto object	**Eyes:** • Looks for toys when out of sight **Hands:** • Able to pick up a button with thumb and index finger (pincer grasp) • Release on request • Hold with 1 hand and play with the other • Throws things into a container and take it out again	• Unable to bear weight on legs • Not yet crawling and pulling to stand • Abnormal grasp • Failure to respond to sound • Unable to start with solids independently
 15 Months	**Sitting:** • Stand up from sitting • Will climb on a chair and sit down **Standing: (Walking)** • Bend over to pick up an object • Squat and stand up again • Walks alone, broad base with arms in the airs **Prone: (crawling)** • Able to crawl fast and manage obstacles e.g. stairs	**Eyes:** • Hold crayon in a fist when scribbling • Turn pages of a book roughly • Hold 2 small toys in 1 hand • Put lid back on container	• Unable to bear weight on legs • Not yet walking • Abnormal grasp • Abnormal posture: floppy/spastic • Failure to respond to sound • Not yet talking
 18 Months	• Walking with more confidence • Walk, squat and pick up something, stand up and walk again • Starts running, often falls • Take few steps backwards • Runs and change direction easily • Jump off step with 2 feet together • Stand and kick a ball • Able to throw a ball	• Build a 3-cube tower • Scribbles • Holds the crayon in a fist • Turn pages of a book • Page through a book page by page • Obvious hand preference • Uses lines: I, _,0 • Completes 3-piece puzzle • Remove a sweet wrapper with little help	• Failure to walk • Unable to pick up small objects e.g. buttons • Abnormal posture • Not yet talking • Unable to understand simple commands • Poor co-ordination
 36 Months	• Walk forward and backward • Walks on tip toes • Walks on straight line • Jump 2 feet together • Able to climb on chair • Catch a big ball (hugging against chest) • Holds ball above head and throws • Runs and kicks ball	• Copies the following shapes: _, I, O, T • Start coloring in, go over the lines • Pencil grip: • Holding crayon to draw (still developing) • Builds a 9-block tower • Thread big beads on a shoelace • Draw a man: at least 4 parts	• Using only single words • Ataxia

Tanner Staging of Sexual Maturity in Adolescents

Annex 4 B: Tanner Staging of Sexual Maturity in Boys

Tanner Staging in		Age Range
I		0–15
II		10–15
III		10–16
IV		Variable (12-17)
V		13–18

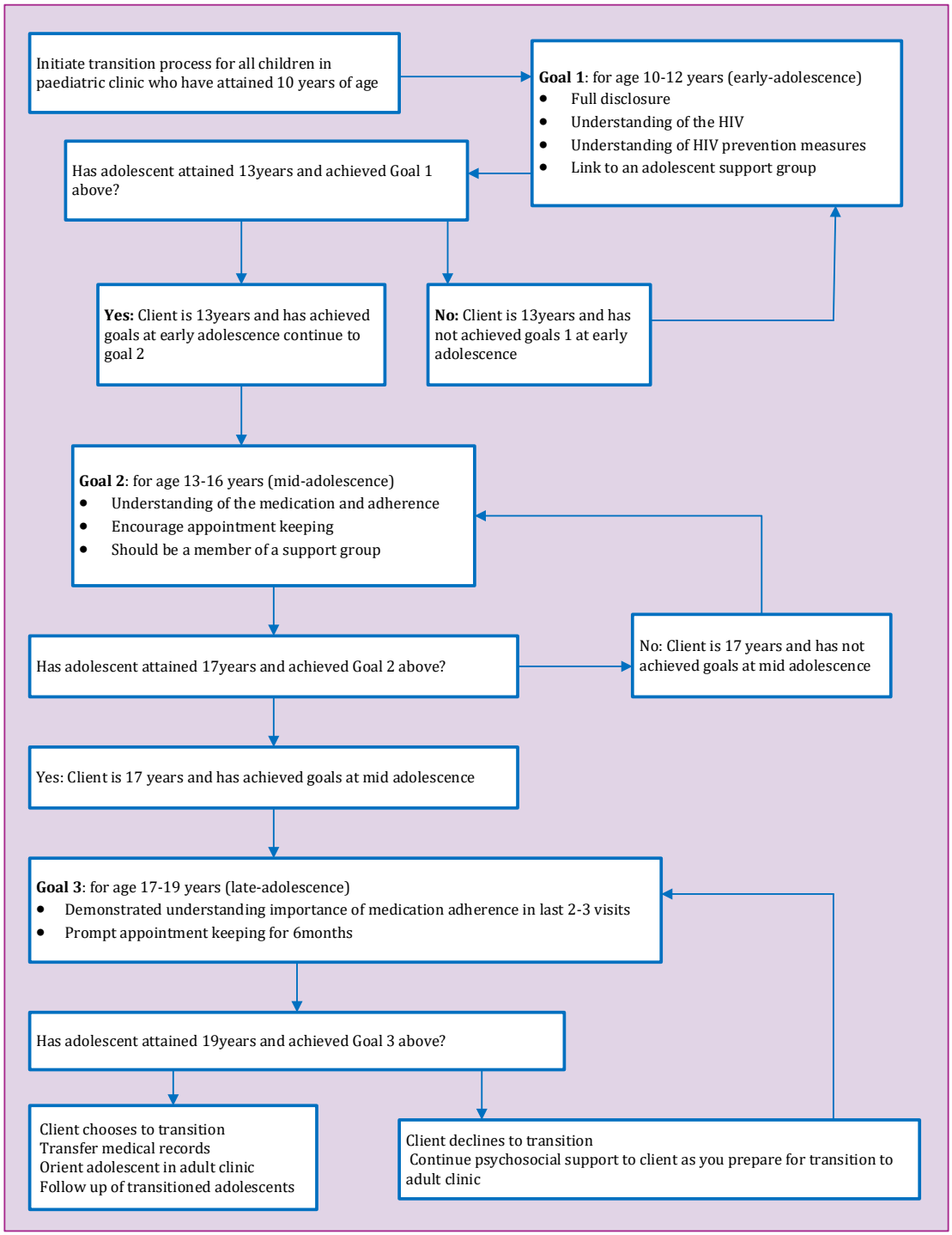
Annex 4 A: Tanner Staging of Sexual Maturity in Girls

Tanner Staging in		Age Range
I		0–15
II		8–15
III		10–15
IV		10-17
V		12–18

Annex 5: Age Appropriate Disclosure for Children and Adolescents

Age Characteristics	Stage of Disclosure	Provider Actions
0 - 4 years	No disclosure	At this stage no disclosure is done since the child is too young to understand about HIV
5 - 8 years	Partial disclosure	At this age the child can understand a lot. Define the virus as a germ and the CD4 as the soldier in the body that keeps fighting and one has to take the drugs to strengthen the soldiers in the body
9 to 12 years	Full disclosure	Full disclosure is important since most children at this stage are able to understand more about HIV and would have heard about HIV as part of formal education at school Follow the following stages in the disclosure process **Stage 1** Assessing the child's social support system to ensure availability of sufficient support once disclosure is completed **Stage 2** Assess the child's prior knowledge about HIV including information given at school, any myths and misconceptions. Offer or reinforce accurate information **Stage 3** Use an imaginary exercise or story to assess child's reaction to disclosure of HIV status **Stage 4** Tell the child about their HIV status. Support parents to disclose to the child and clarify the mode of infection. Address immediate reactions and concerns a child might have
	Post-disclosure (1-2 weeks after full disclosure)	Find out from the parent/guardian if they have observed anything after disclosure, e.g. change in behavior • Introduce the child to tell their story and emerge as a hero (a comic book may be a useful aid) • Link the child to a support group or with an older child who has been disclosed to NB: Find out how the child is doing at every visit after full disclosure

Annex 6: Transitioning from Adolescent to Adult HIV Services



Annex 7: Treatment of Cryptococcal Meningitis

Target population	Regimen	Induction (2 weeks)	Consolidation (8 weeks)	Maintenance	When to start ART
Adults	Preferred	Ampho B 1.0 mg/kg/day + Fluconazole 1,200 mg/day	Fluconazole 800 mg/day	Fluconazole 200 mg/day for at least 1 year and until CD4 count > 100 cells/mm^3 for two measures 6 months apart AND VL is undetectable	Defer ART until after completing 5 weeks of CM treatment and symptoms have resolved
	Alternative	Fluconazole[1,2,3] 1,600 mg daily	Fluconazole 800 mg daily		
Children and adolescents	Preferred	Ampho B 1.0 mg/kg/day + Fluconazole 12 mg/kg/day (up to max 800 mg/day)	Fluconazole 6-12 mg/kg/day up to 800 mg/day	Fluconazole 6mg/kg/day up to 200 mg/day	
	Alternative	Fluconazole[1,2,3] 12 mg/kg/day (up to max 1,600 mg/ day)	Fluconazole 12 mg/kg/day up to 800 mg/day	Fluconazole 6mg/kg/day up to 200 mg/day	

[1]Fluconazole requires a dose adjustment for impaired renal function when CrCl ≤ 50 ml/min then use 50% of the standard recommended dose
[2]Flucozole should not be used with rifabutin-based TB treatment
[3]When using high-dose fluconazole check ALT after one week of treatment and based on symptoms thereafter

Managing and Monitoring for Amphotericin B Therapy

Adults

- Give 1 L of normal saline with 20 mmol of KCl over 2-4 hours before each controlled infusion of Ampho B given with 1 litre of 5% dextrose. Add one to two tablets of 8 mEq KCl orally twice daily. An additional one 8 mEq KCl tablets twice daily may be added in the second week. Include magnesium supplementation at 250 mg tablets of magnesium trisilicate twice daily (or 4 mEq tablets of magnesium chloride twice daily)

Adolescents and Children

- Give 1 L of normal saline with 20 mmol of KCl over 2-4 hours before each controlled infusion of Ampho B. Darrows or Ringer's solutions can also be used
- Avoid KCl replacement in patients with pre-existing renal impairment or hyperkalaemia

Managing hypokalaemia and raised creatinine levels

- Obtain a routine baseline and twice weekly potassium and creatinine:
  - If K < 3.3 mmol/L, administer 1 L of normal saline with KCl 40 mmol in normal saline or 1-2 tablets of 8mEq KCl every 8 hours. Add magnesium. Monitor potassium daily
  - If creatinine level increases > 2-fold from baseline, omit dose of Ampho B, increase hydration to 1 L every 8 hours. If there's improvement, re-start Ampho B at 0.7 mg/kg/day on alternate days. If no improvement, discontinue Ampho B, give fluconazole 1,600 mg/day to complete induction. Monitor creatinine daily

Therapeutic lumbar punctures are a critical component of the management of CM and should be standard of care:

- For all patients with symptomatic CM: perform daily therapeutic lumbar punctures:
  - If opening pressure is ≤ 40 cm: draw off enough CSF to reduce pressure to 20 cm
  - If opening pressure is > 40 cm: draw off enough CSF to reduce pressure by 50%
  - Continue daily LPs until pressure is normal for 3 consecutive days
  - Restart LPs if symptoms return
  - If measuring intracranial pressure is not possible (even using a giving set and tape measure), then perform daily therapeutic LPs until severe headache subsides, removing 10-20 ml of CSF each time

