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U.S. Public Health Service Recommendations for Human Immunodeficiency Virus Counseling and Voluntary Testing for Pregnant Women

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Use of AZT to Prevent Perinatal Transmission (ACTG 076): Workshop on Implications for Treatment, Counseling, and HIV Testing

In February 1994, the National Institutes of Health announced interim results from a multicenter, placebo-controlled clinical trial (AIDS Clinical Trials Group [ACTG] protocol 076), indicating that administration of zidovudine (ZDV) to a selected group of pregnant women infected with human immunodeficiency virus (HIV) and to their newborns reduced the risk for perinatal HIV transmission by approximately two thirds. On June 6–7, 1994, the U.S. Public Health Service (PHS) convened a workshop in Bethesda, Maryland, to a) develop recommendations for the use of ZDV to reduce the risk for perinatal HIV transmission and b) discuss the implications of these recommendations for treatment, counseling, and HIV testing of women and infants. PHS published recommendations regarding ZDV therapy for pregnant women and their newborns in August 1994.* The following persons either served as consultants at the workshop for developing the recommendations for HIV counseling and voluntary testing for pregnant women or were members of the U.S. Public Health Service Task Force on the Use of Zidovudine to Reduce Perinatal Transmission of Human Immunodeficiency Virus.

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U.S. Public Health Service Recommendations for Human Immunodeficiency Virus Counseling and Voluntary Testing for Pregnant Women

Summary

These recommendations were developed by the U.S. Public Health Service to address the increasing epidemic of human immunodeficiency virus (HIV) infection among women and their infants. The recommendations stress the importance of early diagnosis of HIV infection for the health of both women and their infants and are based on advances made in HIV-related treatment and prevention. The most significant advance for this population has been the results from a placebo-controlled, clinical trial that indicated that administration of zidovudine to HIV-infected pregnant women and their newborns reduced the risk for perinatal transmission of HIV by approximately two thirds (1). This document recommends routine HIV counseling and voluntary testing for all pregnant women and is intended to serve as guidance for health-care providers in educating women about the importance of knowing their HIV infection status. For uninfected women, such HIV counseling and testing programs can provide information that can reduce their risk for acquiring HIV; for women who have HIV infection, these programs can enable them to receive appropriate and timely medical interventions for their own health and for reducing the risk for perinatal (i.e., mother to infant) and other modes of HIV transmission. These programs also can facilitate appropriate follow-up care and services for HIV-infected women, their infants, and other family members.

INTRODUCTION

During the past decade, human immunodeficiency virus (HIV) infection has become a leading cause of morbidity and mortality among women, the population accounting for the most rapid increase in cases of acquired immunodeficiency syndrome (AIDS) in recent years. As the incidence of HIV infection has increased among women of childbearing age, increasing numbers of children have become infected through perinatal (i.e., mother to infant) transmission; thus, HIV infection has also become a leading cause of death for young children. To reverse these trends, HIV education and services for prevention and health care must be made available to all women. Women who have HIV infection or who are at risk for infection need access to current information regarding a) early interventions to improve survival rates and quality of life for HIV-infected persons, b) strategies to reduce the risk for perinatal HIV transmission, and c) management of HIV-infection in pregnant women and perinatally exposed or infected children. Results from a randomized, placebo-controlled clinical trial have indicated that the risk for perinatal HIV transmission can be substantially reduced by administration of zidovudine (ZDV [also referred to as AZT]) to HIV-infected pregnant women and their newborns (*1*). To optimally benefit from this therapy, HIV-infection must be diagnosed in these women before or during early pregnancy.

The U.S. Public Health Service (PHS) encourages all women to adopt behaviors that can prevent HIV infection and to learn their HIV status through counseling and voluntary testing. Ideally, women should know their HIV infection status before becoming pregnant. Thus, sites serving women of childbearing age (e.g., physicians' offices, family planning clinics, sexually transmitted disease clinics, and adolescent clinics) should counsel and offer voluntary HIV testing to women, including adolescents—regardless of whether they are pregnant. Because specific services must be offered to HIV-infected pregnant women to prevent perinatal transmission, PHS is recommending routine HIV counseling and voluntary testing of all pregnant women so that interventions to improve the woman's health and the health of her infant can be offered in a timely and effective manner.

