

Update: Perinatally Acquired HIV/AIDS -- United States, 1997

Perinatal transmission of human immunodeficiency virus (HIV) accounts for virtually all new HIV infections in children (1). Through 1993, an estimated 15,000 HIV-infected children were born to HIV-positive women in the United States (2). In 1994, clinical trials demonstrated a two-thirds reduction in the risk for perinatal transmission associated with treatment of HIV-infected pregnant women and their infants with zidovudine (ZDV) therapy (3). The Public Health Service (PHS) issued guidelines for the use of ZDV to reduce perinatal transmission in August 1994 and for universal HIV counseling and voluntary testing of pregnant women in July 1995 (3,4). This report describes increases in HIV testing and use of ZDV treatment among HIV-infected mothers and a continued substantial decline in the incidence of acquired immunodeficiency syndrome (AIDS) during 1992-1996 among children who were infected through perinatal HIV transmission (5). *

For states that conduct HIV surveillance, characteristics were examined for children born to HIV-infected mothers (i.e., perinatally exposed) during 1993-1996. Children were classified into one of four categories: those with AIDS, those with HIV infection but without AIDS, those who were uninfected, and those of indeterminate infection status. Timely ascertainment of HIV infection status of children born in 1995 for HIV reporting states versus AIDS-only reporting states was assessed in comparison to estimates of the number of births to HIV-infected women from the National HIV Serosurvey of Childbearing Women (SCBW) (2). Trends in perinatally acquired AIDS incidence were analyzed by quarter year of diagnosis from January 1984 through March 1997 and were adjusted for reporting delays with reclassification of cases initially reported with no identified risk (1). Evaluation of efforts to reduce perinatal transmission following issuance of the PHS guidelines was restricted to analysis of the estimated incidence of perinatally acquired AIDS among infants (aged less than 1 year) by year of birth. To control for changing birth rates, rates of perinatally acquired AIDS for infants per 100,000 births were calculated by using natality data from CDC's National Center for Health Statistics for births from 1992 through June 1995 (the latest birth cohort for which estimates are reliable). Perinatal HIV Surveillance

A total of 29 states conducted surveillance for HIV infection among children. These states reported 28% of the cumulative perinatally acquired AIDS cases through September 1997. In these states, perinatally exposed children are monitored to determine their HIV-infection and AIDS status, dates of maternal HIV tests, receipt of prenatal care, and maternal and neonatal use of ZDV and other antiretrovirals during pregnancy. Of children born to HIV-infected mothers from 1993 through 1996, these states reported 4325 children who had perinatally acquired AIDS (344) or HIV infection but without AIDS (487) or who were uninfected or indeterminate (3494). Since the PHS guidelines were issued in August 1994, 2027 (87%) HIV-infected mothers of children reported in these states had HIV infection diagnosed before or at the child's birth and 179 (8%) after the child's birth; the timing of HIV infection diagnosis was unknown for 121 (5%) (Figure 1). For children born from 1994 through 1996, the proportion of HIV-infected mothers who were prescribed prenatal ZDV increased from 24% to 64% (Figure 2). Compared with the expected number of children born to HIV-infected women estimated from the SCBW, as of September 1997, states with HIV surveillance ** identified a median of 64% of children born in 1995 compared with a median of 3% in states with AIDS reporting only. Characteristics of Perinatally Acquired AIDS Cases

As of September 30, 1997, perinatal transmission of HIV accounted for 7310 (1%) of the 626,334 total AIDS cases in adults and children reported to CDC by state and territorial health departments. Perinatally acquired cases have been reported from 48 states, the District of Columbia, Puerto Rico, and the Virgin Islands. Five states and/or territories accounted for 64% of all perinatally acquired AIDS cases: New York (27%); Florida (17%), New Jersey (9%), California (6%), and Puerto Rico (5%). The Northeast (44%) and the South (36%) accounted for most (80%) such cases; 85% of cases were diagnosed in metropolitan areas with a population of greater than 500,000 persons and 9% in metropolitan areas with populations of 50,000-500,000 persons.