Annex 8: HIV Education and Adherence Counselling Content Guide

HIV Education and Adherence Counselling
Note: for children/adolescents, the script below should be modified towards the caregiver

Section 1: Introductions, climate setting, and review of objectives for the session

- Ensure privacy and confidentiality
- Introductions of all participants
- Present the key message for each section using simple terms that the patient will understand, using analogies as appropriate
- Use IEC material when available
- Ask the patient if they have any questions at the end of each section, and then ask them to explain the main points back to you to confirm understanding
- If this is a follow-up session, review what they remember from previous sessions and adapt the session to address their needs

Section 2: HIV

- What is HIV
  - HIV stands for "Human Immunodeficiency Virus"
  - HIV is a virus that attacks the body's immune system. The immune system protects the body from infections
- How is HIV transmitted
  - Sexual contact
  - Needles
  - Exchange of blood and bodily fluids
  - Mother-to-child transmission
- Why should family members be tested for HIV
  - Sexual partners are at risk for already having HIV
  - All children born to HIV positive mothers are at risk for already having HIV
  - Encouraging partners/children to test for HIV now is the best way to identify HIV early, so they can also get into treatment
  - Starting treatment early will help them live long and productive lives
  - Whether they test positive or negative, they can be an important source of support for your own treatment

Section 3: Viral load

- What is viral load
  - Viral load is the amount of HIV in your body
  - When your viral load is high it means you have a lot of HIV in your body; this causes damage to your body
  - Viral load is measured by a blood test
- How often is viral load measured
  - Viral load is measured after being on treatment for 6 months
  - After 6 months of treatment, we expect the amount of virus in your body to be undetectable; if your VL is detectable then we have to discuss the reasons
  - Having an "undetectable" VL means the test can not measure the virus in your blood because your ART is working, but it does not mean you are no longer infected with HIV
  - Repeat viral load tests are done depending on how you are doing; if you are doing well on treatment then the viral load is measured after another 6 months, then every year (more often for pregnant and breastfeeding women and children)
  - For HEI with positive PCR, we also measure viral load at the start of treatment
- What do viral load measurements mean
  - After being on treatment for 6 or more months, your viral load should be undetectable
  - If your viral load is undetectable it means your treatment is working well and you should continue taking it the same; the virus is not damaging your body any more
  - If your viral load is detectable it means your treatment is not working properly, usually because you have been missing some of your pills; the virus is damaging your body and you and the clinic team will need to work together to figure out how to fix the problem

Section 4: CD4 cells

- What are CD4 cells
  - CD4 cells are the immune cells that protect the body from infections
  - CD4 cells prevent infections and keeps the body healthy
  - CD4 cells are measured through a blood test, called CD4 count. For adults a normal CD4 count is above 500
- How are CD4 cells affected by HIV
  - HIV attacks and destroys CD4 cells
  - After years of constant attack from HIV, the CD4 count falls
- What happens when CD4 cells decrease
  - When the CD4 count falls too low (usually below 200), diseases called "opportunistic infections" are able to infect the body because the body cannot defend itself
  - Common opportunistic infections include: tuberculosis, pneumonia, skin problems, white spots in the mouth, and chronic diarrhoea
- How often is CD4 count measured
  - CD4 count is measured for all patients at the beginning of treatment, to see if you are likely to get any opportunistic infections
  - Once you start treatment for HIV we do not need to check CD4 count frequently, but we will use the VL test to monitor your response to anti-retroviral treatment

Section 5: Antiretroviral therapy (ART)

- What is ART:
  - ART is a combination of 3 or more different medicines
  - ART fights HIV, lowering the amount of virus in the body allowing the body to protect itself against opportunistic infections
  - When the virus level is low then the CD4 count can increase
  - Increased CD4 count means the body is able to protect itself against opportunistic infections
- What are the benefits of ART:
  - After a few weeks of taking ART you will begin to regain appetite and weight (if it has been affected)
  - Many people report an increase in their energy levels and general sense of well being
  - People can often return to work or school or care for their families
  - With ART, people with HIV can live a long and health life if they take it properly
- When is ART started:
  - Everybody with HIV should start ART
  - Even if your CD4 count is high, the virus is doing damage inside of you and needs to be controlled
  - ART should be started as soon as you are ready, preferably within 2 weeks
  - The longer you wait to start ART, the more time the virus can damage your body, increasing your chances of getting sick or even dying
  - Sometimes ART is started a few weeks later if you have certain infections, or if you do not think you are ready to take them properly
- Does ART cure HIV:
  - ART does not cure HIV
  - ART lowers the amount of virus in your body so your body can protect itself from infections
  - It does not remove the virus completely
- Can you still give HIV to others while taking ART:
  - Transmission of HIV is very unlikely once your viral load is under control
  - However, you can still give HIV to other people, since the virus is not totally removed from the body
  - You should practice safer sex to reduce the chance of spreading HIV, including disclosure of HIV status to sexual partners and consistent and correct condom use
- How long is ART taken for:
  - ART is a life-long treatment
  - Once you start ART, you need to take it every day for the rest of your life (either once a day, or twice a day, depending on which drugs you are on)
  - You must take the ART as prescribed and never miss a dose otherwise the treatment might fail and the drugs stop working against the virus

Section 6: Treatment failure

- What happens if you stop taking ART:
  - When you stop taking ART the virus begins to increase in your body very quickly
  - The virus goes back to the same high level it was at before you started ART
- What happens if you do not take ART regularly:
  - The same thing happens: the virus begins to increase to high levels again
- What happens if the viral load increases:
  - When the virus is allowed to increase again, it can change and get stronger, and becomes resistance to the ART
  - When the virus becomes resistant, the ART does not work against the virus anymore
  - The risk of resistance increases by not taking the ART correctly and by starting and stopping the medications several times
  - When resistance occurs, this is called treatment failure
- What happens in treatment failure:
  - The ART no longer works because the virus has become resistant to it
  - If treatment fails, it is necessary to use stronger, more expensive ART, but it still may not work as well
  - With the stronger ART you may need to take more pills every day, and you may have more side effects
  - If you become resistant to the new ART as well, then there may not be any drugs that can work for you, and the virus will increase quickly and your CD4 count will go way down
  - It is essential that you take your ART every day as prescribed so that you do not develop treatment failure, and can live a long and healthy life

Section 7: ART side effects

- What are the side-effects of ART:
  - Sometimes people can get side effects from taking ART
  - Side effects vary from person to person
  - Some people have none while other experience mild effects which are unpleasant but often manageable
  - Most side effects occur within the first few weeks of starting ART and then improve after a few weeks or months
  - Some common side effects include:
    - Headache
    - Loss of appetite
    - Skin rash
    - Fatigue
    - Nausea, vomiting, diarrhoea
    - Muscle pains
- What do you do if you notice any side effects:
  - If you develop any side affects you should continue taking your ART as prescribed, without missing any doses, until you discuss with the clinician
  - If the side effects are mild then you can continue taking your ART without missing any doses, and then discuss the side effects with the clinician at your next appointment
  - If the side effects are bothering you too much then return to the clinic immediately, even if you do not have a scheduled appointment, to discuss what to do next; you can also call the clinic if you are not able to make it yourself immediately
  - Severe side effects include rash all over your body, or rash in your mouth or eyes, constant vomiting, inability to eat or retain food, or anything else that makes you think you should stop the ART. If this occurs then contact the clinic immediately
  - The clinician will help you manage the side effects, and occasionally the ART may need to be changed

Section 8: Adherence

- What is adherence
  - Following a care plan as agreed with the healthcare team
  - Attending clinic appointments as scheduled
  - Picking up medicines and taking them as prescribed
  - Getting lab tests according to the recommended schedule
  - Following nutritional recommendations
- How should ART be taken
  - You must take the correct dosage. If you take less than the dose prescribed the treatment will not be effective and will result in resistance and treatment failure. Never share your ART with someone else
  - For children, the dosage keeps changing as they grow
  - You must take ART the correct time of day:
    - If your ART is supposed to be taken once per day, then pick a time when it will usually be convenient for you to
    - remember, e.g. with breakfast every day.
    - If your ART is supposed to be taken twice per day, then you should set a convenient time to take your drugs approximately 12 hours apart (e.g. 8.00am and 8.00pm every day). It does not have to be exactly 12 hours apart if your schedule does not allow; the most important thing is to take them twice per day every day (e.g. you can take it at 6.00 am and 8.00 pm every day)
  - If you miss a dose of ART then take your dose as soon as you remember, as long as it is not within a couple of hours of your next dose, and then return to your regular schedule. Do not take a double-dose of ART to make up for a missed dose
  - You must take ART according to dietary restrictions. Some ART should be taken with food, for some it does not matter, and a few require that you have an empty stomach. These dietary restrictions will be explained to you once your ART regimen is selected
  - It is essential to take ART as prescribed and not miss any doses
  - Some medications (prescription, non-prescription, and herbal) interact with ART and make them ineffective. Be sure to tell your clinician and pharmacist the names of all the medications (including traditional/herbal) that you are taking, and any time you are given new medications. Avoid use of alcohol
- What usually interferes with good adherence (can apply to the patient or to the caregiver)
  - Stigma: it is hard to take ART correctly if you need to hide it because you are worried about people finding out you have HIV
  - Disclosure: it is hard to take ART correctly if the people closest to you, particularly family members and close friends, do not know you have HIV
  - Change in routine: if your daily routine suddenly changes it may be difficult to remember to take your ART at the usual time
  - Travel: frequent travel, or unexpected travel (such as for a funeral) may interfere with taking ART, particularly if you do not have enough drugs with you for the entire trip
  - Alcohol and drug use: it is hard to remember to take ART when under the influence of alcohol or other drugs
  - Caregiver changes: every time a child has a new caregiver that person needs to learn about how and why ART is taken
  - Side effects: when people get side effects from ART they sometimes stop or reduce the amount of ART they are taking, hoping it will reduce the side effects
  - Pill burden/palatability: sometime the number of pills (or taste of syrups for children) makes it difficult to take ART correctly
  - Distance: choosing an HIV clinic that is far away from your home can make it difficult to come to appointments and pick drugs regularly
  - HIV knowledge: when people do not understand what HIV is, and why ART is important, they may not take their drugs properly. This also applies to children and adolescents, if they have not been told they have HIV and taught what it means
  - Mental health disorders: depression and other mental illnesses can make it difficult to take ART correctly
  - Religious beliefs: some people stop taking ART after faith-healing, although there has never been a case of someone being cured of HIV this way
- What might make it difficult for you individually to take your ART as prescribed
  - Ask the patient: *"Based on what you have learned so far, what challenges do you think you will have taking ART correctly, every day, for the rest of your life?"*
  - Discuss strategies to manage any expected barriers to adherence
- What can help you take ART as prescribed
  - Disclosure: It is easier to take your ART properly when the people close to you know your HIV status, so

you do not have to try and hide your ART or miss doses to avoid being seen. Family and friends can also provide additional support once they are aware you have HIV and understand more about it. We can help you disclose your HIV status to important family members or friends when you are ready
- Treatment supporter: Having a "treatment buddy" can help you take your ART correctly; ask a friend, partner, or family member to remind you to take your ART. If possible, invite that person with you to some of your clinic appointments and counselling sessions so they can learn about ART, the importance of good adherence, side effects, etc.
- SMS reminder system (if SMS reminder system in place at the facility): Receiving a regular SMS, e.g. every week, can help you take your ART correctly. We enroll all our patients into this service for SMS reminders at our clinic, unless you do not want to receive them. The messages simply ask how you are doing, and do not mention HIV, ART, the clinic, or anything else that may reveal your HIV status to others
- Support group: Joining a support group will help you learn from other people how they overcome challenges in living with HIV and taking ART correctly. Some support groups also have economic activities to help increase your income. We have support groups based at the health facility, and there are also support groups in the community
- Other reminders:
  - Set a specific time of day to take your ART
  - Associate your ART with a specific event/s in your daily schedule (e.g. when you eat breakfast and dinner)
  - Set an alarm on your phone or watch