The recommendations in this report were developed by PHS as guidance for health-care providers in their efforts to a) encourage HIV-infected pregnant women to learn their infection status; b) advise infected pregnant women of methods for preventing perinatal, sexual, and other modes of HIV transmission; c) facilitate appropriate follow-up for HIV-infected women, their infants, and their families; and d) help uninfected pregnant women reduce their risk for acquiring HIV infection. Increased availability of HIV counseling, voluntary testing, and follow-up medical and support services is essential to ensure successful implementation of these recommendations. These services can be optimally delivered through a readily available medical system with support services designed to facilitate ongoing care for patients.

BACKGROUND

HIV Infection and AIDS in Women and Children

HIV infection is a major cause of illness and death among women and children. Nationally, HIV infection was the fourth leading cause of death in 1993 among women 25–44 years of age (*2*) and the seventh leading cause of death in 1992 among children 1–4 years of age (*3*). Blacks and Hispanics have been disproportionately affected by the HIV epidemic. In 1993, HIV infection was the leading cause of death among black women 25–44 years of age and the third leading cause of death among Hispanic women in this age group (*2*). In 1991, HIV infection was the second leading cause of death among black children 1–4 years of age in New Jersey, Massachusetts, New York, and Florida and among Hispanic children in this age group in New York (CDC, unpublished data).

By 1995, CDC had received reports of >58,000 AIDS cases among adult and adolescent women and >5,500 cases among children who acquired HIV infection perinatally. Approximately one half of all AIDS cases among women have been attributed to injecting-drug use and one third to heterosexual contact. Nearly 90% of cumulative AIDS cases reported among children and virtually all new HIV infections among children in the United States can be attributed to perinatal transmission of HIV. An increasing proportion of perinatally acquired AIDS cases has been reported among children whose mothers acquired HIV infection through heterosexual contact with an infected partner whose infection status and risk factors were not known by the mother.

Data from the National Survey of Childbearing Women indicate that in 1992, the estimated national prevalence of HIV infection among childbearing women was

1.7 HIV-infected women per 1,000 childbearing women (*4*). Approximately 7,000 HIV-infected women gave birth annually for the years 1989–1992 (*5*). Given a perinatal transmission rate of 15%–30%, an estimated 1,000–2,000 HIV-infected infants were born annually during these years in the United States. Although urban areas, especially in the northeast, generally have the highest seroprevalence rates, data from this survey have indicated a high prevalence of HIV infection among childbearing women who live in some rural and small urban areas—particularly in the southern states (*6*).

Perinatal Transmission of HIV

HIV can be transmitted from an infected woman to her fetus or newborn during pregnancy, during labor and delivery, and during the postpartum period (through breastfeeding), although the percentage of infections transmitted during each of these intervals is not precisely known (*7–9*). Although transmission of HIV to a fetus can occur as early as the 8th week of gestation (*7*), data suggest that at least one half of perinatally transmitted infections from non-breastfeeding women occur shortly before or during the birth process (*10–12*). Breastfeeding may increase the rate of transmission by 10%–20% (*9,13,14*).

Several prospective studies have reported perinatal transmission rates ranging from 13% to 40% (*15–19*). Transmission rates may differ among studies depending on the prevalence of various factors that can influence the likelihood of transmission. Several maternal factors have been associated with an increased risk for transmission, including low CD4+ T-lymphocyte counts, high viral titer, advanced HIV disease, the presence of p24 antigen in serum, placental membrane inflammation, intrapartum events resulting in increased exposure of the fetus to maternal blood, breastfeeding, low vitamin A levels, premature rupture of membranes, and premature delivery (*8,11,15,20–23*). Factors associated with a decreased rate of HIV transmission have included cesarean section delivery, the presence of maternal neutralizing antibodies, and maternal zidovudine therapy (*11,24–26*).

HIV Prevention and Treatment Opportunities for Women and Infants

HIV counseling and testing for women of childbearing age offer important prevention opportunities for both uninfected and infected women and their infants. Such counseling is intended to a) assist women in assessing their current or future risk for HIV infection; b) initiate or reinforce HIV risk reduction behavior; and c) allow for referral to other HIV prevention services (e.g., treatment for substance abuse and sexually transmitted diseases) when appropriate. For infected women, knowledge of their HIV infection status provides opportunities to a) obtain early diagnosis and treatment for themselves and their infants, b) make informed reproductive decisions, c) use methods to reduce the risk for perinatal transmission, d) receive information to prevent HIV transmission to others, and e) obtain referral for psychological and social services, if needed.