Of the 7310 children with perinatally acquired AIDS, 4461 (61%) were non-Hispanic black, 1723 (24%) were Hispanic, 1057 (14%) were non-Hispanic white, and 54 (less than 1%) were either Asian/Pacific Islander or American Indian/Alaskan Native; 15 were of unknown race/ethnicity. The median age at diagnosis was 17 months, with 40% of cases diagnosed in children aged less than 1 year; 47%, in children aged 1-5 years; and 13%, in children aged greater than or equal to 6 years. Trends in Perinatally Acquired AIDS

From 1984 through 1992, the estimated number of children with perinatally acquired AIDS diagnosed each year increased, then declined 43% during 1992-1996 (Figure 3). From 1992 to 1996, declines were similar by race/ethnicity, regions of the United States, and in urban and rural areas (Table 1). Declines were largest among children for whom AIDS was diagnosed at younger ages (less than 5 years).

When the analysis was restricted to children diagnosed with perinatally acquired AIDS at age less than 1 year, for birth years 1992 through 1995, the estimated numbers of cases diagnosed in infants was highest among 1991-1992 birth cohorts, then declined 42% from the first half of the 1992 birth cohort (n=172) to the first half of the 1995 birth cohort (n=100). From the first half of the 1992 birth cohort to the first half of the 1995 birth cohort, the incidence declined 39%, from 8.4 per 100,000 births to 5.1.

Editorial Note

Editorial Note: This report documents the rapid implementation of recommended HIV counseling and voluntary testing practices and the increasing use of ZDV therapy by health-care providers and use of these services and care by HIV-infected mothers in the United States. The implementation of these recommendations has been temporally associated with a substantial and geographically widespread decline in perinatally acquired AIDS in the United States among all racial/ethnic groups and in both urban and rural areas, particularly since 1994, most likely reflecting the effectiveness of ZDV in reducing perinatal HIV transmission.

The findings from states that conduct HIV surveillance indicate that most HIV-infected mothers were tested for HIV before their child's birth and confirm the effectiveness of current PHS guidelines for routine HIV counseling and voluntary testing of pregnant women. Previous assessments also have demonstrated high acceptance levels following counseling by informed providers (4). Documentation of the increasing use of ZDV therapy among mothers following publication of PHS guidelines is consistent with other assessments noting the increased use of ZDV by pregnant HIV-infected women and their newborns that was associated with reduced rates of perinatal transmission (6).

Declines in perinatally acquired AIDS began before 1994, most likely reflecting increased use of ZDV to treat HIV-infected women (6). Other factors possibly contributing to the decline include decreases in the number of HIV-infected women giving birth and increases in use of prophylaxis for *Pneumocystis carinii* pneumonia (PCP) and in antiretroviral treatment for HIV-infected children. However, from 1992 to 1994, the number of children born to HIV-infected mothers was relatively stable (i.e., 6000-7000 per year) (2). At the same time, incidence of PCP among infants did not decrease substantially (5). Because many new antiretroviral agents have not been approved for use in children, the recent declines in perinatally acquired AIDS probably do not yet reflect potent combination therapy with protease inhibitors (7).

Even though this report confirms the effectiveness of prevention efforts, the continued incidence of perinatally acquired AIDS among infants documents ongoing perinatal transmission and underscores the need for strategies to ensure that women receive adequate prenatal care, timely HIV counseling, and voluntary testing; gain access to HIV-related care and services; receive chemoprophylaxis to reduce perinatal transmission; and avoid breastfeeding. These findings especially emphasize the need to focus on increasing access to care and providing prevention services to minority populations, among whom rates of AIDS have been highest (i.e., non-Hispanic blacks and Hispanics) (1).

Through the Ryan White CARE Act, the U.S. Congress allocates resources for care and services for HIV-infected persons. This act requires that states evaluate their perinatal HIV-prevention efforts through the use of HIV-infection and AIDS surveillance. The most timely evaluation of prevention efforts in states with and without HIV surveillance is analysis of AIDS incidence among infants. States should evaluate trends in rates of perinatally acquired AIDS among infants per 100,000 births. Data on perinatal AIDS incidence can assist states in the identification of reasons for continued perinatal transmission, including missed opportunities for prevention or failures of recommended therapy (e.g., because of antiviral resistance or inadequate adherence).