- What happens if you miss an appointment
  - The healthcare team will be concerned about you, and will try to contact you by phone
    - Confirm patient phone number and consent to call if misses an appointment or any urgent lab results
  - If we cannot contact you by phone we will try to call your treatment buddy
    - Confirm treatment buddy name and phone number, and consent to call if needed
  - If we cannot reach you or your treatment buddy, we may try and visit you at home, if we have your permission
    - Confirm locator information and consent to perform home visits if needed
  - Once you are back in care, we will work with you to figure out what caused you to miss an appointment and how it can be prevented in the future
  - You will not be punished for missing an appointment

Section 9: Other medications

- What other medications will you take, in addition to ART:
  - CPT: all PLHIV should take cotrimoxazole preventive therapy once per day, in order to reduce the chance of getting other infections such as pneumonia, malaria, and diarrhoea
  - IPT: all PLHIV should receive 6 months of isoniazid preventive therapy (unless they have active TB disease) in order to prevent development of TB
- Other medications may be recommended for specific conditions

Section 10: Nutrition

- Why is nutrition important:
  - When the viral load is high, your body uses a lot of energy trying to fight the virus
  - If your nutrition is poor you have more chance of getting other infections as well
  - You need to eat well so your body has everything it needs to fight HIV, and so you can feel good and look healthy
- What can you do to improve your nutrition?
  - Eat a balanced diet
  - Try not to eat a lot of sugar, red meat, or fatty/fried foods
  - Try to eat plenty of whole grains, vegetables, fruit, beans, and fish
  - Drink plenty of clean safe water

Section 11: Follow-up

- How often will you need to come to clinic
  - Before starting ART: you should come to the clinic at least every week in order to get you prepared for ART so you can start as soon as possible
  - Soon after starting ART: after you start ART you should come to the clinic in 2 weeks in order to see if you have had any trouble taking your pills or have developed any side effects; then you can be seen after another two weeks for the same; then every month until your first viral load test
  - Once you have been on ART for a while: if your first viral load (after 6 months) is undetectable then you can be seen every 1-3 months. If your viral load is still undetectable after a year, then you may be able to go even longer between clinic appointments
  - Unscheduled visits: if you ever have any concerns, feel unwell, or need to speak with any of the clinic team then you can call or come to the clinic, even if you do not have an appointment scheduled for that day
- What will we be checking for during your clinic visits
  - At each visit you will be asked if you have had any illnesses since last visit, if you have had any trouble taking your ART, and if you are experiencing any side effects. You may need a physical exam or blood tests at some visits

Section 12: ART readiness assessment

- Are you ready to start ART today?
  - Complete the ART Readiness Assessment (Table 5.3) for each patient to see if they should start ART today, and if not, to identify what issues need to be addressed before starting ART

Section 13: Management plan

- Which investigations will you have today
  - See Table 3.2 and Table 3.4 for recommended baseline and follow-up investigations respectively
- Which medications will you start today
  - May include: ART; CPT; IPT; other
- What else is required as you start or as you prepare to start ART
  - May include: assisted disclosure; support group referral; engagement of a treatment buddy; drug and alcohol counselling; depression management; referrals; other
  - For patients not starting ART today, management plan should include specific strategies to address any issues preventing/delaying ART initiation
- When should you return to the clinic
  - Book appointment date for next visit, preferably with the same healthcare worker

Annex 9 A: Enhanced Adherence Counselling Content Guide

Enhanced Adherence Counselling for Patients with Suspected or Confirmed Treatment Failure
Note: for children/adolescents, the script below should be modified towards the caregiver
Session 1

- Assess patient's understanding of 'viral load', 'high viral load' and 'suppressed viral load'. Ask the patient to explain what each of these terms mean. Provide education if patient requires more explanation
- Provide VL result and explanation of result:
  "You have a detectable viral load. There are several possible reasons for this such as problems with adherence, dosing of your medications, interactions with other drugs or foods, or possible drug resistance. It is very important for us to work with you determine which may apply to you."
- How does the patient feel concerning the result?
- Explain the process of enhanced adherence:
  "Patients with a high viral load come for at least 3 adherence counselling sessions to discuss what might cause a high viral and to look for solutions on how adherence can be improved. Another viral load test will be done after 3 months of good adherence to see if the ART can be continued or if we need to change treatment."
- Check whether the patient had previous problems with adherence and/or missed appointments
- Ask:
  "Why do you think your viral load is high?"
- Sometimes the patient already knows why his/her VL is detectable. Start by giving them a chance to provide their own explanation. Often, they will admit that they are struggling with their adherence
- If they really don't know why their VL is high you can say:
  "We notice that when people sometimes forget to take their ART everyday it gives the virus a chance to grow. Do you think that you sometimes forget your pills?"

Assess for Possible Barriers to Adherence

Cognitive Barriers (HIV and ART knowledge)

- Assess patient's knowledge about HIV and ART; correct any misconceptions
  "What is HIV?"
  "What is the immune system and CD4 cells?"
  "What is ART and how does it work?"
  "Why is it important to be adherent? And how?"
  "Why do you have to come for follow-up appointments? What should you bring?"

Behavioural Barriers

- Review how the patient takes drugs

"Please explain how do you take your drugs, and at what time?"
"How does treatment fit in your daily routines?"

- Establish with the patient whether the time they are meant to take their medication is appropriate or whether the time is a problem. For example, if the patient has chosen 9 pm, but is already asleep in bed by 9 pm, then that is not a good dosing time. If the time is a problem then determine a new, more appropriate time with the patient based on their schedule
- Remind the patient/caregiver that a missed dose should be taken as soon as he/she remembers (up to a couple hours before the next scheduled dose). The next dose should be taken at the usual time

"What reminder tools do you use? (e.g. mobile phone alarm)" "What do you do in case of visits, and travel?"

- Travelling is always a risk for poor adherence or default from treatment. Encourage the patient to plan, to make sure they have enough medication on hand before and to remember to pack it
- Make sure that all relevant information is on the patient's appointment card and explain that if they are ever away from home and they are about to run out of medication that they must go to the closest ART clinic and show their appointment card

"What do you do in case of side effects?"

- Ask the patient if s/he has any side effects from the ARVs, and if they sometimes find it difficult to take ARV
- because of the side effects. Ask how s/he manages side effects and if it influences the way s/he takes the drugs.

"What are the most difficult situations for you to take drugs?"

- Check for alcohol or drug use. Ask the patient in a casual way (not in an accusing way) if they sometimes use substances; emphasize treatment planning in case they do
- *"Taking alcohol or drugs sometimes makes it difficult for us to remember to take treatment. If possible, it is best to limit your use, but if you are planning to take any alcohol or drugs, it is important to plan ahead so that you don't forget to take your treatment"*

"If you feel your alcohol or drug use is affecting your adherence, are you ready to be referred to some professionals that may help you to work on that problem?"

Emotional Barriers

- Review the patient's motivation:

"How do you feel about taking drugs every day?"
"What are your ambitions in life?"

- You can use motivation cards for this: Ask the patient to think of his or her own personal goals/dreams for the future. What are the 3 most important things they still want to achieve? Have them write them in their own words on a notecard. Encourage the patient to read the notecard every day, preferably right before they take their medication
- Mental health screening:
  - Depression is an important reason of non-adherence. All patients with suspected or confirmed treatment failure should be screened for depression using the PHQ-9 tool (Table 4.14)
  - The patient may be in any of the five stages of grief (because of their HIV diagnosis or for other reasons): denial and isolation; anger; bargaining; depression, or; acceptance. This needs to be assessed and addressed

Socio-economical Barriers

- Review the patient's disclosure of their HIV status

"Do you have any people in your life who you can talk to about your HIV status and ART?"

- Discuss how the patient can enlist the support of their family, friends, and/or co-workers in reminding them to take their medication if they have not already done so
- Support from a treatment buddy: if the patient came with treatment buddy, assess their input towards adherence. If patient did not come with treatment buddy, explain the role of a treatment buddy and encourage the patient to come with a person they trust next visit
- Support in family/community/support group: explore support systems, in addition to the treatment buddy, that the patient is currently using and options that the patient can start using. Discuss the advantages of joining a support group and any reasons the patient is hesitant to join
- Profession, income generating resources: review the patient's and family's sources of income and how well they cover their needs
- Specific barriers to come to health centre on regular basis: ask the patient if they have any challenges getting the clinic on a regular basis. Help the patient develop strategies to overcome those challenges
- Stigma and discrimination

"Are you ever worried about people finding out your HIV status accidentally?"
"Do you feel like people treat you differently when they know your HIV status?"

