SPECIAL CONSIDERATIONS FOR ANTIRETROVIRAL THERAPY USE IN ADOLESCENTS WITH HIV

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Panel's Recommendations
• All adolescents with HIV should receive maximally suppressive antiretroviral therapy (ART); this is urgent for those who are sexually active, considering pregnancy, or pregnant **(AII).** • ART regimen selection should include consideration of the adolescent's individual needs and preferences **(AIII).** See What to Start: Antiretroviral Treatment Regimens Recommended for Initial Therapy in Infants and Children With HIV and Management of Children Receiving Antiretroviral Therapy for more information. • All adolescents with HIV should be screened for mental health and substance use disorders **(AII).** • Reproductive and sexual health issues—including pregnancy intentions, contraceptive methods, safer sex techniques to prevent transmission of HIV and other sexually transmitted infections (STIs), regular STI screening, pre-exposure prophylaxis for partners, pregnancy planning, and preconception care—should be discussed regularly **(AII).** • Adolescents with HIV can use all available hormonal contraceptive methods (e.g., pill, patch, ring, injection, implant); however, providers should consider potential drug–drug interactions between hormonal contraceptives and antiretroviral medications that could affect contraceptive efficacy **(AII*).** See Table 3. Drug Interactions Between Antiretroviral Agents and Hormonal Contraceptives in the Perinatal Guidelines. • Pediatric and adolescent care providers should prepare adolescents for the transition into adult care settings **(AIII).**
Rating of Recommendations: *A = Strong; B = Moderate; C = Optional* ***Rating of Evidence:*** *I = One or more randomized trials in children† with clinical outcomes and/or validated endpoints; I* = One or more randomized trials in adults with clinical outcomes and/or validated laboratory endpoints with accompanying data in children† from one or more well-designed, nonrandomized trials or observational cohort studies with long-term clinical outcomes; II = One or more well-designed, nonrandomized trials or observational cohort studies in children† with long-term outcomes; II* = One or more well-designed, nonrandomized trials or observational studies in adults with long-term clinical outcomes with accompanying data in children† from one or more similar nonrandomized trials or cohort studies with clinical outcome data; III = Expert opinion* *† Studies that include children or children/adolescents, but not studies limited to postpubertal adolescents.*

Background

Most individuals in the United States who acquired HIV through perinatal transmission are now adolescents or young adults. Internationally born adolescents with perinatally acquired HIV (PHIV) now comprise a significant proportion of PHIV living in the United States. Regardless of birthplace, most adolescents with PHIV[1] have had a long clinical course with an extensive antiretroviral (ARV) treatment history.[2,3] Older youth and adults may have initially received nonsuppressive monotherapy or dual therapy prior to the availability of combination ARV regimens, including fixed-dose combination (FDC) formulations. Challenges that affect the treatment of adolescents with PHIV include extensive drug resistance, complex regimens, the long-term consequences of HIV and

antiretroviral therapy (ART) exposure,[4] the developmental transition to adulthood, and psychosocial factors.[5-8] With optimal HIV care, including entering care with a CD4 T lymphocyte (CD4) cell count over 750 cells/mL, 99% medication adherence, and no loss to follow-up, adolescents with PHIV have similar life expectancy as youth without HIV. However, without ideal HIV care, models project that adolescents with PHIV have life expectancies 10 to 12 years shorter than youth without HIV, highlighting the importance of specialized care that addresses critical barriers to optimal health outcomes in this population.[9]

In the United States, most adolescents aged ≥14 years who recently received an HIV diagnosis acquired their infection through non-perinatal transmission (NPHIV).[10] They generally follow a clinical course similar to that of adults, and the Adult and Adolescent Antiretroviral Guidelines should be consulted for treatment recommendations for these individuals. Additional information that is specific to the care of postpubertal adolescents can be found in Adolescents and Young Adults With HIV.

