

Mother to Child HIV Transmission in New York City, 2005-2014

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Background

- New York City (NYC) has historically been the epicenter of the perinatal HIV epidemic in the United States
 - Established mechanisms to identify pregnant HIV-infected women in prenatal care and HIV- exposed infants within 2 weeks of birth
 - Established both active and passive reporting systems with laboratories, pediatric and HIV clinics to receive positive and negative lab results on HIV-exposed infants
- Elimination of mother-to-child transmission (MTCT) of HIV is a priority with a goal of reducing HIV perinatal transmission to <1% of infants born to HIV-infected women

Objectives

- Describe the landscape of MTCT in NYC from 2005-2014
- Evaluate maternal factors associated with increased risk of MTCT

Study Group

All births among HIV-infected women
from select high-volume NYC medical
facilities from 2005-2014

Study Methods

- Data were obtained from infant and maternal medical record review
- We used logistic regression to analyze factors associated with perinatal HIV transmission
 - maternal race and ethnicity
 - maternal age at infant birth
 - history of any prenatal care during pregnancy
 - maternal substance use during pregnancy
 - timing of maternal knowledge of HIV-positive status
- Infant HIV status was determined using results of newborn HIV antibody screening and diagnostic testing of exposed infants reported to the DOHMH

Results: Perinatal HIV in New York City

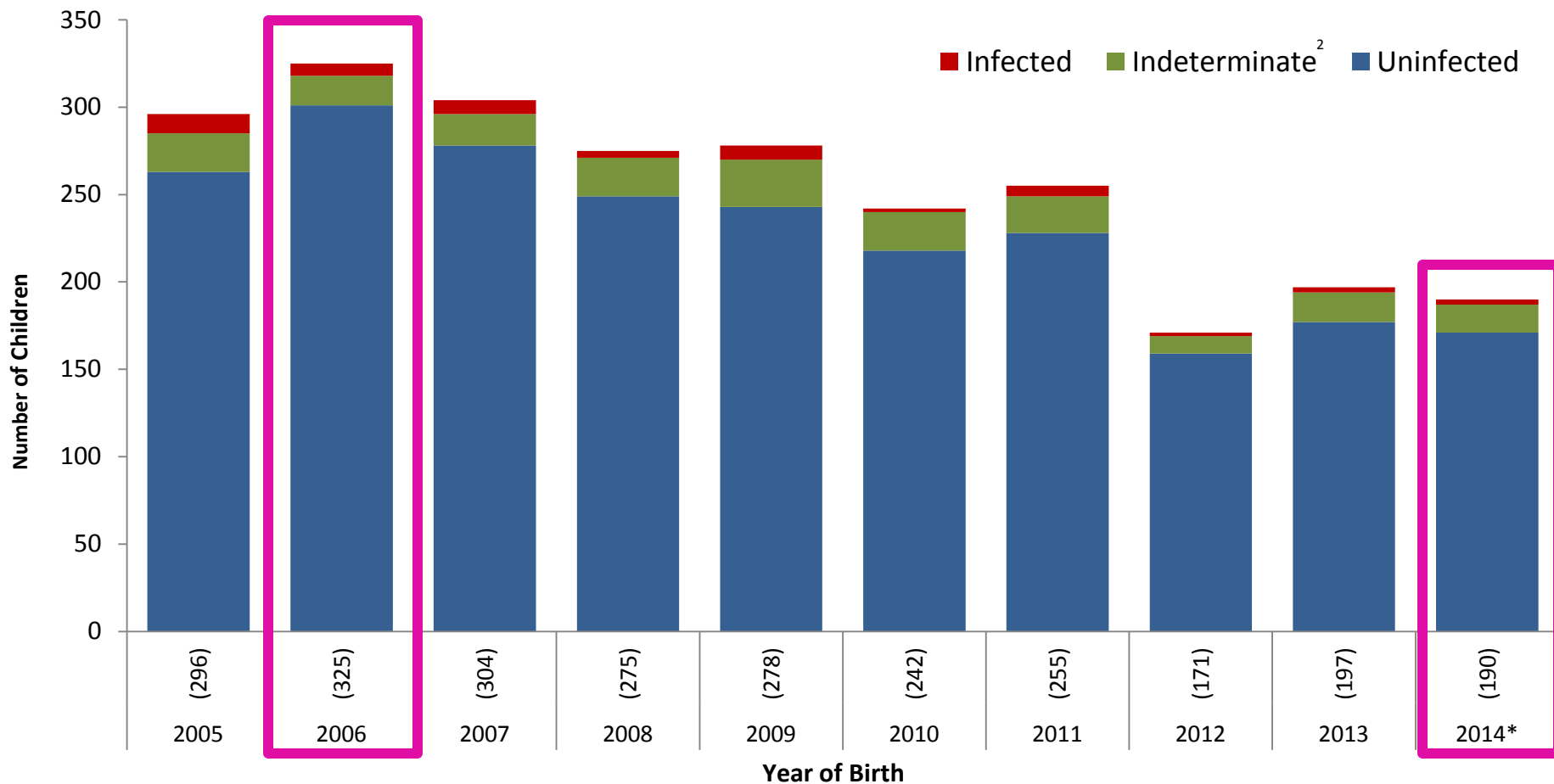
NYC Overall

- 3,916 infants born to HIV-infected mothers
- 75 were confirmed HIV-infected, yielding an overall NYC MTCT rate of 1.9% for this time period

Study Group *(limited to infants born at high-volume facilities)*

- 2,533 births (64.7% of all NYC HIV-exposed births)
- 54 perinatal infections (72.0% of all infected infants)

Current HIV Status of Children Born to HIV-infected Mothers in NYC ¹, 2005-2014



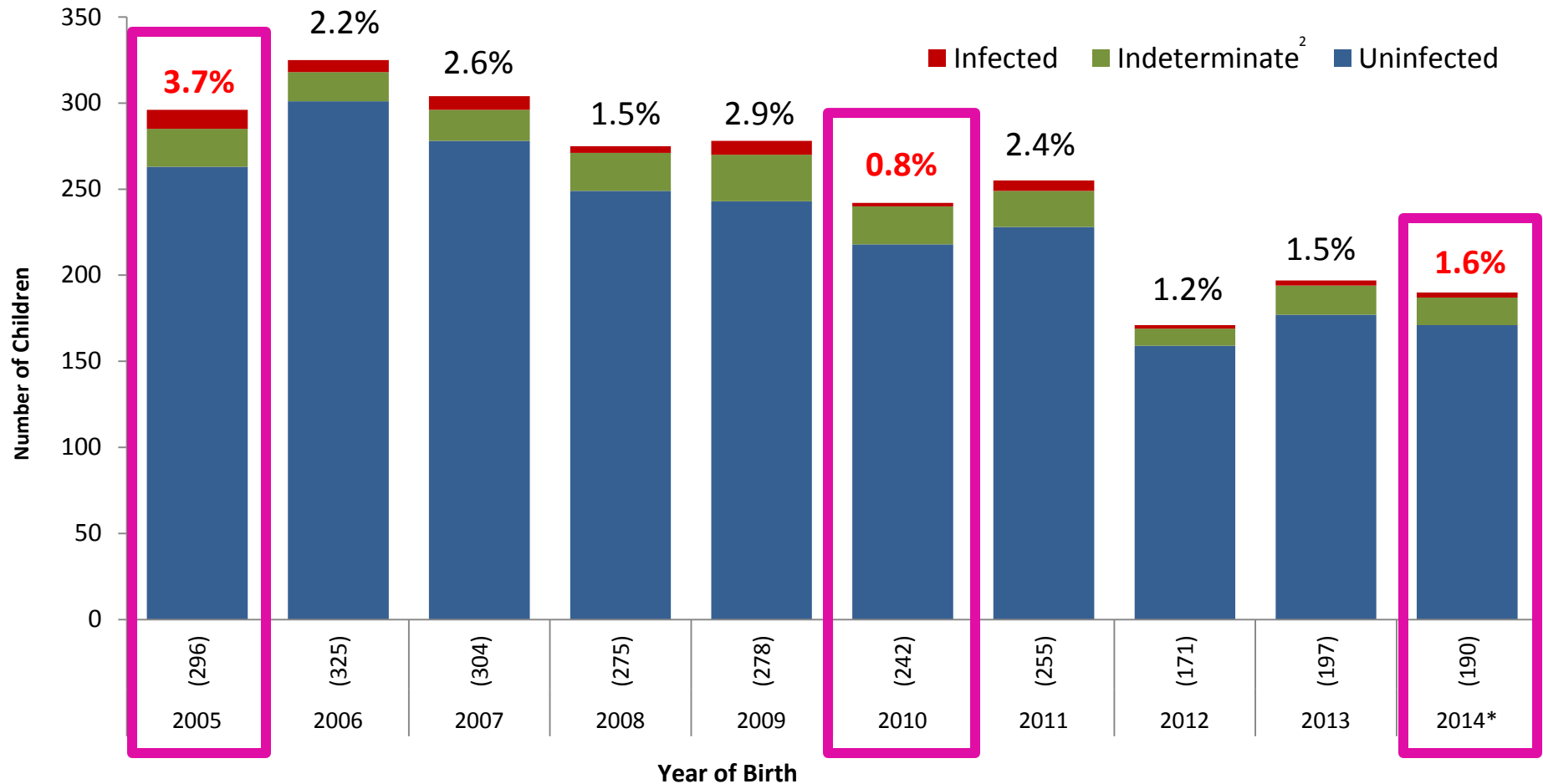
¹Includes data collected at high-volume NYC medical facilities that care for the majority of HIV-exposed and infected children.

