Module 3 Clinical Care for Adolescents Living with HIV

Session 3.1:	**HIV Acquisition — Modes and Implications for Care and Treatment**
Session 3.2:	**The Package of Adolescent HIV Care and Treatment Services**

Learning Objectives

After completing this module, participants will be able to:

- Discuss the needs of adolescents who acquired HIV perinatally versus those who acquired HIV during childhood or adolescence
- Discuss the importance of comprehensive care for ALHIV
- Define the package of HIV-related care and treatment for adolescents

Session 3.1 HIV Acquisition — Modes and Implications for Care and Treatment

Session Objective

After completing this session, participants will be able to:

- Discuss the needs of adolescents who acquired HIV perinatally versus those who acquired HIV during childhood or adolescence

HIV Transmission in Adolescents

It is important for health workers to be aware that there are 2 specific groups of ALHIV they will likely serve at the clinic.

Adolescents who acquired HIV perinatally

- This group of adolescents acquired HIV via MTCT — during pregnancy, labor, delivery, or breastfeeding.
- As pediatric HIV treatment programs have become more available and accessed, there are more and more perinatally infected children who survive into adolescence and adulthood.
- Adolescents in this group may have been enrolled in HIV care since infancy. Others may have been identified later in life during an acute illness or through a testing campaign.
- Adolescents in this group may have initiated ART in infancy and taken various ART regimens by the time they reach adolescence. Others may still be taking the initial regimen they started during early childhood.
- Several recent studies suggest that there are significant numbers of perinatally infected adolescents who, despite being symptomatic, have been "missed" by the health care system.
- Perinatally infected adolescents may or may not have been fully disclosed to (depending on their age and their caregivers). Unlike adolescents who acquire HIV during adolescence, usually at least 1 caregiver of a perinatally infected adolescent knows about the adolescent's HIV-status.

Challenges faced by adolescents with perinatally-acquired HIV and their families often include disclosure of HIV-status to the child and the mother's acceptance of her HIV-status (including her commitment to, enrollment in, and adherence to lifelong care and treatment). Other challenges may include:

- For the family/caregivers: the demands of caring for a child with chronic HIV infection — balancing multiple appointments, tests, and medications
- Developmental delays and physical disabilities in the child/adolescent
- The complexity of living in a home affected by HIV, particularly if the adolescent's caregivers are unemployed, unwell, or have died, or if the child/adolescent was adopted and this has not been disclosed to him or her yet

Adolescents who acquired HIV during childhood or adolescence

- This group of adolescents likely acquired HIV through sexual intercourse or, less frequently, through a blood transfusion, through sharing cutting/piercing instruments, or through injecting drug use.
- It is important to recognize that some adolescents in this group will have acquired HIV through sexual abuse, including rape (sexual abuse will be discussed further in Module 10).
- Adolescents in this group may have learned their HIV-status only recently and generally have not had extended contact with the health care system. They are often identified via HIV testing programs (voluntary counseling and testing (VCT), routine provider-initiated testing and counseling (PITC), etc.).
- Some adolescent girls are identified as HIV-infected when they seek antenatal care and receive routine testing as part of PMTCT services.

Many adolescents who acquire HIV during adolescence fall into WHO clinical stage 1 or 2, feel well, and do not yet need ART. However, it is important that adolescents not eligible for ART still receive ongoing care, support, and monitoring for ART eligibility.

The challenges faced by adolescents who acquired HIV during childhood or adolescence often relate to:

- Acceptance of HIV-status
- Disclosure to family, partner, and peers
- If raped or abused, dealing with the emotional and physical repercussions of that experience

Both adolescents with perinatally-acquired HIV and those who acquired HIV during childhood or adolescence may have issues related to retention in care (especially if they are not eligible for ART), adherence to ART, positive living, and positive prevention. Both groups of ALHIV are also likely to face stigma and discrimination, to worry about their futures, and to be concerned about finding a partner and, in most cases, starting a family.

See Table 3.1 for additional information. Keep in mind that these are generalizations and therefore may not apply to all adolescents. Each person is unique!

Table 3.1: Differences and similarities between ALHIV based on transmission period

DIFFERENCES (AND SIMILARITIES) RELATED TO:	PERIOD WHEN HIV WAS ACQUIRED	
	PERINATAL (dependant on current age and stage of development)	**ADOLESCENCE**
AGE AT PRESENTATION IN ADOLESCENT CARE	• May present at an earlier age, but tend to be younger: 10–19 years	• Tend to be older: 15–19 years
PHYSICAL DEVELOPMENT	• May be delayed: short stature and late puberty	• Normal physical development and puberty
SEXUAL & REPRODUCTIVE HEALTH	• Not yet sexually active (or, if older, may be thinking about sex or have already had sexual debut)	• Probably sexually active • May have been sexually abused
	Similarities: • May need SRH services, including safer sex education and support • May want children	
RELATIONSHIPS/ MARRIAGE	• May or may not be in a relationship (depending on age and development) • May want intimate relationship • May want marriage	• Probably in a sexual relationship • May want marriage
DISCLOSURE	• Primary caregiver knows adolescent's HIV-status • Caregiver needs to disclose to adolescent if he or she does not already know status	• Coping with new diagnosis • Coping with disclosure to primary caregiver • Coping with disclosing to partner
	Similarities: • Coping with process of disclosing to family and peers	
FAMILY SUPPORT	• Living with parents or caregivers, who typically know adolescent's HIV-status so can offer support	• Support system for HIV depends on disclosure
ECONOMIC SUPPORT	• May be unstable if adolescent has been orphaned	• May have few resources (money, information, experience) if adolescent has left home
ART	• Often on ART for many years	• May not need ART yet
	Similarities: • Adherence challenges in childhood and adolescence	
STIGMA/"BLAME"	• Less likely to be blamed • Considered "innocent"	• More likely to be blamed because of "irresponsible" behavior
	Similarities: • Face stigma	

Adapted from: WHO. (2010). *IMAI one-day orientation on adolescents living with HIV. Facilitator guide.* Geneva: WHO.

Session 3.2 The Package of Adolescent HIV Care and Treatment Services

Session Objectives

After completing this session, participants will be able to:

- Discuss the importance of comprehensive care for ALHIV
- Define the package of HIV-related care and treatment for adolescents

Approaches to Service Provision[1]

The goals of comprehensive HIV care are to:

- Reduce HIV-related illness and death
- Improve quality of life
- Improve the lives of families and communities affected by HIV
- Prevent further spread of HIV

Adolescents with perinatally-acquired HIV:

- Have typically been in care since they were young (although this is not always the case)
- Likely began their experience in HIV care and treatment when they were children, under the care of health workers with expertise in pediatrics (who followed pediatric guidelines)
- Have typically been on ART for many years and may even be on a 2nd or 3rd line regimen
- Often look young for their age and, due to delays in development and overprotection by caregivers, are often young socially as well

Young people who acquired HIV during adolescence, on the other hand:

- May be socially experienced, possibly more so than many of their peers
- May be relatively inexperienced in terms of navigating the health care system and dealing with health workers
- Are typically treated as adults, with their treatment directed by adult guidelines

Remember: Regardless of how long they have been infected or how they acquired HIV, the package of care for all ALHIV is very similar. The approach for all adolescents should be family-centered and developmentally appropriate. While the components of the adolescent package of HIV care closely resemble those of the adult package, **the way** these components are delivered has an important impact on their uptake and success among adolescents.

To be effective, adolescent services must:

- Be integrated
- Be age and developmentally appropriate
- Be responsive to the needs of both perinatally infected adolescents and those infected later in childhood or adolescence
- Be empowering; in other words, they must encourage adolescents to take responsibility (as they are developmentally able) for their own health by taking responsibility for their care, for their treatment, and for living positively
- Emphasize both care **and** treatment; and emphasize retention in care, whether or not a particular adolescent is eligible for ART

The importance of 1-stop shopping for adolescents

We can increase adolescent clients' ability to access and benefit fully from services by:

- Ensuring services are integrated, or at least co-located **("1-stop shopping")**
- Ensuring services are youth-friendly (see Module 2)

The Importance of Family-focused Care

- Family-focused care means that all members of the multidisciplinary care team think about the needs of all family members, and not just those of the adolescent client.
- It also means thinking about the linkages between the individual client, the client's family, and the community as a whole.
- Depending on the client's age and family situation, health workers should make it a routine practice to ask him or her about caregivers and other family members. They should also encourage the client to bring family members to the clinic for services, if needed. Health workers can provide family members with ongoing education and information on HIV care and treatment, adherence counseling and support, and general support on caring for ALHIV.
- With older adolescents, health workers should also enquire about partners and children. When the adolescent is ready, he or she should be encouraged and supported to bring his or her partner to the clinic for information on HIV, safer sex, and HIV testing and treatment.

Remember: Adolescents' day-to-day lives include their families, partners, children, friends, and other community members, so it is important to ask about them at every visit!

Using the 5 "A's" in Consultations with Adolescent Clients

The 5 "A's" are part of the WHO Integrated Management of Adolescent and Adult Illness (IMAI) guidelines on working with clients (including adolescents) who have chronic conditions (including HIV). Some of the most surprising examples of poor patient care have stemmed from health workers communicating clinical information to clients in a manner that is abrupt, insensitive, and completely dismissive of their potential reaction. The 5 "A's" offer a framework for communicating both psychosocial and clinical information to clients. The 5 "A's" support the provision of information and support in a manner that is sensitive and client-centered.

Table 3.2: Using the 5 "A's" during clinical visits with adolescents

The 5 "A's"	More Information	What the Health Worker Might Say
ASSESS	• Assess the client's goals for the visit • Asses the client's clinical status, classify/identify relevant treatments, and/or advise and counsel • Assess risk factors • Assess the client's (caregiver's) knowledge, beliefs, concerns, and behaviors • Assess the client's understanding of the care and treatment plan • Assess adherence to care and treatment (see Module 8) • Acknowledge and praise the client's efforts	• *What would you like to address today?* • *What can you tell me about _____?* • *Tell me about a typical day and how you deal with _____?* • *Have you ever tried to _____? What was that like for you?* • *To make sure we have the same understanding, can you tell me about your care and treatment plan in your own words?* • *Many people have challenges taking their medicines regularly. How has this been for you?*
ADVISE	• Use neutral and non-judgmental language • Correct any inaccurate knowledge and gaps in the client's understanding • Counsel on risk reduction • Repeat any key information that is needed • Reinforce what the client needs to know to manage his or her care and treatment (for example, recognizing side effects, adherence tips, problem-solving skills, when to come to the clinic, how to monitor one's own care, where to get support in the community, etc.)	• *I have some information about ____ that I'd like to share with you.* • *Let's talk about your risk related to ____. What do you think about reducing this risk by _____.* • *What can I explain better?* • *What questions do you have about _____?*
AGREE	• Negotiate WITH the client about the care and treatment plan, including any changes • Plan when the client will return	• *We have talked about a lot today, but I think we've agreed that _____. Is this correct?* • *Let's talk about when you will return to the clinic for ____.*
ASSIST	• Provide take-away information on the plan, including any changes • Provide psychosocial support, as needed • Provide referrals, as needed (to support groups, peer education, etc.) • Address obstacles • Help the client come up with solutions and strategies that work for him or her	• *Can you tell me more about any obstacles you've faced with _____ (for example, taking your medicines regularly, seeking support, practicing safer sex)?* • *How do you think you can overcome this obstacle?* • *What questions can I answer about _____?* • *I want to make sure I explained things well — can you tell me in your own words about _____?*
ARRANGE	• Arrange a follow-up appointment • Arrange for the client to participate in a support group or group education sessions, etc. • Record what happened during the visit	• *I would like to see you again in ____ for _____. It's important that you come for this visit or let us know if you need to reschedule.* • *What day/time would work for you?*

Sources:
WHO. (2004). *General principles of good chronic care: IMAI. Guidelines for first-level facility health workers.* Geneva: WHO.
WHO. (2010). *IMAI one-day orientation on adolescents living with HIV*. Geneva: WHO.