Timing and Selection of Antiretroviral Therapy

All adolescents with HIV (like all people with HIV) should initiate ART as soon as possible after HIV diagnosis. Recommendations for ART selection in adolescents with sexual maturity ratings (SMRs) between 1 and 3 can be found in What to Start: Antiretroviral Treatment Regimens Recommended for Initial Therapy in Infants and Children With HIV and Appendix A. Pediatric Antiretroviral Drug Information. ART recommendations for adolescents and young adults with SMRs of 4 or 5 are available in the What to Start: Initial Combination Antiretroviral Regimens for People With HIV section of the Adult and Adolescent Antiretroviral Guidelines. Optimizing and simplifying treatment, including with approved long-acting injectable ART, may be especially important when treating adolescents because this can help improve adherence (see Management of Children Receiving Antiretroviral Therapy). Clinicians who are treating adolescents should consider additional factors before initiating ART, including childbearing potential, potential drug interactions with contraception and the safety of using certain ARV drugs before conception or during pregnancy (see the Contraception, Pregnancy, and Antiretroviral Therapy section below).

Dosing of Antiretroviral Therapy for Adolescents With HIV

Clinical providers need to pay attention to the transition of adolescents from pediatric to adult ART dosing. Many ARV drugs (e.g., abacavir, emtricitabine, lamivudine, tenofovir disoproxil fumarate [TDF], some protease inhibitors [PIs]) are administered to children at higher body weight–based doses or body surface area–based doses than would be predicted by direct extrapolation of adult doses. These doses are based on reported pharmacokinetic data that indicate more rapid drug clearance in children than in adults. Therefore, failure to ensure weight-appropriate dosing in adolescents can result in an increased risk of drug toxicity if higher pediatric dosing is not transitioned to lower adult dosing (often between 25 kg and 40 kg, depending on the particular drug).[11]

Adherence Concerns in Adolescents

Low adherence to oral ART is a common problem among adolescents with HIV. Both psychosocial and cognitive developmental factors may contribute to adherence challenges, and these factors should be assessed regularly. Assessment of ARV adherence in adolescents with HIV can be challenging, and discordance between self-report and other adherence measures—such as viral load and therapeutic or cumulative drug levels—should prompt open discussions with the adolescent and their caregiver (see Table 15. Approaches to Monitoring Medication Adherence). In one study

conducted in Botswana, adolescents whose self-reported adherence and electronic adherence monitoring were discordant reported reasons for not disclosing nonadherence that included fear of disappointing caregivers and providers and a desire to avoid negative feedback or punitive adherence counseling.[12] Providers should encourage open discussions that normalize the difficulties of taking life-long medications and provide positive reinforcement for disclosing adherence challenges. The adolescent's individual needs and preferences also should be considered when making decisions about initiating or changing ART. Comprehensive systems of care are required to serve both the medical and psychosocial needs of adolescents with HIV who are frequently inexperienced with managing their health care and may also lack health insurance. Not surprisingly, higher levels of self-reported social support are associated with viral suppression among adolescents with PHIV; thus, social support should be assessed routinely.[13] Disclosure of HIV status has been associated with improved adherence overall, and providers should endeavor to ensure youth receive full disclosure of their HIV status by early adolescence in most cases,[14] with ongoing developmentally appropriate HIV education throughout adolescence.

Adolescents with PHIV infection are at risk for neurocognitive impairment, which also can interfere with medication adherence.[15,16] Many also are at risk for mental health comorbidities, including psychiatric, behavioral, and substance use disorders that may interfere with adherence to ART.[8,17] Compared with adults, youth have lower rates of viral suppression and higher rates of virologic rebound and loss to follow-up.[18,19] For further discussion of interventions to promote adherence in adolescents, see Adherence to Antiretroviral Therapy in Children and Adolescents With HIV, Adolescents and Young Adults With HIV in the Adult and Adolescent Antiretroviral Guidelines, and a 2013 review by Agwu and Fairlie.[4]