Interventions designed to reduce morbidity in HIV-infected persons require early diagnosis of HIV infection so that treatment can be initiated before the onset of opportunistic infections and disease progression. However, studies indicate that many HIV-infected persons do not know they are infected until late in the course of illness. A survey of persons diagnosed with AIDS between January 1990 and December 1992 indicated that 57% of the 2,081 men and 62% of the 360 women who participated in

the survey gave illness as the primary reason for being tested for HIV infection; 36% of survey participants first tested positive within 2 months of their AIDS diagnosis (*27*).

Providing HIV counseling and testing services in gynecologic and prenatal and other obstetric settings presents an opportunity for early diagnosis of HIV infection because many young women frequently access the health-care system for obstetric- or gynecologic-related care. Clinics that provide prenatal and postnatal care, family planning clinics, sexually transmitted disease clinics, adolescent-health clinics, and other health-care facilities already provide a range of preventive services into which HIV education, counseling, and voluntary testing can be integrated. When provided appropriate access to ongoing care, HIV-infected women can be monitored for clinical and immunologic status and can be given preventive treatment and other recommended medical care and services (*28*).

Diagnosis of HIV infection before or during pregnancy allows women to make informed decisions regarding prevention of perinatal transmission. Early in the HIV epidemic, strategies to prevent perinatal HIV transmission were limited to either avoiding pregnancy or avoiding breastfeeding (for women in the United States and other countries that have safe alternatives to breast milk). More recent strategies to prevent perinatal HIV transmission have focused on interrupting in utero and intrapartum transmission. Foremost among these strategies has been administration of ZDV to HIV-infected pregnant women and their newborns (*1*). Results from a multicenter, placebo-controlled clinical trial (the AIDS Clinical Trials Group [ACTG] protocol number 076) indicated that administration of ZDV to a selected group of HIV-infected women during pregnancy, labor, and delivery and to their newborns reduced the risk for perinatal HIV transmission by approximately two thirds: 25.5% of infants born to mothers in the placebo group were infected, compared with 8.3% of those born to mothers in the ZDV group (*1*). The ZDV regimen caused minimal adverse effects among both mothers and infants; the only adverse effect after 18 months of follow-up was mild anemia in the infants that resolved without therapy. As a result of these findings, PHS issued recommendations regarding ZDV therapy to reduce the risk for perinatal HIV transmission (*29*). In addition, the Food and Drug Administration (FDA) has approved the use of ZDV for this therapy.

Despite the substantial benefits and short-term safety of the ZDV regimen, however, the results of the trial present several unresolved issues, including a) the long-term safety of the regimen for both mothers and infants, b) ZDV's effectiveness in women who have different clinical characteristics (e.g., CD4+ T-lymphocyte count and previous ZDV use) than those who participated in the trial, and c) the likelihood of the mother's adherence to the lengthy treatment regimen. The PHS recommendations for ZDV therapy emphasize that HIV-infected pregnant women should be informed of both benefits and potential risks when making decisions to receive such therapy. Discussions of treatment options should be noncoercive—the final decision to accept or reject ZDV treatment is the responsibility of the woman. Decisions concerning treatment can be complex and adherence to therapy, if accepted, can be difficult; therefore, good rapport and a trusting relationship should be established between the health-care provider and the HIV-infected woman.

Several other possible strategies to reduce the risk for perinatal HIV transmission are under study or are being planned (*30*); however, their efficacies have not yet been determined. These strategies include a) administration of HIV hyperimmune globulin

to infected pregnant women and their infants, b) efforts to boost maternal and infant immune responses through vaccination, c) virucidal cleansing of the birth canal before and during labor and delivery, d) modified and shortened antiretroviral regimens, e) cesarean section delivery, and f) vitamin A supplementation.

Knowledge of HIV infection status during pregnancy also allows for early identification of HIV-exposed infants, all of whom should be appropriately tested, monitored, and treated (*28*). Prompt identification and close monitoring of such children (particularly infants) is essential for optimal medical management (*28,31,32*). Approximately 10%–20% of perinatally infected children develop rapidly progressive disease and die by 24 months of age (*33,34*). *Pneumocystis carinii* pneumonia (PCP) is the most common opportunistic infection in children who have AIDS and is often fatal. Because PCP occurs most commonly among perinatally infected children 3–6 months of age (*35*), effective prevention requires that children born to HIV-infected mothers be identified promptly, preferably through prenatal testing of their mothers, so that prophylactic therapy can be initiated as soon as possible. CDC and the National Pediatric & Family HIV Resource Center have published revised guidelines for prophylaxis against PCP in children that recommend that all children born to HIV-infected mothers be placed on prophylactic therapy at 4–6 weeks of age (*32*). Careful follow-up of these children to promptly diagnose other potentially treatable HIV-related conditions (e.g., severe bacterial infections or tuberculosis) can prevent morbidity and reduce the need for hospitalization (*28*). Infants born to HIV-infected women also require changes in their routine immunization regimens as early as 2 months of age (*36*).

