MOTHER-TO-CHILD TRANSMISSION OF HIV AND NEONATAL HIV MANAGEMENT

Perinatal transmission of the human immunodeficiency virus (HIV), or mother-to-child transmission (MTCT), occurs when a mother living with HIV passes the virus on to her child. This can happen during pregnancy, labor, delivery, as well as after birth through breastfeeding and pre-mastication of food [1,2].

The most important risk factors that determine the likelihood of MTCT are:

- Whether the mother received antepartum/intrapartum antiretroviral therapy (ART), since incomplete or nonexistent treatment increases risk of transmission
- The mother's viral load, since a high viral load increases the likelihood of transmission [3]

The increased availability of prevention and treatment methods has resulted in more than a

90% decline in the rate of MTCT in the U.S. since the 1990s, however perinatal transmission still persists [2,4,5].

According to the most recent estimates by the Centers for Disease Control and Prevention (CDC), approximately

8,700 **WOMEN LIVING WITH HIV** give birth annually in the U.S.[6].

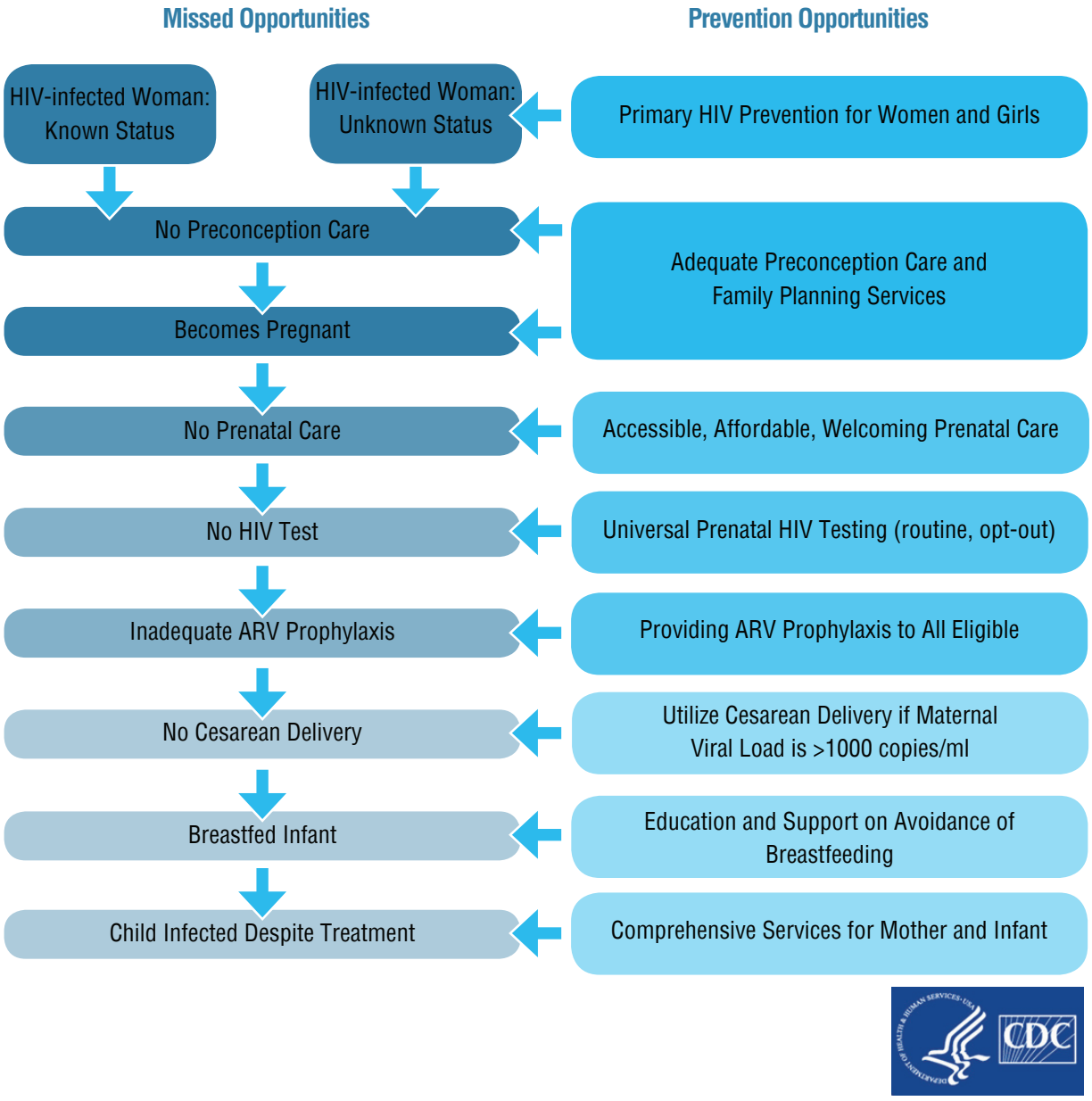
The most recent CDC data indicates that the number of MTCT has decreased from 147 in 2011 to 99 in 2016 [7].