A specific challenge is presented by youth who, despite interventions, remain unable to adhere to therapy. In these cases, simplifying treatment to a once-daily regimen, an FDC tablet, or a long-acting injectable ARV regimen may improve adherence. The first long-acting injectable ARV regimen (cabotegravir and rilpivirine) was approved in 2022 for use in virologically suppressed adolescents aged ≥12 years and weighing ≥35 kg, with data on use in adolescents now increasing (see Cabotegravir and Rilpivirine).[20-23] Data are emerging on the potential use of long-acting injectable ARVs in adults who experience challenges to daily oral ART[24] or who have known resistance; adolescent-specific studies are underway.[25,26] See Table 16. Strategies to Improve Adherence to Antiretroviral Medications for more information. Alternatives to changing the ARV regimen include, but are not limited to, using cellphone alerts and other mobile health (or mHealth) approaches to remind individuals to take their medication and attend clinic visits,[27] initiating a short-term deferral of treatment until adherence improves or while adherence-related challenges (including mental health and substance use disorders) are aggressively addressed, initiating an adherence testing and training period during which a placebo (e.g., vitamin pill) is administered, scheduling appointments more frequently, employing directly observed therapy, and avoiding regimens with a low genetic resistance threshold (see Table 18. Examples of Changes in Antiretroviral Regimen Components for Children With Sustained Virologic Suppression). Such decisions should be individualized and the person's clinical and laboratory status monitored carefully, integrating transportation support and telemedicine options for flexible care engagement. Even small and short-term improvements in virologic suppression may have longer-term clinical value for adolescents with HIV.[28]

Mental Health and Substance Use Concerns in Adolescents

Adolescent mental distress is a growing concern. Between 2009 and 2019, national youth surveys showed increases in the proportion of youth reporting persistent feelings of sadness or hopelessness, increases in the proportion of youth seriously considering suicide, and a concurrent

rise in suicide rates in youth ages 10 to 24 years.[10,29] During the same period, adolescent use of social media increased exponentially, and potential harmful impacts on youth mental health emerged (see Protecting Youth Mental Health: The U.S. Surgeon General's Advisory 2021 and Social Media and Youth Mental Health: The U.S. Surgeon General's Advisory 2022).

Many factors can increase the risk of adverse mental health outcomes among adolescents with PHIV, including long-term medical treatment for chronic disease, hospitalizations, stigma, the neurocognitive impacts of HIV, parental psychiatric and substance use disorders, and family and caregiver stress and loss. The prevalence of mental health disorders in youth with PHIV is high, with nearly 70% of these adolescents meeting the criteria for a psychiatric disorder at some point in their lives.[8,30-32] The most common conditions include anxiety, behavioral disorders, mood disorders (including depression), and attention deficit hyperactivity disorder. Trauma experience is also high among youth with PHIV and may particularly impact those who are internationally born.[33-35] Additionally, although data are sparse, the prevalence of attempted suicide has been notably higher in adolescents with HIV than in those who have been exposed to HIV but are uninfected.[36] The risk of psychosis and severe chronic mental health disorders has been shown to be higher in adolescents with PHIV than expected in the general young adult population.[37] Effectively managing psychiatric comorbidities can improve an individual's adherence to medical care, including ART, and can lead to better academic performance and interpersonal relationships (see Substance Use Disorders and HIV in the Adult and Adolescent Antiretroviral Guidelines).[17,38-40]