CDC recommends that, as an extension of AIDS surveillance programs, all states and territories conduct surveillance for perinatal HIV exposure with follow-up to determine HIV-infection and AIDS status. Surveillance for HIV exposure and infection and AIDS would enable timely and complete monitoring of the effectiveness of perinatal prevention efforts (8); HIV incidence trends; identification of groups in which prevention strategies are less successful; evaluation of the impact of ZDV on perinatal HIV incidence; assessment of resources required to provide care for HIV-exposed children; the timeliness of receipt of HIV-related care; and potential short- or long-term adverse effects of in utero exposure to ZDV and other antiretroviral therapy. In addition, the Council of State and Territorial Epidemiologists has recommended that all states conduct surveillance for pediatric HIV/AIDS and perinatal exposure and, in 1995, declared pediatric HIV infection a nationally notifiable disease. The American Academy of Pediatrics also supports surveillance efforts to monitor perinatally exposed and infected children (9).

Substantial decreases in perinatal transmission of HIV have been documented in the United States and in some European countries (10); however, most HIV-infected children are born in developing countries. The Joint United Nations Program on HIV/AIDS (UNAIDS) estimates that each year 350,000 children in developing countries are infected with HIV through perinatal transmission. The reduction of perinatal transmission of HIV in the United States underscores the need to identify and evaluate safe, effective regimens that are logistically and economically feasible in developing countries.

References

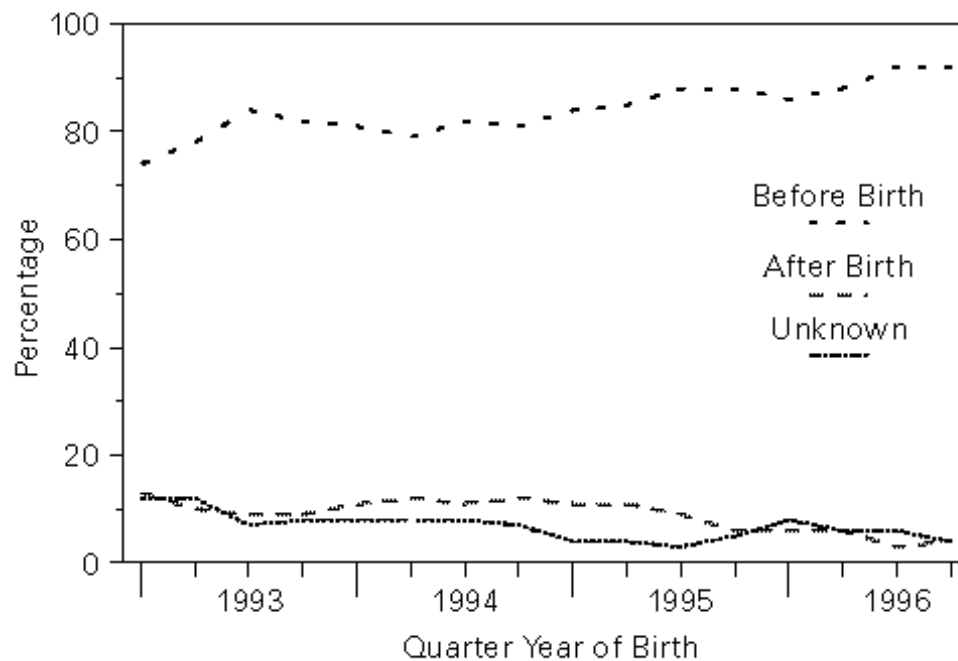
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- Single copies of this report will be available until November 21, 1998, from the CDC National AIDS Clearinghouse, P.O. Box 6003, Rockville, MD 20849-6003; telephone (800) 458-5231 or (301) 519-0023. ** Pediatric HIV reporting areas that conducted the SCBW were Alabama, Arizona, Arkansas, Colorado, Connecticut, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nevada, New Jersey, North Carolina, Ohio, Oklahoma, Oregon, South Carolina, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming. The four HIV reporting areas that did not conduct the SCBW were Idaho, Nebraska, North Dakota, and South Dakota.

