

Why Does Perinatal HIV Transmission Persist in Georgia?

Characteristics of Perinatal HIV Exposures in Georgia, 2016

Georgia Department of Public Health
HIV/AIDS Epidemiology Section

Fay Stephens, MPH; Pascale Wortley, MD MPH / Posted 09/20/2019

Mother to Child Transmission of HIV

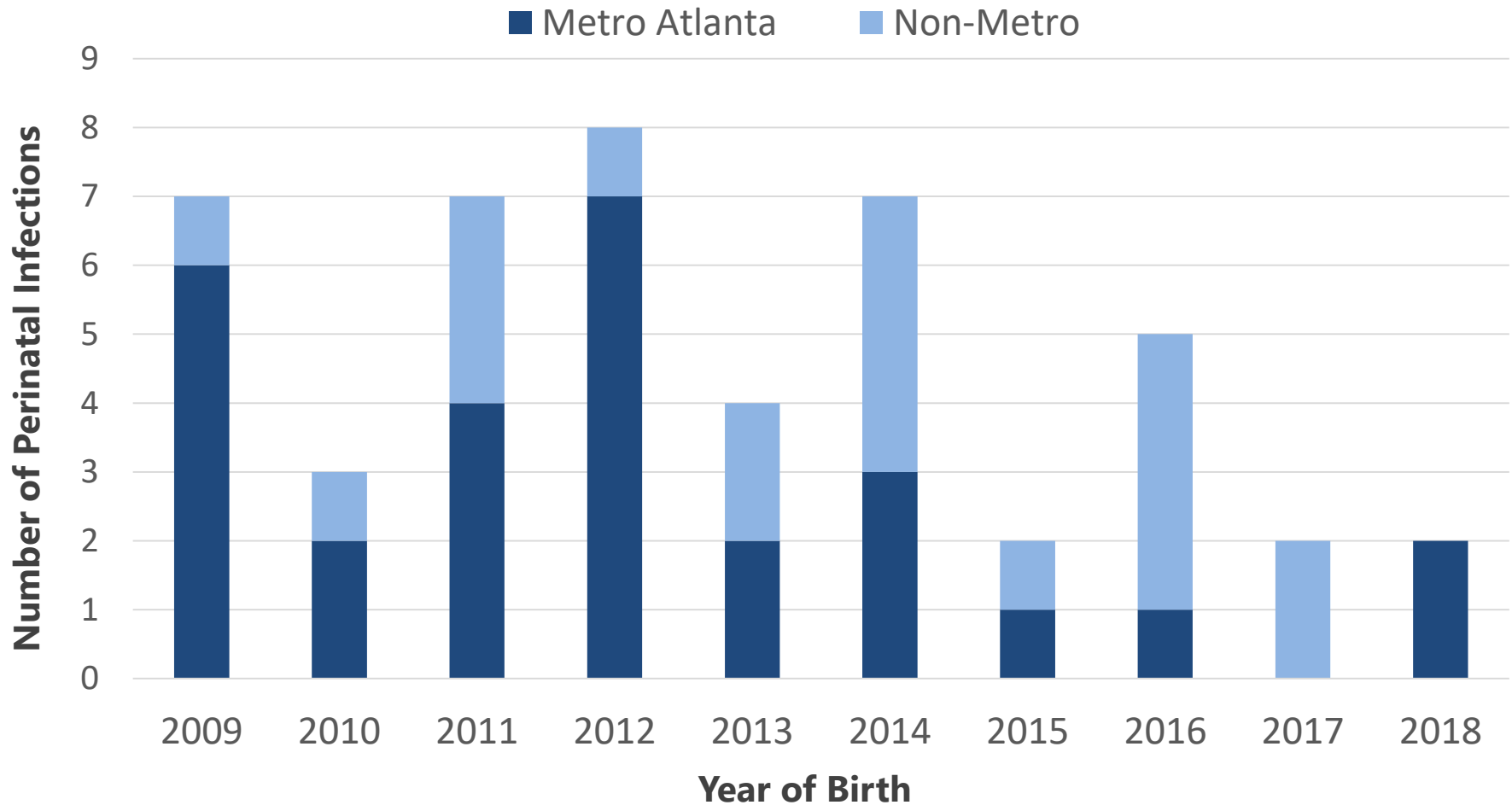
Risk of transmission from mother to infant¹