Interventions that address mental health in youth with PHIV include pharmacologic interventions, behavioral modification, and individual, family, and group counseling. The use of telehealth or counseling via videoconferencing may be feasible and acceptable and may improve access to mental health treatment for adolescents with HIV.[41] Current evidence suggests that a combination of tailored psychotherapy—such as cognitive behavioral therapy—and pharmacotherapy can reduce depressive symptoms in adolescents with HIV; however, clinicians who prescribe pharmacotherapy for depression must take potential interactions with ARV drugs into account (see Drug–Drug Interactions in the Adult and Adolescent Antiretroviral Guidelines).[42,43] A multicenter study randomized adolescents with HIV with depressive symptoms across 13 U.S. sites to either a cognitive behavioral therapy and medication management algorithm (COMB-R) tailored for adolescents with HIV or enhanced standard of care, including standard psychotherapy and medication management. After 6 months, sites using the COMB-R intervention showed decreased depressive symptoms and higher remission from depression than the enhanced standard of care; however, mean HIV viral load and CD4 count were not significantly different between arms.[44] Another study, conducted among youth with HIV in Uganda, demonstrated significant potential benefit of structured mindfulness and acceptance-based sessions to reduce depression, anxiety, and stigma (all $P < 0.001$).[45] Interest in the adoption of trauma-informed care (TIC) practices for people with HIV is emerging; however, research evaluating TIC interventions is limited, and efficacy is mixed.[46] Providers may consider utilizing TIC principles for youth with PHIV who have experienced trauma.[47]

Evidence exists that adolescents with PHIV are more likely to have substance use disorders than the general population[48]; however, available studies on substance use among adolescents with PHIV show age of initiation and rates of substance use similar to age-matched peers without HIV.[49] In a comparison of 390 youth with perinatal exposure to HIV versus 211 youth with PHIV, investigators from the Pediatric HIV/AIDS Cohort Study (PHACS) found that nearly half of both groups had ever used alcohol or marijuana, with a majority having used either substance in the last 3 months, and one of five participants who used marijuana reporting at least daily use.[50] In another study, there was no difference in substance use between adolescents exposed to HIV and adolescents with HIV. While rates of substance use may not be higher in adolescents with PHIV, the impact on health outcomes—including interference with medication adherence, increased risk-taking, and decreased

safe sex practices—and the potential for comorbid mental health concerns make addressing substance use in adolescents with HIV an important consideration for HIV care providers.[51,52]

Providers who are caring for adolescents with HIV should incorporate screening for psychiatric disorders (including suicidality), trauma exposure and experiences, and substance use disorders into routine care and refer patients to age-appropriate services as needed. The American Academy of Pediatrics Guidelines for Adolescent Depression in Primary Care policy statement provides some guidance and screening tools, particularly for depression. Screening tools for substance use—such as Screening, Brief Intervention, and Referral to Treatment (SBIRT) or Car, Relax, Alone, Forget, Friends, and Trouble (CRAFFT)—may be used.[53] Providers also should consider emerging substance use trends when screening adolescents with HIV. Further guidance on screening tools for substance use and mental health is provided by the National Institute on Drug Abuse's Screening and Assessment Tools Chart.

Sexually Transmitted Infections in Adolescents

At least half of new sexually transmitted infections (STIs) in the United States occur in youth aged 15 to 24. An analysis of three Adolescent Medicine Trials Network for HIV/AIDS Interventions studies conducted between 2009 and 2015 identified rates of STIs in adolescents with HIV that were higher than national averages for those without HIV.[54] Although adolescents with either NPHIV or PHIV had elevated rates of STIs, those with NPHIV had higher rates than those with PHIV. In addition, STIs were more frequent during times when viral load was >400 copies/mL. In another study in the United States among mostly Black and Latino adolescents with PHIV, almost 20% reported recent condomless sex, putting them at risk for STIs, unplanned pregnancy, and horizontal HIV transmission.[55] Clinicians should discuss the risk of STIs with their patients. All adolescents with HIV should be screened for STIs and treated appropriately. Clinicians should regularly obtain a detailed sexual history for adolescents to determine which STI screening tests are appropriate. Rates of syphilis have been an ongoing concern in the United States in recent years, particularly in people with HIV and males who have sex with males. Clinicians should be aware of local public health recommendations and ensure regular screening for adolescents with PHIV.[56] Screening for STIs in sexually active adolescents with HIV often requires sampling from several body sites—including the oropharynx, rectum, and urethra—because multiple sites of infection are common.[57] Furthermore, a negative assay at a single site does not preclude the possibility of infection at another site.[58] For a more detailed discussion of STIs, see the Centers for Disease Control and Prevention STI Treatment Guidelines,[59] Human Papillomavirus Disease in the Adult and Adolescent Opportunistic Infection Guidelines, and Human Papillomavirus in the Pediatric Opportunistic Infection Guidelines. All female adolescents with HIV who are sexually active should receive gynecologic services. All adolescents with HIV should receive three doses of the 9-valent human papillomavirus vaccination (see Figure 1. Recommended Immunization Schedule for Children With HIV Infection Aged 0 Through 18 Years in the Pediatric Opportunistic Infections Guidelines. While data are limited in adolescents, consideration should be given for doxycycline postexposure prophylaxis for bacterial STI prevention, as well as mpox vaccination for eligible adolescents with PHIV during outbreaks.[60]