Despite the potential benefits of HIV counseling and testing to both women and their infants, some persons have expressed concerns about the potential for negative effects resulting from widespread counseling and testing programs in prenatal and other settings. These concerns include the fear that a) such programs could deter pregnant women from using prenatal-care services if testing is not perceived as voluntary and b) women who have been tested but who choose not to learn their test results may be reluctant to return for further prenatal care. Other potential negative consequences following a diagnosis of HIV infection can include loss of confidentiality, job- or health-care–related discrimination and stigmatization, loss of relationships, domestic violence, and adverse psychological reactions. Although cases of discrimination against HIV-infected persons and loss of confidentiality have been documented (*37*), data concerning the frequency of these events for women are limited. Reported rates of abandonment, loss of relationships, severe psychological reactions, and domestic violence have ranged from 4% to 13% (*38–41*). Providing infected women with or referring them to psychological, social, or legal services may help minimize such potential risks and enable women to benefit from the many health advantages of early HIV diagnosis.

Counseling and Testing Strategies

Guidelines published in 1985 (*42*) regarding HIV counseling and testing of pregnant women recommended a targeted approach directed to women known to be at increased risk for HIV infection (e.g., injecting-drug users and women whose sex partners were HIV-infected or at risk for infection). However, several studies have indicated that counseling and testing strategies that offer testing only to those women who report risk factors fail to identify and offer services to many HIV-infected women (i.e.,

50%–70% of infected women in some studies) (*43–45*). Women may be unaware of their risk for infection if they have unknowingly had sexual contact with an HIV-infected person (*46*). Other women may refuse testing to avoid the stigma often associated with high-risk sexual and injecting-drug–use behaviors.

Because of the advances in prevention and treatment of opportunistic infections for HIV-infected adults and children during the past 10 years, several professional organizations (*47,48*) and others (*49*) have recommended a more widespread approach of offering HIV counseling and testing for pregnant women. This approach can be applied nationally to all pregnant women or to women in limited geographic areas based on the prevalence of HIV infection among childbearing women in those areas. However, a counseling and testing recommendation based on a prevalence threshold (e.g., one HIV-infected woman per 1,000 childbearing women) could delay or discourage implementation of counseling and testing services in areas (e.g., states) where prevalence data are inadequate, outdated, or unavailable, and would miss substantial numbers of HIV-infected pregnant women in areas with lower seroprevalence rates but high numbers of births (e.g., California). A prevalence-based approach also could lead to potentially discriminating testing practices, such as singling out a geographic area or racial/ethnic group. A universal approach of offering HIV counseling and testing to all pregnant women—regardless of the prevalence of HIV infection in their community or their risk for infection—provides a uniform policy that will reach HIV-infected pregnant women in all populations and geographic areas of the United States. Although this universal approach will necessitate increased resources (e.g., funding), effective implementation of HIV counseling and testing services for pregnant women and the ensuing medical interventions will reduce HIV-related morbidity in women and their infants and could ultimately reduce medical costs.

Counseling and testing policies also must address issues associated with provision of consent for testing. Data from universal, routine HIV counseling and voluntary testing programs in several areas indicate that high test-acceptance levels can be achieved without mandating testing (*50–52*). Mandatory testing may increase the potential for negative consequences of HIV testing and result in some women avoiding prenatal care altogether. In addition, mandatory testing may adversely affect the patient-provider relationship by placing the provider in an enforcing rather than facilitating role. Providers must act as facilitators to adequately assist women in making decisions regarding HIV testing and ZDV preventive therapy. Although few studies have addressed the issue of acceptance of HIV testing, higher levels of acceptance have been found in clinics where testing is voluntary but recommended by the health-care provider than in clinics that use a nondirective approach to HIV testing (i.e, patients are told the test is available, but testing is neither encouraged nor discouraged) (*52*).