- Discuss if stigma is making it difficult for them to take their medications on time, or for them to attend clinic appointments
- Religious beliefs: find out if the patient has tried faith healing, or if they have ever stopped taking their medicine because of their religious beliefs

Referrals and Networking

- Review the patient's file to determine if they have been referred to other services. This includes referrals to social services, support groups, psychology services, nutrition services, medical clinics, substance abuse groups, etc
- Ask the patient if they attended the appointments, check in on their experience with the referral services and re-organize referrals as necessary
- Determine if the patient could benefit from a home visit

Develop Adherence Plan

- Go through each of the adherence challenges identified during the session and assist the patient to develop a plan that addresses each of the issues. It is important to let the patient come up with the solutions so that they own them
- Some examples of addressing adherence challenges:
  - Behavioural barriers: using a reminder tool; using a pill box; redefining the medication schedule to fit with the patient's daily schedule; keeping an emergency dose of drugs when away from home
  - Refer to clinician in case of side effects
  - Socio-economical barriers: move on in disclosure process; identify a treatment buddy; join a support group; refer to CBO/NGO to learn about income generating activities
  - Emotional barriers: emotional support or refer to clinician for mental health management
- Agree on a follow-up date for the next session

Session 2 (usually 2 weeks after Session 1, preferably with the same provider)

Review Adherence Plan

- Ask the patient if he/she thinks adherence has improved since the last visit. Enquire in a friendly way if any doses have been missed
- Review the patient's barriers to adherence documented during the first session and if strategies identified have been taken up. If not, discuss why not

Identify Any New Issues

- Discuss specific reasons why the patient may have missed their pills or a clinic appointment since the last counselling session, and determine if it is a new issue that wasn't addressed during the first session
- Discuss if other issues have come up because of implementing the adherence plan (e.g. perhaps the disclosure process had unintended results)

Referrals and Networking

- Follow-up on any referrals made during the previous session
- Determine if the patient could benefit from a home visit

Develop Adherence Plan

- Go through each of the adherence challenges identified during the session and assist the patient to modify their original adherence plan to address each of the issues. It is important to let the patient come up with the solutions so that they own them
- Give another short motivational speech on how you believe in the patient! You know they can do this! Together you will make sure that they suppress their viral load!!
- Agree on a follow-up date for the next session

Session 3 (usually 2 weeks after Session 2, preferably with the same provider)

Review Adherence Plan

- Ask the patient if he/she thinks adherence has improved since the last visit. Enquire in a friendly way if any doses have been missed
- Review the patient's barriers to adherence documented during the first session and if strategies identified have been taken up. If not, discuss why not

Identify Any New Issues

- Discuss specific reasons why the patient may have missed their pills or a clinic appointment since the last counselling session, and determine if it is a new issue that wasn't addressed during the first session
- Discuss if other issues have come up because of implementing the adherence plan (e.g. perhaps the disclosure process had unintended results)

Referrals and Networking

- Follow-up on any referrals made during the previous session
- Determine if the patient could benefit from a home visit

Develop Adherence Plan

- Go through each of the adherence challenges identified during the session and assist the patient to modify their original adherence plan to address each of the issues. It is important to let the patient come up with the solutions so that they own them
- Give another short motivational speech on how you believe in the patient! You know they can do this! Together you will make sure that they suppress their viral load!!
- Agree on a follow-up date for the next session

Repeat Viral Load

- If the adherence is good: plan for the next VL testing after 3 months and explain possible ways forward, emphasizing the roles of the patient, the support systems and the health facility. You can continue follow-up adherence counselling sessions during the 3-month period if you and the patient think there would be a benefit to them

"If your results come back and your VL is undetectable then you will be able to continue with same ART. If your viral load is still greater than 1,000 copies/ml then you will need to switch to a new regimen, probably after doing some additional testing to see which regimen may work best for you. If your viral load is detectable but less than 1,000 copies/ml we will discuss options, including changing regimens or continuing to monitor." (adapt to individual patient/context)

- If adherence challenges persist: plan further Enhanced Adherence Counselling Sessions before repeating the VL

Session to Discuss Repeat Viral Load Results (after the repeat VL results are back, preferably with the same provider)

Discuss Viral Load Results

- If suppressed (VL undetectable) CONGRATULATE the patient!!!
  - Explain the way forward: will continue with same ART regimen and repeat the VL again in 6 months
- If viral load is ≥ 1,000 copies/ml
  - Explain the way forward: will probably need to switch to a new ART regimen after discussing as an MDT, and additional testing to see which regimen may work for the patient
  - Summarize the case with the MDT; if the patient cannot switch to standard 2nd line ART, or is failing 2nd line ART, forward to the Regional or National HIV Clinical Technical Working Group for next steps
- If viral load is detectable but < 1,000 copies/ml
  - Explain the way forward: may continue monitoring or switch to a new ART regimen after discussing as an MDT
  - Summarize the case with the MDT and forward to the Regional or National HIV Clinical Technical Working Group for next steps

Annex 9 B: Case Summary Form

MINISTRY OF HEALTH

NATIONAL AIDS AND STI CONTROL PROGRAMME

CLINICAL SUMMARY FORM

Name of Facility		**MFL Code**	
Patient CCC no. (*do not write name*)		**Date**	
Patient Détails	Date of Birth: Enrollment Date: Gender: Current Weight (Kg): Height (cm):		
Clinician's Name			
Facility Contacts	Tel:	Email:	
What is the primary reason for this consultation:			
Clinical Evaluation: history, physical, diagnostics, working diagnosis (*excluding the information in the table below*			
Complete the table below chronologically, including all ART regimens and laboratory results (and any previous history available for transfer-in patients)			

Date	CD4	HB	CrCl/ eGFR	Viral Load	Weight (z-score/BMI for children)	ARV Regimen	Reason for Switch	New OI or other clinical event

Adherence and Treatment Failure Evaluation	
Parameters of Evaluation	**Findings**
Number of adherence counseling/assessment sessions done in the last 3-6 months	
Number of home visits conducted in last 3-6 months, and findings	
Support structures (e.g. treatment buddy, support group attendance, caregivers) in place for this patient?	
Evidence of adherence concerns (e.g. missed appointments, pill counts)	
Number of DOTS done in last 3-6 months	
Likely root cause/s of poor adherence for this patient (e.g. stigma, disclosure, side effects, alcohol or other drugs, mental health issues, caregiver changes, religious beliefs, inadequate preparation, etc.)	
Evaluation for other causes of treatment failure, e.g.: • Inadequate dosing/dose adjustments (particularly for children) • Drug-drug interactions • Drug-food interactions • Impaired absorption (e.g. chronic severe diarrhea)	
Other Relevant ART History	
Comment on treatment interruptions, if any	
Has Drug Resistance/Sensitivity Testing been done for this patient? If yes, state date done and attach the detailed results	
Has facility multidisciplinary team discussed the patient's case? If yes, comment on date, deliberations and recommendations (indicate how treatment failure was established and confirmed, proposed regimen and dosage, current source of drugs if patient already on 3rd line)	
MDT members who participated in the case discussion (names and titles)	

Annex 9 C: Enhanced Adherence Counselling Form

ENHANCED ADHERENCE COUNSELLING FORM							
(to be completed by the counsellor) • *Start each session by reviewing the adherence barriers and action plan from the previous session* • *For each session assess major barriers to adherence (cognitive, behavioral, emotional, socio-economic)*							
Session #:		Date:		Adherence % (from pill		MMAS-8	
Treatment motivation:							
Barriers to adherence:							
Your impression about patient's current adherence:	☐ Excellent ☐ Unsure ☐ Inadequate						
Adherence plan:							
Next appointment date:							

Annex 9 D: Home Visit Checklist

HOME VISIT CHECKLIST		
Patient Name	Tel No:	Sex: M F
Family Member	Tel No:	Sex: M F
Physical Landmark:		File No.

This checklist is not all-inclusive but highlights critical areas that can affect adherence.

	Areas to Assess and Discuss	**Comments**
1	Is the patient independent in the activities of daily living (e.g. feeding, grooming, toileting)[1]	
2	Are the patient's basic needs being met (e.g. clothing, shelter, food)[1]	
3	Has the patient, disclosed their HIV status to other household members	
4	How are the patients ARVs stored and taken?	
5	Does the patient receive social support from household members'	
6	Does the patient receive social support in the community?	
7	Is the patient linked to non-clinical services (e.g. spiritual,legal or nutritional)	
8	Does the patient have mental health issues that need to be addressed?	
9	Is the patient suffering from a stressful situation or significant loss/grief?	
10	Is the patient having any side-effects from the medications?	

Annex 9 E: Management Protocol for Patients Failing 2nd Line ART

Management Protocol for patients failing 2nd Line ART

Pre – Initiation MDT Meeting

- Confirm what ARV regimen is prescribed, its availability and the management plan
- Assign a case manager to patient

Initiation of 3rd Line ART

- Triage
  - Record vital signs and take actions as needed
- Adherence support
  - Conduct patient education on the new ART regimen: Treatment goals, dozing, drug interactions and potential side effects and adverse events
  - Conduct adherence assessment and counselling
  - Link patient to adherence support systems
- Clinical assessment
  - Take history and conduct physical examination
  - Complete clinical encounter form and MOH 257 (Green Card)
  - Manage any co-infection and co-morbidities
  - Review for potential drug interactions and contraindications
  - Conduct adherence assessment and review adherence support systems
  - Reinforce patient education messages on new regimen
    - Currently no further treatment option
    - Need for perfect adherence (>95%)
    - Dozing
    - Potential side effects and what the patient should do
  - Prescribe new regimen for 2 weeks
  - Confirm dozing as per the weight (for 18yrs and below)
  - Continue other medication e.g. CPT, IPT
- Dispensing
  - Confirm ARV dozing as per the weight
  - Conduct medication use counselling
  - Dispense 3rd Line ARVs for 2 weeks
- Community follow up
  - Link all patients to support group, CHW/CHEW
  - Plan for home visits as required

Annex 9E: Management Protocol for Patients Failing 2nd Line ART (contd)

Patient Follow Up after Treatment Initiation

- Frequency
  - First follow-up should be within 2 weeks of initiation of 3rd line ART
  - Subsequent visits should be monthly (or more frequent) until confirmed viral suppression at 6 months
  - Thereafter, follow-up can be 1-3 monthly
- Triage
  - Record vital signs and take action as needed
- Adherence Support (adherence should be reinforced during every clinic visit, in addition to enhanced adherence counselling sessions)
  - Review and address knowledge deficits on new regimen
  - Confirm understanding of adherence, conduct adherence assessment, and reinforce key adherence messages
  - Document reasons for missed doses and manage obstacles to perfect adherence. Review and reinforce adherence support systems
- Clinical Assessment
  - Take history and conduct physical examination
  - Complete Clinical Encounter Form and MOH 257 (blue card)
  - o Manage any co-infections and co-morbidities o Evaluate for potential drug interactions
  - Evaluate for and manage any drug side effects and adverse events
  - o Conduct adherence assessment and review adherence support systems o Reinforce patient education messages on new regimen
    - Review and address knowledge gaps on ART regimen
    - Need for perfect adherence (>95%)
    - Dosing
    - Potential side effects and what the patient should do
  - Prescribe 3rd line ARVs
- Laboratory Monitoring
  - Baseline and routine monitoring should be based on clinical symptoms
  - Hb should be done at baseline because RAL and ETR may rarely cause anaemia
  - ALT should be monitored quarterly in mild to moderate underlying chronic liver disease or Hepatitis B/C co-infection
  - Creatinine should be monitored quarterly in mild to moderate Kidney Disease o Blood Sugar and lipid profile should be monitored at baseline and annually
  - Creatinine Kinase should be done in suspected rhabdomyolysis
  - Viral load should be conducted at month 6, 12 and annually thereafter
- Dispensing
  - Confirm ARV dosing as per the weight
  - Conduct medication use counselling
  - Dispense 3rd line ARVs
- Community Follow up
  - Review linkage to community adherence support systems
  - Conduct home visits as required
  - Continue DOTS