Contraception, Pregnancy, and Antiretroviral Therapy

Adolescents with HIV may initiate sexual activity before or after puberty, but adolescents with PHIV do not appear to initiate sexual activity earlier than adolescents without HIV.[61] Sexually active adolescents are at risk for unintended pregnancy. Approximately half of pregnancies in the United States, including those among women with HIV, are unintended or unplanned.[62,63] Providers

should regularly assess adolescents' desires to become pregnant or avoid pregnancy (also known as their pregnancy intentions). Family planning counseling—including a discussion of the risks of sexual HIV transmission, perinatal HIV transmission, and methods for reducing these risks—should be provided to all youth. Reproductive health options—such as pregnancy planning, preconception care, contraceptive methods, pre-exposure prophylaxis for partners, the concept of Undetectable = Untransmittable (U=U),[64,65] and safer sex techniques (including instruction on the correct and consistent use of condoms) for prevention of sexual HIV transmission—should be discussed regularly (see U.S. Medical Eligibility Criteria for Contraceptive Use). Access to sexual health care, including contraception and abortion care, varies by state. To offer complete guidance, providers must be familiar with local laws and regulations. For additional information, refer to Prepregnancy Counseling and Care and Reproductive Options When One or Both Partners Have HIV in the Perinatal Guidelines. The American Academy of Pediatrics Committee on Adolescence offers guidance about the integration of sexual and reproductive health care in pediatric clinical settings.[66]

Interactions Between Contraceptives and Antiretroviral Drugs

People with HIV can use all available contraceptive methods, including hormonal contraceptives, implantable devices, intrauterine devices, transdermal patches, and vaginal rings.[67]

Several PIs and non-nucleoside reverse transcriptase inhibitors alter the metabolism of oral contraceptives, which theoretically may reduce the efficacy of oral contraceptive agents or increase the risk of estrogen-related or progestin-related adverse effects.[68-70] Integrase strand transfer inhibitors appear to have no interaction with estrogen-based contraceptives.[71,72] For more information about potential interactions between ARV drugs and hormonal contraceptives, see Table 3. Drug Interactions Between Antiretroviral Agents and Hormonal Contraceptives in the Perinatal Guidelines.

Concerns about loss of bone mineral density with long-term use of depot medroxyprogesterone acetate (DMPA), with or without coadministration of ART (specifically TDF), should not preclude the use of DMPA as an effective contraceptive unless clinical evidence indicates bone fragility.