- Range of 15-45% during pregnancy, labor & delivery
 - Without any antiretroviral therapy/interventions
- Can be reduced to < 1%
 - With proper preventative measures

Preventative measures must occur during pregnancy, labor, delivery, and the post-partum period

¹World Health Organization, Mother to Child Transmission of HIV;
<http://www.who.int/hiv/topics/mtct/en/>

Perinatal HIV infections by year and location of birth, Georgia, 2009-2018*



*Preliminary data as of March 2019

**Metro vs. non-metro category is determined by mother's residence

Objectives

Among HIV-exposed live births in Georgia in 2016, we:

1. Described maternal and infant characteristics, birth details, and implementation of recommended measures for prevention of mother-to-child transmission of HIV.
2. Compared implementation of prevention measures by location of birth (metro Atlanta vs. elsewhere in the state)

To understand population-level gaps in perinatal HIV prevention measures in Georgia.

Prevention of Mother to Child Transmission of HIV: Prenatal Period

Maternal HIV Diagnosis

- Before pregnancy (or as early as possible if infected during pregnancy)

Ongoing HIV Care

Viral Suppression

- Starting before pregnancy, or as soon as possible after diagnosis if maternal infection occurs during pregnancy

Coordination of HIV care with prenatal care

Prevention of Mother to Child Transmission of HIV: Delivery and Post-Partum

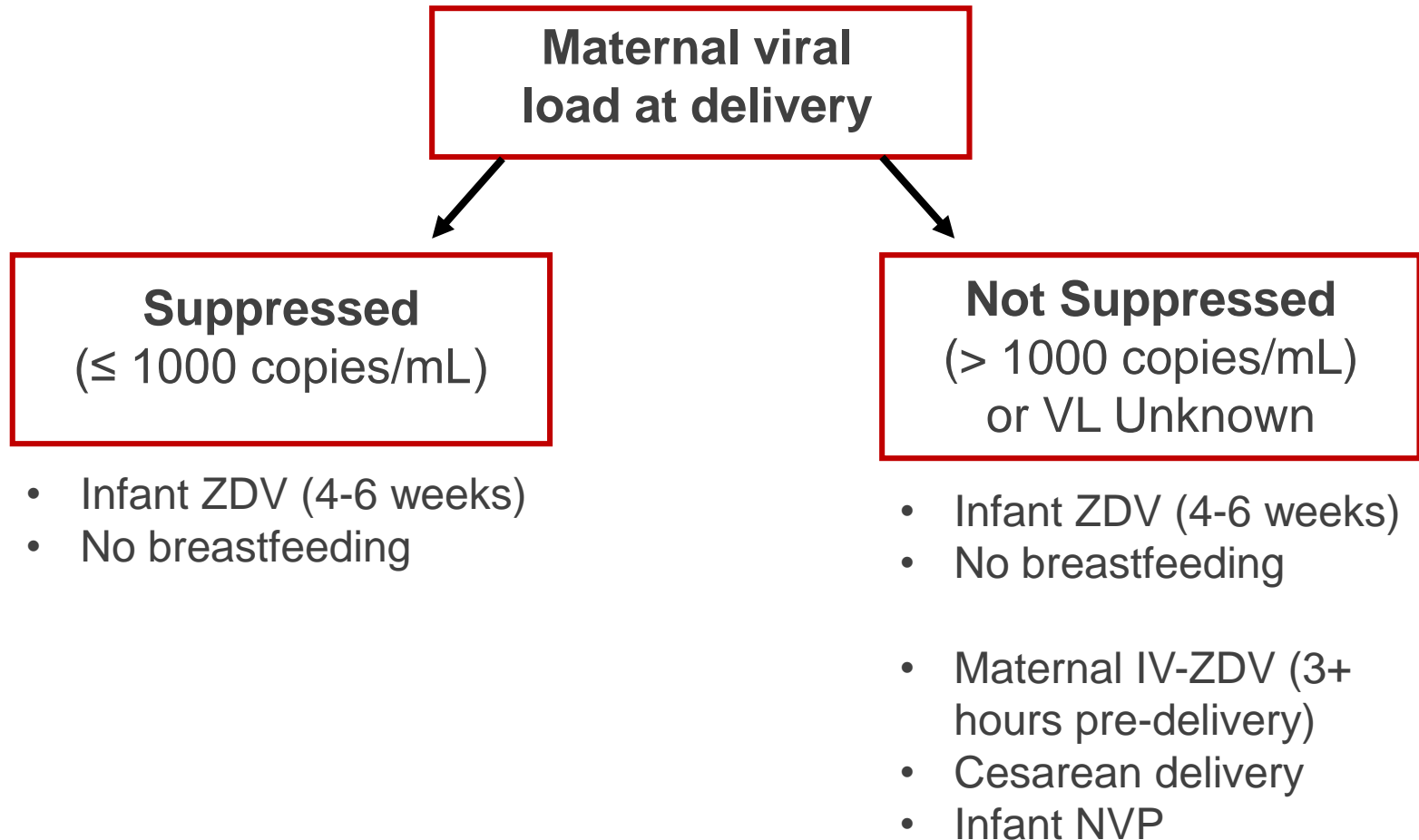
Labor and delivery:

- Maternal HIV status known by labor & delivery providers
- Recent viral load known by labor & delivery providers
- Prevention measures based on maternal viral load

Post-partum

- 4-6 weeks infant prophylaxis
- No breastfeeding

Prevention Measures Based on Maternal Viral Load at Delivery



Methods: Identifying Women Living with HIV who delivered a live infant

Birth Certificate

- HIV+ maternal status indicated

Pharmacy Alert System

- Notification sent when infant-dose of ZDV ordered
- 6 metro-area hospital pharmacies one in Columbus

Reports of infant exposures and infections from providers

- Perinatal HIV Exposure Reporting – by providers or birth hospital (not complete)
- Reported transmissions from providers



Compiled “Master List” of HIV-exposed births in Georgia in 2016

Methods: Data Collection

Chart review

- Mother's labor & delivery chart
- Infant's birth chart
- Prenatal care records when included

Birth certificate data

- Prenatal care (number of visits, date started)

HIV Surveillance data (eHARS)

- Mother's HIV diagnosis date
- CD4 and viral load (VL) labs (labs = proxy for HIV care)

Methods: Total Perinatal HIV Exposures

Women living with HIV who delivered a live infant in Georgia in 2016:

- **N=192**

Live infants delivered:

- **N=196**

Location of birth

- Based on the location where the infant was delivered:
 - **Metropolitan Atlanta:** n=123
 - **Non-metro Atlanta** (Elsewhere in Georgia): n=69

Tables and Figures

HIV-Exposed Live Births, Georgia 2016

Demographic characteristics of women living with HIV who delivered a live infant in Georgia (n=192)

DEMOGRAPHICS	N	%
Maternal Age at Delivery		
< 25 yrs	52	27.1
25-34 yrs	104	54.2
35 + yrs	36	18.8
Race		
Black, non-Hispanic	162	84.4
White, non-Hispanic	11	5.7
Hispanic	9	4.7
Other or unknown	10	5.2
Transmission Category		
Heterosexual contact	113	58.9
Injection drug use	3	1.6
Perinatal Exposure	9	4.7
Missing*	67	34.9