Figure_1

FIGURE 1. Percentage of mothers of perinatally HIV-exposed/infected children whose HIV infection was diagnosed before or after their child's birth or at an unknown time, by quarter year of child's birth — 29 HIV-reporting states*, 1993-1996[†]



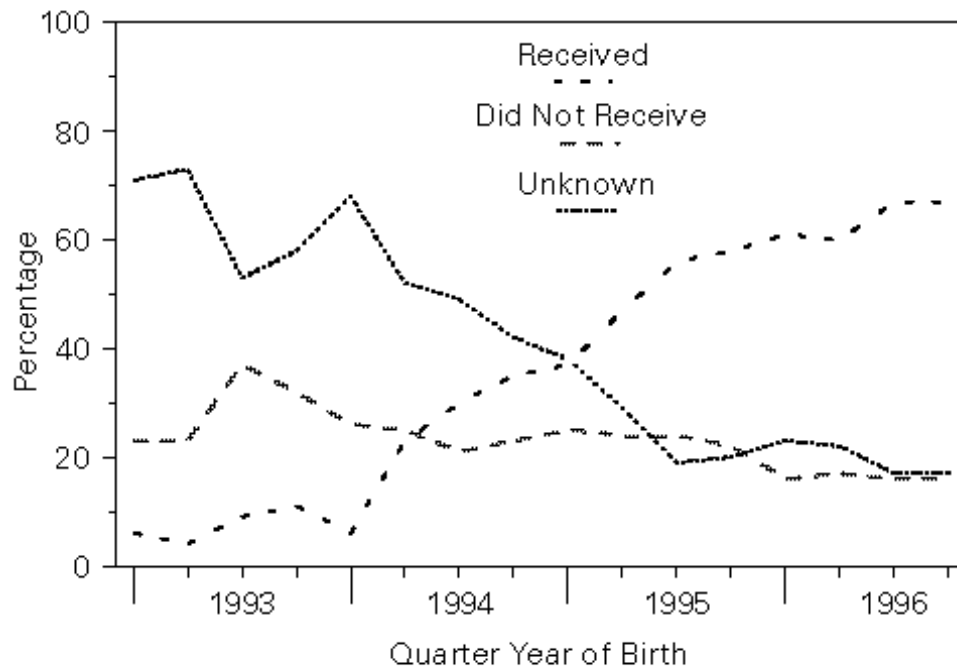
*Alabama, Arizona, Arkansas, Colorado, Connecticut, Idaho, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

[†]In 1993, n=1169; in 1994, n=1098; in 1995, n=1095; and in 1996, n=963.

[Return to top.](#)

Figure_2

FIGURE 2. Percentage of mothers of perinatally HIV-exposed/infected children who did or did not receive prenatal zidovudine (ZDV) therapy or for whom receipt of ZDV was unknown, by quarter year of child's birth — 29 HIV-reporting states,* 1993–1996[†]