Laboratory Testing Considerations

The HIV-1 testing algorithm recommended by PHS comprises initial screening with an FDA-licensed enzyme immunoassay (EIA) followed by confirmatory testing of repeatedly reactive EIAs with an FDA-licensed supplemental test (e.g., Western blot or immunofluorescence assay [IFA]) (*53*). Although each of these tests is highly sensitive and specific, the use of both EIA and supplementary tests further increases the accuracy of results.

Indeterminate Western blot results can be caused by either incomplete antibody response to HIV in sera from infected persons or non-specific reactions in sera from uninfected persons (*54–56*). Incomplete antibody responses that produce negative or indeterminate results on Western blot may occur in persons recently infected with HIV who are seroconverting, persons who have end-stage HIV disease, and perinatally exposed infants who are seroreverting (i.e., losing maternal antibody). In addition, non-specific reactions producing indeterminate results in uninfected persons have occurred more frequently among pregnant or parous women than among persons in other groups characterized by low HIV seroprevalence (*55,56*). No large-scale studies to estimate the prevalence of indeterminate test results in pregnant women have been conducted. However, a survey testing more than 1 million neonatal dried-blood specimens for maternally acquired HIV-1 antibody indicated a relatively low rate of indeterminate Western blot results (i.e., <1 in every 4,000 specimens tested by EIA); overall, 1,044,944 EIAs and 2,845 Western blots were performed (*56*).

IFA can be used to resolve an EIA-positive, Western blot-indeterminate sample. The FDA-licensed IFA kit is highly sensitive and specific and is less likely than Western blot to yield indeterminate results. Data from one study indicated that 211 of 234 Western blot-indeterminate samples were negative for HIV-1 antibody by IFA (*57*).

False-positive Western blot results (especially those with a majority of bands) are extremely uncommon. For example, in a study of >290,000 blood donors that used a sensitive culture technique, no false-positive Western blot results were detected (*58*). In a study of the frequency of false-positive diagnoses among military applicants from a low prevalence population (i.e., <1.5 infections per 1,000 population), one false-positive result among 135,187 persons tested was detected (*59*).

Incorrect HIV test results occur primarily because of specimen-handling errors, laboratory errors, or failure to follow the recommended testing algorithm. However, patients may report incorrect test results because they misunderstood previous test results or misperceive that they are infected (*60*). Although these occurrences are uncommon, increased testing of pregnant women will result in additional indeterminate, false-positive, and incorrect results. Because of a) the significance of an HIV-positive test result for the mother and its impact on her reproductive decisions and b) the potential toxicity of HIV therapeutic drugs for both the pregnant woman and her infant, HIV test results must be obtained and interpreted correctly. In some circumstances, correct interpretation may require consideration of not only additional or repeat testing, but also the woman's clinical condition and history of possible exposure to HIV.

In addition to the standard antibody assays used for older children and adults, definitive diagnosis of HIV infection in infants requires the use of other assays (e.g., polymerase chain reaction [PCR] or virus culture). Virtually all infants born to HIV-infected mothers acquire maternal antibody and will test antibody positive for up to 18 months of age (*61*). Uninfected infants will gradually lose maternally derived antibody during this time, whereas infected infants generally remain antibody positive. Diagnosis of HIV infection in early infancy can be made on the basis of two or more positive assays (e.g., viral culture, PCR, or p24 antigen test) (*62*).

RECOMMENDATIONS

The following recommendations have been developed to provide guidance to health-care workers when educating women about HIV infection and the importance of early diagnosis of HIV. The recommendations are based on the advances made in treatment and prevention of HIV infection and stress the need for a universal counseling and voluntary testing program for pregnant women. These recommendations address a) HIV-related information needed by infected and uninfected pregnant women for their own health and that of their infants, b) laboratory considerations involved in HIV testing of this population, and c) the importance of follow-up services for HIV- infected women, their infants, and other family members.