²Children born to HIV-infected mothers are followed for 2 years after birth to determine HIV status.

HIV status is indeterminate if the child is lost to follow-up.

* Data reported as of June 2016.

MTCT Rates in Infants Born to HIV-infected Mothers in NYC ¹, 2005-2014



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Maternal Race and Ethnicity

	Infant HIV Status				Total Exposed Births	
	Infected		Uninfected ¹		N	Column %
	N	Column %	N	Column %		
Total	54	100.0	2479	100.0	2533	100.0
Race/Ethnicity						
Black	29	53.7	1754	70.8	1783	70.4
Latino/Hispanic	22	40.7	637	25.7	659	26.0
White	2	3.7	57	2.3	59	2.3
Other/Unknown	1	1.9	31	1.3	32	1.3

Seventy percent of all HIV exposed infants were born to Black mothers and 26% to Hispanic mothers . Among infected infants, 54% were born to Black mothers and 41% were born to Hispanic mothers.

Maternal Age at Infant Birth

	Infant HIV Status				Total Exposed Births	
	Infected		Uninfected ¹		Births	
	N	Column %	N	Column %	N	Column %
Total	54	100.0	2479	100.0	2533	100.0
Age at Infant Birth						
13 - 19	4	7.4	131	5.3	135	5.3
20 - 29	25	46.3	989	39.9	1014	40.0
30 - 39	21	38.9	1151	46.4	1172	46.3
40 - 49	3	5.6	201	8.1	204	8.1
50 - 59	0	0.0	1	0.0	1	0.0
Unknown	1	1.9	6	0.2	7	0.3

Close to 90% of all HIV-exposed infants were born to women in their 20's and 30's.

¹ Infants with indeterminate status were considered uninfected for this analysis.

If infants were found to be infected at a later time, they would have been reported to NYC DOHMH through our standard surveillance system.

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Maternal HIV Transmission Risk

	Infant HIV Status				Total Exposed Births	
	Infected		Uninfected ¹		Births	
	N	Column %	N	Column %	N	Column %
Total	54	100.0	2479	100.0	2533	100.0
Risk at Time of HIV Diagnosis						
Injection Drug Use History	11	20.4	144	5.8	155	6.1
Heterosexual	38	70.4	2005	80.9	2043	80.7
Perinatal	3	5.6	181	7.3	184	7.3
Other/Unknown	2	3.7	149	6.0	151	6.0

Over 80% of the mothers had heterosexual transmission risk and 6% had a history of injection drug use. Among mothers of infants who were HIV-infected, over 20% had history of injection drug use.

