Prenatal and Perinatal Human Immunodeficiency Virus Testing: Expanded Recommendations

ABSTRACT: Given the enormous advances in the prevention of perinatal transmission of human immunodeficiency virus (HIV), it is clear that early identification and treatment of all pregnant women with HIV is the best way to prevent neonatal infection and also improve women's health. Furthermore, new evidence suggests that early initiation of antiretroviral therapy in the course of infection is beneficial for individuals infected with HIV and reduces the rate of sexual transmission to partners who are not infected. Screening should be performed after women have been notified that HIV screening is recommended for all pregnant patients and that they will receive an HIV test as part of the routine panel of prenatal tests unless they decline (opt-out screening). Obstetrician–gynecologists or other obstetric providers should follow opt-out prenatal HIV screening where legally possible. Repeat HIV testing in the third trimester is recommended for women in areas with high HIV incidence or prevalence and women known to be at risk of acquiring HIV infection. Women who were not tested earlier in pregnancy or whose HIV status is otherwise undocumented should be offered rapid screening on labor and delivery using the opt-out approach where allowed. If a rapid HIV test result in labor is reactive, antiretroviral prophylaxis should be immediately initiated while waiting for supplemental test results. If the diagnosis of HIV infection is established, the woman should be linked into ongoing care with a specialist in HIV care for comanagement.

Recommendations

Given the enormous advances in the prevention of perinatal transmission of human immunodeficiency virus (HIV), it is clear that early identification and treatment of all pregnant women with HIV is the best way to prevent neonatal infection and also improve women's health. Therefore, the American College of Obstetricians and Gynecologists makes the following recommendations:

- All pregnant women should be screened for HIV infection as early as possible during each pregnancy using the opt-out approach where allowed.
- Repeat HIV testing in the third trimester is recommended for women in areas with high HIV incidence or prevalence and women known to be at risk of acquiring HIV infection.
- Women who were not tested earlier in pregnancy or whose HIV status is otherwise undocumented should be offered rapid screening on labor and delivery using the opt-out approach where allowed.
- If a rapid HIV test result in labor is reactive, antiretroviral prophylaxis should be immediately initiated while waiting for supplemental test results.
- If the diagnosis of HIV infection is established, the woman should be linked into ongoing care with a specialist in HIV care for comanagement.

Introduction

The Centers for Disease Control and Prevention (CDC) estimates that nearly 50,000 individuals become infected with HIV annually in the United States. From 2009 through 2013, the annual estimated number of diagnoses and rate of diagnoses of HIV infection in the United States remained stable (1, 2). These new HIV infections include approximately 150 infants infected by mother-to-child (vertical) transmission (3). Antiretroviral medications given to women with HIV during pregnancy and delivery and to their newborns in the first weeks of life reduce the vertical transmission rate from 25% to 2% or less (4). Even instituting maternal prophylaxis during labor...
and delivery, neonatal prophylaxis within 24–48 hours of delivery, or both, can substantially decrease rates of infection in infants (5, 6). Furthermore, new evidence suggests that early initiation of antiretroviral therapy in the course of infection is beneficial for individuals infected with HIV and reduces the rate of sexual transmission to partners who are not infected (7, 8). Therefore, it is critical that pregnant women infected with HIV be accurately identified in a timely manner so that measures can be taken to decrease the risk of mother-to-child transmission of HIV as well as to optimize their own health. This would require that all pregnant women be screened for HIV infection as early as possible during each pregnancy. Those women who present late in pregnancy or in labor with undocumented HIV status should be tested using an HIV test that provides preliminary results in less than 1 hour. Women who were not tested earlier in pregnancy or whose HIV status is otherwise undocumented should be offered rapid screening on labor and delivery using the opt-out approach where allowed.

The Evolution of Human Immunodeficiency Virus Testing

The conventional algorithm for HIV diagnosis, which involves a reactive antibody screening test followed by Western Blot confirmation, has been in place for more than 20 years. However, with the development of newer HIV tests, algorithms for testing are being revised in order to more accurately identify individuals infected with HIV (9). Previous guidelines only used tests for HIV antibodies. Updated recommendations include tests for HIV antigens and HIV nucleic acid because studies from populations at high risk of HIV demonstrate that antibody testing alone might miss a considerable percentage of HIV infections that are detectable by virologic tests. These newer algorithms highlight the utility of HIV RNA testing; especially in early infections, when there is a discrepancy between initial and confirmatory testing, or both (see Box 1 in the CDC and the Association of Public Health Laboratories’ publication “Laboratory Testing for the Diagnosis of HIV Infection: Updated Recommendations” [9]).