The 5 "A's" are referred to throughout this training and developed further in Module 5. Participants will have an opportunity to practice the 5 "A's" towards the end of this session.

Comprehensive Care for ALHIV

The care of the child with HIV is directed by pediatric HIV guidelines. However, as the child ages and develops, his or her care transitions to follow adult HIV guidelines. The care of adolescents is often guided by pediatric guidelines, adult guidelines, or both. Although pediatric and adult guidelines have many similarities (for example, criteria for ART initiation for children over 5 years of age is the same as for adults), their differences give health workers the flexibility to tailor the package of care to meet each adolescent client's needs.

Comprehensive care for ALHIV includes the provision of the services listed in the clinical assessment checklists in Tables 3.3, 3.4 and 3.5 below.

- **Table 3.3** lists the steps to be conducted at the initial, or enrollment, visit. As many adolescents with perinatally-acquired HIV have been in care for years, they will have undergone an enrollment assessment as infants or children. As such, the checklist in Table 3.3 is for use at **entry into the adolescent program**. Note that it may take several visits to complete all the steps included in this assessment
- **Table 3.4** lists the steps to be conducted at follow-up visits for clients ***not*** on ART.
- **Table 3.5** lists the steps to be conducted at follow-up visits for clients on ART.

Table 3.3: Key steps — enrollment visit

✓	Steps
	1. Take history
	• Take a complete medical and social history, including prenatal, birth, and family history
	• Confirm HIV infection status
	• Identify concomitant medical conditions (e.g., TB disease, hepatitis B or C infection, other co-infections or OIs, pregnancy in adolescent girls)
	• Enquire about disclosure to the adolescent (if perinatally infected, take time alone with caregiver to discuss) or disclosure to others
	• Enquire about HIV and treatment status of family and household members
	• Enquire about concomitant medication (e.g., CTX, oral contraceptives, traditional therapies)
	• Review immunization status
	• If clinically indicated, undertake a nutritional status assessment
	• Ask about sexual activity and condom and other contraceptive use (alone with adolescent)
	• Conduct psychosocial assessment and provide counseling, referrals, and support (see Module 5 and *Appendix 3B: HEADSS Interview Questions*)
	• Assess any other practical needs, such as legal support, housing, school/career, and financial
	2. Conduct physical exam
	• Assess growth and nutrition (weight, height, and BMI), as appropriate for age
	• Assess development and neurodevelopment, as appropriate for age
	• Conduct physical examination, including Tanner staging
	• Conduct skin exam (tattoos, bruises, acne) and scoliosis evaluation
	• Screen for STIs in adolescents who are sexually active
	• Screen for pregnancy in sexually active adolescent females
	• Screen for TB; screen for other OIs and other concomitant conditions, diarrhea, malaria
	• Discuss findings from physical examination with ALHIV and his or her caregivers
	3. Make laboratory assessment plan
	• Conduct baseline tests according to local resources and guidelines: ◦ CD4: recommended; HBsAg: desirable; other tests, if clinically indicated
	4. Make assessments
	• Review findings from history, physical assessment, and laboratory work and make diagnosis
	• Assess WHO clinical stage. If on ART, determine if there are any new stage 3 or 4 events
	• If not on ART, determine if ALHIV meets the criteria for ART initiation
	• Decide if CTX or IPT are indicated
	5. Make decisions
	• Discuss prevention of illnesses (OIs, including TB, STIs, diarrhea, malaria, and other illnesses) and initiation or continuation of CTX, IPT, and any other medications
	• If applicable, discuss prevention of STIs, positive prevention, and prevention of unintended pregnancy; provide condoms and contraceptive counseling and methods
	• For those eligible for ART, initiate adherence preparation
	• Discuss treatment of current illnesses identified in physical examination
	• If eligible, initiate CTX or IPT; discuss adherence and side effects
	• If applicable, provide nutrition counseling and support
	• Provide counseling, support, and referrals based on psychosocial assessment and needs

✓	Steps
	6. Agree on an action plan
	• Agree on key action steps from history and physical examination
	• Discuss when to seek medical care; for example, with unexpected illness or side effects
	• Reiterate agreed upon plan to support adherence to medications
	• Discuss steps to live positively and prevent further HIV infections
	• Agree on key action steps based on psychosocial assessment (e.g., reduce alcohol intake, discuss HIV-status with friend, join support group)
	• Provide referrals, including name of person/agency, address, and contact information of referral point. If possible, contact referral and make appointment on behalf of ALHIV
	• Schedule next visit as per national guidelines: ◦ **If pre-ART:** every 3–6 months, with more frequent visits if CD4 is approaching treatment criteria ◦ **If on ART:** every 3 months, with more frequent visits if clinically unwell or CD4 is declining ◦ Schedule earlier appointment if required for follow-up of problems identified during the visit or if adolescent is ill ◦ Encourage ALHIV to drop in (without an appointment) if a problem arises and to participate in other clinic activities, such as support groups

Table 3.4: Key steps — follow-up visit, clients NOT on ART

✓	Steps
	1. Take history
	• Review interim medical history
	• Review concomitant medication (e.g., CTX, oral contraceptives, traditional therapies)
	• Conduct psychosocial assessment and provide counseling, referrals, and support
	• Re-assess other practical needs, such as legal support, housing, school/career, and financial
	2. Conduct physical exam
	• Assess growth and nutrition (weight, height, and BMI), as appropriate for age
	• Assess development and neurodevelopment, as appropriate for age
	• Conduct physical examination, including Tanner staging
	• Conduct skin exam (tattoos, bruises, acne) and scoliosis evaluation
	• Screen for STIs in adolescents who are sexually active
	• Screen for pregnancy in sexually active adolescent females
	• Screen for TB; screen for other OIs and other concomitant conditions, diarrhea, malaria
	• Discuss findings from physical examination with ALHIV and his or her caregivers
	3. Make laboratory assessment plan
	• Conduct laboratory tests according to local resources and guidelines
	4. Make assessments
	• Review clinical findings at this visit and laboratory findings (including CD4 cell count) from recent visits; consider eligibility for ART
	• Assess WHO clinical stage; consider eligibility for ART
	• If on CTX, provide refill; monitor and discuss adherence. If not on CTX, re-assess eligibility
	• If on IPT, provide refill; monitor and discuss adherence. If not on IPT, re-assess eligibility
	5. Make decisions
	• If applicable, discuss prevention of STIs, positive prevention, and prevention of unintended pregnancy; provide condoms and contraceptive counseling and methods
	• For those eligible for ART, initiate adherence preparation
	• Discuss treatment of current illnesses identified in physical examination
	• If applicable, provide nutrition counseling and support
	• Discuss disclosure to the adolescent (if perinatally infected) or disclosure to others
	• Discuss positive living and positive prevention
	• Provide counseling, support, and referrals based on psychosocial assessment and needs
	• Provide education, care, and support for family members and/or partner
	• Provide support for clients who are switching providers or transitioning into adult care
	6. Agree on an action plan
	• Agree on key action steps from history and physical examination
	• Discuss when to seek medical care, for example, with unexpected illness or side effects
	• Reiterate agreed upon plan to support adherence to medications
	• Agree on key action steps based on psychosocial assessment
	• Provide referrals and, if possible, contact referral to make appointment on client's behalf
	• Schedule next visit as per national guidelines: ◦ **If pre ART:** every 3–6 months ◦ **If initiating ART at this visit:** schedule appointment for weeks 2, 4, 8, 12, and then every 3 months once the adolescent has stabilized on ART ◦ Schedule earlier appointment if required for follow-up of problems identified during the visit or if adolescent is ill ◦ Encourage ALHIV to drop in (without an appointment) if a problem arises and to participate in other clinic activities, such as support groups

Table 3.5: Key steps — follow-up visit, clients on ART

✓	Steps
	1. Take history
	• Review interim medical history
	• Review concomitant medication (e.g., CTX, oral contraceptives, traditional therapies)
	• Conduct psychosocial assessment and provide counseling, referrals, and support
	• Re-assess other practical needs, such as legal support, housing, school/career, and financial
	2. Conduct physical exam
	• Assess growth and nutrition (weight, height, and BMI), as appropriate for age
	• Assess development and neurodevelopment, as appropriate for age
	• Conduct physical examination, including Tanner staging
	• Conduct skin exam (tattoos, bruises, acne) and scoliosis evaluation
	• Screen for STIs in adolescents who are sexually active
	• Screen for pregnancy in sexually active adolescent females
	• Screen for TB; screen for other OIs and other concomitant conditions, diarrhea, malaria
	• Discuss findings from physical examination with ALHIV and his or her caregivers
	3. Make laboratory assessment plan
	• Conduct laboratory tests according to local resources and guidelines
	4. Make assessments
	• Review clinical findings at this visit and laboratory findings (including CD4 cell count) from recent visits
	• Assess WHO clinical stage; determine if there are any new stage 3 or 4 events; assess CD4 cell count to check response to treatment; determine if treatment failure has occurred.
	• Provide ART refills; monitor and discuss adherence and side effects
	• If on CTX, provide refill; monitor and discuss adherence. Consider discontinuation
	• If on IPT, provide refill; monitor and discuss adherence. If not on IPT, re-assess eligibility
	5. Make decisions
	• If applicable, discuss prevention of STIs, positive prevention, and prevention of unintended pregnancy; provide condoms and contraceptive counseling and methods
	• Discuss treatment of current illnesses identified in physical examination
	• If applicable, provide nutrition counseling and support
	• Discuss disclosure to the adolescent (if perinatally infected) or disclosure to others
	• Discuss positive living and positive prevention
	• Provide counseling, support, and referrals based on psychosocial assessment and needs
	• Provide education, care, and support for family members and/or partner
	• Provide support for clients who are switching providers or transitioning into adult care
	6. Agree on an action plan
	• Agree on key action steps from history and physical examination
	• Discuss when to seek medical care, for example, with unexpected illness or side effects
	• Reiterate agreed upon plan to support adherence to medications
	• Agree on key action steps based on psychosocial assessment
	• Provide referrals and, if possible, contact referral to make appointment on client's behalf
	• Schedule next visit as per national guidelines: ◦ **If ART was recently initiated:** schedule appointment for weeks 2, 4, 8, 12 ◦ **If stable on ART:** schedule appointment every 3 months (and refills more frequently) ◦ Schedule earlier appointment if required for follow-up of problems identified during the visit or if adolescent is ill ◦ Encourage ALHIV to drop in (without an appointment) if a problem arises and to participate in other clinic activities, such as support groups

Remember: Always follow your most recent national guidelines.

