UW Medicine
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Birth Outcomes and HIV-1 Transmission in a Contemporary HIV Pregnancy Cohort, Washington State

999

Jane Hitti[1], Ann Melvin[2], Heather Jaspan[2], Alison Roxby[3], Jennifer Balkus[4], Lilian Manahan[4], Ronit Katz[1]
Departments of Obstetrics and Gynecology[1], Pediatrics[2], and Internal Medicine[3], University of Washington, Seattle, WA USA and Washington State Department of Health[4], Olympia, WA USA

BACKGROUND

- Pregnant people living with HIV (PLWH) may have increased risk for adverse pregnancy outcomes including low birth weight (LBW) and preterm birth (PTB).
- Adverse pregnancy outcomes among PLWH might be attributable to HIV, co-morbidities, antiretroviral medications, access to prenatal care or other factors.

OBJECTIVES

- To compare LBW and PTB rates among singleton live births in the UW HIV Pregnancy program compared to Washington State (WA) birth registry data.
- To evaluate perinatal HIV-1 transmission among all live births to PLWH in WA, comparing those who participated in the UW HIV Pregnancy program with those who did not.

METHODS

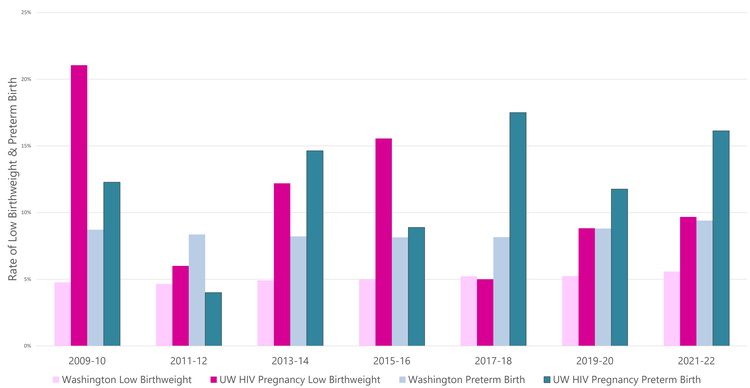
- Retrospective cohort study of pregnancy outcomes among 298 singleton live births in the UW HIV Pregnancy program and all other 1,173,394 WA live births, 1/1/2009-12/31/2022.
- Participants in the UW HIV Pregnancy program received integrated prenatal and HIV care and delivered at the University of Washington (UW) Medical Center. Demographic, clinical, virologic, medication and pregnancy outcome data were abstracted from medical records with IRB approval.
- Annual aggregate totals for LBW (<2500g) and PTB (<37 weeks) and total singleton live births were accessed from WA public birth registry data. To avoid duplicate counting, UW HIV Pregnancy births were subtracted from both the numerator (LBW & PTB) and denominator in WA calculations.
- Rates of LBW and PTB for the UW HIV Pregnancy program and all other WA singleton live births were assessed in 2-year blocks.
- WA Department of Health provided aggregate de-identified HIV surveillance data by county including annual number of births to PLWH and perinatal HIV-1 transmission.
- UW HIV Pregnancy program totals were subtracted from total WA PLWH births for each year in the study interval, to determine the program inclusion rate.
- Perinatal HIV-1 transmission among all live births for the UW HIV Pregnancy program was compared to WA HIV surveillance data from births to PLWH.
- Odds ratios (OR), 95% confidence intervals CI), chi-square (X^2) and Fisher's exact test were used to assess statistical significance.

RESULTS

Table 1. HIV Pregnancy Cohort Selected Characteristics among singleton pregnancies (N=298)

Characteristic	n	(%)
New HIV diagnosis in pregnancy	54	(18.1%)
Antiretroviral class:		
- Integrase inhibitor	152	(51.0%)
- Non-nucleoside reverse transcriptase inhibitor	31	(10.4%)
- Protease inhibitor	100	(33.6%)
- 3 nucleoside reverse transcriptase inhibitors, zidovudine only or no medication	15	(5.0%)
CD4 category:		
- Less than 200	22	(7.4%)
- 200-499	125	(41.9%)
- 500 or greater	151	(50.7%)
HIV RNA < 1000 at delivery	287	(96.3%)
Cesarean delivery	162	(54.4%)
Any lactational feeding	6	(2.0%)

Figure 1. Rates of low birthweight and preterm birth among singleton live births in Washington State and UW HIV Pregnancy program

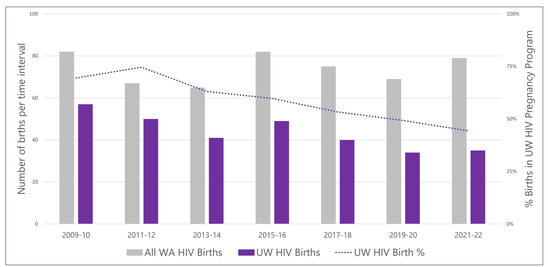


- Among singletons**, LBW occurred more frequently** among UW HIV in Pregnancy progam (11.7%) compared to WA (5.0%); OR 2.5, 95% CI 1.8-3.6.
- **PTB rates were marginally higher** among UW HIV in Pregnancy program (11.7%) compared to WA (8.5%); OR 1.4, 95% CI 1.0-2.0).

FUNDING ACKNOWLEDGEMENT

- The UW HIV Pregnancy Program is supported in part by a grant from the Ryan White Program, United States Health Resources and Services Administration.

Figure 2. Proportion of Washington State PLWH births in the UW HIV Pregnancy program over time



- Of 519 live births to WA PLWH, 306 (58.96%) were included in the UW HIV Pregnancy program. The proportion decreased over time (P<0.001).
- **There were 0/306 HIV-1 transmissions in the UW HIV Pregnancy program and 6/213 (2.8%) among other WA PLWH (P =0.0046).**
- Birth parent HIV diagnosis occurred before or during pregnancy for 5 of 6 affected infants; 4 infants were diagnosed with HIV at ≤ 1 month of age, and 2 diagnosed at > 1 year of age with probable breastfeeding transmission.

CONCLUSIONS

- PLWH who received integrated prenatal and HIV care had an increased risk of LBW and marginally increased risk of PTB compared to the WA birthing population.
- Perinatal HIV-1 transmission occurred only among WA PLWH not in the UW HIV Pregnancy program, suggesting missed prevention opportunities. This highlights the potential benefits of integrated HIV and prenatal care in reducing perinatal HIV transmission.