HIV and Pregnancy During Adolescence

Childbearing potential and the possibility of planned and unplanned pregnancy should be considered when selecting an ARV regimen for an adolescent. Adolescents who want to become pregnant should receive preconception counseling and care, including a discussion of pregnancy planning and special considerations when using ARV drugs during pregnancy (see Prepregnancy Counseling and Care in the Perinatal Guidelines). Pregnancy should not preclude the use of optimal therapeutic ARV regimens. Clinicians need to consider maternal and fetal safety, as well as the need to prevent perinatal transmission of HIV, when selecting regimens. See Table 7 in the Recommendations for Use of Antiretroviral Drugs During Pregnancy section of the Perinatal Guidelines for more details about choosing an ARV regimen for use during pregnancy, including among adolescents with HIV. Pregnancies occur as people with PHIV enter adolescence and young adulthood.[73,74] A single center report from the United Kingdom highlighted the pregnancy experiences of young women (median age 23 years) with PHIV with one-third reporting at least one pregnancy.[75] A total of 47 pregnancies were reported among 24 young women with PHIV, with the following outcomes: 16 (34%) HIV-negative live births, 19 (40%) terminations, 9 (19%) miscarriages, and 3 ongoing pregnancies. Some studies suggest higher rates of adverse pregnancy outcomes—such as small-for-gestational-age infants—among those with PHIV than among those with NPHIV. Unplanned pregnancy is not uncommon in youth with PHIV.[74,76,77] One site serving pregnant women with HIV in Baltimore, U.S. reported higher rates of unintended pregnancy (83.6% vs. 68.8%, $P = 0.016$), lower viral suppression, and higher marijuana use during pregnancy in adolescents with

HIV than in adults with HIV.[78] Adolescents with PHIV also may be more likely to have complex ARV histories, virologic failure, and drug resistance at the time of pregnancy.[78-80] However, the rate of perinatal transmission among people with PHIV who are receiving ART appears to be similar to the rate among people on ART with NPHIV.[81-85]

Other Considerations for Adolescents With HIV

Adolescence is a period of emerging recognition of sexual orientation and self-expression. Adolescents with HIV who are lesbian, gay, bisexual, or nonbinary require both culturally competent providers and tailored medical care. Health care providers should ask patients nonjudgmental questions about their sexuality to determine whether they require specific medical and support services and whether those services are available locally. It is important to consider the possibility of drug–drug interactions in adolescents who are receiving both ART and medications such as testosterone or estrogen. Additional resources for the care of these adolescents can be found in Adolescents and Young Adults with HIV in the Adult and Adolescent Antiretroviral Guidelines.

Transitioning Adolescents Into Adult HIV Care Settings

Transition to adult care is defined by Reiss et al. as "a multifaceted, active process that attends to the medical, psychosocial, cognitive and educational, or vocational needs of adolescents as they move from the child- to the adult-focused health care system."[86] Facilitating a successful transition for adolescents with HIV from their pediatric/adolescent care clinic to adult care is important but challenging.[87-90] Many adolescents disengage from care during the transition to adult care, putting them at risk for HIV progression and transmission to partners.[91-93] Pediatric and adolescent care providers and their multidisciplinary teams should have a formal written plan in place to transition adolescents to adult care. Although transition to adult care generally occurs when individuals are in their late teens or early 20s, discussion of and planning for the transition process should be initiated early in the teen years, with involvement from both the adolescent and their parents and/or caregivers. Care models for children and adolescents with PHIV tend to be family-centered, consisting of a multidisciplinary team that often includes physicians, nurses, social workers, and mental health professionals. These providers generally have long-standing relationships with patients and their families, and care is rendered in discreet, intimate settings. Qualitative research has demonstrated that established patient–provider relationships among adolescents with HIV and their providers are integral to HIV care engagement and that collaborative approaches to build trusted, new patient–provider relationships are necessary to support successful transition.[94,95] Although expert care also is provided under the adult HIV care medical model, adolescents and their caregivers may be unfamiliar with the busier, more individual-centered clinics that are typical of adult medical care providers. These providers often expect patients to assume a greater level of responsibility for their care, and adolescents may be uncomfortable with providers with whom they do not have a long-standing relationship.

One multisite study in the United States found that adolescents who transitioned to adult care at an older age reported greater satisfaction with their care than those who transitioned at a younger age. Additionally, adolescents who reported being able to perform certain tasks that were related to their care (e.g., making appointments, requesting prescriptions, arranging transportation to appointments) were more likely to be engaged in adult care.[96] Assessments of transition readiness using standardized tools (e.g., the Transition Readiness Assessment Questionnaire) are emerging as a potentially helpful part of the transition process and may be predictive of HIV outcomes, including virologic failure post-transition.[97,98] It may be beneficial to provide adolescents, caregivers, and their new adult medical care providers with support and guidance regarding the expectations for each

person involved in the patient–provider relationship. In this situation, it may be helpful for a pediatric care provider and an adult care provider to share joint care of a patient for a period.