Further guidance can also be found in WHO's *Antiretroviral Therapy for HIV Infection in Adults and Adolescents. Recommendations for a Public Health Approach, 2010 revision* and *Antiretroviral Therapy for HIV Infection in Infants and Children: Towards Universal Access, Recommendations for a public health approach, 2010 revision.*

Laboratory Monitoring

Every patient consultation starts with a history (or interim history) and then a physical examination. If available, laboratory results can support the findings from the history and examination. Laboratory assessments should be conducted at enrollment (that is, entry into HIV care) and as indicated in *Appendix 3A: Laboratory Monitoring Before, During, and After Initiating ART.*

Guiding principles[2]

1. Laboratory monitoring is not a prerequisite for the initiation of ART.
2. **CD4:** although not required for initiating and monitoring ART, CD4 cell count is strongly recommended. Use of clinical criteria alone tends to under-diagnose eligibility for ART — a 2007 study from Uganda found that clinical criteria missed half the patients who would have been eligible for ART had CD4 cell measurements been used.[3]
3. **Hemoglobin:** desirable test at initiation of ART if AZT-containing regimen will be used
4. **Viral load testing** can be used to monitor ART and to diagnose treatment failure. If resources permit, measure viral load every 6 months with the objective of detecting failure earlier. If resources are not available, use immunological and/or clinical criteria alone to define failure or prioritize the use of viral load testing to confirm suspected treatment failure. Always follow national guidelines.
5. Symptom-directed laboratory monitoring for safety and toxicity is recommended for those on ART.

The unavailability of laboratory monitoring, including CD4 and chemistries, should NOT prevent adolescents from receiving ART.

CD4 should be measured at the time of diagnosis AND:

- **For adolescents not yet eligible for ART**: monitor every 6 months and, as CD4 cell count approaches threshold for starting ART, every 3 months
- **For adolescents on ART**: measure just prior to starting ART (if previous CD4 was measured more than 3 months ago) and at least every 6 months thereafter
- **For all adolescents**: measure CD4 if a new clinical staging event develops, including growth faltering and neurodevelopmental delays

Cotrimoxazole (CTX)[2,4]

CTX prophylaxis, often referred to simply as CTX, is a well-tolerated, cost-effective, and life-saving intervention for people living with HIV. It should be implemented as an integral component of chronic care for ALHIV who are symptomatic.

WHO criteria for initiating CTX

Indications for CTX:

- **Clinical criteria:** Start CTX when adolescent is symptomatic (WHO clinical stage 2, 3, or 4)
- **Immunologic criteria:** When CD4 testing is available, start CTX when CD4 count is <350cells/mm^3, regardless of clinical stage, or according to national guidelines

Discontinuing CTX

- CTX can be discontinued in an adolescent on ART if he or she shows evidence of sustained immune recovery of CD4 >350cells/mm^3 after at least 6 months of treatment.
- In situations where CD4 is not available, CTX can be discontinued when there is evidence of good clinical response to ART (absence of clinical symptoms after at least 1 year of therapy), good adherence, and secure access to ART.
- If CTX is discontinued, it should be restarted if the client's CD4 count falls below 350 cells/mm^3 or if he or she has a new or recurrent WHO clinical stage 2, 3, or 4 condition.
- Always follow national guidelines when initiating and discontinuing CTX.

Discontinuation of CTX due to adverse events

CTX is very well tolerated by the vast majority of clients and adverse reactions are rare (<2% per person-year). CTX should be discontinued if the adolescent experiences drug-related adverse events, such as extensive exfoliative rash, Stevens-Johnson syndrome, severe anemia, or pancytopaenia. Remember that such drug-related adverse events are unusual.

Contraindications to CTX

Contraindications of CTX include:

- Adolescents with a history of severe and life-threatening adverse reactions — grade 3 or 4 to CTX or other sulfa drugs — should not be prescribed CTX. Dapsone 100 mg/day should be given as an alternative.
- See WHO's *Guidelines on Co-trimoxazole Prophylaxis for HIV-related Infections among Children, Adolescents and Adults, Recommendations for a Public Health Approach* for additional information, including guidance on de-sensitizing those with a history of grade 1, 2, or 3 reaction to CTX.
- Severe liver insufficiency
- Severe renal insufficiency

Table 3.6: Dosing for CTX

Recommended once daily dose by age	Suspension	Child tablet (100mg/20mg)	Single strength adult tablet (400mg/80mg)	Double strength adult tablet (800mg/160mg)
10–14 years (or 15–30 kg) 400 mg sulfamethoxazole/ 80 mg trimethoprim	10 ml	4 tablets	1 tablet	½ tablet
>14 years (or >30 kg) 800 mg sulfamethoxazole/ 160 mg trimethoprim	N/A	N/A	2 tablets	1 tablet
Frequency — once a day				
CTX can be safely continued or initiated during pregnancy (regardless of stage of pregnancy) and breastfeeding.				

Source: WHO. (2006). *Guidelines on co-trimoxazole prophylaxis for HIV-related infections among children, adolescents and adults, Recommendations for a public health approach*, p. 15 and 21. Geneva: WHO.

HPV

Genital human papillomavirus (HPV) is the most common STI. Most people who are infected with HPV do not know they have it. In most cases (9 out of 10), the body's immune system clears HPV naturally within 2 years. However, some of the more than 40 different types of HPV can cause genital warts and others can cause normal cells in the body to turn abnormal, which can lead to cervical and other cancers over time.

Reducing HPV risk through vaccination[5]

HPV is prevented in the same ways that HIV is prevented: through abstinence, being faithful, and consistent and correct condom use. Unlike HIV, however, HPV can also be prevented through vaccination.

HPV vaccination

There is now a vaccine that can lower a person's risk of getting HPV. In countries where it is available, HPV vaccination can be initiated between the ages of 9–26 years, but is typically recommended at the age of 11 or 12. Vaccination requires a total of 3 shots over 6 months. The best way a person can get the most benefit from HPV vaccination is to complete all 3 doses before beginning sexual activity.

When to Start ALHIV on ART

ART helps preserve and enhance the immune systems of people living with HIV. ART reduces the risk of OIs, restores growth, improves mental functioning, and improves the client's overall quality of life. By adolescence, most clients with perinatally-acquired HIV will already be on CTX and many will be on ART. The decision to start ART in an adolescent who is newly infected or perinatally infected and recently diagnosed or eligible relies on clinical and immunological criteria as well as an assessment of other issues.

Immunological and clinical criteria to start ART

The criteria to initiate ART is the same in all adolescent and adult patients:

- **CD4 ≤350 or**
- **WHO stage 3 or 4** (regardless of CD4 count) **or**
- **Active TB disease or**
- **HIV/HBV-coinfection,** if HBV infection (chronic active hepatitis) requires treatment, irrespective of CD4 cell count or WHO clinical stage **or**
- For asymptomatic or mildly symptomatic adolescents (i.e. those in stages 1 and 2), **when immunological values fall near the threshold values**. A drop below threshold values should be avoided.
    - Consider treatment in serodiscordant couples in stable, long-term relationships if index partner has **CD4 >350**.[6]

Other issues to consider before initiating ART

Before initiating ART, health workers should help ALHIV understand that they are starting lifelong therapy and prepare them (and caregivers) to adhere to their HIV care plan and ART regimen.

Adherence preparation should help the adolescent (and caregivers) to:

- Understand what HIV is
- Understand what ART is and that it is a lifelong commitment
- Understand how the ART is to be taken
- Understand the challenges of adherence
- Develop an individual adherence plan
- Seek family and peer support for adherence

Adherence preparation can take 1, 2, 3, or more visits, depending on the individual adolescent, his or her health status, the health worker(s) involved, and the time available. At times, there may be more urgency to initiate ART quickly, especially with very sick children/adolescents. In these cases, health workers can minimize adherence preparation and increase post-ART initiation adherence support. There is more information on adherence preparation and support in Module 8.

Prior to initiating ART, it is recommended that, in addition to providing adherence preparation counseling and support:

- Minimum enrollment laboratories have been completed (see *Appendix 3A: Laboratory Monitoring Before, During, and After Initiating ART*):
  - Recommended: CD4
  - Desirable: Hb if using AZT; ALT if using NVP; creatinine clearance if using TDF; pregnancy test for sexually adolescent females initiating EFV
- Other necessary laboratory tests have been conducted, based on history and physical exam
- CTX has been initiated
- The adolescent has been screened for TB
- The adolescent has been tested for Hepatitis B
- Adolescents with perinatally-acquired HIV know their HIV-status (i.e, have been disclosed to). Keep in mind that this is a recommendation and not a requirement to initiate ART. There may be times when the disclosure process cannot occur entirely before initiation.
- Adolescents who know their status have disclosed to someone they trust. Again, this is a recommendation and should not be a requirement to initiate ART.

For more information, see *Appendix 3A: Laboratory Monitoring Before, During, and After Initiating ART*; *Appendix 3C: WHO Clinical Staging of HIV Disease in Children with Established HIV Infection;* and *Appendix 3D: WHO Clinical Staging of HIV Disease in Adults and Adolescents*.

Recommended 1st Line ART Regimens for ALHIV

Introduction to ART regimens

As a general rule, those who acquire HIV during their adolescent years, regardless of Tanner stage, are treated according to adult ART guidelines.

WHO recommends basing the choice of ART regimen and dosage for adolescents on their sexual maturity rating (see *Appendix 2A: Tanner Staging System*):

- Adolescents who are at **Tanner stages I, II, and III** should be started on the pediatric schedule and monitored with particular care. This is because they are undergoing pubertal changes associated with rapid growth.
- Adolescents who are at **Tanner stages IV and V** are considered to be adults. The same recommendations and special considerations that apply to adults apply to these adolescents.

