INTRODUCTION

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Recommendations regarding HIV screening in pregnancy, HIV treatment during pregnancy, and the use of antiretroviral (ARV) drugs to prevent perinatal (vertical) HIV transmission (i.e., during pregnancy and labor and delivery) and postnatal HIV transmission (i.e., through breastfeeding) have evolved considerably in the United States since the mid-1990s, reflecting changes in both the epidemic and the science of prevention and treatment. Current recommendations for universal prenatal HIV counseling and testing,[1] antiretroviral therapy (ART) for all pregnancies with HIV, scheduled cesarean birth when plasma HIV RNA >1,000 copies/mL near delivery, appropriate infant ARV management, and infant feeding counseling have resulted in a dramatic decrease in the rate of perinatal transmission of HIV to 1% or less in the United States and Europe.[2-4]

In response to this success, the Centers for Disease Control and Prevention has developed a goal of eliminating perinatal HIV transmission in the United States, defined as reducing perinatal transmission to an incidence of <1 infection per 100,000 live births and a rate of <1% among infants exposed to HIV.[5] However, incomplete implementation of routine and repeat antenatal HIV testing and other recommended interventions remains a barrier to achieving this goal.[6-9] A root cause analysis of an increase in perinatal transmission at three major referral centers in Maryland in 2022 (from zero infections in 2021) identified multiple missed opportunities for prevention, including delayed entry into perinatal/HIV care; maternal adherence challenges, particularly in the setting of substance abuse; and failure to diagnosis maternal HIV infection in a timely way.[6] Laws that promote universal HIV testing for pregnant women vary by jurisdiction, and prenatal testing coverage is higher in states with stronger regulations for testing all pregnant women.[10-12] Testing coverage is also poorer in subgroups that are perceived by health care providers to be at low risk of HIV acquisition (e.g., married, White, non-Hispanic, or multiparous).[13,14] Additionally, despite recommendations for repeat HIV testing in the third trimester for pregnant women at high risk of acquiring HIV and for maternal rapid testing in labor or newborn testing when maternal HIV status is not known, implementation is incomplete, and many states do not have laws in place to require testing in such circumstances.[15,16] An evaluation of 2009–2021 data from the U.S. MarketScan Multi-State Medicaid Database showed that more than half of perinatal infections diagnosed by age 1 year occurred in infants who had not received postnatal ARV prophylaxis.[8] To address such challenges, many states and the District of Columbia have developed additional strategies to advance progress.[17] To further support HIV prevention and the reduction of perinatal HIV transmission, the Panel on Treatment of HIV During Pregnancy and Prevention of Perinatal Transmission (the Panel) has now added guidance about the use of HIV pre-exposure prophylaxis for reducing HIV acquisition risk during conception, pregnancy, postpartum, and breastfeeding (see Pre-Exposure Prophylaxis (PrEP) to Prevent HIV During Periconception, Antepartum, and Postpartum Periods).

In addition to primary prevention of HIV acquisition, the best way to prevent perinatal HIV transmission is to emphasize and facilitate access to overall medical care before, during, and after pregnancy; this includes comprehensive reproductive health care, family planning and preconception care services, optimization of HIV treatment, and maintenance of care between pregnancies. Given the association of timing of ART initiation and maternal viral load during pregnancy, a critical component of preventing perinatal HIV transmission is ensuring that ART is initiated as early as possible during pregnancy—or ideally before conception—to sustainably suppress viral replication below the level of viral load assay detection.[18,19]

Additionally, in the setting of maternal ART that achieves consistently plasma viral load <50 copies/mL throughout pregnancy and the postnatal period along with appropriate neonatal ARV prophylaxis, the risk of HIV transmission postnatally through breast milk may be up to 1%.[18] In

response to these data, this Panel—as well as guidelines in many high-resource countries, such as Canada, Britain, and Switzerland—recommends that prenatal counseling include patient-centered, evidence-based information on infant feeding options, including breastfeeding[20-22] (see Preventing HIV Transmission During Infant Feeding).

