Guidelines for the Use of Antiretroviral Agents in Pediatric HIV Infection

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Identification of Perinatal HIV Exposure (Last updated November 1, 2012; last reviewed November 1, 2012)

Panel's Recommendations
• HIV testing early in pregnancy is recommended as standard of care for all pregnant women in the United States **(AII)**.
• Repeat HIV testing in the third trimester should be considered for all HIV-seronegative pregnant women and is recommended for pregnant women who are at high risk of HIV infection (such as those with a known HIV-infected partner, personal or partner history of injection drug use, diagnosis with a sexually transmitted disease [STD], signs or symptoms of acute HIV infection or who reside in a high-prevalence area) **(AIII)**.
• Rapid HIV antibody testing at the time of labor or delivery should be performed on women with undocumented HIV status, and intrapartum antiretroviral (ARV) prophylaxis should be initiated in those who test positive **(AII)**.
• For pregnant women who are suspected to have acute HIV infection, a virologic test such as a plasma HIV RNA assay should be performed because serologic testing may be negative at this early stage of infection **(AII)**.
• Women who have not been tested for HIV before or during labor should undergo rapid HIV antibody testing during the immediate postpartum period or their newborns should undergo rapid HIV antibody testing. If results in mother or infant are positive, infant ARV prophylaxis should be initiated as soon as possible and the mothers should not breastfeed unless confirmatory HIV antibody testing is negative **(AII)**.
• Results of maternal HIV testing should be documented in the newborn's medical record and communicated to the newborn's primary care provider **(AIII)**.
• Infant HIV antibody testing to determine HIV exposure should be considered for infants in foster care and adoptees for whom maternal HIV infection status is unknown **(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 and adolescents but not studies limited to postpubertal adolescents

To treat HIV-infected infants appropriately, HIV-exposed infants must be identified as soon as possible, and that is best accomplished by identifying HIV-infected women before or during pregnancy. Universal HIV counseling and voluntary HIV testing, including consent using an opt-out approach, are recommended as the standard of care for all pregnant women in the United States by the Panel, the U.S. Public Health Service (USPHS), the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, and the U.S. Preventive Services Task Force.[1-6] All HIV testing should be performed in a manner consistent with state and local laws (http://www.nccc.ucsf.edu/consultation_library/state_hiv_testing_laws/). Centers for Disease Control and Prevention (CDC) recommends the "opt-out" approach, which involves notifying pregnant women that HIV testing will be performed as part of routine care unless they choose not to be tested for HIV.[7] The "opt-in" approach involves obtaining specific signed consent before testing and has been associated with lower testing rates. The mandatory newborn HIV testing approach involves testing of newborns for perinatal HIV exposure with or without maternal consent.[7]

Early identification of HIV-infected women is crucial for their health and for the care of their children, whether the children are infected or not. Knowledge of antenatal maternal HIV infection enables:

- HIV-infected women to receive appropriate antiretroviral therapy (ART) and prophylaxis against opportunistic infections for their own health;
- Provision of antiretroviral (ARV) chemoprophylaxis during pregnancy, during labor, and to the newborn to reduce the risk of HIV transmission from mother to child;[8]
- Counseling of HIV-infected women about the indications for and potential benefits of scheduled cesarean delivery to reduce perinatal transmission of HIV;[8-12]
- Counseling of HIV-infected women about the risks of HIV transmission through breast milk and that breastfeeding is not recommended for HIV-infected women living in the United States and other countries where safe alternatives to breast milk are available;[13]
- Initiation of prophylaxis against *Pneumocystis jiroveci* pneumonia (PCP) in all HIV-exposed infants with indeterminate HIV infection status or who have documented HIV infection beginning at age 4 to 6 weeks;[14] and
- Early diagnostic evaluation of HIV-exposed infants to permit early initiation of ART in infected infants.[2, 15]

Repeat HIV Testing in the Third Trimester

Repeat HIV testing should be considered for all HIV-seronegative pregnant women. It is recommended in the third trimester, preferably before 36 weeks' gestation, for women with initially negative HIV antibody tests who are at high risk of HIV infection.[16] A second HIV test during the third trimester is recommended for women who:

- Are receiving health care in a jurisdiction that has a high incidence of HIV or AIDS in women between ages 15 and 45 or are receiving health care in facilities in which prenatal screening identifies at least 1 HIV-infected pregnant woman per 1,000 women screened;
- Are known to be at high risk of acquiring HIV (such as those who are injection drug users or partners of injection drug users, exchange sex for money or drugs, are sex partners of HIV-infected persons, have had a new or more than 1 sex partner during current pregnancy, or have been diagnosed with a new sexually transmitted disease during pregnancy); or
- Have signs or symptoms of acute HIV infection.[5, 6, 17]

Women who decline testing earlier in pregnancy should be offered testing again during the third trimester. There is evidence that for women, the risk of HIV acquisition is significantly higher during pregnancy than in the postpartum period.[18] If acute HIV infection is suspected, virologic testing with a plasma HIV RNA assay or other virologic assay should be performed because serologic testing may be negative at this early stage of infection.[19]

Rapid HIV Testing During Labor in Women with Unknown HIV Status

Use of rapid test kits or an expedited enzyme-linked immunosorbent assay (ELISA) to detect HIV antibodies is recommended to screen women seen at labor whose HIV status is undocumented and identify HIV exposure in their infants.[2, 5, 6, 15] Any hospital offering intrapartum care should have rapid HIV testing available and should have in place policies and procedures to ensure that staff are prepared to provide patient education about rapid HIV testing, that appropriate ARV medications are available whenever needed, and that follow-up procedures are in place for women found to be HIV-infected and their infants. Rapid tests have been found to be feasible, accurate, timely, and useful both in ensuring prompt initiation of intrapartum and neonatal ARV prophylaxis and in reducing perinatal transmission of HIV.[20] Results of rapid tests can be obtained within minutes to a few hours

and are as accurate as standard ELISA antibody testing.[21, 22] A positive rapid HIV test result must be followed by a confirmatory test such as a Western blot or immunofluorescent antibody (IFA) assay; a standard ELISA should not be used as a confirmatory test for a rapid HIV antibody test.[22] A single negative rapid test does not need confirmation unless acute HIV infection is suspected, in which case, a virologic test is necessary.[19] Immediate initiation of ARV prophylaxis for prevention of mother-to-child transmission (PMTCT) of HIV is strongly recommended pending confirmation of an initial positive rapid HIV test.[2, 4, 8, 15]

HIV Counseling and Testing During the Postnatal Period

Women who have not been tested for HIV before or during labor should be offered rapid testing during the immediate postpartum period or their newborns should undergo rapid HIV antibody testing, with maternal counseling and consent unless state law allows testing without consent.[2, 6, 8, 15] Use of rapid HIV antibody assays or expedited ELISA for prompt identification of HIV-exposed infants is essential because neonatal ARV chemoprophylaxis should be initiated as soon as possible after birth—and no more than 12 hours later—to be effective for PMTCT.[23, 24] When an initial rapid test is positive in mother or infant, initiation of infant ARV prophylaxis and counseling against initiation of breastfeeding is strongly recommended pending results of confirmatory tests.[8] If the confirmatory test is negative and acute HIV infection is excluded, infant ARV prophylaxis can be discontinued and breastfeeding can be initiated. Mechanisms should be developed to facilitate rapid HIV screening for infants who have been abandoned and are in the custody of the state.

Infant HIV Testing When Maternal HIV Test Results Are Unavailable

When maternal HIV test results are unavailable (such as for infants who are in foster care)[25] or their accuracy cannot be evaluated (such as for infants adopted from a different country whose results are not reported in English), HIV antibody testing is indicated to identify HIV exposure in the infant. If antibody testing is positive, further testing is needed to diagnose HIV infection (see Diagnosis of HIV infection in Infants).

Acute Maternal HIV Infection During Pregnancy Or Breastfeeding

The risk of mother-to-child HIV transmission is increased in infants born to women who have acute HIV infection during pregnancy or lactation.[26-28] When acute retroviral syndrome is suspected in pregnancy or during breastfeeding, maternal testing should include a plasma HIV RNA test in addition to an HIV antibody test, because HIV antibody testing may be negative in early maternal infection. Women with suspected acute HIV infection who are breastfeeding should stop breastfeeding until HIV infection is confirmed or excluded. Pumping and temporarily discarding breast milk can be recommended and, if HIV infection is excluded, breastfeeding can resume. Care of pregnant or breastfeeding women and their infants identified with acute or early HIV infection should follow guidelines in *Recommendations for Use of Antiretroviral Drugs in Pregnant HIV-1-Infected Women for Maternal Health and Interventions to Reduce Perinatal HIV Transmission in the United States*.[8]

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