**The distribution of risk among these likely reflects those with complete risk information.*

Prenatal Care

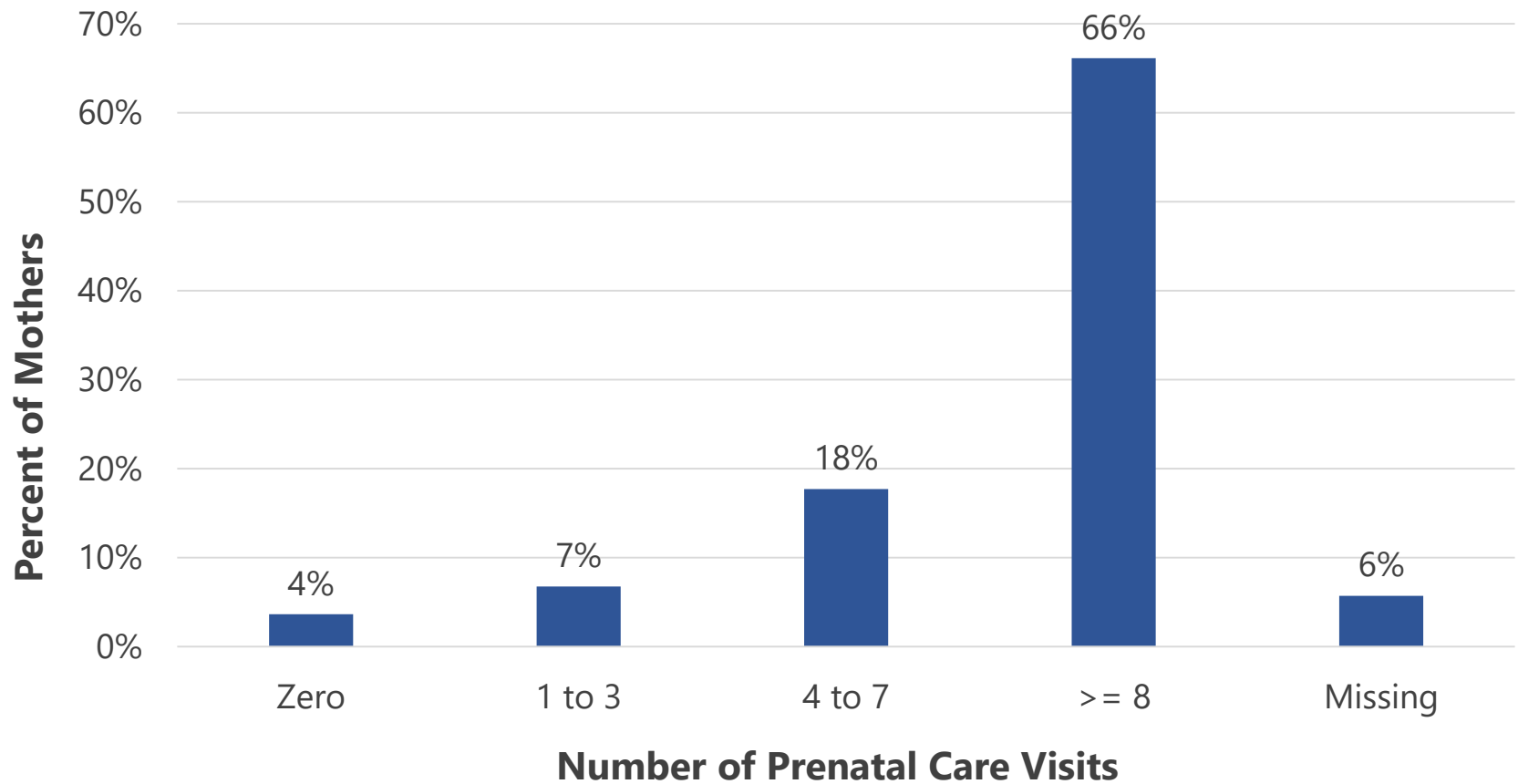
Prenatal Care Beginning in the First Trimester, Georgia 2016:

- Among women living with HIV in Georgia: **54%***
- Among all women in Georgia: **70-75% ²**

**Note: 10% of mothers were missing data on time of prenatal care start.*

2. National Vital Statistics Report, "Timing and Adequacy of Prenatal Care in the United States, 2016"

Number of prenatal care visits among women living with HIV who delivered a live infant, Georgia 2016

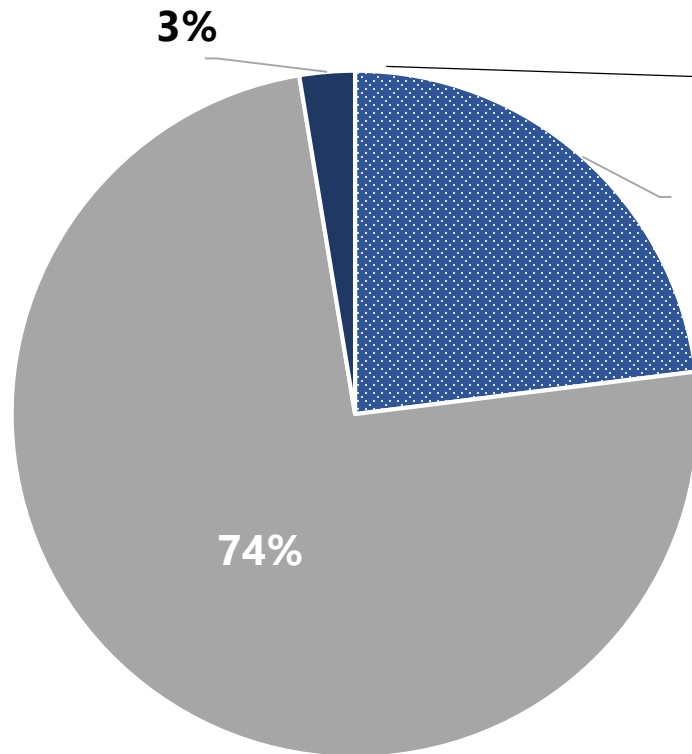


Inadequate Prenatal Care*: 38%

**Inadequate prenatal care defined by the Missouri Index (which accounts for number of prenatal care visits and start of prenatal care during pregnancy) as less than five visits for gestational age at delivery <37 weeks, less than 8 visits for gestational age ≥37 weeks, or prenatal care started after fourth month of pregnancy.*

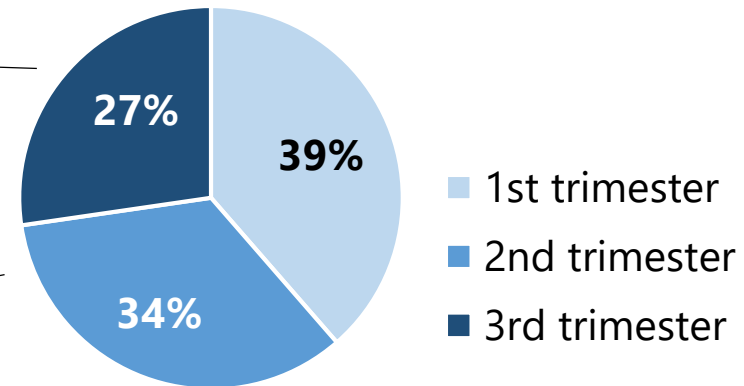
Time of Maternal HIV Diagnosis Among Women who Delivered a Live Infant, Georgia 2016