A critical role of the Panel is to evaluate the many ARV drugs that are available for adults and assess the risks and benefits of using these drugs before and during pregnancy and during breastfeeding. The National Institutes of Health (NIH) Office of AIDS Research Advisory Committee (OARAC)–sponsored Panel on Antiretroviral Guidelines for Adults and Adolescents primarily considers efficacy and safety evidence when making recommendations for ART. Secondary considerations include characteristics that help promote adherence, such as improved tolerability or convenience (e.g., whether a regimen is available as a fixed-dose combination with once-daily dosing). When considering which ARV drugs to recommend for use before or during pregnancy, the Panel generally uses data from efficacy studies performed in nonpregnant adults; however, because short-term tolerability and safety may be different in pregnancy and drug exposure can change during pregnancy, evidence from direct safety and pharmacokinetic (PK) studies during pregnancy is required.[23]

In addition to considering direct evidence about short-term safety during pregnancy, the Panel also must make judgments about fetal safety. The Panel makes an initial assessment based on data from preclinical animal studies, analyses of reports to the Antiretroviral Pregnancy Registry, and all available postmarketing surveillance data. Robust evidence about fetal safety is not available at the time of drug licensure and remains limited for most licensed drugs.[24]

When strong evidence of harm to the fetus (or maternal harm) or inadequate drug exposure exists, it is straightforward for the Panel to make recommendations against the use of a specific drug; however, this situation is unusual. More often, the Panel must make recommendations for ARV drugs for which there are insufficient PK data in pregnancy and/or inadequate safety information on fetal exposure early in pregnancy or during the periconception period. Policymakers, regulators, clinicians, and community advocates are striving to improve the availability of data on ARV drug exposure and safety during pregnancy or while breastfeeding, or in those who are of reproductive potential.[25-29]

In the meantime, to ensure that the best available ART is not denied during pregnancy—while acknowledging that some drugs have not yet been evaluated fully for evidence of fetal or maternal harm—the Panel uses a graded approach to make recommendations for regimens to use during pregnancy. Selection of ARV drugs should be individualized during pregnancy according to ARV history, results of drug-resistance testing, and presence of comorbidities. In general, any fully suppressive regimen already used when pregnancy occurs should be continued throughout pregnancy. The Panel classifies ARV drugs for use during pregnancy or before conception as *Preferred*, *Alternative*, *Insufficient Data to Recommend*, *Not Recommended Except in Special Circumstances*, and *Not Recommended* (see Table 6. What to Start: Initial Antiretroviral Regimens During Pregnancy When Antiretroviral Therapy Has Never Been Received and Table 7. Situation-Specific Recommendations for Use of Antiretroviral Drugs During Pregnancy and When Trying to Conceive):

- *Preferred:* ARV drugs that are designated as *Preferred* in pregnancy are those that have proven durable efficacy in clinical trials in adults. *Preferred* drugs have acceptable toxicity and ease of use, pregnancy-specific PK data to guide dosing, and available data that suggest a favorable risk-benefit balance compared with other ARV options, incorporating outcomes for pregnancy, fetal development, and newborn health. Some *Preferred* drugs may have minor toxicity or incompletely evaluated teratogenicity risks that are offset by other advantages during pregnancy or preconception.

- *Alternative:* Preferred ARV drugs for nonpregnant adults that do not meet the above criteria can be considered as options for *Alternative* drugs during pregnancy when available data on the use of these drugs in pregnancy are generally favorable but still limited. Most *Alternative* drugs or combinations are associated with more concerns (or insufficient data) related to PK, dosing, tolerability, formulation, administration, or drug–drug interactions than those in the *Preferred* category, but they are acceptable for use in pregnancy. Some *Alternative* drugs or combinations may have known risks that are offset by other advantages during pregnancy or preconception.
- *Insufficient Data to Recommend:* The drugs and drug combinations in this category are approved for use in adults, but pregnancy-specific PK or safety data are too limited to make a recommendation for use during pregnancy. In some cases, it may be appropriate to continue using these drugs or drug combinations if pregnancy occurs while on ART that has been fully suppressive and well tolerated, with consideration of additional virologic monitoring during pregnancy.
- *Not Recommended Except in Special Circumstances:* Although some drugs are not recommended for initial ART because of specific safety concerns or very limited safety and efficacy data in pregnancy, prior ART use may prompt the need to initiate or continue using specific drugs to reach or maintain viral suppression.
- *Not Recommended:* Some drugs are designated as *Not Recommended* in pregnancy because they have inferior virologic efficacy (and thus are not recommended for adults in general), because PK data demonstrate low drug levels and a risk of viral rebound during pregnancy, or because there is evidence of serious fetal or maternal safety concerns.