Among children diagnosed with perinatal HIV, a disproportionate percentage are Black/African American, as 64 of the 99 children born with HIV in 2016 were Black/African American [2,7]. Each perinatal HIV infection may indicate a gap in systems of care, such as undiagnosed HIV infection before or during pregnancy, insufficient or inadequate prenatal care, or individuals not reached by other preventive interventions [4,8].

Reducing Mother-to-Child Transmission of HIV:
A Comprehensive Prevention Approach

Reducing and eliminating mother-to-child transmission of HIV requires a comprehensive approach targeting each stage of the perinatal HIV prevention cascade. This involves utilizing effective HIV prevention and treatment methods with women before, during, and after pregnancy [4]. In the absence of any preventative prenatal treatment, the risk of MTCT ranges from 15% to 40%, depending on the amount of breastfeeding [9]. However, with adherence to ART, which includes antiretroviral (ARV) drugs, the rate of perinatal transmission is as low as 1% [10]. Therefore, it is possible to reduce MTCT to zero.

Perinatal HIV Prevention Cascade



Women of Reproductive Age

In order to prevent MTCT, it is critical for women of reproductive age to know their HIV serostatus. HIV testing is recommended for women planning to become pregnant [11]. Women of reproductive age should also receive primary HIV prevention, including the discussion of childbearing intentions, counsel on safer sex practices, and education on alcohol, tobacco, and injection drug use [3].

Since heterosexual transmission is the main source of HIV exposure among HIV-infected women, it is important for HIV prevention initiatives to target sexual health practices, such as contraception, to women of reproductive age [7]. Prevention efforts targeting this population aim to prevent HIV infection in women of reproductive age who are HIV negative, and identify and confirm the serostatus of any women who may be infected [4].

Pregnant Women

According to the CDC, the American College of Obstetrics and Gynecology (ACOG), and the American Academy of Pediatrics (AAP), clinicians should recommend testing [2,12]. For pregnant women with unknown serostatus, it is important to be tested for HIV as early as possible [11]. For high-risk populations, the CDC and ACOG recommend an additional test during the third trimester. High-risk populations include women from areas with elevated HIV incidence (where 1 out of 1,000 women prenatally screened in the facility test positive), as well as women who have been diagnosed with sexually transmitted infections, use injection drugs, have partners who are injection drug users, exchange sex for drugs or money, have new or multiple sex partners during pregnancy, or have a partner who is HIV positive [11,12].

Testing helps health care providers decide the course of treatment for the patient. In general, HIV-positive women already on an ART regimen should continue the same regimen after they get pregnant. However, pregnancy-related changes in a woman's body may affect medication absorption and could introduce new side effects, so it is always important for the patient to speak with a healthcare provider to see if the regimen should be modified to optimize viral load suppression and/or minimize potential adverse side effects [13].