Annex 10 A: Dosing of Solid and Liquid Formulations for Twice-Daily Dosing in Infants and Children 4 Weeks of Age and Older [1]

Drug	Strength of tablets	Number of tablets by weight band morning and evening										Strength of adult tablet	Number of tablets by weight band	
		3–5.9 kg		6–9.9 kg		10–13.9 kg		14–19.9 kg		20–24.9 kg			25–34.9 kg	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM		AM	PM
AZT/3TC	Tablet (dispersible) 60/30 mg	1	1	1.5	1.5	2	2	2.5	2.5	3	3	300 /150 mg	1	1
AZT/3TC/NVP[2]	Tablet (dispersible) 60/30 mg/50 mg	1	1	1.5	1.5	2	2	2.5	2.5	3	3	300 /150 /200 mg	1	1
ABC/3TC	Tablet (dispersible) 60/30 mg	1	1	1.5	1.5	2	2	2.5	2.5	3	3	600 /300 mg	0.5	0.5
ABC/3TC	Tablet (dispersible) 120/60 mg	0.5	0.5	0.5	1	1	1	1	1.5	1.5	1.5	600 /300 mg	0.5	0.5
ABC/3TC/LPV/r	30/15/40/10 mg	2	2	3	3	4	4	5	5	6	6			
SOLID SINGLE FORMULATIONS														
AZT	Tablet (dispersible) 60 mg	1	1	1.5	1.5	2	2	2.5	2.5	3	3	300 mg	1	1
ABC	Tablet (dispersible) 60 mg	1	1	1.5	1.5	2	2	2.5	2.5	3	3	300 mg	1	1
NVP[2]	Tablet (dispersible) 50 mg	1	1	1.5	1.5	2	2	2.5	2.5	3	3	200 mg	1	1
	Tablet 200 mg	–	–	–	–	0.5	0.5	1	0.5	1	0.5	200 mg	1	1
LPV/r[3]	Tablet 100/25 mg	–	–	–	–	2	1	2	2	2	2	100/25 mg	3	3
	Tablet 200/50 mg	–	–	–	–	–	–	1	1	1	1	200/50 mg	2	1
	Pellets[4] 40/10 mg	2	2	3	3	4	4	5	5	6	6			
DRV[5]	Tablet 75 mg	–	–	–	–	3	3	5	5	5	5			
RAL[6]	Chewable tablets 25 mg	–	–	–	–	3	3	4	4	6	6	400 mg	1	1
	Chewable tablets 100 mg	–	–	–	–	–	–	1	1	1.5	1.5	400 mg	1	1
	Granules (100 mg/sachet)	0.25	0.25	0.5	0.5	–	–	–	–	–	–		–	–
LIQUID SINGLE FORMULATIONS														
AZT	10 mg/ml	6 ml	6 ml	9 ml	9 ml	12 ml	12 ml	–	–	–	–	–	–	–
ABC	20 mg/ml	3 ml	3 ml	4 ml	4 ml	6 ml	6 ml	–	–	–	–	–	–	–
3TC	10 mg/ml	3 ml	3 ml	4 ml	4 ml	6 ml	6 ml	–	–	–	–	–	–	–
NVP[2]	10 mg/ml	5 ml	5 ml	8 ml	8 ml	10 ml	10 ml	–	–	–	–	–	–	–
LPV/r[3]	80/20 mg/ml	1 ml	1 ml	1.5 ml	1.5 ml	2 ml	2 ml	2.5 ml	2.5 ml	3 ml	3 ml	–	–	–
DRV[5]	100 mg/ml	–	–	–	–	2.5 ml	2.5 ml	3.5 ml	3.5 ml	–	–			

Notes

[1] For infants younger than 4 weeks of age refer to Table 10C for more accurate dosing information

[2] NVP dose escalation with half dose for 2 weeks when initiating ART is still recommended for infants > 2 weeks of age and not already on NVP prophylaxis to avoid toxicity from high initial NVP levels. HEI already on NVP prophylaxis who are confirmed positive can initiate full dose (twice daily) NVP without dose escalation

[3] LPV/r liquid requires a cold chain during transport and storage. The LPV/r heat-stable tablet formulation must be swallowed whole and should not be split, chewed, dissolved or crushed. The adult 200/50 mg tablet could be used for patients 14-24.9kg (1 tab am and 1 tab pm) and for patients 25-34.9kg (2 tabs am and 1 tab pm). The 100/25 mg tablet is smaller than the adult formulation and may be used by children of lower weight bands able to swallow tablets.

[4] LPV/r pellets formulation should not be used in infants younger than 3 months and should not be used by children able to swallow tablets.

[5] DRV must be administered with 0.5 ml of RTV 80 mg/mL oral suspension if less than 15 kg and with RTV 50 mg solid formulation in children 15 to 30 kg

[6] RAL granules are approved for used in children as young as 4 weeks, however feasibility and acceptability of such formulations has not been widely investigated. Additional guidance will be provided as evidence becomes available. If this RAL must be used, consult the regional/national clinical support center

Annex 10 B: Simplified Dosing of Child-Friendly Solid and Oral Liquid Formulations for Once-Daily Dosing in Infants and Children 4 Weeks of Age and Older

Drug	Strength of tablet	Number of tablets or capsules by weight band once daily					Strength of adult tablet	Number of tablets or capsules by weight band once daily
		3–5.9 kg	6–9.9 kg	10–13.9 kg	14–19.9 kg	20–24.9 kg		25–34.9 kg
EFV[2]	Tablet (scored) 200 mg	–	–	1	1.5	1.5	200 mg	2
ABC/3TC	Tablet (dispersible) 60/30 mg	2	3	4	5	6	600 mg/300 mg	1
ABC/3TC	Tablet (dispersible) 120/60 mg	1	1.5	2	2.5	3	600 mg/300 mg	1
ATV[3]	Capsules 100 mg	–	–	1	2	2	300 mg	2 (100 mg) or 1 (300 mg)
TDF[4]	Oral powder 40 mg/scoop	–	–	3	–	–	300 mg	1 (200 mg) [d] or 1 (300 mg)
	Tablets 150 mg or 200 mg	–	–	–	1 (150	1 (200		

Notes [1]For infants younger than 4 weeks of age refer to Table 10C for more accurate dosing information

[2]EFV is not recommended for children younger than 3 years and weighing less than 10 kg. Where there are no suitable alternatives, EFV may be used in children less than 3 years weighing more than 3.5 kg (3.5-5 kg two 50 mg capsules; 5-7.5 kg three 50 mg capsules; 7.5-15 kg one 200 mg capsule). A pediatric triple FDC containing ABC/3TC/EFV (150/75/150 mg) will be available soon, which can replace the use of single and dual formulations where appropriate.

[3]ATV is only approved for use in children 3 months and older. ATV single strength capsules should be administered with RTV 100 mg for all weight bands. ATV powder formulation enables administration of ATV to infants and children as young as 3 months. Infants and children 5-10 kg should be given 200 mg of ATV powder (4 packets, 50 mg/ packet) with 80 mg of RTV oral solution (1 ml)

[4]TDF is can be used in children 2 years and older. Target dose: 8 mg/kg or 200 mg/m^2 (maximum 300 mg)

Annex 10 C: Drug Dosing of Liquid Formulations for Twice-Daily Dosing in Infants Less than 4 Weeks of Age

Drug	Strength of oral liquid	2-3 kg	3-4 kg	4-5 kg
AZT	10 mg/mL	1 mL	1.5 mL	2 mL
NVP[1]	10 mg/mL	1.5 mL	2 mL	3 mL
3TC	10 mg/mL	0.5 mL	0.8 mL	1 mL
LPV/r[2]	80/20 mg/mL	0.6 mL	0.8 mL	1 mL

Notes [1] NVP for treatment can be initiated with twice daily dosing for infants < 2 weeks of age (they do not require once-daily lead-in dosing)

[2] Do not use LPV/r solution in infants aged <2 weeks of age. LPV/r pellets should not be used in infants younger than 3 months

Annex 10 D: Simplified Dosing of INH and CTX Prophylaxis for Infants and Children Who Are at Least 4 Weeks of Age

Drug	Strength of tablet or oral liquid	Number of tablets or ml by weight band once daily					Strength of adult tablet	Number of tablets by weight band
		3–5.9 kg	**6–9.9 kg**	**10–13.9 kg**	**14–19.9 kg**	**20–24.9 kg**		**25–34.9 kg**
INH	100 mg	0.5	1	1.5	2	2.5	300 mg	1
CTX	Suspension 200/40 per 5 ml	2.5 ml	5 ml	5 ml	10 ml	10 ml	–	–
	Tablets (dispersible) 100/20 mg	1	2	2	4	4	–	–
	Tablets (scored) 400/80 mg	–	0.5	0.5	1	1	400 mg/80 mg	2
	Tablets (scored) 800/160 mg	–	–	–	0.5	0.5	800 mg/160 mg	1

Annex 11: Drug-drug Interactions: Overlapping Drug Toxicity

Bone marrow suppression	Peripheral neuropathy	Pancreatitis	Nephrotoxicity	Hepatotoxicity	Rash	Diarrhoea	Ocular effects
Amphotericin B Cotrimoxazole Dapsone Flucytosine Ganciclovir Hydroxyurea Interferon- Primaquine Pyrimethamine Zidovudine	Didanosine Isoniazid Vincristine	Didanosine Lamivudine (esp in children) Stavudine Cotrimoxazole Ritonavir Pentamidine	Acyclovir Adefovir high dose Aminoglycosides Amphotericin B Cidofovir Foscarnet Pentamidine Tenofovir	Abacavir Atazanavir Atovaquone Cotrimoxazole Dapsone Efavirenz Nevirapine Sulfadiazine Voriconazole	Abacavir Atazanavir Atovaquone Cotrimoxazole Dapsone Efavirenz Nevirapine Sulfadiazine Voriconazole	Atovaquone Clindamycin LPV/r Ritonavir	Cidofovir Ethambutol Linezolid Rifabutin Voriconazole

Annex 12 A: Use of Nucleoside & Nucleotide Reverse Transcriptase Inhibitors in Adults

Drug name	Dose (in adults)	Dietary restrictions	Major side effects	Comments
Zidovudine (AZT or ZDV) Available in 300mg tablets and as FDC with 3TC and 3TC/ NVP	300mg/ dose BD	No food restrictions	Bone marrow suppression), including anaemia; granulocytopenia; headache; gastrointestinal intolerance; myopathy; myositis; liver toxicity; discoloured nails; lactic acidosis and severe hepatomegaly with steatosis (fatal cases have been reported)	Monitor for anaemia in the first 3 months of treatment
Lamivudine (3TC) Available in 150mg tablet and as FDC with AZT and AZT/NVP , D4T and D4T/NVP and with TDF and TDF/ EFV	150mg/ dose BD OR 300 mg/dose OD	No food restrictions	Headache; fatigue; nausea; diarrhoea; skin rash; pancreatitis; peripheral neuropathy; hepatotoxicity/ hepatitis; lactic acidosis and severe hepatomegaly with steatosis (rare fatal cases have been reported).	A well-tolerated drug. Adjust dose in renal impairment. Also active against hepatitis B. Ideally, patients should be screened for hepatitis B virus (HBV) before starting therapy; exacerbation of hepatitis B has been reported in patients on discontinuation of 3TC.
Abacavir (ABC) Available in 300mg tablets and in combination with 3TC and DTG	300mg/ dose BD or 600mg OD	No food restrictions. Alcohol increases ABC levels by 41%	Hypersensitivity reaction (potentially fatal) whose symptoms include fever, fatigue, malaise, nausea, vomiting, diarrhoea and abdominal pain or respiratory symptoms such as shortness of breath, lymphadenopathy, ulceration of mucous membranes and skin rash. Patients suspected of having hypersensitivity reaction should have ABC stopped and never be restarted. Pancreatitis; lactic acidosis with hepatic steatosis is rare	Educate patient on hypersensitivity reaction. Once hypersensitivity has occurred, the patient should never be re-challenged with ABC. Avoid alcohol while on ABC.