HIV Counseling and Voluntary Testing of Pregnant Women and Their Infants

- Health-care providers should ensure that all pregnant women are counseled and encouraged to be tested for HIV infection to allow women to know their infection status both for their own health and to reduce the risk for perinatal HIV transmission. Pretest HIV counseling of pregnant women should be done in accordance with previous guidelines for HIV counseling (*63,64*). Such counseling should include information regarding the risk for HIV infection associated with sexual activity and injecting-drug use, the risk for transmission to the woman's infant if she is infected, and the availability of therapy to reduce this risk. HIV counseling, including any written materials, should be linguistically, culturally, educationally, and age appropriate for individual patients.
- HIV testing of pregnant women and their infants should be voluntary. Consent for testing should be obtained in accordance with prevailing legal requirements. Women who test positive for HIV or who refuse testing should not be a) denied prenatal or other health-care services, b) reported to child protective service agencies because of refusal to be tested or because of their HIV status, or c) discriminated against in any other way (*65*).
- Health-care providers should counsel and offer HIV testing to women as early in pregnancy as possible so that informed and timely therapeutic and reproductive decisions can be made. Specific strategies and resources will be needed to communicate with women who may not obtain prenatal care because of homelessness, incarceration, undocumented citizenship status, drug or alcohol abuse, or other reasons.
- Uninfected pregnant women who continue to practice high-risk behaviors (e.g., injecting-drug use and unprotected sexual contact with an HIV-infected or high-risk partner) should be encouraged to avoid further exposure to HIV and to be retested for HIV in the third trimester of pregnancy (*64*).
- The prevalence of HIV infection may be higher in women who have not received prenatal care (*66*). These women should be assessed promptly for HIV infection. Such an assessment should include information regarding prior HIV testing, test results, and risk history. For women who are first identified as being HIV infected during labor and delivery, health-care providers should consider offering intrapartum and neonatal ZDV according to published recommendations (*29*). For women whose HIV infection status has not been determined, HIV counseling should be

provided and HIV testing offered as soon as the mother's medical condition permits. However, involuntary HIV testing should never be substituted for counseling and voluntary testing.

- Some HIV-infected women do not receive prenatal care, choose not to be tested for HIV, or do not retain custody of their children. If a woman has not been tested for HIV, she should be informed of the benefits to her child's health of knowing her child's infection status and should be encouraged to allow the child to be tested. Counselors should ensure that the mother provides consent with the understanding that a positive HIV test for her child is indicative of infection in herself. For infants whose HIV infection status is unknown and who are in foster care, the person legally authorized to provide consent should be encouraged to allow the infant to be tested (with the consent of the biologic mother, when possible) in accordance with the policies of the organization legally responsible for the child and with prevailing legal requirements for HIV testing.
- Pregnant women should be provided access to other HIV prevention and treatment services (e.g., drug-treatment and partner-notification services) as needed.

Interpretation of HIV Test Results

- HIV antibody testing should be performed according to the recommended algorithm, which includes the use of an EIA to test for antibody to HIV and confirmatory testing with an additional, more specific assay (e.g., Western blot or IFA) (*53*). All assays should be performed and conducted according to manufacturers' instructions and applicable state and federal laboratory guidelines.
- HIV infection (as indicated by the presence of antibody to HIV) is defined as a repeatedly reactive EIA and a positive confirmatory supplemental test. Confirmation or exclusion of HIV infection in a person with indeterminate test results should be made not only on the basis of HIV antibody test results, but with consideration of a) the person's medical and behavioral history, b) results from additional virologic and immunologic tests when performed, and c) clinical follow-up. Uncertainties regarding HIV infection status, including laboratory test results, should be resolved before final decisions are made concerning pregnancy termination, ZDV therapy, or other interventions.
- Pregnant women who have repeatedly reactive EIA and indeterminate supplemental tests should be retested immediately for HIV antibody to distinguish between recent seroconversion and a negative test result. Additional tests (e.g., viral culture, PCR, or p24 antigen test) to diagnose or exclude HIV infection may be required for women whose test results remain indeterminate—especially women who have behavioral risk factors for HIV, have had recent exposure to HIV, or have clinical symptoms compatible with acute retroviral illness. In such situations, confirmation by an FDA-licensed IFA kit may be helpful because IFA is less likely to yield indeterminate results than Western blot.
- Women who have negative EIAs and those who have repeatedly reactive EIAs but negative supplemental tests should be considered uninfected.