**Time of Maternal HIV Diagnosis
(n=191*)**



- During Pregnancy
- Before Pregnancy
- At or After Infant Delivery

**Trimester of HIV Diagnosis, among Women
Diagnosed During Pregnancy (n=44)**

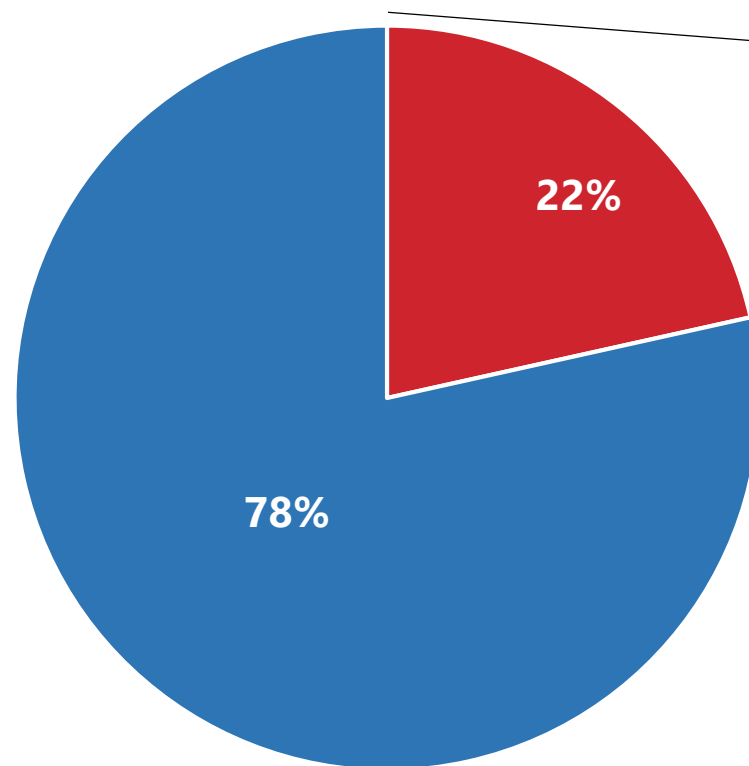


- 1st trimester
- 2nd trimester
- 3rd trimester

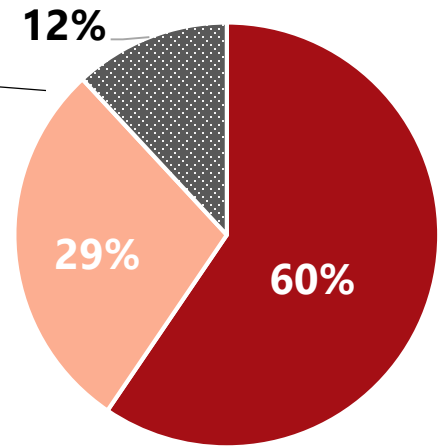
*One mother was missing information on time of HIV diagnosis.

Maternal Viral Suppression by Time of Delivery Among Women who Delivered a Live Infant, Georgia 2016

Maternal viral suppression at delivery (n=192)



Time of maternal HIV diagnosis, among women with unsuppressed viral load at delivery (n=42*)