Emtricitabine (FTC) Available in 200mg capsules and as FDC with TDF and TDF/EFV	200mg/ dose OD	No food restrictions	Well tolerated. Lactic acidosis and severe hepatomegaly with steatosis (fatal cases have been reported); headache; diarrhoea; nausea; rash; skin discoloration	Effective against hepatitis B. Ideally, patients should be screened for chronic hepatitis B virus (HBV) before starting therapy; exacerbation of Hepatitis B has been reported in patients on discontinuation of FTC Decrease dosage in patients with renal impairment Monitor renal function if combined with TDF. When used in combination with TDF, should not be given to patients with a creatinine clearance of <30ml/min. Should not be used with or after failure of 3TC
Tenofovir disoproxil fumarate (TDF) Available in 300mg tablets and as FDC with 3TC and 3TC/ EFV	300mg/ dose OD	No food restrictions	Lactic acidosis and severe hepatomegaly with steatosis (fatal cases have been reported with nucleoside analogues); renal toxicity; Pancreatitis	Should not be used with ddI. Should never be used in triple nucleoside combinations with 3TC+ddI/ABC. Renal function should be monitored while on TDF Ideally, patients should be screened for chronic hepatitis B virus (HBV) before starting therapy; Exacerbation of hepatitis B has been reported in patients on discontinuation of TDF When used in combination with 3TC, should not be given to patients with a creatinine clearance of <30ml/min. When used with ATV levels of ATV reduced significantly therefore combine with RTV
Tenofovir alafenamide (TAF) Available as a co-formulation of FTC or elvitegravir + cobicistat + FTC + TAF OR rilpivirine + FTC + TAF	As TAF 25 mg + FTC 200 mg OD	No food restrictions	Well tolerated. GIT upsets, raised serum creatinine, proteinuria and renal toxicity (but to a lesser degree than TDF)	RTV and cobicistat increase TAF levels. DRV decreases TAF levels. Boosted PI increase TAF levels but the PI levels are not affected. Avoid co-administration with rifabutin, rifampicin and phenytoin

Annex 12 B: Use of Non-Nucleoside Reverse Transcriptase Inhibitors for Adults

Drug name	Dose (in adults)	Dietary restrictions	Major side effects	Comments
Nevirapine (NVP) Available in 200mg tablets and as FDC with AZT/3TC and D4T/3TC	200mg/ dose OD for first 2 weeks then 200mg/ dose BD	No food restriction.	Skin rash (may be severe, requiring hospitalization, and life-threatening, including Stevens-Johnson syndrome, toxic epidermal necrolysis); hepatitis; fever, nausea, headache	Use with caution in women with baseline CD4>250 or in men with baseline CD4>400. Liver function tests in the first 3 months of treatment Should not be used with Rifampicin in TB patients Avoid NVP in patients requiring prolonged treatment with Fluconazole because of increased NVP levels with possibility of increased toxicity. Use alternative antifungal drugs for treatment of oral candidiasis in patients on NVP
Efavirenz (EFV) Available in 200mg & 600mg tablets and as FDC with TDF/3TC	600mg OD Best taken at bedtime	Preferably taken on an empty stomach. Can be given with food, but avoid high fat meals which increase	CNS symptoms (somnolence, insomnia, abnormal dreams, confusion, hallucination, amnesia, etc. Avoid in patients with history of psychiatric disease); Skin rash; avoid use in during the first trimester	Can be used with rifampicin in TB patients
Etravirine (ETR) Available in tablets of 200 mg	200 mg BD	Take with food	Severe but rare: SJS and erythema multiforme Common & minor: Rash, nausea, vomiting, diarrhoea, abdominal pain, hepatotoxicity, dyslipidaemia and CNS disturbances (less than EFV)	Avoid concurrent use with rifampicin, and boosted tipranavir.

Annex 12 C: Use of Protease Inhibitors in Adults

Drug name	Dose (in adults)	Dietary restrictions	Major side effects	Comments
Lopinavir/ritonavir (LPV/r, Kaletra) Available as 200mg + 50mg RTV	[LPV 400 mg + RTV 100 mg] 2 tablets BD	Take with food. Moderate fat increases bioavailability.	GI intolerance; nausea; vomiting; diarrhoea	Tablets should be swallowed whole
Atazanavir (ATV) Available in 100mg, 150mg, 200 mg capsules Available as FDC with RTV	ATV 300mg / RTV 100mg OD	Take with food. Take 2 hours before or 1 hour after antacids and buffered medications such as buffered ddI (reduced ATV concentrations if administered together)	Jaundice; headache; fever; depression; nausea; diarrhoea and vomiting; paraesthesia; spontaneous bleeding episodes in haemophiliacs.	Indirect hyperbilirubinaemia. When used with TDF should always be given with RTV. Experienced patients should also be given ATV/RTV.
Ritonavir (RTV) Available as 100mg capsules Capsules should be refrigerated until dispensed; stable at room (up to 25ºC) for 30 days	Recommends for use as a booster of other PIs	Administration with food increases absorption and helps reduce gastrointestinal side effects.	Exacerbation of liver disease; fat redistribution and lipid abnormalities; diarrhoea; abdominal discomfort; headache; nausea; paraesthesia; skin rash; spontaneous bleeding episodes in	Potent CYP450 inhibitor, thus its use as a booster of other PIs
Darunavir (DRV)	DRV 600 mg/ RTV 100 mg BID OR DRV 800 mg/ RTV 100 mg OD (only if PI naïve)	Take with a meal to limit ADR	GIT upsets, rash, dyslipidaemia, hepatitis. Caution in patients with sulphur allergy.	Metabolized by CYP3A and is an inhibitor of CYP3A. Contains sulphur moiety. Monitor liver functions especially in patients at risk or with pre-existing liver disease. May cause hormonal contraceptive failure.

Annex 12 D: Integrase Strand Transfer Inhibitors - INSTIs

Drug name	Dose (in adults)	Dietary restrictions	Major side effects	Comments
Dolutegravir (DTG) Available FDCs as ABC/3TC/DTG (600/300/50mg) and TDF/3TC/DTG (300/300/50mg)	50 mg once daily If co- administering with EFV, carbamazepine, or rifampicin, use DTG 50 mg BD If suspected or confirmed INSTI resistance use DTG 50 mg BD	No food restrictions	Rare - Hypersensitivity; Hepatotoxicity especially in those with HBV and HCV infection, fatigue Insomnia, headache, diarrhea, nausea are common but usually minor and resolve with continued use	Interacts with carbamazepine, phenobarbital and phenytoin, use alternative anticonvulsants. Administer DTG at least 2 hours before or 6 hours after taking supplements or antacids containing Mg, Al, Fe, Ca and Zn. For Ca or Fe, if DTG is taken with a meal then dose separation is not required
Raltegravir (RAL)	ADULT and CHILD over 16 years, 400 mg BD	No food restrictions	Nausea, vomiting, diarrhoea, flatulence, constipation Severe skin (SJS and TEN) and hypersensitivity reactions have been reported	Contraindicated in breast-feeding mothers Safety in paediatric patients has not been established

Annex 13 A: Drug-Drug Interactions - NNRTIs

Drugs Affected	Nevirapine (NVP)	Efavirenz (EFV)
ANTIRETROVIRALS		
Dolutegravir	Co-administration not recommended because NVP decreases levels of DTG	Co-administration not recommended because EFV decreases levels of DTG. If must be used together then increase DTG to 50 mg BD when co-administered with EFV
Raltegravir	No interaction or not studied	Efavirenz decreases RAL plasma levels but it is unlikely to be clinically significant
Atazanavir/ritonavir	Co-administration not recommended because ATV/r may increase the serum concentration of NVP leading to increased risk of toxicity, and NVP decreases the serum concentration of ATV/r which may lead to resistance and treatment failure	Co-administration not recommended because EFV decreases the serum concentration of ATV/r which may lead to resistance and treatment failure
Lopinavir/ritonavir	Co-administration not recommended because NVP decreases levels of LPV/r	AVOID: this combination increased risk of prolonged-QT syndrome and sudden cardiac death
Darunavir/ ritonavir	No significant interaction when NVP is combined with ritonavir-boosted darunavir	Co-administration not recommended because DRV/r may increase the serum concentration of EFV leading to increased risk of toxicity, and EFV decreases the serum concentration of DRV/r which may lead to resistance and treatment failure

ANTIFUNGALS		
Ketoconazole	Levels: ketoconazole ↓ 63% NVP ↑ 15 – 30% Dose: Not recommended	No data
Voriconazole	Metabolism of Voriconazole may be induced by NVP. Voriconazole may inhibit NNRTI metabolism. Frequently monitor for NNRTI toxicity and antifungal outcome	Levels: EFV ↑ 44% Voriconazole ↓ 77% This combination is not recommended
Fluconazole	NVP Levels: Cmax, AUC, and Cmin ↑ 100% Fluconazole Levels: No change Risk of hepatotoxicity may increase with this combination. If concomitant use is necessary, recommend monitoring NVP toxicity	No clinically significant changes in EFV or Fluconazole concentrations
ANTI-MYCOBACTERIALS		
Rifampicin	Levels: NVP ↓ 20%-58%. Virologic consequences are uncertain; the potential for additive hepatotoxicity exists. Use of this combination is not recommended; however, if used, co administration should be done with careful monitoring	Levels: EFV ↓ 25%. Dose: Consider ↑ EFV to 800 mg QD
Clarithromycin	Levels: NVP ↑ 26%. Clarithromycin ↓ 30%. Monitor for efficacy or use alternative agent	Levels: Clarithromycin ↓ 39%. Monitor for efficacy or use alternative agent
Bedaquiline (BDQ)	No dose adjustment required	Do not co-administer
Delamanid (DLM)	No interaction expected	No interaction