Younger adolescents

For younger adolescents (Tanner stage I, II, or III), 1st line ART regimens contain NVP or EFV, plus a "backbone" consisting of 2 NRTIs. See Table 3.7 for WHO preferred and alternative 1st line regimens. Note: specific regimens are indicated in national guidelines. Always check national guidelines before prescribing an ART regimen.

Table 3.7: Regimens for children and younger adolescents (Tanner stages I, II, or III)

	Regimen	
	NRTI backbone	**NNRTI component**
Preferred 1st line	AZT + 3TC	NVP[1] or EFV[2, 3, 4]
Alternative 1st line[5]	ABC + 3TC	NVP[1] or EFV[2, 3, 4]
2nd Alternative 1st line	d4T + 3TC	NVP[1] or EFV[2, 3]

1 Symptomatic NVP-associated hepatotoxicity or serious rash, while uncommon, is more frequent in females than in males, and is more likely to be seen in ARV-naive females with higher absolute CD4 cell counts (>250 cells/mm^3). If used in adolescent girls with absolute CD4 counts between 250 and 350 cells/mm^3, careful monitoring, preferably including liver enzymes, is needed during the first 12 weeks of therapy.

2 The preferred regimen for adolescents with tuberculosis is EFV + the 2 NRTI backbone.

3 The use of EFV should be avoided in adolescent girls who are at risk of becoming pregnant (i.e., are sexually active and not using adequate contraception) or those in the 1st trimester of pregnancy. If possible, adolescent girls taking EFV should be switched to a NVP-based or other regimen, or counseled on and provided with a contraceptive method.

4 In situations where both EFV and NVP are contraindicated in 1st line regimens for adolescent girls, the use of a triple NRTI regimen may be indicated.

5 Use the alternative 1st line regimen only if there are contraindications to AZT (for example, severe anemia, <8g/dl; or neutropenia, <500 cells/mm^3) or AZT availability cannot be assured.

Additional notes and references:

- Preferred 2nd line ART options are listed in *Appendix 3E*: *Preferred 2nd line ART Options.*
- Specific regimens are indicated in national guidelines — always check your national guidelines before prescribing an ART regimen.
- See also *Appendix 3F: ARV Dosages*.
- For additional information, see WHO's *Antiretroviral Therapy for HIV Infection in Adults and Adolescents. Recommendations for a Public Health Approach, 2010 revision* or consult an HIV specialist for guidance on transitioning to the 2010 recommendations.
- Note that the 2010 WHO guidelines call for the **phasing out of d4T-containing regimens** for adults and adolescents, unless AZT or ABC are contraindicated or not assured. Refer to WHO's *Antiretroviral Therapy for HIV Infection in Adults and Adolescents. Recommendations for a Public Health Approach, 2010 revision* and your national guidelines for advice on drug substitution for adolescents currently on d4T.

Dosing in younger adolescents is usually based on either weight or body surface area. As these change with growth, drug doses must be adjusted at each visit to avoid the risk of under-dosing. For additional information on dosing and regimens for specific scenarios (for example, patients with hepatitis), see Annex E in WHO's *Antiretroviral Therapy for HIV Infection in Infants and Children: Towards Universal Access, Recommendations for a public health approach, 2010 revision.*

Older adolescents and adults

WHO preferred ART regimens for ART-naïve older adolescents (Tanner stage IV and V) and adults are listed in Table 3.8. The regimens were selected based on safety profile, suitability for use in most patient groups, cost, treatment durability, and the benefits of using fixed-dose combinations.

Table 3.8: Regimens for older adolescents (Tanner stage IV and V) and adults

	Regimen	
	NRTI backbone	**NNRTI component**
Preferred 1st line	AZT[4] or TDF[3] + 3TC or FTC	NVP[1] or EFV[2]
Pregnant women	AZT[4] + 3TC	NVP[1] or EFV[2]
HIV/TB co-infection	AZT[4] or TDF[3] + 3TC or FTC	EFV[2]
HIV/HBV co-infection	TDF[3] + 3TC or FTC	NVP[1] or EFV[2]

1 Avoid use of NNRTI component in women who have had exposure to sdNVP without NRTI tail for 7 days within the last 12 months (for PMTCT); instead substitute LPV/r. If unsure whether tail coverage for sdNVP was provided, then use LPV/r. If NVP is initiated in women with a CD4 cell count of 250–350 cells/mm^3, monitor hepatic enzymes at weeks 2, 4, and 12 after initiation (if possible).

2 Women who are planning to become pregnant or who may become pregnant should use a regimen that does not include EFV in order to avoid the highest risk period of exposure in utero (conception to day 28 of gestation). If a woman is diagnosed as pregnant before 28 days of gestation, EFV should be stopped and substituted with NVP or a PI. If a woman is diagnosed as pregnant after 28 days of gestation, EFV should be continued.

3 TDF: Because of its association with renal toxicity, monitor patients for creatinine clearance before initiation and every 6 months. The inability to perform creatinine clearance is not a barrier to TDF use. Creatinine clearance monitoring is recommended in those with underlying renal disease, of older age groups, and with low body weight or other renal risk factors, such as diabetes or hypertension. Avoid TDF or adjust dose if CrCl <50 ml/min.

4 Measure hemoglobin (Hb) before the initiation of AZT and then as indicated by signs/symptoms. Patients receiving AZT-containing regimens who have low body weight and/or low CD4 cell counts are at greater risk of anemia. These patients should have routine Hb monitoring 1 month after initiating AZT and then at least every 3 months. AZT should not be given if Hb is <7 g/dl.

Additional notes and references:

- Preferred 2nd line ART options are listed in *Appendix 3E*: *Preferred 2nd line ART Options.*
- Specific regimens are indicated in national guidelines. Always check national guidelines before prescribing an ART regimen.
- See also *Appendix 3F: ARV Dosages for Older Adolescents and Adults.*
- For additional information, see WHO's *Antiretroviral Therapy for HIV Infection in Adults and Adolescents. Recommendations for a Public Health Approach, 2010 revision* or consult an HIV specialist for guidance on transitioning to the 2010 recommendations.

Possible events during the first 6 months on ART

The first 6 months on ART are critical. In most adolescents, CD4 cell counts rise with the initiation of ART, increase over the course of the first year of treatment, reach a plateau, and then continue to rise further during the second year. Some adolescents, however, fail to respond as expected or may even exhibit clinical deterioration.

- Complications during the first few weeks following ART initiation are seen most commonly in those with severe immunodeficiency.
- Apparent failure to improve in an adolescent with advanced HIV disease does not necessarily reflect a poor response to ART — it takes time for HIV viral replication to be controlled by ART and for the client's immune system to recover. It may, however, reflect inadequate adherence.

Key signs of an adolescent's response to ART include:

- Improvement in growth or weight gain in adolescents who have been failing to grow
- Decreased frequency of infections (bacterial infections, oral thrush, and/or other OIs)

- As an adolescent with advanced disease recovers immune function, there is risk of immune reconstitution inflammatory syndrome (IRIS). IRIS, which most often occurs within the first weeks to months after ART initiation, is a complication caused by reactivation of the immune system. IRIS can present as a flare-up of symptoms when the recovering immune system begins to respond to an existing infection, for example, TB. The response is not due to failure of ART, but rather its success—and the resulting immune reconstitution. When IRIS is suspected, consult a clinician experienced in managing ALHIV.
- Allow sufficient time (at least 6 months on therapy) before judging the effectiveness of a regimen. Switching the ART regimen during the first 6 months on therapy is usually inappropriate and supporting adherence during this period is critical.
- Persistent failure to see a CD4 response should alert the health worker to potential adherence problems or non-response to ART. In such cases, viral load determination can be useful as well as consultation with a clinician experienced in managing ALHIV.

Supporting Adherence to Care and Treatment among ALHIV

Adherence to both care and medicines is the cornerstone of effective and successful HIV care. Adolescents often face unique challenges with adherence—challenges that are different from those of pediatric or adult clients. Adherence preparation, assessment, counseling, and support for ALHIV is discussed in detail in Module 8.

Frequency of clinical monitoring

- **Adolescents on ART**: The frequency of clinical monitoring will depend on response to ART (and national guidelines). After starting ART, ***follow-up visits should occur at a minimum at weeks 2, 4, 8, 12, and then every 3 months*** (once the adolescent has stabilized on ART).
- **Adolescents not yet eligible for ART**: As a general rule, follow-up visits should occur every 3 months if the client's CD4 cell count is between 350–500 and every 3–6 months if the client's CD4 cell count is greater than 500. However, schedule the next visit sooner if required for follow-up of problems identified during the visit.

Toxicities

Toxicity can be monitored clinically, based on adolescent/caregiver reporting and physical examination. It can also be assessed by a limited number of laboratory tests. Drug toxicities generally fall into 1 of the following 3 categories:

- **Mild toxicities** do not require discontinuation of therapy or drug substitution, and symptomatic treatment may be given (for example, antihistamines for a mild rash).
- **Moderate or severe toxicities** may require substitution with a drug in the same ARV class but with a different toxicity profile (or with a drug in a different class), but they do not require discontinuation of all ART.
- **Severe life-threatening toxicities** require discontinuation of all ARVs and the initiation of appropriate supportive therapy until the patient is stabilized and the toxicity is resolved.
  - NNRTIs have a longer half-life than NRTIs and stopping all 1st line drugs simultaneously may result in exposure to sub-therapeutic levels of the NNRTI and, subsequently, to the development of NNRTI resistance.
  - Nonetheless, if an adolescent has a life-threatening toxicity, all ARVs should be stopped simultaneously until the patient is stabilized.

For additional information about dealing with toxicities, refer to national guidelines, WHO's *Antiretroviral Therapy for HIV Infection in Adults and Adolescents. Recommendations for a Public Health Approach, 2010 revision* and *Antiretroviral Therapy for HIV Infection in Infants and Children: Towards Universal Access, Recommendations for a Public Health Approach, 2010 revision*, or a local HIV specialist.

Considerations for adherence

Regardless of their severity, adverse reactions may affect adherence to therapy. A proactive approach to managing toxicity is recommended:

- Before initiating ART, discuss potential side effects.
- During the early stages of treatment, offer support during minor and moderate adverse reactions.

Remember: Many ARV drug toxicities are time-limited and resolve spontaneously, even when the same ART regimen is continued.

Treatment Failure

Treatment failure is when ART stops controlling an individual's virus and he or she starts getting sicker. Treatment failure needs to be confirmed in a timely manner. If diagnosed prematurely, clients are often switched to expensive 2nd line ART regimens unnecessarily. If diagnosed late, the result could be disease progression or even death.

When treatment failure is suspected, verify these 5 things:

- The adolescent has been on ART for at least 24 weeks.
- The adolescent has been adherent (in other words, he or she has taken all medicines exactly as prescribed). If adherence has not been optimal, the first course of action is to keep the adolescent on the same regimen and to provide adherence counseling and support.
- Any inter-current infection or major clinical event has been treated and resolved.
- IRIS has been excluded.
- The adolescent is receiving adequate nutrition (if considering a change in treatment because of growth failure).