Adolescent care providers should have a candid discussion with the transitioning adolescent and their caregivers to understand what qualities the adolescent considers most important when choosing an adult care setting (e.g., confidentiality, small clinic size, low patient-to-provider ratio, availability of after-school or evening appointments). Social determinants—such as the patient's developmental status, behavioral/mental health comorbidities, housing, family support, employment status, recent discharge from foster care, peer pressure, illicit drug use, and incarceration—should be considered during transition.

No definitive model of transition to adult HIV care currently exists, and only a limited number of studies have reported on outcomes following transition, although research in this area is ongoing. However, emerging qualitative research has revealed the importance of the patient–provider relationship, including trust, the need for developmentally appropriate preparation for transition, and opportunities for growth and independence.[90,99] Recent studies have shown potential for successful transition and ongoing retention using models that include an individualized transition plan and a multidisciplinary approach that utilizes providers co-trained in both internal medicine and pediatrics, peer navigators, social workers, mental health support, and a youth-focused care model for adolescents who were already attending adult HIV clinics.[100-102]

Several studies have shown that youth with HIV who transitioned into adult care settings had higher rates of attrition from care than those who remained in pediatric/adolescent care. Some U.S. studies show that less than half of youth who transitioned care to an adult clinic remained in care after 9 to 12 months.[91,92,103] Other U.S. sites have reported initial success in transitioning adolescents but with declining post-transition retention over time.[104] In addition to poor retention in care, several studies have identified poor viral suppression rates in transitioned youth and young adults with HIV.[3] Pre-transition virologic failure and longer linkage times have been associated with worse outcomes post-transition.[90,93] Furthermore, some reports from the United Kingdom suggest that the mortality rate of adolescents with HIV increases after transition,[39,93,105] underscoring the need to critically examine transition and determine the best mechanisms to optimize the long-term outcomes for youth with PHIV.[91]

Some general guidelines, based on emerging evidence and consensus expert opinion, are available about transition plans and who might benefit most from them.[88,102,106-113] To maximize the likelihood of success, providers should prepare adolescents for transition long before it occurs. Attention to the following key areas could improve retention in care and minimize the risk of ART interruptions:

- Educating HIV care teams and staff about transitioning.
- Beginning discussions about transition early, before the actual transition process.
- Developing a written, individualized transition plan to address comprehensive care needs, including medical, psychosocial, and financial aspects of transitioning.
- Anticipating the impact of other common adolescent transitions such as going to college, moving out of parent's home, and starting employment with possible change in insurance.
- Optimizing communication between providers at pediatric/adolescent clinics and providers at adult clinics.
- Identifying adult care providers who are experts in providing care to adolescents and young adults.
- Fostering a trusting patient–provider relationship with new adult care providers.

- Addressing barriers caused by a lack of information, stigma, or disclosure concerns.
- Discussing the differences between the practice styles of adult clinics and pediatric/adolescent clinics.
- Helping youth develop the skills needed to manage their care, including counseling them on appointment management, the appropriate use of a primary care provider, the importance of prompt symptom recognition and reporting, and the importance of managing medications, insurance, and state and federal benefits.
- Identifying an optimal clinic model for a given setting (e.g., simultaneous transition of mental health and/or case management services versus a gradual phase-in).
- Clearly defining the desired outcomes for the transition, such as retention in care, ongoing access to other services (e.g., case management, mental health), clinical outcomes (e.g., viral suppression), and patient satisfaction.
- Implementing ongoing evaluations to measure the success of a transition model.
- Engaging in regular multidisciplinary case conferences between adult and adolescent care providers.
- Implementing interventions that may be associated with improved outcomes, such as support groups and mental health consultation.
- Identifying a care navigator who can provide support during the transition.

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