PEDIATRIC HIV DISEASE
PEDIATRIC SPECTRUM OF DISEASE (PSD)

Since March 1988, the Los Angeles County (LAC) Department of Health Services has been conducting active surveillance for HIV infection in children under the age of 13 years as part of the Centers for Disease Control's national PSD research project. As of December 31, 1997, with active case ascertainment at the 10 major LAC pediatric referral centers, a total of 795 children had been reported to PSD. This number includes 668 LAC resident children and 127 nonresident children receiving care in LAC (including those who had died). PSD collects information at baseline, when the child is initially evaluated for HIV, and then every 6 months for the life of the child.

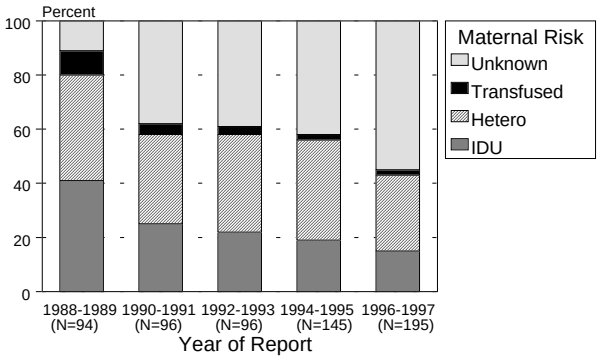
CDC Classification

Of the total 795 reported to PSD, 280 (35%) were classified as AIDS,[1] 214 (27%) were symptomatic but not AIDS-defined, 31 (4%) were asymptomatic, and 270 (34%) were less than 18 months of age and of indeterminate HIV status because of persistence of maternal HIV antibody. An additional 491 HIV antibody-negative children born to HIV-positive women have been reported.

Modes of Transmission

Among the 795 HIV antibody-positive children, 626 (79%) had perinatally acquired (PA) infection from an HIV-infected mother, 121 children (15%) were infected from a contaminated blood product transfusion, and 39 (5%) were children with hemophilia or other coagulation disorder. Two children were infected due to breast feeding. Among the PA group, 22% had a mother who was an intravenous drug user (IDU), 11% had a mother who had sex with an IDU, an additional 23% had a mother who had sex with an HIV+ or high-risk male, 3% had a mother infected through a blood transfusion, and 41% had a mother whose risk factor for HIV infection could not be identified. Sexual abuse is suspected as a risk factor for 3 children and confirmed for 1 child.

Figure 1. Maternal HIV Risk of Children with Perinatally Acquired Infection by Year of Child's Enrollment
Los Angeles County, 3/1988 - 12/1997



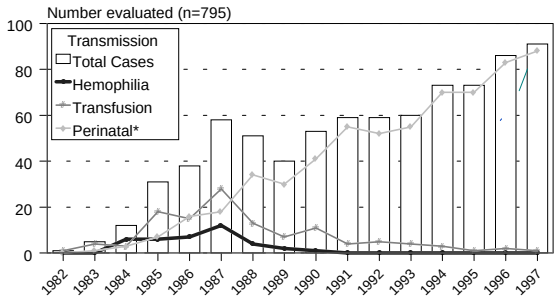
The proportion of perinatally acquired infections due to maternal IDU decreased from 41% in 1988-89 to 15% in 1997 (Figure 1). Correspondingly, the number of children infected due to an HIV-infected mother with unknown risk has increased each year from 11% in 1989, to 56% in 1997.

Since 1988, the proportion of newly reported HIV-infected children with PA infection has increased incrementally each year from 31% before 1987 to 97% in 1997. The number of newly identified HIV-

[1]Centers for Disease Control. Classification system for HIV infection in children under 13 years of age. MMWR 1994;43: No. RR-12.

exposed children has been increasing since 1989. (Figure 2).

Figure 2. Pediatric HIV Infection by Year of Initial Evaluation and Mode of Transmission
Los Angeles County, 6/1982-12/1997



*Two due to breast feeding.
Source: DHS, Pediatric Spectrum of HIV Disease Study

Demographics

Cumulatively, 37% of the HIV-positive children were Black, 41% Hispanic, 20% White, 2% Asian, and 1% other/unknown. The proportion of HIV-positive children who were Black or Hispanic has increased from 61% in 1988-90, to 86% in 1991-96. This increase is due in part to the decrease in new transfusion-associated and hemophiliac cases which occurred disproportionately among Whites. Among the 575 children with PA infection, the percentage of Blacks and Hispanics has increased from 69% in 1988-90 to 87% in 1991-97 (Figure 3).

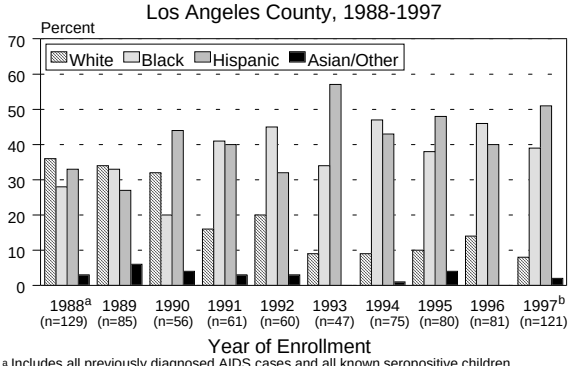
The distribution of HIV-infected children by gender shows slightly more males than females (52% vs. 48%) due to the disproportionate number of transfusion-associated and hemophiliac cases among males.