Criteria for treatment failure

There are 3 criteria for treatment failure (see Table 3.9):

- Clinical
- Immunologic
- Virologic

Although virological failure is the most accurate method of diagnosing and confirming treatment failure, if viral load is not available, use immunological criteria to confirm clinical failure (i.e. CD4 cell count).

Table 3.9: WHO definition and criteria for switching ART in adults and adolescents

Failure	Definition	Comments
Clinical failure	• New or recurrent WHO stage 4 condition	• Condition must be differentiated from immune reconstitution inflammatory syndrome (IRIS) • Certain WHO clinical stage 3 conditions (e.g. pulmonary TB, severe bacterial infections) may be an indication of treatment failure
Immunological failure[1]	• Fall of CD4 count to baseline (or below) **OR** • 50% fall from on-treatment peak value **OR** • Persistent CD4 levels below 100 cells/mm^3	• Without concomitant infection to cause transient CD4 cell decrease
Virological failure[2]	• Plasma viral load above 5000 copies/ml	• The optimal viral load threshold for defining virological failure has not been determined. Values of >5,000 copies/ml are associated with clinical progression and a decline in CD4 cell count. See *Appendix 3F*.

1 **Note**: Immunological failure is not a good predictor of virological failure — 8–40% of individuals who present with evidence of immunological failure actually have virological suppression.

2 Viral load measurement is considered a better indicator of treatment failure than clinical or immunological indicators. Depending on availability, viral load may be used:
- Targeted strategy: To confirm clinical/immunological failure or, occasionally, to assess adherence within 4–6 months of ART initiation in at-risk clients
- Routine strategy: To detect viral replication every 6 months

For additional information on treatment failure, see WHO's *Antiretroviral Therapy for HIV Infection in Adults and Adolescents. Recommendations for a Public Health Approach, 2010 revision* and *Antiretroviral Therapy for HIV Infection in Infants and Children: Towards Universal Access, Recommendations for a Public Health Approach, 2010 revision.*

Once treatment failure has been detected, select a new regimen using national guidelines or after consulting an HIV specialist. See *Appendix 3E: Preferred 2nd line ART Options* for WHO-recommended 2nd line ART regimens. The patient should be switched to a new regimen within 1 month of confirming treatment failure.

Whenever an ALHIV is switched to a new regimen:
- Counsel him or her on reasons for the change in regimen, differences in drug types, dosages, and timing of administration.
- Review with the adolescent and his or her caregiver possible side effects of the new regimen.
- Re-assess for social issues that could negatively influence adherence and review the importance of adhering to the clinic visit schedule as well as to the regimen.
- Provide ongoing adherence counseling and support (see Module 8).

Tuberculosis Screening

People living with HIV, including adolescents, are at risk of developing TB — regardless of CD4 count. HIV is the strongest risk factor for TB. Co-infection with HIV/TB is a major public health threat for PLHIV and TB is responsible for more than one-quarter of all deaths among PLHIV. TB threatens the significant health benefits achieved with the scale-up of HIV care and treatment.

Therefore, all ALHIV should be screened for active TB at each visit.

- If found to be co-infected, they should be started on anti-TB medications immediately. If they are not already on ART, they should be started on ART soon thereafter.
- All ALHIV who do not have any signs of active TB should be offered isoniazid preventive therapy (IPT) as part of the comprehensive package of care — for at least 6 months.
- ALHIV who have had a significant TB contact should be screened for TB and, if no active TB is found, should be offered IPT for 6 months.
- Recent studies show that PLHIV who have been treated for TB can benefit from IPT and should be offered secondary prophylaxis after completing TB treatment.

Screening for TB[7]

All ALHIV should be evaluated at every visit to a health facility for contact with a TB source case and for current TB symptoms, regardless of immunologic status, HIV treatment status (whether currently on ART), or whether currently receiving Isoniazid (INH). See Figure 3.1.

Screen for contact with a TB source by asking if the client:

- Has had close contact with someone (someone in the same household or with whom the client has frequent contact) who has been diagnosed with TB
- Has had close contact with someone who has a chronic cough, fever, or who has lost a lot of weight

If client has had contact with a TB source, exclude active TB disease per national guidelines and, if there is no evidence of active TB, offer IPT.

Screen for symptoms of TB – always follow national guidelines

For younger adolescents, ask about:

- Current cough
- Fever
- Weight loss or poor weight gain

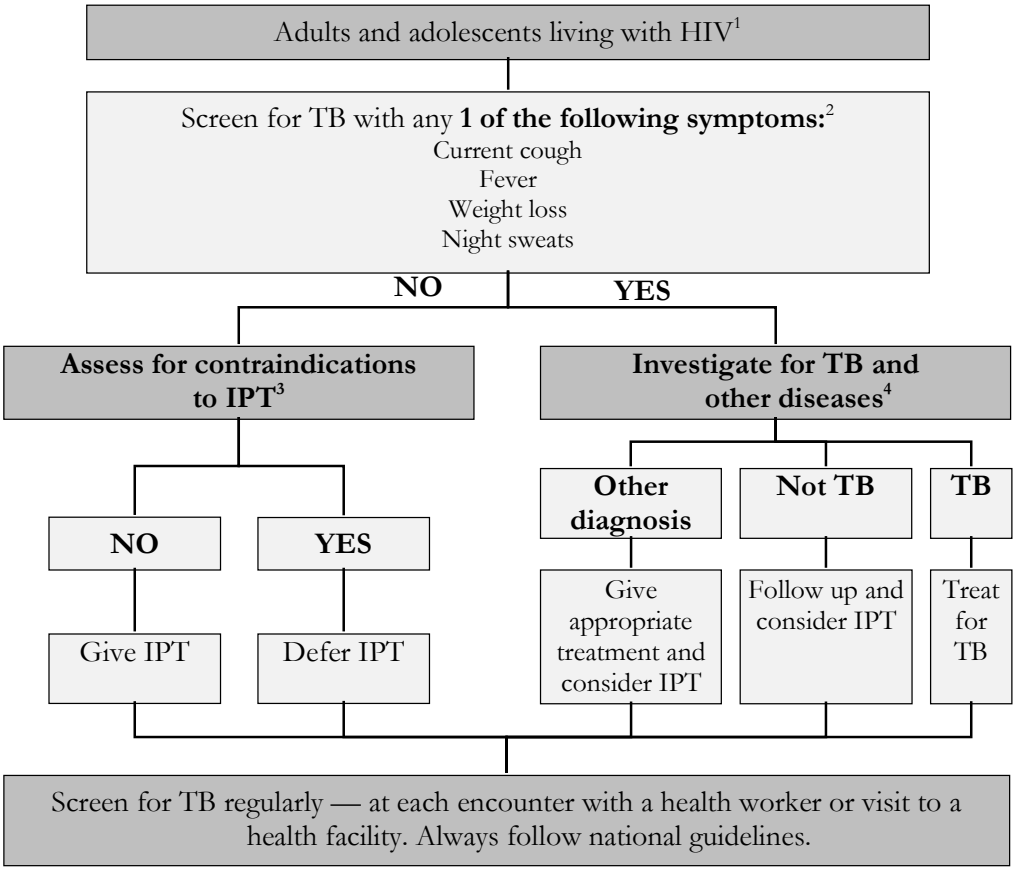
For older adolescents, ask about:

- Current cough
- Fever
- Night sweats
- Weight loss

If the client has **none of the above symptoms**, active TB disease is unlikely and they should be offered IPT (see below).

If the client has **1 or more of the above symptoms**, evaluate for active TB disease per national guidelines. Sample TB screening tools are included as *Appendix 3G: TB Screening Tool for Children and Younger Adolescents* and *Appendix 3H: TB Screening Tool for Older Adolescents and Adults*.

Figure 3.1: Algorithm for TB screening in adults and adolescents living with HIV in HIV-prevalent and resource-constrained settings



Footnotes:

1 Every adult and adolescent should be evaluated for eligibility to receive ART. Infection control measures should be prioritized to reduce *M. tuberculosis* transmission in all settings that provide care.

2 Chest radiography can be done if available, but is not required to classify patients into TB and non-TB groups. In high HIV-prevalence settings with a high TB prevalence among people living with HIV (e.g. greater than 10%), strong consideration must be given to adding other sensitive investigations.

3 Contraindications include: active hepatitis (acute or chronic), regular and heavy alcohol consumption, and symptoms of peripheral neuropathy. Past history of TB and current pregnancy should not be contraindications for starting IPT. Although not a requirement for initiating IPT, TST may be done as a part of eligibility screening in some settings.

4 Investigations for TB should be done in accordance with existing national guidelines.

Source: WHO, Department of HIV/AIDS and Stop TB Department. (2011). *Guidelines for intensified tuberculosis case-finding and isoniazid preventive therapy for people living with HIV in resource-constrained settings.*

Prevention of TB with IPT[5,8]

Provision of IPT is part of the **WHO's "3 I's" strategy** to improve TB case finding and prevent TB. The 3 I's are: Isoniazid preventive treatment, intensified case finding for active TB, and TB infection control.

The following should receive IPT:

- All HIV-infected adolescents with no evidence of active TB disease and no contraindications to IPT should begin IPT as part of a comprehensive package of HIV care. IPT should be given to ALHIV irrespective of the degree of immunosuppression and should also be given to those on ART, those who have been previously treated for TB, and those who are pregnant.
- ALHIV who do not have any of the symptoms listed in the symptom screen should be offered IPT for at least 6 months.

- ALHIV who have been successfully treated for TB disease should be offered IPT for 6 months. Note that there is no evidence for IPT after treatment of multi-drug-resistant (MDR) or extremely drug-resistant (XDR) TB, so secondary prophylaxis should not be provided.
- ALHIV who have had contact with a TB case and do not have active disease should be offered IPT for 6 months

The **recommended dose of isoniazid (INH) for preventive therapy in HIV co-infection among most adolescents is 1 adult tablet (300mg) daily or 3 100mg tablets** (if pill size or formulation is limited). For adolescents weighing less than 25kg, follow the dosing schedule in Table 3.10 below. Also give vitamin B6 with INH at a dose of 25 mg daily.

Table 3.10: Simplified dosing schedule for INH

Weight range (kg)	Number of 100 mg tablets of INH to be administered per dose (total dose 10 mg/kg/day)	Dose given (mg)
10–13.9	1 ½ 100mg tablets	150
14–19.9	2 100mg tablets	200
20–24.9	2 ½ 100mg tablets	250
> 25 (most adolescents)	**3 100mg tablets or 1 adult 300mg tablet**	**300**
Give vitamin B6 with INH at a dose of 25 mg daily.		