ORAL CONTRACEPTIVES		
	Levels: ethinyl estradiol approx. 20%. Use alternative or additional methods.	Levels: Ethinyl estradiol 37%. No data on other components. Use alternative or additional methods
LIPID-LOWERING AGENTS		
Simvastatin Lovastatin	No data	Levels: Simvastatin AUC by 58%; EFV unchanged Dose: Adjust simvastatin dose according to lipid responses, not to exceed the maximum recommended dose
Atorvastatin	No data	Levels: Atorvastatin AUC 43%; EFV unchanged. Dose: Adjust atorvastatin dose according to lipid responses, not to exceed the maximum recommended dose
Pravastatin	No data	No data
ANTI-HYPERTENSIVES		

Angiotensin-converting enzyme inhibitors (ACEIs): E.g. - Enalapril, Lisinopril	No known interactions	No known interactions
Angiotensin II receptor blockers (ARBs): e.g. Losartan, Telmisartan	Telmisartan, Candesartan: None Losartan: Potential interactions with all NNRTIs, net effect of interaction difficult to predict, use with caution	Telmisartan, Candesartan: None Losartan: Potential interactions with all NNRTIs, net effect of interaction difficult to predict, use with caution
Beta blockers: e.g. Atenolol, Carvedilol and Propranolol	No known interactions	No known interactions
Calcium channel blockers (CCBs): e.g. Nifedipine, Amlodipine and Felodipine	Potential interaction with all NNRTIs: Metabolism of CCBs is induced by EFV or NVP, blunting antihypertensive effect: higher starting dose of CCB may be required	Potential interaction with all NNRTIs: Metabolism of CCBs is induced by EFV or NVP, blunting antihypertensive effect: higher starting dose of CCB may be required
Diuretics: E.g. HCTZ, Indapamide. Furosemide and Spironolactone	No known interactions	No known interactions
Others: Alpha blockers: Methyldopa, Hydralazine	No known interactions	No known interactions

ANTICONVULSANTS		
Carbamazepine Phenobarbital Phenytoin	Unknown Use with caution. Monitor anticonvulsant levels	Use with caution Monitor anticonvulsant levels
METHADONE	Levels: NVP unchanged. Methadone significantly. Opiate withdrawal common when this combination is used. Increased methadone dose often necessary. Titrate methadone dose to effect	Levels: Methadone 60% Opiate withdrawal common, increase methadone dose often necessary. Titrate methadone dose to effect
MISCELLANEOUS	No data	Monitor warfarin when used concomitantly

Annex 13 B: Drug-Drug Interactions – PIs

Drugs Affected	Atazanavir (ATV)	Ritonavir (RTV)	Darunavir (DRV)	Lopinavir (LPV)
ANTIRETROVIRALS				
EFV	Co-administration not recommended because EFV decreases the serum concentration of ATV/r which may lead to resistance and treatment failure	See interaction with specific ritonavir-boosted PI	Co-administration not recommended because DRV/r may increase the serum concentration of EFV leading to increased risk of toxicity, and EFV decreases the serum concentration of DRV/r which may lead to resistance and treatment failure	AVOID: this combination increased risk of prolonged-QT syndrome and sudden cardiac death
ETR	No significant interaction	See interaction with specific ritonavir-boosted PI	No significant interaction	No significant interaction
DTG	No significant interaction	See interaction with specific ritonavir-boosted PI	No significant interaction	No significant interaction
RAL	ATV/r may increase RAL levels but interaction in not clinically significant	See interaction with specific ritonavir-boosted PI	No significant interaction	No significant interaction

ANTIFUNGALS				
Itraconazole	Limited data, minimal effect	No data, but potential for bi-directional inhibition between Itraconazole and RTV, monitor for toxicities Dose: dose adjustment for patients receiving >400 mg Itraconazole may be needed, or consider monitoring Itraconazole level	↑ Levels of azoles and DRV	↑ Levels: itraconazole when administered with LPV/r Dose: itraconazole – consider not to exceed 200 mg/day or monitor level and toxicity
Ketoconazole	Limited data, minimal effect	Levels: Ketoconazole ↑ 3X Dose: Use with caution; do not exceed 200 mg ketoconazole daily	↑ levels of azoles and DRV	Levels: LPV AUC ↓ 13% Azole ↑ 3-fold. Dose: Use with caution; do not exceed 200 mg ketoconazole daily
ANTI-MYCOBACTERIALS				
Rifampicin	Atazanavir AUC: decreased 72%; Cmax: decreased 53%; Cmin: decreased 98%	Levels: RTV ↓ 35%. Dose: No change. Increased liver toxicity possible. Co-administration may lead to loss of virologic response is RTV sole PI. Alternate anti- mycobacterial agents, such as rifabutin, should be considered	↓ levels of DRV	Levels: LPV AUC ↓ 75%. Should not be co administered as a safe and effective dose of LPV/r that can be given with rifampicin has not been established

Clarithromycin	Clarithromycin AUC: increased 94%;	Levels; Clarithromycin ↑ 77% Dose: Adjust clarithromycin dose for moderate and severe renal impairment	↑ levels of clarithromycin by 59%	Levels: ↑ Clarithromycin AUC 77% Dose: Adjust clarithromycin dose for moderate and severe renal impairment
Bedaquiline (BDQ)	Increases BDQ exposure and increases risk of prolonged QT syndrome, monitor for increased toxic effects by frequent ECG and transaminases assessment	Increases BDQ exposure, monitor for increased toxic effects by frequent ECG and transaminases assessment	Increases BDQ exposure, monitor for increased toxic effects by frequent ECG and transaminases assessment	Do NOT co-administer because of increased risk of prolonged QT syndrome Increases BDQ exposure, monitor for increased toxic effects
Delamanid (DLM)	Increases DLM exposure, monitor for increased toxic effects by frequent ECG and transaminases assessment	Increases DLM exposure, monitor for increased toxic effects by frequent ECG and transaminases assessment	Increases DLM exposure, monitor for increased toxic effects by frequent ECG and transaminases assessment	Do NOT co-administer because of increased risk of prolonged QT syndrome Increases DLM exposure, monitor for increased toxic effects
ORAL CONTRACEPTIVES				
	Ethinyl estradiol AUC: ↓	Levels: Ethinyl estradiol ↓ 40%. Use alternative or additional method	Ethinyl estradiol AUC: ↓ 44%	Levels: Ethinyl estradiol ↓ 42% Use alternative or additional method

LIPID-LOWERING AGENTS				
Simvastatin Lovastatin	Avoid co- administration	Levels: potential for large increase in statin levels. Avoid concomitant use	Avoid	Levels: Potential for large increase in statin levels Avoid concomitant use
Atorvastatin	Minimal interaction	Levels: 450% ↑ when administered with SQV/RTV combination. Use lowest possible starting dose of atorvastatin with careful monitoring	↑ AUC four-fold	Atorvastatin AUC ↑ 5.88-fold. Use lowest possible starting dose of atorvastatin with careful monitoring
Pravastatin	Minimal interaction	Levels: 50% ↓ when administered with SQV/RTV combination Dose: Pravastatin dosage adjustment based on lipid response	↑ AUC 81%	Pravastatin AUC ↑ 33%; no dosage adjustment necessary
ANTI-HYPERTENSIVES				
Angiotensin-converting enzyme inhibitors (ACEIs): E.g. - Enalapril, Lisinopril	No known interactions	No known interactions	No known interactions	No known interactions

Angiotensin II receptor blockers (ARBs): e.g. Losartan, Telmisartan	Telmisartan, Candesartan: None Losartan: Potential interactions with all PIs, net effect of interaction difficult to predict, use with caution	Telmisartan, Candesartan: None Losartan: Potential interactions with all PIs, net effect of interaction difficult to predict, use with caution	Telmisartan, Candesartan: None Losartan: Potential interactions with all PIs, net effect of interaction difficult to predict, use with caution	Telmisartan, Candesartan: None Losartan: Potential interactions with all PIs, net effect of interaction difficult to predict, use with caution
Beta blockers: e.g. Atenolol, Carvedilol and Propranolol	Potential increase in B-blocker effect, careful dose adjustment and ECG where indicated	Potential increase in B-blocker effect, careful dose adjustment and ECG where indicated	Potential increase in B-blocker effect, careful dose adjustment and ECG where indicated	Potential increase in B-blocker effect, careful dose adjustment and ECG where indicated
Calcium channel blockers (CCBs): e.g. Nifedipine, Amlodipine and Felodipine	Potential interaction with all PIs: Metabolism of CCBs inhibited, increasing antihypertensive effect: lower starting dose of CCB may be required, monitor for excessive reduction in BP	Potential interaction with all PIs: Metabolism of CCBs inhibited, increasing antihypertensive effect: lower starting dose of CCB may be required, monitor for excessive reduction in BP	Potential interaction with all PIs: Metabolism of CCBs inhibited, increasing antihypertensive effect: lower starting dose of CCB may be required, monitor for excessive reduction in BP	Potential interaction with all PIs: Metabolism of CCBs inhibited, increasing antihypertensive effect: lower starting dose of CCB may be required, monitor for excessive reduction in BP
Diuretics: E.g. HCTZ, Indapamide. Furosemide and Spironolactone	No known interactions	No known interactions	No known interactions	No known interactions
Others: Alpha blockers: Methyldopa, Hydralazine	No known interactions	No known interactions	No known interactions	No known interactions

ANTICONVULSANTS				
Carbamazepine Phenobarbital Phenytoin	Reduce ATV levels	Carbamazepine; ↑ serum levels when co-administered with RTV Use with caution Monitor anticonvulsant levels	Avoid	Many possible interactions: Carbamazepine: ↑ levels when co-administered with RTV. Use with caution. Monitor anticonvulsant levels. Phenytoin: levels of LPV, RTV, and ↓ levels of Phenytoin when administered together Avoid concomitant use or monitor LPV level
OTHER DRUG				
Methadone	No interaction with unboosted ATV Increased metabolism of methadone with boosted ATV	Methadone ↓ 37%. Monitor and titrate dose if needed May require ↑ methadone dose	↓ levels of methadone by 16%	Methadone AUC ↑ 53%. Opiate withdrawal may occur Monitor and titrate dose if needed. May require ↑ methadone dose

ERECTILE DYSFUNCTION AGENTS				
Sildenafil	Use reduced dose of sildenafil	Sildenafil AUC ↑ 11-fold. Use cautiously Start with reduced dose of 25 mg every 48 hours and monitor for adverse effects		Sildenafil AUC ↑ 11- fold in combination with RTV. Do not exceed 25 mg every 48 hours
Miscellaneous	Decreased GI absorption of atazanavir due to reduced acidity	Theophylline ↓ 47% monitor theophylline levels RTV 100 mg bid significantly increase systemic exposure of inhaled (oral or nasal fluticasone, may predispose patients to systemic corticosteroid effects. Co-administration not recommended unless benefit of fluticasone outweighs the risk	Warfarin levels	