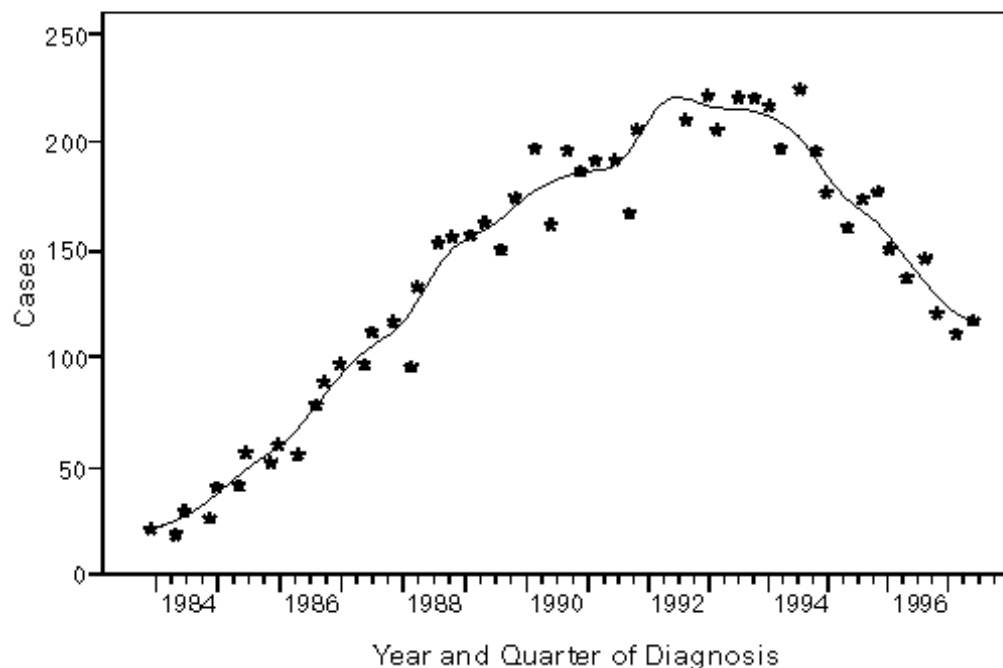
*Alabama, Arizona, Arkansas, Colorado, Connecticut, Idaho, Indiana, Louisiana, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Carolina, South Dakota, Tennessee, Texas, Utah, Virginia, West Virginia, Wisconsin, and Wyoming.

[†]In 1993, n=1169; in 1994, n=1098; in 1995, n=1095; and in 1996, n=963.

[Return to top.](#)

Figure_3

FIGURE 3. Number of perinatally acquired AIDS cases,* by quarter year of diagnosis — United States, 1984–March 1997



*Estimates were based on cases reported through September 1997, adjusted for reporting delay and unreported risk but not for incomplete reporting of diagnosed AIDS cases. Points represent estimated quarterly incidence, and the line represents "smoothed" incidence.

[Return to top.](#)

Table_1

Note: To print large tables and graphs users may have to change their printer settings to landscape and use a small font size.

TABLE 1. Estimated number of children with perinatally acquired AIDS, by selected characteristics, year of diagnosis, and percentage change from 1992 to 1996 -- United States, 1992-1996 *

Characteristic	Year					% Change 1992 to 1996
	1992	1993	1994	1995	1996	
Race/Ethnicity +						
White,non-Hispanic	133	126	92	95	67	-50%
Black,non-Hispanic	566	531	522	415	331	-42%
Hispanic	195	195	166	146	111	-43%
Age at AIDS diagnosis						
<5 years	733	693	613	459	360	51%
>=5 years						-7%
Region&						
Northeast	361	379	315	265	212	-41%
South	362	315	332	243	223	-38%
Midwest	60	74	54	67	30	-50%
West	67	58	65	60	35	-48%
Metropolitan statistical area						
500,000 population	748	732	675	558	450	-40%
50,000-500,000 population	102	75	75	62	41	-60%
<50,000 population	51	53	42	39	22	57%

* Diagnosed through 1996 and reported through September 1997 adjusting for reporting delays and unreported risk. + Numbers for other racial/ethnic groups were too small for meaningful analysis. & Northeast="Connecticut," Maine, Massachusetts, New Hampshire, New Jersey, New York, Penn-sylvania, Rhode Island, and Vermont; South="Alabama," Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and West Virginia; West="Alaska," Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming; and Midwest="Illinois," Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Ne-braska, North Dakota, Ohio, South Dakota, and Wisconsin."===== " Diseases, National Center for Infectious Diseases (NCID). & Updated monthly to the Division of HIV/AIDS Prevention, National Center for HIV, STD, and TB Prevention (NCHSTP), last update October 28, 1997. @ Updated quarterly from reports to the Division of STD Prevention, NCHSTP."=====

[Return to top.](#)

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