Source: WHO, Department of HIV/AIDS and Stop TB Department. (2011). *Guidelines for intensified tuberculosis case-finding and isoniazid preventive therapy for people living with HIV in resource-constrained settings.*

Treatment considerations in adolescents with TB and HIV:

- Prompt treatment is especially important for co-infected adolescents.
- Any ALHIV with active TB disease should begin TB treatment immediately and should start ART, regardless of CD4 cell count, as soon as possible — within 2-8 weeks.[2]
- The co-management of TB and HIV is complicated by drug interactions, particularly between rifampicin and the PI classes of ARVs. These drugs have similar routes of metabolism and co-administration may result in sub-therapeutic drug levels. EFV is the preferred NNRTI in patients starting ART while on TB treatment.
- Ensure all household contacts and anyone else with whom the client has had regular contact is referred to the clinic for screening and, if needed, treatment.

For information on the treatment of TB and HIV, see your national TB/HIV guidelines and WHO's *Guidance for National Tuberculosis and HIV Programmes on the Management of Tuberculosis in HIV-infected Children: Recommendations for a Public Health Approach,* 2010 (for younger adolescents) and *Antiretroviral Therapy for HIV Infection in Adults and Adolescents: Recommendations for a Public Health Approach,* 2010 (for older adolescents).

Recommended ART regimens for adolescents with TB/HIV co-infection are included in Tables 3.7 and 3.8.

Adherence support:

- Provide ALHIV and caregivers with adherence counseling and monitoring at every clinic visit.
- Adherence support for IPT or anti-TB therapy can be included in the ART adherence discussion.

ART switching for ALHIV who develop TB while on 1st line ART:

- ART should continue in ALHIV already on a 1st line ART regimen who are subsequently diagnosed with TB. However, the ART regimen should be reviewed and may need adjustment to ensure optimal treatment of both TB and HIV, and to decrease the potential for toxicities and drug-drug interactions.
- In ALHIV on a standard NNRTI-based 1st line regimen who develop TB, make adjustments to their ART regimen as follows:
  - If on a regimen of 2 NRTI + NVP, switch NVP with EFV.
  - If the ALHIV is on a PI regimen, consult an expert for guidance.
- **Note:** Where TB is being considered as a sign of treatment failure of the 1st line regimen, consider switching to a 2nd line regimen if the adolescent has taken ART for more than 24 weeks, has initially responded to it, and has not responded to anti-TB treatment. Consult an HIV expert for the construction of a 2nd line regimen.

Neurocognitive and Developmental Disorders

HIV in children, particularly those infected perinatally, is associated with developmental delays and cognitive impairments. Cognitive impairments can include language, motor, and behavioral impairments. Some children living with HIV have normal development, some have mild impairment, and others have severe impairment. Factors that affect the degree of impairment include the timing of HIV infection and the use of ART.

> Assessment of neurocognitive and developmental status should be routinely incorporated into the care of all children and adolescents with HIV infection.

Signs and symptoms of neurocognitive and developmental disorders:

- Slowed psychomotor speed (taking longer than normal to understand what someone else is saying and then respond)
- Delayed expressive language skills (problems expressing oneself with language)
- Memory deficits (experiencing a loss of memory)
- Poor attention (difficulty concentrating or paying attention)
- Developmental impairment (failure to achieve developmental milestones); developmental impairment is most common among children who experienced severe immunodeficiency during the first few years of life. However, even children and youth with less advanced HIV disease can have mild to moderate developmental impairments related to HIV infection.
- Difficulty learning social behaviors and/or self-care

Management and treatment for neurocognitive and developmental disorders:

- Provide client and family with tailored supportive counseling that meets the unique strengths, disabilities, and needs of the adolescent
- Encourage caregivers to follow this general principle: <u>reward effort, not results</u>
- Ensure that the adolescent is on an adequate ART regimen to prevent or slow further progression of neurocognitive impairment
- Refer the client for neuropsychological testing
- Link client and family to specialized care and community-based resources for children and adolescents with intellectual and developmental disabilities, if available
- Provide the caregivers of older, stronger adolescents who are severely impaired with assistance and support, including through linkages to community resources

Exercise 1: The Adolescent Package of Care: Case studies in small groups and large group discussion	
Purpose	To review clinical care and treatment of ALHIV according to national guidelines

Refer to Table 3.2: "Using the 5 'A's'" to guide your case study discussions.

Case Study 1:

K___ recently tested HIV-positive at the district hospital. Today is her 1st visit to your clinic. Although she is 14 years old, you think that she acquired HIV through MTCT because she has never had sex and has no history of abuse. The fact that K___'s mother died of a disease described as TB when she was 16 months old has further supported your suspicion. Although she is relatively healthy, you notice that she takes longer than most 14-year-olds to understand what you are saying, she becomes impatient quickly with the clinic processes, and her auntie (her primary caregiver) complains that she doesn't do well in school and has difficulty concentrating. You can't help but notice that she looks more like a 10-year-old than a 14-year-old. *How do you proceed with K___?*

Case Study 2:

S___ is 17 years old and was diagnosed with HIV at the STI clinic about 2 months ago. This is her 2nd visit to the HIV clinic. After being screened for TB at her enrollment visit 1 month ago, she was started on both IPT and CTX. You just received her lab work and her CD4 cell count is 325 (even though she is clinical stage 2) and her Hb is 12 g/dl. *How do you proceed with S___?*

Case Study 3:

T___ is 17 years old and was diagnosed with HIV 1 year ago. T___ is quite healthy; at her last visit, her CD4 cell count was 500 and she was a clinical stage 1. The only reason she was tested last year was because she had heard through a friend that her old boyfriend was rumored to have HIV. Today, however, T___ looks thin and tired — much different from the way she looked the last time you saw her just 6 months ago. When she comes into the exam room, you realize that she has also been coughing. *How do you proceed with T___?*

Case Study 4:

A___ is 13 years old and acquired HIV perinatally. He is at the clinic today for his routine appointment. A___ has been on AZT + 3TC + EFV since he was 5 years old. He remains on this same regimen and was just discharged from the inpatient unit with bacterial pneumonia. When you examine A___ today, you realize that he has lost 4 kg since his last visit. His CD4 cell count is currently 350, when previously it was over 500. *How do you proceed with A___?*

Module 3: Key Points

- Some ALHIV will have acquired HIV perinatally, while others will have acquired HIV later in childhood or adolescence. Although their histories, experiences, and needs may differ significantly, there are also many similarities between these 2 groups of ALHIV.
- HIV programs for adolescents should include a broad package of services and support, including much more than just the provision of ART.
- Adolescent services should be age- and developmentally-appropriate and should be responsive to the needs of both perinatally and behaviorally infected clients.
- Providing "1-stop shopping," youth-friendly services, and family-focused care will better help meet the needs of adolescent clients.
- Health workers can use the 5 "A's" when providing clinical and psychosocial care and support to adolescent clients (and caregivers).
- Always refer to national guidelines and training packages for specific details and guidance on adolescent HIV care and treatment.
- The clinical assessment for a client with HIV needs to be thorough and should focus on clinical, laboratory, psychosocial, nutrition, and social parameters. It is also important to routinely assess clients' developmental and neurocognitive status.
- Where available, CD4 cell count should be measured at time of diagnosis and at least every 6 months thereafter, regardless of whether the ALHIV is on ART or not.
- The unavailability of laboratory monitoring, including CD4 and chemistries, should NOT prevent adolescents from receiving ART.
- Initiate CTX when CD4 count is <350cells/mm^3, regardless of clinical stage, or, if CD4 count is unavailable, start when adolescent is in clinical stage 2, 3, or 4.
- The decision to initiate ART is based on immunological and clinical criteria (CD4 ≤350 or WHO stage 3 or 4) and is also informed by other considerations, such as laboratory results, opportunistic infection screening, and adherence readiness. Always follow national guidelines.
- Health workers should be aware of and look out for possible events after ART initiation. It is important to allow at least 6 months before judging a regimen's effectiveness.
- After starting ART, clinical monitoring visits should occur at minimum at weeks 2, 4, 8, and 12, and then every 3 months. ALHIV not eligible for ART should visit the clinic every 3-6 months.
- Treatment failure is when ART stops controlling an individual's virus and he or she starts getting sicker. There are 3 criteria for treatment failure: clinical, immunologic, and virologic.
- All ALHIV should be screened for active TB, contact with a TB source case, and current TB symptoms at every visit to a health facility.
- All ALHIV with no evidence of active TB disease and no contraindications to IPT should begin IPT. ALHIV with active TB disease should begin TB treatment immediately and should also start ART as soon as possible. Always follow national TB guidelines.

Appendix 3A: Laboratory Monitoring Before, During, and After Initiating ART

Phase of HIV management	Recommended test	Desirable test
At HIV diagnosis	CD4	HBsAg
Pre-ART	CD4	
At start of ART	CD4	Hb for AZT[1] Creatinine clearance for TDF[2] ALT for NVP[3] Pregnancy test for sexually active adolescent females prior to initiating EFV
On ART	CD4	Hb for AZT[1] Creatinine clearance for TDF[2] ALT for NVP[3]
At clinical failure	CD4	Viral load
At immunological failure	Viral load	
Women exposed to PMCT interventions with sd-NVP with a tail within 12 months and without a tail within 6 months of initiating ART	Viral load 6 months after initiation of ART	

1 Recommended test in patients with high risk of adverse events associated with AZT (low CD4 or low BMI). For children and young adolescents, measure hemoglobin at week 8 after initiation of AZT-containing regimens, or more frequently if symptoms indicate.

2 Recommended test in patients with high risk of adverse events associated with TDF (underlying renal disease, older age group, low BMI, diabetes, hypertension, and concomitant use of a boosted PI or nephrotoxic drugs).

3 Recommended test in patients with high risk of adverse events associated with NVP (ART-naive HIV+ women with CD4 of >250 cells/mm^3, HCV coinfection).

Patients who are not yet eligible for ART should have CD4 count measurement every 6 months and more frequently as they approach the threshold to initiate ART. If feasible, HBsAg should be performed to identify people with HIV/HBV coinfection and who, therefore, should initiate TDF-containing ART.

Source: WHO. (2010). *Antiretroviral therapy for HIV infection in adults and adolescents. Recommendations for a public health approach, 2010 revision.* Geneva: WHO.