Recommendations for HIV-Infected Pregnant Women

- HIV-infected pregnant women should receive counseling as previously recommended (*64*). Posttest HIV counseling should include an explanation of the clinical implications of a positive HIV antibody test result and the need for, benefit of, and means of access to HIV-related medical and other early intervention services. Such counseling should also include a discussion of the interaction between pregnancy and HIV infection (*67*), the risk for perinatal HIV transmission and ways to reduce this risk (*29*), and the prognosis for infants who become infected.
- HIV-infected pregnant women should be evaluated according to published recommendations to assess their need for antiretroviral therapy, antimicrobial prophylaxis, and treatment of other conditions (*28,68,69*). Although medical management of HIV infection is essentially the same for pregnant and nonpregnant women, recommendations for treating a patient who has tuberculosis have been modified for pregnant women because of potential teratogenic effects of specific medications (e.g., streptomycin and pyrazinamide) (*70*). HIV-infected pregnant women should be evaluated to determine their need for psychological and social services.
- HIV-infected pregnant women should be provided information concerning ZDV therapy to reduce the risk for perinatal HIV transmission. This information should address the potential benefit and short-term safety of ZDV and the uncertainties regarding a) long-term risks of such therapy and b) effectiveness in women who have different clinical characteristics (e.g., CD4+ T-lymphocyte count and previous ZDV use) than women who participated in the trial. HIV-infected pregnant women should not be coerced into making decisions about ZDV therapy. These decisions should be made after consideration of both the benefits and potential risks of the regimen to the woman and her child. Therapy should be offered according to the appropriate regimen in published recommendations (*29*). A woman's decision not to accept treatment should not result in punitive action or denial of care.
- HIV-infected pregnant women should receive information about all reproductive options. Reproductive counseling should be nondirective. Health-care providers should be aware of the complex issues that HIV-infected women must consider when making decisions about their reproductive options and should be supportive of any decision.
- To reduce the risk for HIV transmission to their infants, HIV-infected women should be advised against breastfeeding. Support services should be provided when necessary for use of appropriate breast-milk substitutes.
- To optimize medical management, positive and negative HIV test results should be available to a woman's health-care provider and included on both her and her infant's confidential medical records. After obtaining consent, maternal health-care providers should notify the pediatric-care providers of the impending birth of an HIV-exposed child, any anticipated complications, and whether ZDV should be administered after birth. If HIV is first diagnosed in the child, the child's health-care providers should discuss the implication of the child's diagnosis for the woman's health and assist the mother in obtaining care for herself. Providers are encouraged to build supportive health-care relationships that can facilitate the discussion of

pertinent health information. Confidential HIV-related information should be disclosed or shared only in accordance with prevailing legal requirements.

- Counseling for HIV-infected pregnant women should include an assessment of the potential for negative effects resulting from HIV infection (e.g., discrimination, domestic violence, and psychological difficulties). For women who anticipate or experience such effects, counseling also should include a) information on how to minimize these potential consequences, b) assistance in identifying supportive persons within their own social network, and c) referral to appropriate psychological, social, and legal services. In addition, HIV-infected women should be informed that discrimination based on HIV status or AIDS regarding matters such as housing, employment, state programs, and public accommodations (including physicians' offices and hospitals) is illegal (*65*).
- HIV-infected women should be encouraged to obtain HIV testing for any of their children born after they became infected or, if they do not know when they became infected, for children born after 1977. Older children (i.e., children >12 years of age) should be tested with informed consent of the parent and assent of the child. Women should be informed that the lack of signs and symptoms suggestive of HIV infection in older children may not indicate lack of HIV infection; some perinatally infected children can remain asymptomatic for several years.

Recommendations for Follow-Up of Infected Women and Perinatally Exposed Children

- Following pregnancy, HIV-infected women should be provided ongoing HIV-related medical care, including immune-function monitoring, antiretroviral therapy, and prophylaxis for and treatment of opportunistic infections and other HIV-related conditions (*28,68,69*). HIV-infected women should receive gynecologic care, including regular Pap smears, reproductive counseling, information on how to prevent sexual transmission of HIV, and treatment of gynecologic conditions according to published recommendations (*28,47,71,72*).
- HIV-infected women (or the guardians of their children) should be informed of the importance of follow-up for their children. These children should receive follow-up care to determine their infection status, to initiate prophylactic therapy to prevent PCP, and, if infected, to determine the need for antiretroviral and other prophylactic therapy and to monitor disorders in growth and development, which often occur before 24 months of age (*28,31,32,73*). HIV-infected children and other children living in households with HIV-infected persons should be vaccinated according to published recommendations for altered schedules (*36*).
- Because the identification of an HIV-infected mother also identifies a family that needs or will need medical and social services as her disease progresses, healthcare providers should ensure that referrals to these services focus on the needs of the entire family.

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