Prenatal Human Immunodeficiency Virus Testing

All pregnant women should be screened for HIV infection as early as possible during each pregnancy using the opt-out approach where allowed. This should involve using a newer, recommended antibody–antigen combination screening test. Screening should be performed after women have been notified that HIV screening is recommended for all pregnant patients and that they will receive an HIV test as part of the routine panel of prenatal tests unless they decline (opt-out screening). No woman should be tested without her knowledge; however, no additional process or written documentation of informed consent beyond what is required for other routine prenatal tests is recommended for HIV testing. Pregnant women should be provided with oral or written information about HIV that includes an explanation of HIV infection, a description of interventions that can reduce HIV transmission from mother to infant, the meanings of positive and negative test results, and the opportunity to ask questions and decline testing. If a patient declines HIV testing, this should be documented in the medical record and should not affect access to care. In addition, the obstetrician–gynecologist or other obstetric provider should discuss and address the patient’s reasons for declining an HIV test. For example, a woman who declines an HIV test because she has had a previous negative test result should be informed of the importance of retesting during each pregnancy (10). Continuing discussion at future encounters and again offering and encouraging testing may increase rates of antenatal screening.

The American College of Obstetricians and Gynecologists, the American Academy of Pediatrics (11), and the CDC (10) recommend opt-out HIV screening for pregnant women. Although nearly all states’ regulations allow opt-out testing, all obstetrician–gynecologists and other obstetric providers should be aware of and comply with their states’ legal requirements for perinatal HIV screening. The National HIV/AIDS Clinicians’ Consultation Center at the University of California–San Francisco maintains an online compendium of state HIV testing laws and this listing can be a useful resource to those seeking to understand their state’s regulations (see Resources).

The Role of Rapid Human Immunodeficiency Virus Testing in Obstetrics

A rapid HIV test is an HIV screening test with quickly available results, ideally within 1 hour. Rapid tests include point of care tests performed outside a laboratory (eg, oral swab testing done in an outpatient or labor and delivery setting) as well as testing performed in a laboratory, including rapid serologic testing. Obstetrician–gynecologists or other obstetric providers may use rapid testing as their standard outpatient test and also should use rapid testing in labor and delivery. A negative rapid test result is definitive unless very recent exposure to HIV has occurred or early HIV infection is suspected (in which case nucleic acid testing may be needed). A reactive rapid test result is not definitive and must be confirmed with a supplemental test. Rapid test results usually will be available during the same clinical visit that the specimen (eg, blood or oral swab) is collected. Obstetrician–gynecologists or other obstetric providers who use these tests must be prepared to provide counseling the same day as testing to pregnant women whose rapid test results are reactive. Pregnant women with reactive rapid test results should be counseled regarding the meaning of these preliminary positive test results and the need for
confirmation. If the results of the rapid test and the supplemental test are discrepant, testing the sample for plasma HIV RNA is recommended (9).

Any woman who arrives at a labor and delivery facility with undocumented HIV status during the current pregnancy should be screened with a rapid HIV test unless she declines (opt-out screening) in order to provide an opportunity to begin prophylaxis before delivery if necessary (10). If a rapid test used in labor is reactive, immediate initiation of antiretroviral prophylaxis for mother and neonate should be recommended without waiting for the supplemental test results. All antiretroviral prophylaxis should be discontinued if supplemental testing concordant with cited guidelines is negative (12).

As described in Guidelines for Perinatal Care, Seventh Edition, the American Academy of Pediatrics advises that “infants born to women…whose HIV status is unknown should have a rapid antibody test performed as soon as possible after birth.” In fact, several states require such testing. Obstetrician–gynecologists or other obstetric providers should recognize, however, that because neonatal results simply reflect maternal status, requiring testing effectively removes the “opt out” option and makes HIV testing of pregnant women mandatory; obstetrician–gynecologists or other obstetric providers should check their state requirements before recording HIV test results. The usual ethical objections to mandatory testing are in this circumstance balanced by the benefit that early diagnosis and treatment bring for the neonate. Although learning maternal HIV status is a consequence of testing the neonate, it is not the primary intent, which is evaluating the newborn’s health. Regardless of the testing protocol or paradigm, women should be informed of all tests performed on their neonates, and resources should be provided to appropriately and promptly treat women and neonates based on the results.

