

Prenatal Care, Antiretroviral Therapy, and HIV Management in Women with Perinatal HIV Infection

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Panel's Recommendations

- The management of prenatal care and general principles of antiretroviral therapy (ART) and HIV management do not differ between pregnant women with perinatally acquired HIV (PHIV) and those with nonperinatally acquired HIV (**All**).
- Using the same guiding principles that are used for heavily ART-experienced adults, optimal ART regimens should be selected based on resistance testing, ART treatment history, and pill burden (**All**).
- Consultation with experts in HIV and pregnancy is recommended when the presence of extensive drug resistance warrants the use of antiretroviral drugs for which there is limited experience in pregnancy (**All**).
- Pregnant women with PHIV warrant enhanced focus on adherence interventions during pregnancy and after delivery (**All**).

Rating of Recommendations: A = Strong; B = Moderate; C = Optional

Rating of Evidence: I = One or more randomized trials with clinical outcomes and/or validated laboratory endpoints; II = One or more well-designed, nonrandomized trials or observational cohort studies with long-term clinical outcomes; III = Expert opinion

With the availability of potent antiretroviral therapy (ART), morbidity and mortality have significantly declined in individuals living with HIV, including those with perinatally acquired HIV (PHIV). The majority of women with PHIV have reached childbearing age, and many are becoming pregnant. A significant number of these pregnancies are unplanned.¹⁻³ The components of prenatal care and general principles of ART and HIV management do not differ between pregnant women with PHIV and those with nonperinatally acquired HIV (NPHIV) who acquired HIV through other routes of transmission. However, the reproductive health care needs and the prevention of perinatal transmission in women with PHIV pose unique challenges. Adherence to ART is often a major challenge for women with PHIV. In addition, because most of these women are still adolescents and young adults, they may be at higher risk of certain pregnancy complications, such as preterm delivery, small-for-gestational-age (SGA) infants, low birth weight, and preeclampsia.⁴⁻⁹ However, in some studies, the risk of premature delivery tends to be similar among women with PHIV and women with NPHIV after adjusting for age.¹⁰

Because women with PHIV have extensive ART experience,⁸ optimal ART regimens should be selected using the same guiding principles used for ART-experienced adults; in particular, the ART regimen should be selected on the basis of resistance testing, pill burden, and the woman's specific ART history and preferences. Because individuals who acquired HIV perinatally have the potential to develop complex drug-resistance mutation patterns, clinicians may consider performing phenotypic resistance testing in these women during pregnancy when resistance testing is indicated. Regimens that optimize dosing intervals and minimize pill burden should be considered. Regimens should be constructed using antiretroviral (ARV) drugs that are recommended for use in pregnancy whenever possible. However, in many cases, the presence of extensive drug resistance may warrant the use of ARV drugs for which there is limited experience in pregnancy; consultation with experts in HIV and pregnancy is recommended in such cases.

Women with PHIV experience prolonged HIV infection, have received multiple ART regimens—including suboptimal monotherapy or dual-therapy regimens received as children, and are more likely to harbor drug-resistant virus. As many as 30% to 70% of pregnant women with PHIV have evidence of HIV drug resistance.^{8,11-13} Despite these factors, many studies have shown that the risk of perinatal transmission does not

appear to be increased in this population, as long as these women receive appropriate prenatal management and achieve viral suppression.^{8,11,13-17} However, in an analysis of data from SMARTT PHACS (Surveillance Monitoring for ART Toxicities Study – Pediatric HIV/AIDS Cohort Study) that included 2,123 births from 2007 to 2015, pregnant women with PHIV had a higher perinatal HIV transmission rate (1.1%; 95% confidence interval [CI], 0.3% to 4.3%) than pregnant women with NPHIV (0.4%; 95% CI, 0.2% to 1.0%); this higher rate was associated with a greater likelihood of detectable maternal viral load at delivery.¹⁸ Women with PHIV are more likely to have detectable viral loads at delivery, lower CD4 T lymphocyte counts, and genotypic drug resistance than women with NPHIV; these factors can have implications during labor and delivery.^{8,13,16,18,19} Several studies have suggested that pregnant women with PHIV are more likely to have a cesarean delivery in order to prevent HIV transmission; cesarean deliveries are most commonly indicated in these women due to a lack of viral load suppression.^{11,16} Cesarean delivery in these young women raises concerns for increased risk of adverse obstetric outcomes if repeated cesarean deliveries are required for future pregnancies.

Evidence from studies is conflicting as to whether women with PHIV have higher rates of preterm and SGA infants than women with NPHIV.^{20,21} Several studies have demonstrated no associations between perinatally acquired HIV status and preterm birth, SGA infants, or low birth weight.^{8,13,20-22} Other studies with smaller sample sizes have reported conflicting results:

- A case series reported high rates of preterm birth (31%) among women with PHIV.¹¹
- Jao et al. reported a four-fold increased risk for SGA births among women with PHIV compared to those with NPHIV.⁹
- Munjal et al. reported earlier gestational age at delivery and lower average birth weights in infants born to women with PHIV compared to those with NPHIV.¹⁶

Women with PHIV also have poor rates of retention in care and viral suppression for up to 2 years postpartum.²³ In a retrospective analysis of 37 pregnancies among women with PHIV and 40 pregnancies among age-matched women with NPHIV who delivered during the same time period, the viral load declines achieved during pregnancy in women with PHIV were not sustained during postpartum follow-up, in contrast to the age-matched comparison group. Another study found that, during 4 years of follow-up postpartum, there were four deaths due to AIDS-related complications among women with PHIV but none among the women with NPHIV.¹⁶ Although genotypic mutations were more common in women with PHIV, loss of viral suppression that resulted in postpartum disease progression was more likely to be related to adherence difficulties, highlighting the need for adherence interventions after delivery.

Psychosocial challenges in PHIV may be magnified due to the presence of a lifelong chronic illness, high rates of depression,²⁴ and, frequently the loss of one or both parents. Attention to developmentally appropriate adherence counseling is critical. A systematic review and meta-analysis of 50 eligible studies on ART adherence in individuals with HIV aged 12 years to 24 years old reported 62.3% adherence overall among youth with HIV. Youth from U.S. studies had the lowest average rate of adherence at 53%.²⁵ In a 2014 study of 1,596 people with PHIV who were living in New York City, only 61% were virally suppressed. The authors attributed poor ART adherence to social, behavioral, and developmental factors.²⁶ A history of depression has also been associated with nonadherence to ART among pregnant women with PHIV.²⁷ Focused attention on diagnosis and treatment of depression during the preconception period may lead to better medication adherence. Self-motivation and social support were key to achieving medication adherence in a study of adolescents with HIV in the United Kingdom.²⁸

Studies have noted reduced rates of retention in care and viral suppression among pediatric and adolescent persons with HIV who are transitioning to adult health care.²⁹ Among adolescents with PHIV, pregnancy may create additional complications in the transition from pediatric/adolescent HIV care to adult care due to the

complexity of navigating an adult health care system with multiple providers. However, pregnancy may also be an opportune time for a young woman to transition to adult care. There is a need to identify, develop or adapt, and implement culturally sensitive, women-centered interventions for improving HIV care continuum outcomes of pregnant and postpartum women living with HIV.³⁰ Coordination of care across multiple disciplines, including HIV primary care, OB/GYN, and perinatal case management, is advised.³¹ Integration of reproductive health counseling and family planning services, including consistent counseling on condom use, sexually transmitted infection testing and prevention, optimal pregnancy spacing, and developmentally appropriate skill building to support disclosure, as indicated, is recommended.

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