The majority of the 795 HIV-positive children (73%) had a biologic parent as their primary caretaker at the time of report: 19% lived with another relative or were in foster care, 2% were with adoptive parents, and 4% were in other or unknown living arrangements. The PA group was more likely to be living in foster care or with another relative than transfused and hemophiliac cases (22% vs. 4%, respectively). Within the PA group, the Hispanics were the least likely to be in foster care or living with another relative (12% vs. 32% for Blacks and 27% for Whites). Similarly, children in foster care or living with another relative were more likely to have an IDU mother compared to children living with a biologic parent (51% vs. 13%). Among the PA group, 13% have a mother who has died, with 41% being cared for by the father and another 41% cared for by another relative.

Case Fatality and Survival

The cumulative fatality rate for AIDS cases was 66% (184/280). Only 3% (17/515) of the children not meeting the AIDS case definition have died. The mean age at AIDS diagnosis for the PA cases was 28 months (median 14.0 months) compared to the mean age at AIDS diagnosis of 85 months for the transfused cases (median 85 months), and 153 months for the hemophiliacs (median 142 months). For the first time since the beginning of the pediatric HIV epidemic, estimated median survival from birth or date of transfusion to death or date of last contact was equivalent for perinatal (168

Figure 3. Pediatric HIV Infection Rates by Race/Ethnicity and Year Enrolled,
Los Angeles County, 1988-1997



[a] Includes all previously diagnosed AIDS cases and all known seropositive children.
[b] Reflects larger number of exposed children of indeterminate HIV status.
Source: DHS, Pediatric Spectrum of HIV Disease Study

months) and transfused children (163 months) (Kaplan-Meier product-limit estimates). Median survival from AIDS diagnosis to death or date of last medical contact was 24 months for PA cases and 21 months for the transfused cases (Kaplan-Meier product-limit estimates). Numbers for the hemophiliacs were too limited to make estimates.

Among the 432 HIV-positive children still alive and not lost to follow-up as of December 31, 1997, 38% were less than 2 years of age, 33% were between 2-7 years, 14% were 8-12 years, and 14% were 13 years or greater. Twenty of the 60 children aged 13+ meet the pediatric criteria for AIDS and an additional 22 meet the new adult criteria for AIDS with a CD4<200.

While the majority of newly evaluated and reported children are due to PA infection, 14 children transfused prior to 1985 were first evaluated for HIV in 1991-97. In 1996-97, 77% of the 195 children were evaluated by five months of age and only 10 (5%) were three years or older.

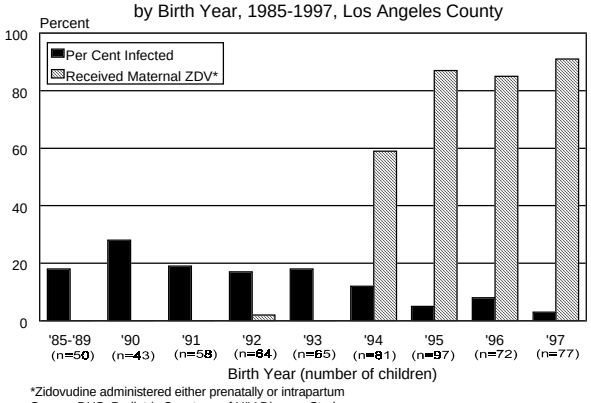
Prenatal Zidovudine and Perinatal Transmission

Beginning in 1994, zidovudine (ZDV) use during pregnancy, labor and delivery became a recognized means to prevent perinatal HIV transmission. Of the 301 infants born in 1995-1997 to HIV-infected women and reported to PSD, 211 (70%) of their mothers received ZDV during pregnancy. Similarly, 198 (66%) received ZDV during labor and delivery. Of the 254 children whose mother's HIV status was known at birth, 78% received ZDV during labor and delivery, 11% did not and information is unknown for 11%. Rates of vertical transmission for LAC resident children identified at birth have decreased from a high of 29% in 1990 to 5% in '95, and 2% thus far for 1997. At the same time, receipt of the ZDV during pregnancy and/or labor and delivery increased from 11% in 1994 to 94% of the reported mothers in 1997 (Figure 4).

Universal Offering of Prenatal HIV Testing and Counseling

As of January 1, 1996, all prenatal providers are legally required to offer HIV testing and counseling and document the offering in the patient's medical record. Statistics from a small sample of health centers who report directly to Acute Communicable Disease Control (ACDC) showed an 80% acceptance rate for 1997. One HIV positive woman was identified in 1997. ACDC continues to evaluate risk assessment data on pregnant women who test HIV positive. Seventy-eight such women since 1989 have been identified in LAC clinics; 56 (71%) reported risk assessment information to ACDC. Twenty-eight (50%) of these women could not identify any known risk factor for HIV infection. Women identified as HIV positive are referred to tertiary care centers to receive specialized care for themselves and their unborn infants.

Figure 4: Rates of Perinatal HIV Transmission and Use of Maternal ZDV* for Children Identified at birth at Risk for Perinatal HIV Transmission by Birth Year, 1985-1997, Los Angeles County



*Zidovudine administered either prenatally or intrapartum
Source: DHS, Pediatric Spectrum of HIV Disease Study