Repeat Human Immunodeficiency Virus Testing in the Third Trimester

Repeat HIV testing in the third trimester is recommended for women in areas with high HIV incidence or prevalence and women known to be at high risk of acquiring HIV infection. In addition, repeat testing in the third trimester is recommended in areas with elevated acquired immunodeficiency syndrome (AIDS) incidence and in health care facilities in which prenatal screening identifies at least one pregnant woman infected with HIV per 1,000 women screened (10). Women who have signs or symptoms consistent with acute HIV infection (eg, fever, lymphadenopathy, skin rash, myalgias, arthralgias, headache, oral ulcers, leukopenia, thrombocytopenia, or transaminase elevation) should be retested (13). When acute infection is possible, a plasma RNA test should be used in addition to standard testing for HIV antibodies.

Repeat testing in the third trimester, preferably before 36 weeks of gestation, is recommended for pregnant women at high risk of acquiring HIV. Pregnant women at high risk of acquiring HIV include (10):

- those who have been diagnosed with another sexually transmitted disease in the past year.
- those who are injection drug users or whose sex partners are injection drug users.
- those who exchange sex for money or drugs.
- those women with a new sex partner, more than one sex partner during this pregnancy, or sex partners known to be infected with HIV or at high risk of HIV.

Giving Human Immunodeficiency Virus Test Results

If a pregnant woman’s HIV test results are positive, the patient should be given her results in person. The implications of HIV infection and the risks of vertical and horizontal transmission should be discussed with the patient. Additional laboratory work, including CD4+ count; HIV viral load; testing for antiretroviral resistance; hepatitis C virus antibody; hepatitis B surface antigen and viral load, if positive; complete blood count with platelet count; and baseline chemistries with liver function tests, will be useful before prescribing antiretroviral therapy. If the diagnosis of HIV infection is established, the woman should be linked into ongoing care with a specialist in HIV care for comanagement. Specific recommendations for the use of antiretroviral medications in pregnant women infected with HIV are available at www.aidsinfo.nih.gov and are frequently updated. In addition, the patient should be told about the importance of notifying her sexual partners about their exposure to HIV and the importance of HIV testing for any sexual partner. Partner notification can be challenging for patients and women because, in some cases, the women face the possibility of being ostracized by their respective families, friends, and community or being subjected to intimate partner violence (14). The CDC offers guidance for undertaking such notification (15). Obstetrician–gynecologists or other obstetric providers should be aware of and comply with their states’ legal requirements regarding partner notification and disclosure of HIV results to others, including the infant’s pediatrician (www.cdc.gov/hiv/policies/law/states).

Resources

The following resources are for information purposes only. Referral to these sources and web sites does not imply the endorsement of the American College of Obstetricians and Gynecologists. These resources are not meant to be comprehensive. The exclusion of a source or web site does not reflect the quality of that source or web site. Please note that web sites are subject to change without notice.

AIDSinfo
P.O. Box 4780
Rockville, MD 20849
1-800-448-0440
http://aidsinfo.nih.gov

Resources
American College of Obstetricians and Gynecologists
409 12th Street SW
PO Box 70620
Washington, DC 20024
1-800-673-8444
1-202-638-5577
http://www.acog.org
HIV: http://www.acog.org/goto/HIV
Bookstore: http://sales.acog.org

Centers for Disease Control and Prevention
1600 Clifton Road
Atlanta, GA 30333
1-800-CDC-INFO (1-800-232-4636)
http://www.cdc.gov
HIV/AIDS: http://www.cdc.gov/hiv

National HIV/AIDS Clinicians’ Consultation Center
UCSF Department of Family and Community Medicine
San Francisco General Hospital
1001 Potrero Avenue, Bldg. 20, Ward 22
San Francisco, CA 94110
1-415-206-8700

HIV/AIDS Care consultation: 1-800-933-3413
Perinatal HIV consultation: 1-800-448-8765
http://www.nccc.ucsf.edu

References


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