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HIV Testing Rates among Pregnant Women in Wisconsin

Janice Valenzuela, DVM, MPH, Population Health Service Fellow; Hester Simons, MPH, HIV Minority Health Partnership Grant Coordinator, AIDS/HIV Program, Wisconsin Division of Public Health; Casey Schumann, MS, former epidemiologist, AIDS/HIV Program; Katarina Grande, MPH, former surveillance coordinator, AIDS/HIV Program; Lauren Stockman, MPH, former epidemiologist, Hepatitis C Program.

Key Points

- Timely antiretroviral treatment can reduce the risk of perinatal HIV transmission (from mother to infant) to 2% or less.¹
- Testing is a critical first step toward the identification of pregnant women living with HIV (WLHIV) and ultimately the elimination of perinatal HIV transmission.
- HIV testing of pregnant women is recommended as the standard of care but is not mandated by law in Wisconsin.
- The Wisconsin AIDS/HIV Program's ability to systematically identify gaps in prenatal HIV testing is limited, which hinders the opportunity to target interventions.

Background

In 2006, the Centers for Disease Control and Prevention (CDC) recommended universal HIV testing, using an opt-out approach, for all pregnant women to increase screening in health care settings and further reduce perinatal HIV transmission in the U.S.² Due to significant reductions in perinatal transmission of HIV, elimination of mother-to-child transmission in the U.S. is now considered a realistic goal. A recent report showed that the perinatal HIV infection rate decreased from 5.37 per 100,000 live births in 2002 to 1.75 per 100,000 live births in 2013 in the U.S.¹ Despite these reductions in perinatal transmission, gaps in HIV diagnosis and treatment among pregnant women persist nationally and in Wisconsin. National data from the CDC have shown that a lack of prenatal HIV testing contributes significantly to the continued perinatal transmission of HIV in the U.S.³

HIV transmission from mother to infant can occur during pregnancy, labor and delivery, or breastfeeding. During 2012-2016, two infants were born with HIV in Wisconsin out of 112 WLHIV known to have given birth during those years.⁴ Timely antiretroviral treatment can reduce the risk of transmission to 2% or less.¹ Testing is a critical first step toward the identification of pregnant WLHIV and ultimately the elimination of perinatal HIV transmission; however, HIV testing of pregnant women is recommended but not required by Wisconsin law. For WLHIV, reporting of pregnancy is also not required, although it is requested by the Division of Public Health. The AIDS/HIV Program's ability to identify gaps in prenatal testing is therefore limited.

Methods

In order to assess the current status of HIV testing rates among pregnant women in Wisconsin, we looked at data from PeriData.Net[®] and the Pregnancy Risk Assessment Monitoring System (PRAMS) survey.

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PeriData.Net[®] is a secure web-based platform developed by the Wisconsin Association for Perinatal Care. It is used by over 70 Wisconsin hospitals to compile clinical data related to the period before, during, and shortly after pregnancy, as well as information about the newborn's care. Data is entered by health care providers, including whether a woman was tested for the presence of HIV antibodies during pregnancy. Responses could be Yes, No, Unknown, or be missing. We obtained data from PeriData.Net[®] for 2015 from hospitals that agreed to share their data with the AIDS/HIV Program. We excluded births from our analysis that had Unknown as a response, were missing a response to the HIV testing question, or that had missing race and ethnicity data.

Of the 67,004 Wisconsin births during 2015, 35,112 (52%) births were included in our analyses (Table 1). These births represented data from 43 hospitals (out of 97 hospitals where births occurred in Wisconsin that year),⁵ across 32 counties, equally divided into urban versus rural based on the National Center for Health Statistics (NCHS) urban-rural classification for counties.⁶

Table 1. Birth Data, Wisconsin, 2015

Wisconsin Births[§]	67,004
Births in PeriData.Net[®]	57,083
Births in data shared with State	44,512
Births with complete HIV testing data	35,112

[§] Data obtained from WISH Query for all births in Wisconsin by year.

PeriData.Net[®] data were stratified by urbanicity, hospital size, race/ethnicity of the mother, and trimester prenatal care began. Urbanicity was determined using the NCHS urban-rural classification for counties, also used in the PRAMS survey data. Hospital size was determined based on the number of births that occurred in each facility during 2015, as captured in PeriData.Net[®]. Large hospitals were defined as having more than 1,000 births; medium size hospitals, between 501 and 1,000 births; and small hospitals, 500 births or fewer. Data on the mother's age and race/ethnicity in PeriData.Net[®] was categorized by age groups (under 20, 20-24, 25-34 and 35 and older), and race/ethnicity (Hispanic, non-Hispanic White, non-Hispanic Black, and non-Hispanic Other) used in PRAMS survey data. Data on the month a mother began prenatal care, provided in PeriData.Net[®], was adjusted to trimester categories (first, second, third). No insurance information was available in PeriData.Net[®] for 2015.