According to the Department of Health and Human Services' Panel on the Treatment of HIV-Infected Pregnant Women and Prevention of Perinatal Transmission, healthcare providers should monitor the HIV-infected patient's viral load at the initial visit, 2 to 4 weeks after initiating or changing ART regimens, monthly until viral load is undetectable, and at least every 3 months after that stage throughout the course of pregnancy [3]. In addition, viral load should be assessed at 34 to 36 weeks of gestation, which will help inform delivery mode and treatment of the baby [3]. For women with a high viral load (>1,000 copies/mL) or with an unknown viral load close to the time of delivery, the Panel recommends delivery via cesarean section to minimize MTCT [3].

Studies have shown that the risk of transmission in women who had cesarean section was **50% lower** compared to women with any other mode of delivery [14].

Women in the postpartum stage should continue their ART regimen. Since this can be an especially challenging time for women to adhere to their treatment, linkage to supportive services should be offered to help overcome these barriers [3]. These services should ideally begin before pregnancy and continue throughout and after the pregnancy. Services should be tailored to the needs of the patient and can include:

- ☑ Case management
- ☑ Childcare
- ☑ Peer counseling
- ☑ Legal and advocacy services
- ☑ Assistance with basic needs – housing, food, transportation [3]

Although ART reduces the likelihood of transmission during breastfeeding, the risk still exists. Studies show that mothers with chronic HIV infection have at least a 14% chance of transmitting the virus, with some estimates as high as 25-35% for women who acquire HIV later in their pregnancy or during lactation[15]. Breastfeeding also carries the risk of exposing the infant to antiretrovirals, which could result in the development of drug resistance. Thus, safe feeding alternatives should be used in lieu of breastfeeding and pre-mastication of infant food[3].

Infant HIV Testing and Neonatal HIV Management

For infants born to HIV-positive mothers, the standard of treatment includes at least two rounds of virologic testing (i.e. HIV RNA and HIV DNA test) in addition to a six-week course of zidovudine.

FOR ALL INFANTS exposed to HIV, the CDC recommends testing at ages 14 to 21 days, 1 to 2 months, and 4 to 6 months [16]. Negative serostatus can be confirmed again at 18 months using an HIV antibody assay [17].

To definitively rule out HIV infection in an infant, they must have at least two negative RNA or DNA virologic test results obtained at ≥1 month of age and at ≥4 months of age or at least two separate negative HIV antibody results ≥6 months of age. Additionally, there must be no other laboratory or clinical evidence of HIV infection [17]. For infants whose mother's HIV status is unknown, rapid antibody testing should be performed as soon as possible after birth.

The most consistent recommendation for HIV management from preconception to postpartum is antiretroviral therapy. For HIV-positive women who are not pregnant, the clinical recommendations and goals are contraception and safer sex for the woman and her partner(s). During pregnancy, however, the clinical recommendations change to: help prevent MTCT, keep the mother healthy, and track the mother's laboratory results to help prepare for delivery. Along with consistent adherence to ART and HIV testing to inform serostatus and treatment, neonatal management includes the strict recommendation of formula feeding in lieu of breastfeeding. Health care providers can ensure national MTCT rates continue to fall by providing care and support during all stages of the perinatal HIV prevention cascade.

Building Organizational Capacity

The CDC-funded HIV CBA Center at CAI can help conduct an assessment of your organizational needs, identify resources, plan for implementation, and provide you with training and capacity building assistance (CBA) that leads to successful programs for high-impact HIV prevention. The HIV CBA Center is able to shape trainings and technical assistance to the specific needs of your healthcare organization. The approach includes improving the capacity of the providers and support staff in areas such as:

- ☑ Behavioral Change & Motivational Interviewing
- ☑ HIV Treatment Adherence
- ☑ Anti-Retroviral Treatment and Access to Services (ARTAS)
- ☑ Identifying Early Red Flags for Abandoning Care & Poor Adherence
- ☑ PrEP – Pre-Exposure Prophylaxis

For more information on how to obtain our free capacity building services at your health care organization, visit www.CBA.CAIGlobal.org.

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