Annex 13 C: Drug-Drug Interactions – INSTIs

Drugs Affected	Dolutegravir (DTG)	Raltegravir (RAL)
Efavirenz	Co-administration not recommended because EFV decreases levels of DTG. If must be used together then increase DTG to 50 mg BD when co-administered with EFV.	Efavirenz decreases RAL plasma levels but it is unlikely to be clinically significant
Etravirine	Co-administration not recommended because ETR decreases levels of DTG, unless used in combination with a PI/r (which counteracts the interaction between DTG and ETR) If must be used together without a PI/r then increase DTG to 50 mg BD when co-administered with ETR. If used together with a PI/r then standard dose DTG is sufficient	Etravirine decreases RAL plasma levels so co-administration when using once-daily RAL is not recommended. Co-administration when using standard BD RAL dosing is acceptable
Rifampicin	Increase DTG to 50 mg BD when co-administered with rifampicin (for children, use double the standard weight-based DTG dose). There is no known drug interaction between DTG and rifabutin.	Increase RAL to 800 mg BD when co-administered with rifampicin (for children, use double the standard weight-based RAL dose; there is no data to guide dose adjustment for children below 2 years of age). Rifabutin may alter RAL plasma levels but it is unlikely to be clinical significant.
Bedaquiline (BDQ)	No interactions expected	No interactions expected
Delamanid (DLM)	No interactions expected	No interactions expected
Metformin	DTG may increase metformin plasma levels so metformin dose may need to be decreased. Limit daily metformin dose to 1,000mg. DTG does NOT require a dose adjustment is when used with metformin.	No interaction
Anticonvulsants -Carbamazepine -Phenobarbital -Phenytoin	Avoid use of DTG with carbamazepine, phenobarbital, or phenytoin because they decrease DTG plasma levels. If the DTG must be used in combination with any of these anticonvulsants than increase DTG dose to 50mg BD and monitor viral load.	No interaction

Mineral supplements and antacids containing cations (e.g. calcium, iron, zinc, magnesium, aluminum), including prenatal vitamins	Administer DTG at least 2 hours before or 6 hours after taking any of these supplements (note: if taking DTG with a meal then it is safe to take at the same time as prenatal vitamins, calcium, or iron) There are no drug-drug interactions between DTG and proton pump inhibitors or H2 blockers used for gastritis.	Do not use calcium, magnesium and aluminum containing antacids with RAL.
Methadone	No interaction	No interaction

Annex 14: Health Facility Assessment to Provide Community ART Distribution

Health Facility Assessment to Provide Community ART Distribution*		
Facility name:	**MFL code:**	**Date of assessment:**

Health system domains for community ART distribution	Yes/No
Leadership: Has the facility identified a focal person to oversee community-based ART distribution?	
Finance: Does the facility have resources to implement and monitor community-based ART distribution?	
Human Resources for Health: Has the facility identified appropriate personnel to distribute ART (peer educators, lay counselors and /or Community Health Volunteers)?	
Does the facility have capacity to train ART distributors?	
Service Delivery: Has the facility achieved a routine viral load monitoring uptake of ≥ 90%?	
Has the facility established a facility-based system for fast-track ART distribution?	
Commodity Management: Does the facility have ≥ three months of ART available on site?	
Has the facility identified a focal person to pre-pack and label ART for community distribution?	
Health Information Systems: Does the facility have an established system to monitor patient level outcomes, specifically retention, loss to follow-up, mortalities and viral load suppression?	
Is the facility able to establish recording and reporting systems for community ART?	
Assessors' recommendations:	
Final assessment outcome:	
Facility can initiate community ART distribution ☐ Facility to implement assessors' recommendations and be re-assessed thereafter ☐	

Names of assessors: Signature of assessors:	Name of health facility manager: Signature of health facility manager:

*None of these criteria are absolute requirements for implementation of community-based ART distribution; implementation can be considered even if some criteria are not met, as long as a plan is in place to address and monitor gaps

Annex 15: Creatinine Clearance

Formula for calculating creatinine clearance for adults:

$$GFR_{Cockcroft} = \frac{(140 - age) \times mass\ (kg)\ [\times 1.23 \text{ if male}]\ [\times 1.04 \text{ if female}]}{serum\ creatinine\ (\mu mol/l)}$$

Formula for calculating creatinine clearance for children and adolescents (up to 19 years old):

eGFR = *k* x height (cm)/ serum creatinine (mg/dL)

k = 0.45 for infants < 1 year old
k = 0.55 for children (1 – 10 years)
k = 0.55 for female adolescents (11-19 years)
k = 0.70 for male adolescents (11-19 years)

Annex 16: Immune Reconstitution Inflammatory Syndrome

Immune Reconstitution Inflammatory Syndrome (IRIS)

Definition:

IRIS is a paradoxical inflammatory reaction against a foreign antigen (alive or dead) in patients who have started ART with reconstitution (improved functioning) of their immune system. The immune system, once it regains some function, is now able to respond against the foreign antigen.

Classification:

- **Unmasked IRIS:** appearance of a previously undiagnosed opportunistic infection (OI) following ART initiation (or switch of ART to a suppressive regimen)
- **Paradoxical IRIS:** worsening of a previously diagnosed disease after ART initiation (or switch of ART to a suppressive regimen)

Risk Factors for IRIS:

- 10-20% of patients who start ART with advanced immunosuppression (refer to section 3) experience clinical deterioration during the first few months due to IRIS
- High risk patients include:
    - Advanced immunosuppression (WHO Stage 3 or 4, or CD4 count ≤ 200 cell/mm3 (or CD4% ≤ 25% for children ≤ 5 years old))
    - Patients with a diagnosed opportunistic infection like TB, MAC, CMV, and PCP
    - Low baseline CD4 (CD4 count ≤ 50 cell/mm^3 or CD4% ≤ 10%)
    - High baseline viral load
    - Substantial increase is CD4 count and drop in viral load after starting ART

Diagnosis of IRIS

- IRIS should be suspected any time a patient has clinical deterioration weeks to months after starting ART (or switching to a suppressive ART regimen)
- Clinical deterioration usually occurs within 4-8 weeks of initiation or change of ART (but can be months afterwards)
- IRIS has varied clinical presentations due to multiple possible pathogens that the immune system may be reacting to, and various immune system reactions; there are generally clinical manifestations consistent with an inflammatory condition
- A high level of suspicion is required when making a diagnosis of IRIS, which is generally one of exclusion
- Rule out the possibility of drug reaction, patient non-adherence to OI treatment, persistently active infection and/or drug resistance to OI treatment
- There could be localized tissue inflammation with or without systemic inflammatory response

Patient evaluation:

In addition to the clinical evaluation for PLHIV outlined in Table 3.1, emphasis should be placed on the following areas during the patient evaluation:

History:

Symptoms and current ARV history:

- Specific systemic symptomatology
- Date of ARV initiation
- Regimen
- Reason for substitution / switch from previous ART if not first line
- Adherence to ART and other ongoing treatment
- HIV viral load
- CD4 count

Prior History: • ARV toxicity • Drug-drug interaction • CD4 count • HIV viral load	**History of treatment of opportunistic infections:** • Date of initiation of treatment • Duration of therapy • Clinical response to treatment • Adherence to the OI treatment • Any default to treatment • Resistance to treatment

Physical Examination:

Vital signs assessment: Temperature, Heart Rate, Blood Pressure, Respiratory rate
Conduct a detailed systemic examination: • Emphasis should be placed on the system(s) which are primarily affected (Table 3.1)

Investigations

• All patients with advanced HIV disease should be screened for common OIs including TB, cryptococcal meningitis and other common OIs depending of their presenting signs and symptoms

Major and Minor Presentations of IRIS

Major presentation	Minor presentation
Tuberculosis (TB) Mycobacterium avium complex (MAC) Cryptococcal meningitis Cytomegalovirus (CMV) retinitis Hepatitis B or C virus Progressive multifocal leukoencephalopathy (PML) Kaposi's sarcoma Cerebral toxoplasmosis Autoimmune diseases	Herpes simplex virus (HSV) and varicella zoster virus (VZV) Nonspecific dermatologic complications such as folliculitis and oral and genital warts

Management of IRIS

IRIS management is dependent on severity of symptoms and the following general guidance is recommended:

Severity of IRIS	Definition	Management
Mild	• Resolves over time in most patients • Symptomatic treatment is often sufficient	• Treat the OI and manage the associated symptoms • Treat IRIS-associated inflammation: o NSAIDS for discomfort associated with mild inflammation / fevers o Inhaled steroids for bronchospasm or cough associated with mild pulmonary inflammation • Surgical intervention: o Drainage of abscesses o Excision of inflamed and painful lymph nodes

Severe	• Threatens a patient's functional state • Cause permanent disability • Potentially lead to death Examples: • Decline in pulmonary capacity from TB or MAC infection • Neurologic complications from cryptococcal infection • Loss of vision from CMV retinitis infection	• Treat the OI and manage the associated symptoms • Manage the IRIS-associated inflammation: o If NOT cryptococcal meningitis or KS: give 1 to 2 mg/kg prednisone for 1 to 2 weeks. Follow with a period of individualized tapering of the dose o Do not use corticosteroids for the management of CM or KS- related IRIS • Closely monitor patients on corticosteroid therapy for: o Hyperglycemia o Hypertension o Mental status changes o Avascular necrosis o Worsening of an existing infection o Predisposition to a new infection (e.g. TB and CMV)

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Annex 18: List of Participating Organizations and Agencies

AmpathPlus	Academic Model Providing Access to Healthcare
APHIA	AIDS, Population and Health Integrated Assistance Program
Bomu Hospital	Bomu Hospital
CDC	Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
CHS	Centre for Health Solutions - Kenya
EGPAF	Elizabeth Glasier Pediatric AIDS Foundation
FACES	Family AIDS Care and Education Services
HS	Health Strat
IAVI	International AIDS Vaccine Initiative
ICAP	ICAP at Columbia University's Mailman School of Public Health
KEMRI	Kenya Medical Research Institute
KESWA	Kenya Sex Workers Alliance
KNH	Kenyatta National Hospital
KPA	Kenya Paediatric Association
M2M	Mothers 2 Mothers Program
MOH-NCD	Ministry of Health-Non-communicable diseases unit
MSF	Medicines San - Frontiers
MSH	Management Sciences for Health
NACC	National AIDS Control Council
NASCOP	National AIDS & STI Control Program
NEPHAK	National Empowerment Network of People living with HIV/AIDS in Kenya
NHRL	National HIV Reference Laboratory
NLTD-P	National Tuberculosis, Leprosy & Lung Diseases -Program
PHDA	Partners for Health and Development in Africa
UCSF	University of California San Francisco
UNICEF	United Nations Children's Emergency Fund
UMB	University of Maryland Baltimore
UON	University of Nairobi
UW	University of Washington
USAID	United States Agency for International Development
USAID/HP plus	United States Agency for International Development – Health Policy Plus
WHO	World Health Organization
WRP/DOD	Walter Reed Project-Department of Defense

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