Appendix 3B: HEADSS Interview Questions

✓	Topic and key points
	1. Home and environment
	• Where do you live and who lives there with you?
	• How many brothers and sisters do you have and what are their ages? Are your brothers and sisters healthy?
	• Are there any new people living in your home?
	• What are the rules like in your home?
	• How do you get along with your parents? Your siblings? What kinds of things do you and your family argue about the most? What happens when there is a disagreement?
	• Is there anything you would like to change about your family?
	2. Education and employment
	• Are you in school? What are you good at in school? What is hard for you? What grades do you get?
	• Which school do you go to? Any recent changes in schools?
	• What do you like best and least about school? Favorite subjects? Worst subjects?
	• What were your most recent grades? Are these the same or different from past grades?
	• How many hours of homework do you do every day?
	• How much school did you miss last/this year?
	• What do you want to do when you finish school? Any future plans/goals?
	• Do you work now? How much? Have you worked in the past?
	• How do you get along with teachers? Employers?
	3. Activities
	• What do you do for fun? What things do you do with friends? What do you do with your free time?
	• Are most of your friends from school or somewhere else? Are they the same age as you?
	• Do you hang out with mainly people of your same sex or with a mixed crowd?
	• Do you have 1 best friend or a few friends? Do you have a lot of friends?
	• Do you spend time with your family? What do you do with your family?
	• Do you see your friends at school and on weekends? Are there a lot of parties?
	• Do you do any regular sport or exercise? What are your hobbies or interests?
	• Do you have a religious affiliation, belong to a church/temple/mosque/synagogue, or practice some kind of spiritual belief?
	• Do you read for fun? What do you read?
	• What is your favorite music?

✓	Topic and key points
	4. Drugs
	• Many young people experiment with drugs, alcohol, or cigarettes. Have you or your friends ever tried them? What have you tried?
	• When you go out with your friends or to a party, do most of the people you hang out with drink or smoke? Do you? How much and how often?
	• Does anyone in your family drink, smoke, or use other drugs? If so, how do you feel about this — is it a problem for you?
	• Have you or your friends ever tried any other drugs? Which drugs specifically? Have you ever used a needle?
	• Do you regularly use other drugs? How much and how often?
	• Have you ever been in a car accident or in trouble with the law? Were any of these related to drinking or using drugs?
	• How do you pay for your cigarettes, alcohol, or drugs?
	5. Sexuality
	• Are you involved in a relationship? Have you been involved in a relationship in the past? How was that experience for you?
	• How would you describe your feelings towards boys or girls?
	• How do you see yourself in terms of sexual preference, i.e. gay, straight, or bisexual?
	• Have you had sex? Was it a good experience? Are you comfortable with sexual activity? How many partners have you had?
	• Are you using contraception? What type and how often (10%, 50%, or 70% of the time)?
	• Have you ever been pregnant or had an abortion? For males, Ask: has a partner of yours ever been pregnant?
	• Have you ever had a discharge or sore that you are concerned about? What do you know about STDs and prevention?
	• Have you ever had a pap smear?
	• Have you had an experience in the past where someone did something to you that you did not feel comfortable with or that made you feel disrespected?
	• If someone abused you, who would you talk to about this? How do you think you would react to this?
	• For females: Ask about menarche, last menstrual period (LMP), and menstrual cycles. Also inquire about breast self examination (BSE) practices.
	• For males: Ask about testicular self-examination (TSE) practices.
	6. Depression/suicide
	See *Appendix 6B: Sample Screening Tools for Depression and Suicide.*

Adapted from: *H.E.A.D.S.S. — A Pyschosocial Interview For Adolescents.* Available at: http://search.phsa.ca/cgi-bin/MsmGo.exe?grab_id=0&page_id=8144&query=HEADSS

Appendix 3C: WHO Clinical Staging of HIV Disease in Children with Established HIV Infection

Use this clinical staging for adolescents younger than 15 years of age.

Clinical Stages	
Clinical Stage 1	
• Asymptomatic	• Persistent generalized lymphadenopathy
Clinical Stage 2	
• Unexplained persistent hepatosplenomegaly • Papular pruritic eruptions • Extensive wart virus infection • Extensive molluscum contagiosum • Unexplained persistent parotid enlargement	• Recurrent oral ulcerations • Lineal gingival erythema • Herpes zoster • Recurrent or chronic upper respiratory tract infection (otitis media, otorrhea, sinusitis, tonsillitis) • Fungal nail infections
Clinical Stage 3	
• Unexplained moderate malnutrition not adequately responding to standard therapy • Unexplained persistent diarrhea (14 days or more) • Unexplained persistent fever (above 37.5°C, intermittent or constant, for longer than 1 month) • Persistent oral Candidiasis (after first 6 weeks of life) • Oral hairy leukoplakia • Acute necrotizing ulcerative gingivitis/periodontitis	• Lymph node TB • Pulmonary TB • Severe recurrent bacterial pneumonia • Symptomatic lymphoid interstitial pneumonitis • Chronic HIV-associated lung disease including bronchiectasis • Unexplained anemia (<8.0 g/dl), neutropenia (<$0.5x10^9/L^3$) or chronic thrombocytopenia (<50 x $10^9/L^3$)
Clinical Stage 4	
• Unexplained severe wasting, stunting, or severe malnutrition not responding to standard therapy • Pneumocystis pneumonia • Recurrent severe bacterial infections (e.g. empyema, pyomyositis, bone or joint infection, meningitis, but excluding pneumonia) • Chronic herpes simplex infection (orolabial or cutaneous of more than 1 month's duration, or visceral at any site) • Extrapulmonary TB • Kaposi sarcoma • Oesophageal candidiasis (or candiadisis of trachea, bronchi, or lungs) • Central nervous system toxoplasmosis (after the neonatal period)	• HIV encephalopathy • Cytomegalovirus (CMV) infection; retinitis or CMV infection affecting another organ, with onset at age more than 1 month • Extrapulmonary cryptococcosis, including meningitis • Disseminated endemic mycosis (extrapulmonary histoplasmosis, coccidioidomycosis, penicilliosis) • Chronic cryptosporidiosis (with diarrhea) • Chronic isosporiasis • Disseminated non-tuberculous mycobacterial infection • Cerebral or B cell non-Hodgkin lymphoma • Progressive multifocal leukoencephalopathy • HIV-associated cardiomyopathy or nephropathy
Some additional specific conditions can be included in regional classifications (e.g. penicilliosis in Asia, HIV-associated rectovaginal fistula in Southern Africa, reactivation of typanosomiasis in Latin America), see national guidelines.	

Source: WHO. (2010). *Antiretroviral therapy for HIV infection in infants and children: Towards universal access, recommendations for a public health approach, 2010 revision.* Geneva: WHO.

Appendix 3D: WHO Clinical Staging of HIV Disease in Adults and Adolescents

Use this clinical staging for adolescents age 15 years or older.

Clinical Stages	
Clinical Stage 1	
• Asymptomatic	• Persistent generalized lymphadenopathy
Clinical Stage 2	
• Moderate unexplained weight loss (under 10% of presumed or measured body weight) • Recurrent respiratory tract infections (sinusitis, tonsillitis, otitis media, pharyngitis) • Herpes zoster	• Angular cheilitis • Recurrent oral ulceration • Papular pruritic eruptions • Seborrhoeic dermatitis • Fungal nail infections
Clinical Stage 3	
• Unexplained severe weight loss (over 10% of presumed or measured body weight) • Unexplained chronic diarrhea for longer than 1 month • Unexplained persistent fever (intermittent or constant for longer than 1 month) • Persistent oral candidiasis • Oral hairy leukoplakia • Pulmonary tuberculosis	• Severe bacterial infections (e.g. pneumonia, empyema, meningitis, pyomyositis, bone, or joint infection, bacteraemia, severe pelvic inflammatory disease) • Acute necrotizing ulcerative stomatitis, gingivitis, or periodontitis • Unexplained anemia (below 8 g/dl), neutropenia (below 0.5 x 10^9/l), and/or chronic thrombocytopenia (below 50 x 10^9/l)
Clinical Stage 4	
• HIV wasting syndrome • *Pneumocystis jiroveci* pneumonia • Recurrent severe bacterial pneumonia • Chronic herpes simplex infection (orolabial, genital, or anorectal of more than 1 month's duration or visceral at any site) • Oesophageal candidiasis (or candidiasis of trachea, bronchi, or lungs) • Extrapulmonary tuberculosis • Kaposi sarcoma • Cytomegalovirus disease (retinitis or infection of other organs, excluding liver, spleen, and • lymph nodes) • Central nervous system toxoplasmosis • HIV encephalopathy	• Extrapulmonary cryptococcosis, including meningitis • Disseminated nontuberculous mycobacteria infection • Progressive multifocal leukoencephalopathy • Chronic cryptosporidiosis • Chronic isosporiasis • Disseminated mycosis (histoplasmosis, coccidiomycosis) • Recurrent septicaemia (including nontyphoidal Salmonella) • Lymphoma (cerebral or B cell non-Hodgkin) • Invasive cervical carcinoma • Atypical disseminated leishmaniasis • Symptomatic HIV-associated nephropathy or HIV-associated cardiomyopathy

Source: WHO. (2006). *Revised WHO clinical staging and immunological classification of HIV and case definition of HIV for surveillance*. Geneva: WHO.

Appendix 3E: Preferred 2nd line ART Options

Recommended 2nd line regimens for <u>adolescents younger than 15 years of age</u> in the event of treatment failure of 1st line regimens

Recommended 2nd Line: Boosted PI component + 2 NRTI components					
	Preferred 2nd line regimen				
1st line regimen at failure	**RTI components (NRTI/NNRTI)[a]**		**PI component**	**Strength of recommendation**	**Quality of evidence**
2 NRTIs + 1 NNRTI: AZT- or d4T-containing	ABC + 3TC OR ABC + ddI	PLUS	LPV/r[d]	Strong	Moderate
OR ABC-containing	AZT + 3TC OR AZT + ddI		LPV/r[d]	Strong	High
Triple NRTI	ddI[b] + EFV[c] OR NVP		LPV/r[d]	Strong	High

[a] Continuation of 3TC in 2nd line regimens may be considered.

[b] ddI may not need to be taken on an empty stomach in children.

[c] EFV is currently not recommended for children <3 years of age, and should be avoided in post-pubertal adolescent girls who are either in the 1st trimester of pregnancy or are sexually active and not using adequate contraception.

[d] LPV/r is available as solid and liquid co-formulations.

Source: WHO. (2010). *Antiretroviral therapy for HIV infection in infants and children: Towards universal access.* Geneva: WHO.