The Panel systematically reviews all new information from the Antiretroviral Pregnancy Registry, published studies, and other sources to update the drug recommendations. The Panel also coordinates with the Panel on Antiretroviral Guidelines for Adults and Adolescents when there are concerns related to drug safety in pregnancy.

These guidelines update the June 2025 *Recommendations for the Use of Antiretroviral Drugs During Pregnancy and Interventions to Reduce Perinatal HIV Transmission in the United States*. The Panel, a working group of the NIH OARAC, develops these guidelines. The Panel collaborates with the companion NIH OARAC Panel on Antiretroviral Therapy and Medical Management of Children Living with HIV to jointly develop recommendations in overlapping areas (e.g., Pregnancy and Postpartum HIV Testing and Identification of Perinatal and Postnatal HIV Exposure, Diagnosis of HIV Infection in Infants and Children, Antiretroviral Management of Infants With *In Utero,* Intrapartum, or Breastfeeding Exposure to HIV), as well as to ensure general harmony between the guidelines. Health care providers should discuss the information in these guidelines with patients in order to make collaborative, informed decisions regarding the use of ARV drugs during pregnancy, the use of scheduled cesarean birth to reduce the risk of perinatal transmission of HIV when indicated based on high viral load, the use of ARV drugs in infants who have been exposed to HIV, and the method of infant feeding.

The guidelines are structured to address HIV care for all pregnancies, including infant care and preconception guidance. The Panel recognizes the importance of the countless contributions to date of the many women who have shaped our current scientific knowledge base for perinatal HIV treatment, care, and prevention through their participation in research studies in the United States and internationally. Without them, this work and these guidelines would not be possible.

The recommendations in these guidelines are accompanied by discussions of common circumstances that occur in clinical practice and the factors that influence treatment considerations. The Panel recognizes that strategies to prevent perinatal transmission and concepts related to managing HIV in pregnancy are evolving rapidly, and the Panel will continue to consider new evidence and adjust recommendations accordingly. Beginning in 2026, the Panel will highlight key

evidence gaps in individual guidelines sections with a goal of motivating research that can close those gaps and improve the quality and impact of the recommendations developed by the Panel for HIV care in pregnancy and affected infants.

The current guidelines are available on the Clinicalinfo website. The National Perinatal HIV hotline (18884488765) is a federally funded service that provides free clinical consultation to providers caring for patients with HIV or at risk for HIV and their children, and it serves as a resource for obtaining expert consultation on individual cases.

The Panel s recommendations are designed to support effective ART use in pregnancy, maximizing health benefits and reducing the risk of perinatal transmission. However, the Panel recognizes that women have the right to make informed choices about their pregnancies, including treatment during pregnancy, even when their choices differ from their health care providers recommendations.

The current guidelines are designed to support pregnancy and infant care, beginning with prepregnancy considerations and continuing through antepartum, intrapartum, and postpartum management. Although perinatal transmission of HIV occurs worldwide, these recommendations have been developed for use in the United States, including updated considerations around infant feeding in the United States. Alternative antiretroviral drug recommendations may be appropriate in other countries (see the World Health Organization guidelines for more information).