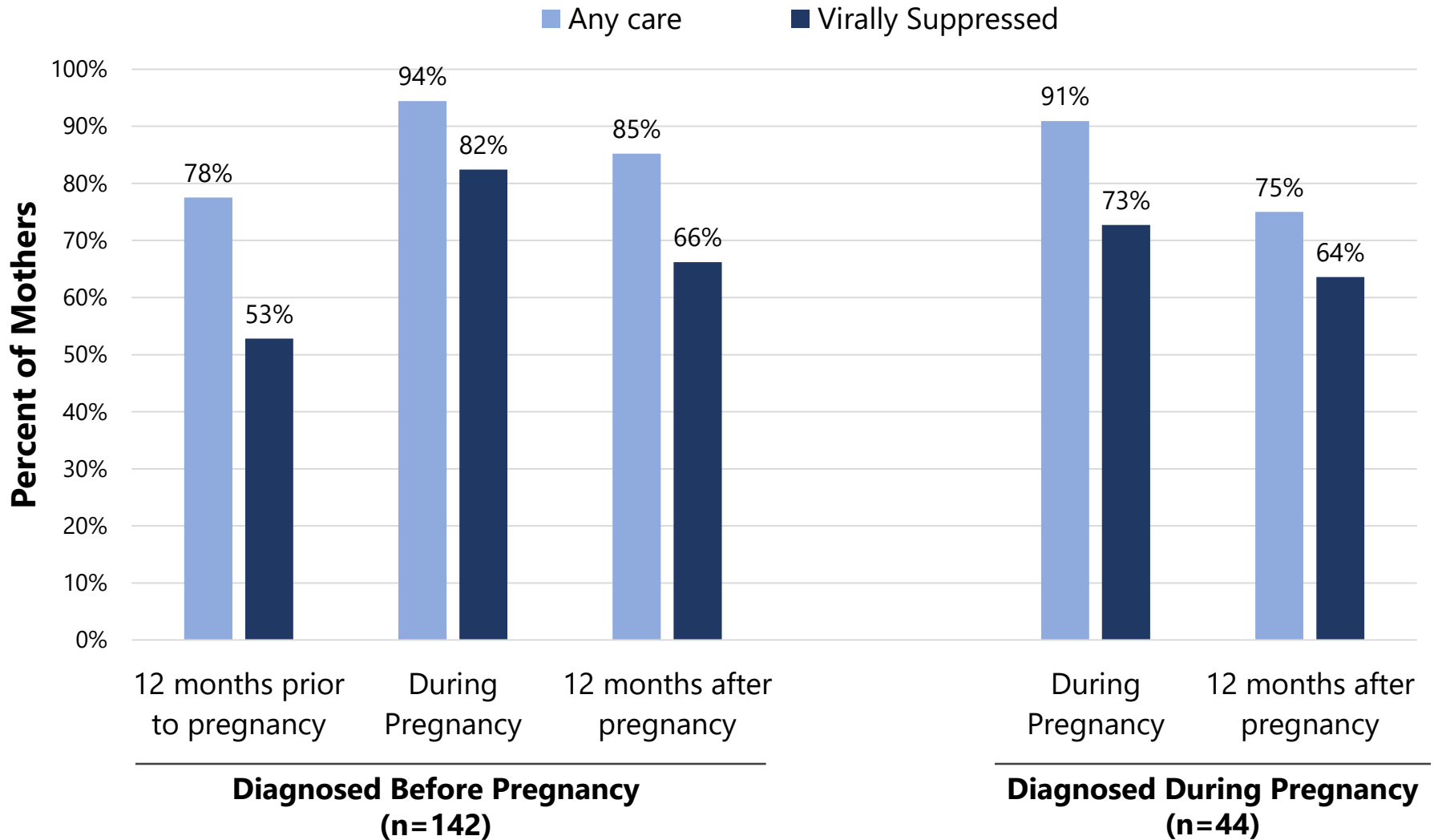


- Before Pregnancy
- During Pregnancy
- At or After Delivery

- Maternal viral load unsuppressed at delivery
- Maternal viral load suppressed at delivery

**The 42 women considered unsuppressed at delivery include women (n=12) missing viral load data around the time of infant delivery.*