Maternal Prenatal Care During Pregnancy

	Infant HIV Status				Total Exposed Births	
	Infected		Uninfected ¹			
	N	Column %	N	Column %	N	Column %
Total	54	100.0	2479	100.0	2533	100.0
Any Prenatal Care During Pregnancy						
Yes	39	72.2	2340	94.4	2379	93.9
No	13	24.1	88	3.5	101	4.0
Not Documented	2	3.7	51	2.1	53	2.1

Any prenatal care during pregnancy was documented for 94% of all mothers. Only 72% of mothers of HIV-infected infants had any recorded prenatal care visits.

Maternal Documented Substance Use During Pregnancy

	Infant HIV Status				Total Exposed Births	
	Infected		Uninfected ¹		Births	
	N	Column %	N	Column %	N	Column %
Total	54	100.0	2479	100.0	2533	100.0
Documented Substance Use During Pregnancy						
Yes	29	53.7	537	21.7	566	22.3
No	21	38.9	1699	68.5	1720	67.9
Unknown	4	7.4	243	9.8	247	9.8

Substance use during pregnancy was noted for 22% of all mothers, but for 54% of mothers of HIV-infected infants.

Maternal Documented Substance Use During Pregnancy

	Infant HIV Status				Total Exposed Births	
	Infected		Uninfected ¹		Births	
	N	Column %	N	Column %	N	Column %
Total	54	100	2479	100	2533	100
Documented Substance Use During Pregnancy						
Yes	29	53.7	537	21.7	566	22.3
<i>Nicotine Only</i>	6	20.7	117	21.8	123	21.7
<i>Marijuana Only</i>	2	6.9	86	16.0	88	15.5
<i>Alcohol Only</i>	0	0.0	12	2.2	12	2.1
<i>Other Substances*</i>	21	72.4	322	60.0	343	60.6

A higher percentage of mothers of infected infants used other substances compared to mothers of uninfected infants.

¹ Infants with indeterminate status were considered uninfected for this analysis.

If infants were found to be infected at a later time, they would have been reported to NYC DOHMH through our standard surveillance system.

* Other substances include: crack, cocaine, methadone, and heroin

Maternal Time of Knowledge of HIV-positive Status

	Infant HIV Status				Total	
	Infected		Uninfected ¹			
	N	Column %	N	Column %	N	Column %
Total	54	100.0	2479	100.0	2533	100.0
Time of Knowledge of HIV-positive status						
Before this Pregnancy	29	53.7	1994	80.4	2023	79.9
During this Pregnancy	12	22.2	421	17.0	433	17.1
At time of Delivery	3	5.6	27	1.1	30	1.2
Before Child's Birth	0	0.0	14	0.6	14	0.6
After child's birth	9	16.7	17	0.7	26	1.0
Unknown or refused testing	1	1.9	6	0.2	7	0.3

Nearly 80% of all mothers knew their HIV-infected status prior to pregnancy, but only half of the mothers of HIV-infected infants knew their HIV-positive status prior to the pregnancy.

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Factors associated with MTCT

- **No prenatal care**
 - (Odds ratio: 4.0, 95% CI: (2.0, 7.9))
- **Maternal substance use**
 - (Odds ratio: 2.8, 95% CI: (1.5, 5.3))

Conclusion

- MTCT has declined substantially in NYC since 2005 reflecting a success of interventions for perinatal HIV prevention.
- However, we have yet to consistently maintain the goal of <1% perinatal transmission over an extended period of time.

Last year, New York State reported for the first time no new perinatal HIV infections in a full year.

NYC has also had no reported perinatal HIV transmissions in infants born in NYC in 2015 or as of date 2016.

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