Recommended 2nd line ARV therapy for <u>adolescents and adults</u> 15 years of age or older in the event of treatment failure of 1st line regimens

Target population		Preferred options	Comments
Adults and adolescents (including pregnant women)	If d4T or AZT used in 1st line therapy	TDF + 3TC or FTC + ATV/r or LPV/r	NRTI sequencing based on availability of FDCs and potential for retained antiviral activity, considering early and late switch scenarios ATV/r and LPVr are comparable and available as heat-stable FDCs or co-package formulations
	If TDF used in 1st line therapy	AZT + 3TC + ATV/r or LPVr	
TB/HIV coinfection	If rifabutin available	Same regimens as recommended above for adults and adolescents	No difference in efficacy between rifabutin and rifampicin Rifabutin has significantly less drug interaction with bPIs, permitting standard bPI dosing
	If rifabutin not available	Same NRTI backbones as recommended for adults and adolescents plus LPVr or SQV/r with superboosted dosing of RTV (LPV/r 400 mg/400 mg twice daily or LPV/r 800 mg/200 mg twice daily or SQV/r 400 mg/400 mg twice daily)	Rifampicin significantly reduces the levels of bPIs, limiting the effective options. Use of extra doses of ritonavir with selected bPIs (LPV and SQV) can overcome this effect but with increased rates of toxicity
Hepatitis B coinfection		AZT + TDF + 3TC or FTC + ATV/r or LPVr	In case of ART failure, TDF + 3TC or FTC should be maintained for anti-HBV activity and the 2nd line regimen should include other drugs with anti-HIV activity

Source: WHO. (2010). *Antiretroviral therapy for HIV infection in adults and adolescents: recommendations for a public health approach, 2010 revision.* Geneva: WHO.

Appendix 3F: ARV Dosages for Older Adolescents and Adults

Generic Name	Dose
Nucleoside reverse transcriptase inhibitors (NRTIs)	
Abacavir (ABC)	300 mg twice daily or 600 mg once daily
Didanosine (ddI)	400 mg once daily (>60 kg) 250 mg once daily (≤60 kg)
Emtricitabine (FTC)	200 mg once daily
Lamivudine (3TC)	150 mg twice daily or 300 mg twice daily
Stavudine (d4T)	30 mg twice daily
Zidovudine (AZT)	250-300 mg twice daily
Nucleotide reverse transcriptase inhibitors (NtRTIs)	
Tenofovir (TDF)	300 mg once daily[1]
Non-nucleoside reverse transcriptase inhibitors (NNRTIs)	
Efavirenz (EFV)	600 mg once daily
Etravirine (ETV)	200 mg twice daily
Nevirapine (NVP)	200 mg once daily for 14 days, followed by 200 mg twice daily[2]
Proteases inhibitors (PIs)	
Atazanavir + ritonavir (ATV/r)	300 mg + 100 mg once daily
Darunavir + ritonavir (DRV/r)	600 mg + 100 mg twice daily
Fos-amprenavir + ritonavir (FPV/r)	700 mg + 100 mg twice daily
Indinavir + ritonavir (IDV/r)	800 mg + 100 mg twice daily
Lopinavir/ritonavir (LPV/r)	Fixed Dose Combination tablets (LPV 200 mg/RTV 50 mg) Two tablets (400 mg/100 mg) twice daily[3]
	Considerations for individuals on TB therapy: • In the presence of rifabutin, no dose adjustment required • In the presence of rifampicin, use ritonavir superboosting (LPV 400 mg + RTV 400 mg twice daily) or LPV 800 mg + RTV 200 MG twice daily, with close clinical and hepatic enzyme monitoring
Saquinavir + ritonavir (SQV/r)	1000 mg + 100 mg twice daily
	Considerations for individual on TB therapy: • In the presence of rifabutin, no dose adjustment required • In the presence of rifampicin, use ritonavir superboosting (SQ 400 mg + RTV 400 mg twice daily) with close clinical and hepatic enzyme monitoring
Integrase strand transfer inhibitors (INSTIs)	
Raltegravir (RAL)	400 mg twice daily

[1] TDF dosage adjustment for individual with altered creatinine clearance can be reconsidered (using Cockcroft-Gault formula).
Creatinine clearance ≥50ml/min. 300 mg once daily.
Creatinine clearance 30-49 ml/min. 300 mg every 48 hours.
Creatinine clearance 10-29 ml/min (or dialysis). 300 mg once every 72-96 hours.
Cockcroft-Gault formula: *GFR = (140-age) x (Wt in kg) X (0.85 if female) / (72 x Cr)*
[2] In the presence of rifampicin, or when patients switch from EFC to NVP, no need for lead-in dose of NVP.
[3] LPV/r can be administered as 4 tablets once daily (i.e. LPV 800 mg + RTV 200 mg once daily) in patients with less than three LPV resistance-associated mutations on genotypic testing. Once-daily dosing is not recommended in pregnant women or patients with more than three LPV resistance-associated mutations.

Source: WHO. (2010). *Antiretroviral therapy for HIV infection in adults and adolescents. Recommendations for a public health approach, 2010 revision.* Geneva: WHO.

For information on serious, acute, and chronic toxicities, see: WHO's *Antiretroviral Therapy for HIV Infection in Adults and Adolescents. Recommendations for a Public Health Approach, 2010 Revision.* Available at: http://www.who.int/hiv/pub/arv/adult2010/en/index.html

For more information on pediatric ARV dosing, including simplified dosing charts, refer to your national pediatric ART guidelines and WHO (2010) *Antiretroviral Therapy for HIV Infection in Infants and Children: Towards Universal Access.* Geneva: WHO. Look for *ANNEX E: Prescribing Information and Weight-based Dosing of Available ARV Formulations for Infants and Children*, which starts on page 101. Available at: http://www.who.int/hiv/pub/paediatric/infants2010/en/index.html

Appendix 3G: TB Screening Tool for Children and Younger Adolescents

Name: _____ **ART#:** _____ **Gender: M F Date of Birth:** ___/___/___

Date of Screening:	/ /	/ /	/ /	/ /	/ /	/ /
Age:						
1. Is child currently receiving anti-TB medications? (Yes or No) If Yes, STOP Screen. Rescreen after completion of TB Treatment. If No, answer questions below.	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
2. Is child currently receiving Isoniazid Prophylactic Therapy (IPT)? (Yes or No)	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
3. TB Exposure History: Close contact with a person diagnosed with pulmonary TB in the **past 12 months**? (Yes or No)	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
4. TB Symptom Screen: Does the child **currently have** any of the following TB symptoms? (Yes or No)						
A. Does child currently have cough?	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
B. Does child have documented weight loss or failure to thrive during the past 3 months, not responding to nutritional rehabilitation?	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
C. Does child have fever?	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
Screening Results: (A through C above) **Positive =** presence of **one or more of symptoms** **Negative=** absence of all symptoms	□ Positive □ Negative	□ Positive □ Negative	□ Positive □ Negative	□ Positive □ Negative	□ Positive □ Negative	□ Positive □ Negative
5. Follow up:						
A. Child Has <u>No Exposure to TB</u> and <u>TB Symptom Screen is Negative</u>: Re-screen in 6 months. Write date for next screen.	/ /	/ /	/ /	/ /	/ /	/ /
B. Child Has <u>Exposure to TB</u> and /or <u>Positive Symptom Screen</u>: Child is a **TB Suspect** and needs to be evaluated for TB disease. This includes physical exam, CXR, sputum for AFB, gastric aspirate, or Induced sputum	□ CXR □ AFB Smear	□ CXR □ AFB Smear	□ CXR □ AFB Smear	□ CXR □ AFB Smear	□ CXR □ AFB Smear	□ CXR □ AFB Smear
6. Nurse Initial/Signature:						

Instructions

- → **For new forms:** Record the **Patient's Name**, **ART Number, Gender,** and **Date of Birth** at the top of the form.
- → **For previously used forms:** Review the notes about the previous visit screen before starting.
- → **Screening date:** Record the day (**DD**), month (**MM**), and year (**YY**) screening was performed.
- → **Age**: Record the child's age.

1) Is child currently receiving anti-TB medications? Ask the caregiver if child is currently on anti-TB treatment? **(Yes)** If yes, stop screen. Rescreen after completion of anti-TB treatment. **(No)** Continue TB screen by asking questions below.

2) Is child currently on Isoniazid Prophylactic therapy (IPT)? Yes (Y) or No (N). Children on IPT should be screened carefully for signs and symptoms of TB.

3) TB Exposure History: Ask the parent or caregiver if the child has been in close contact (living in the same household or in frequent contact) with any person who was diagnosed with pulmonary TB in the past 12 months. Write **(Yes)** if the child has a close contact with pulmonary TB and **(No)** if there is no history of TB contact.

4) TB Symptom Screen: Complete TB screening by asking the caregiver if the child currently has any of the TB symptoms. Write (Yes) or (No) in the appropriate column.

A. Does child currently have a cough?
B. Documented weight loss or failure to thrive, clear deviation from previous growth trajectory, and/or documented crossing of percentile lines during the past 3 months, not responding to nutritional rehabilitation. For growth assessment, please look at the growth chart to ascertain if there has been growth failure.
C. Does child have fever?

TB Screening Outcome:
Presence of any symptom = **Positive**
Absence of all symptoms = **Negative**
Tick the appropriate box

5) Follow-up:

A. Child Has No Exposure to TB and TB Symptom Screen is Negative: Rescreen the child in 6 months. Record the date of the next screen in the space provided.
B. Child Has Exposure to TB and/or Positive Symptom Screen: Child is a TB suspect. Child needs full diagnostic work-up for TB. This includes physical exam, CXR, sputum for AFB smear, gastric lavage, etc.

6) Nurse Initial/Signature

Appendix 3H: TB Screening Tool for Older Adolescents and Adults

Patient's Name:_____

Follow-up Visits

Adult & adolescents TB screening questions		Date: __/____/____ Screening result: Yes/No	Date:____/____/____ Screening result: Yes/No	Date:____/____/____ Screening result: Yes/No	Date:____/____/____ Screening result: Yes/No	Date:____/____/____ Screening result: Yes/No
1. Current cough		□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
2. Fever		□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
3. Weight loss		□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
4. Night sweats		□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
Evaluate for TB if "yes" to anyone of the above (positive TB screening)						
Bacteriology: Sputum for AFB(+/_induced)	Done = □ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
	Result (AFB +, -ve, unknown)	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
Radiology: CxR, etc.	Done = □ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
	Result (Suggestive, inconclusive, other dx, unknown etc.)	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
FNA, Culture, Ultrasound, etc.	Done = □ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
	If done result	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
TB diagnosed	□ Yes (write type of TB) □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
Is patient eligible for IPT	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No	□ Yes □ No
Contraindications for IPT: Active hepatitis (acute or chronic), regular and heavy alcohol consumption or symptoms of peripheral neuropathy						
IPT start date:						

Date INH collected	TB Symptoms [cough, fever, weight loss] (Yes/No)	Hepatotoxicity [abd pain, nausea, jaundice,vomiting, abnormal LFT] (Yes/No)	Neurologic Sx [numbness, tingling, paresthesia] (Yes/No)	Rash (Yes/No)	Adherence (≥90% =good; 80-90%= Fair <80%=Poor)	Remarks
/ /						
/ /						
/ /						
/ /						
/ /						

Outcome of IPT(Date):
Completed:___/___/___ **Defaulted:**___/___/___ **Died:**___/___/___ **Pt stopped:**___/___/___ **Provider stopped:**___/___/___ **Transferred out:**___/___/___

Drafted by ICAP-Ethiopia.

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