Guidelines Development Process

Table 1. Outline of the Guidelines Development Process

Topic	Comment
Goal of the Guidelines	Provide guidance to HIV care practitioners in the United States on the optimal use of antiretroviral (ARV) agents to manage HIV treatment during pregnancy, prevent HIV acquisition during pregnancy, and prevent perinatal HIV transmission in infants exposed to HIV.
Panel Members	The Panel is composed of approximately 35 voting members who have expertise in managing HIV care during pregnancy (e.g., training in obstetrics/gynecology, infectious diseases, or women's health), the pharmacology of ARV drugs during pregnancy, and the interventions for prevention of perinatal transmission (e.g., specialized training in pediatric HIV infection). The Panel also includes community representatives with knowledge of HIV infection in pregnancy and interventions for the prevention of perinatal transmission. The U.S. government representatives, appointed by their agencies, include at least one representative from each of the following U.S. Department of Health and Human Services agencies: Centers for Disease Control and Prevention (CDC), U.S. Food and Drug Administration (FDA), Health Resources and Services Administration (HRSA), and National Institutes of Health (NIH). Members who do not represent U.S. government agencies are selected by Panel members after an open call for nominations. Each member serves on the Panel for a 3-year period, with an option for reappointment. The Panel also may include liaison members from the National Perinatal HIV hotline, the American Academy of Pediatrics Committee on Pediatric AIDS, the American College of Obstetricians and Gynecologists, the Society of Obstetricians and Gynaecologists of Canada, and the Canadian Pediatric and Perinatal Research Group. A list of all Panel members can be found in the Panel Roster section.
Financial Disclosures	All members of the Panel submit an annual written financial disclosure that reports any association with manufacturers of ARV drugs or diagnostics used to manage HIV infection. See Financial Disclosure for a list of the latest disclosures.
Users of the Guidelines	Providers of care for pregnancy with HIV and infants who have been exposed to HIV
Developer	The Panel on Treatment of HIV During Pregnancy and Prevention of Perinatal Transmission—a working group of the Office of AIDS Research Advisory Council (OARAC)
Funding Source	Office of AIDS Research, NIH

Table 1. Outline of the Guidelines Development Process

Topic	Comment
Evidence for Recommendations	The recommendations in these guidelines are generally based on studies published in peer-reviewed journals. On some occasions, particularly when new information may affect patient safety, unpublished data that were presented at major conferences or prepared by FDA and/or manufacturers as warnings to the public may be used as evidence to revise the guidelines.
Recommendation Grading	See Table 2.
Method of Synthesizing Data	Each section of the guidelines is assigned to a small group of Panel members with expertise in the area of interest. A structured literature search is conducted by a technical assistance consultant and provided to the Panel working group. The members review and synthesize the available data and propose recommendations to the entire Panel. The Panel discusses all proposals during monthly teleconferences. Proposals are modified based on Panel discussions and then distributed, with ballots, to all Panel members. If substantive comments or votes against approval are made, the recommended changes and areas of disagreement are brought back to the full Panel (via email or teleconference) for review, discussion, and further modification to reach a final version that is acceptable to all Panel members. The recommendations in these final versions represent the consensus of Panel members and are included in the guidelines as official Panel recommendations.
Other Guidelines	These guidelines focus on HIV care during pregnancy and postpartum, including guidance for infant care. Other guidelines (all of which are available on the Clinicalinfo website) outline the use of ARV agents in nonpregnant adults and adolescents with HIV; use of ARV agents in infants and children with HIV; treatment and prevention of opportunistic infections (OIs) in adults and adolescents with HIV, including during pregnancy; treatment and prevention of OIs in children who have been exposed to HIV or who have HIV infection; and treatment of people who experience occupational or nonoccupational exposure to HIV. Preconception management when there is the potential for reproduction is discussed briefly in this document. However, for a more detailed discussion of the issues surrounding the treatment of nonpregnant adults, please consult the Adult and Adolescent Antiretroviral Guidelines and the Adult and Adolescent Opportunistic Infection Guidelines.
Update Plan	The Panel meets monthly by teleconference to review data that may affect the content of the guidelines. Updates may be prompted by new drug approvals (or new indications, new dosing formulations, and/or changes in dosing frequency), significant new safety or efficacy data, or other information that may have a significant impact on the clinical care of patients. In the event of significant new data that may affect patient safety, the Panel may issue a warning announcement and recommendations on the Clinicalinfo website until the guidelines can be updated with the appropriate changes.
Public Comments	A 2-week public comment period follows the release of the updated guidelines on the Clinicalinfo website. The Panel reviews comments to determine whether additional revisions to the guidelines are indicated. The public also may submit comments to the Panel at any time at HIVinfo@NIH.gov.

Basis for Recommendations

The recommendations in these guidelines are based on scientific evidence and expert opinion. Each recommendation statement includes a letter **(A, B,** or **C)** that represents the strength of the recommendation and a Roman numeral **(I, II,** or **III)** that represents the quality of the evidence that supports the recommendation.

Table 2. Rating Scheme for Recommendations

Strength of Recommendation	Quality of Evidence for Recommendation
A: Strong recommendation for the statement **B:** Moderate recommendation for the statement **C:** Optional recommendation for the statement	**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

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