The PRAMS survey is an ongoing survey of new mothers conducted jointly by the CDC and state health departments. It collects population-based data on self-reported maternal attitudes and experiences before, during, and shortly after pregnancy. In Wisconsin, the survey oversamples African-American mothers in Rock, Kenosha, Racine, and Milwaukee counties, due in part to the large disparity in infant mortality rates between black and white babies and funding for these interest areas. The PRAMS survey includes a question asking if the respondent had an HIV test at any time during their most recent pregnancy or delivery. We obtained aggregated results for

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responses to the HIV testing question for 2010 to 2014. Responses were analyzed by age group, place of residence (urban versus rural), race/ethnicity, and insurance type. Place of residence categories were calculated in the same manner as for PeriData.Net[®] data.

Statistically significant differences were calculated using logistic regression with the reference groups of medium-sized hospitals, non-Hispanic white race/ethnicity, under age 20, and prenatal care beginning in first trimester. In the case of urbanicity, a z score test for two population proportions was calculated.

Results

The overall HIV testing rate for pregnant women in 2015, as captured by PeriData.Net[®], was 97%. PRAMS data provided a testing rate of 68% for the period 2010-2014.

Further analysis of 2015 data from PeriData.Net[®] showed (Table 2):

- HIV testing was significantly lower in smaller hospitals and in rural areas.
- HIV testing was significantly higher among Hispanic and non-Hispanic black women compared to non-Hispanic white women.
- No significant difference in testing rates noted by trimester in which prenatal care began or mother's age.

Analysis of the self-reported PRAMS survey data showed the following:

- Mothers self-reported HIV testing at significantly lower rates in rural counties compared to urban counties.
- Non-Hispanic white women reported significantly lower testing rates compared to Hispanic and non-Hispanic black women.
- HIV testing was significantly lower among women with private insurance and lowest for women with no insurance compared to women with Medicaid.
- HIV testing rates did not differ statistically by maternal age.

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Table 2. HIV testing rates among pregnant women

	PeriData.Net® (2015)			PRAMS (2010-2014)		
	n	%	p-value OR (95% CI)	n [¥]	%	CI
Overall Testing	35,112	97%	-	54,289	68%	(67%-70%)
Urbanicity						
Urban	30,320	98%		36,229	71%	(69% - 73%)
Rural	4,792	93%	<0.05	18,043	64%	(60% - 67%)
Hospital Size						
Small	3,996	91%	0.116 (0.093-0.147)			
Medium	8,647	99%	1		N/A	
Large	22,469	98%	0.485 (0.389-0.605)			
Race/Ethnicity						
Hispanic	3,116	98%	1.302 (1.024-1.656)	3,332	77%	(73% - 80%)
Non-Hispanic Black	4,466	99%	4.066 (2.893-5.714)	3,673	86%	(84% - 88%)
Non-Hispanic White	24,522	97%	1	22,935	62%	(58% - 65%)
Non-Hispanic Other	3,008	98%	1.291 (1.012-1.647)	2,171	70%	(65% - 75%)
Trimester Prenatal Care Began						
First	27,444	97%	1			
Second	5,525	97%	0.963 (0.806-1.15)		N/A	
Third	1,174	97%	1.032 (0.713-1.494)			
Mother's Age						
Less Than 20	1,681	99%	1	3,160	75%	(67% - 82%)
20-24 years old	6,636	97%	0.561 (0.367-0.856)	10,755	76%	(73% - 80%)
25-34 years old	21,642	97%	0.546 (0.365-0.818)	33,538	65%	(63% - 68%)
35 and older	5,153	97%	0.456 (0.299-0.698)	6,820	68%	(63% - 73%)
Insurance Type						
Medicaid				14,534	77%	(74% - 80%)
Private Insurance		N/A		32,622	64%	(61% - 66%)
Other Insurance				649	77%	(69% - 85%)
No Insurance				1,117	29%	(17% - 41%)

[¥]These are weighted estimates based off PRAMS responses, to serve as a representation of the population, taking into account oversampling of certain groups. Statistically significant differences are bolded.

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Discussion

Key Findings

Testing is a critical first step toward the identification of pregnant WLHIV, and ultimately the elimination of perinatal HIV transmission. The HIV testing rate for pregnant women in Wisconsin in 2015, as captured by PeriData.Net[®], was high (97%). However, significantly lower testing rates were found for pregnant women delivering in smaller hospitals and in rural areas, and for non-Hispanic white women. Possible explanations for lower testing rates in these categories may include:

- Limited resources related to testing and documentation.
- A lack of awareness of the need for universal testing.
- Misperceptions regarding the population's risk for HIV, particularly for non-Hispanic white women.

PRAMS data showed similar results, with significantly lower testing rates among non-Hispanic white women and pregnant women in rural areas. Overall testing percentages in PRAMS data were much lower, with greater disparities between groups. When interpreting PRAMS findings, we must also consider the limitations of self-reported survey data. Lower testing rates likely represent a lack of recall or even awareness by a pregnant woman that an HIV test was done.

PRAMS data showed that testing rates were influenced by insurance type. Women with private insurance reported being tested at significantly lower rates than those enrolled in Medicaid. This was somewhat surprising, given long-standing concerns for access of medical care provided to people living in poverty. This finding could suggest a high level of adherence to Medicaid-specific policies around HIV testing. It may also be attributed to a misperception of risk for HIV based on insurance coverage or other related socio-economic factors. Although it is possible these findings are impacted by misreported data, they are supported by other analyses. A separate analysis of Medicaid data conducted by the AIDS/HIV Program showed that HIV testing rates for women enrolled in Medicaid was similar to the self-reported rate found in our PRAMS data. Payment information is now available through the PeriData.Net[®] database. In the future, it may prove beneficial to obtain data on insurance from PeriData.Net[®] to further elucidate the impact of insurance on testing rates and the potential to influence perinatal HIV transmission through changes to insurance policies.

Despite notable reductions in perinatal transmission in recent years, gaps in HIV diagnosis and treatment among pregnant women persist nationally and in Wisconsin. Our findings suggest that, in Wisconsin, those gaps are found in smaller hospitals, rural areas, among non-Hispanic white women, and among privately insured individuals.

Limitations

Findings presented here are subject to certain limitations. Many of the hospitals using PeriData.Net[®] that agreed to share their data with the state for this analysis did not have complete HIV testing data. Data from these hospitals were not included in the analysis and their exclusion could impact the implications of these findings. A thorough comparison of data from groups with missing HIV testing data and those with complete HIV testing data showed that missing data were more likely to come from small hospitals, rural areas, and non-Hispanic white women categories. This could mean that smaller rural hospitals may need additional education and technical support related to testing as well as consistent data collection.

Some of the variables for which there were significantly different HIV testing rates could act as confounders. It is possible that non-Hispanic white women are more likely to receive care at

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smaller rural hospitals. The current analysis did not account for the potential for confounding among these variables. Future analyses will need to evaluate that possibility further. While exploring the issue of confounding is important, these findings help to highlight the fact that at least one of these variables is likely negatively impacting HIV testing practices across the state and that further investigation is needed.

Implications for Public Health Practice

Given the direct link between lack of prenatal HIV testing and continued perinatal HIV transmission, addressing the gaps identified through this analysis is key to eliminating perinatal transmission. Additionally, universal HIV testing of pregnant women will help to address stigma related to HIV, which along with other social determinants of health, influences the HIV care continuum and outcomes.

Reliable data on HIV testing among pregnant women and the number of pregnant WLHIV are essential for determining the resources needed to prevent perinatal HIV transmission and for the evaluation of existing prevention programs. By using multiple data systems to obtain a comprehensive picture of HIV testing among pregnant women and pregnancies among WLHIV, Wisconsin would set a foundation for the elimination of perinatal HIV.

Next Steps

The state HIV surveillance program hopes to continue monitoring prenatal HIV testing rates using data from PeriData.Net[®], PRAMS, and Medicaid as indicated. Future analyses should further investigate confounding and look more closely at the impact of insurance coverage on testing.

Partnerships and regular communications with members of the Wisconsin Association for Perinatal Care Perinatal Data Committee and the Primary Care Support Network proved essential in analysis. These partnerships should be sustained to inform future analyses and proposed changes to policy or clinical practice. Ultimately, dissemination of these surveillance efforts to providers, as well as partner agencies and their networks, will be necessary to raise awareness of this issue and garner support for any changes proposed in the future.

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