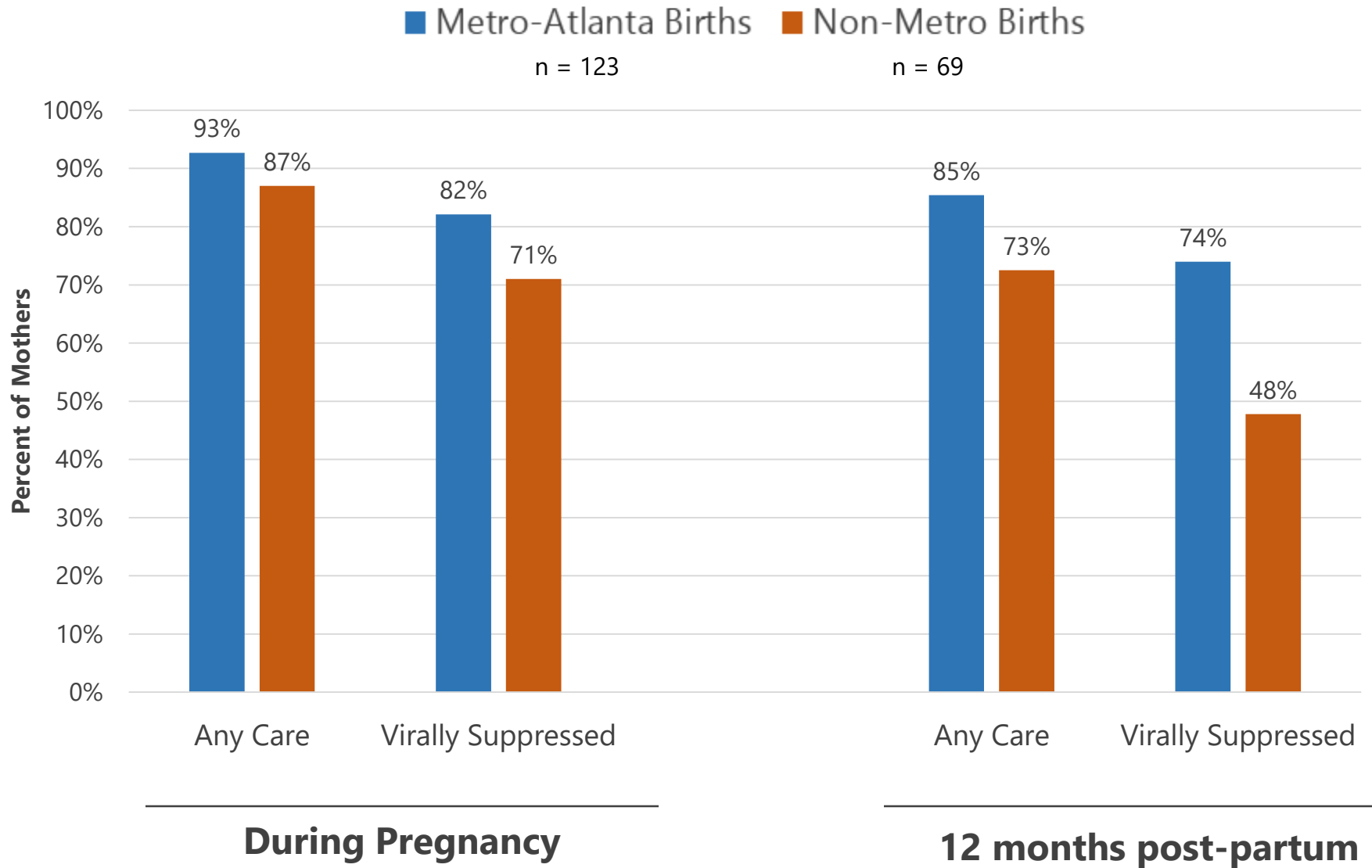
Receipt of HIV care and viral suppression before, during and after pregnancy, Georgia 2016



**Definitions: Any care - at least one HIV-related lab (CD4 or viral load) in the specified time period; Viral suppression (before and after pregnancy) - viral load < 200 copies/mL; Viral suppression (during pregnancy) - viral load < 1000 copies/mL by infant delivery.*

**Note: Estimates exclude women diagnosed at or after delivery (n=5) and woman with missing HIV diagnosis time (n=1)*

Receipt of HIV care and viral suppression during and after pregnancy by location of birth, Georgia 2016



**Note: viral suppression defined as viral load < 1000 copies/mL by infant delivery for the period during pregnancy and as viral load < 200 copies/mL during the 12 months after pregnancy.*

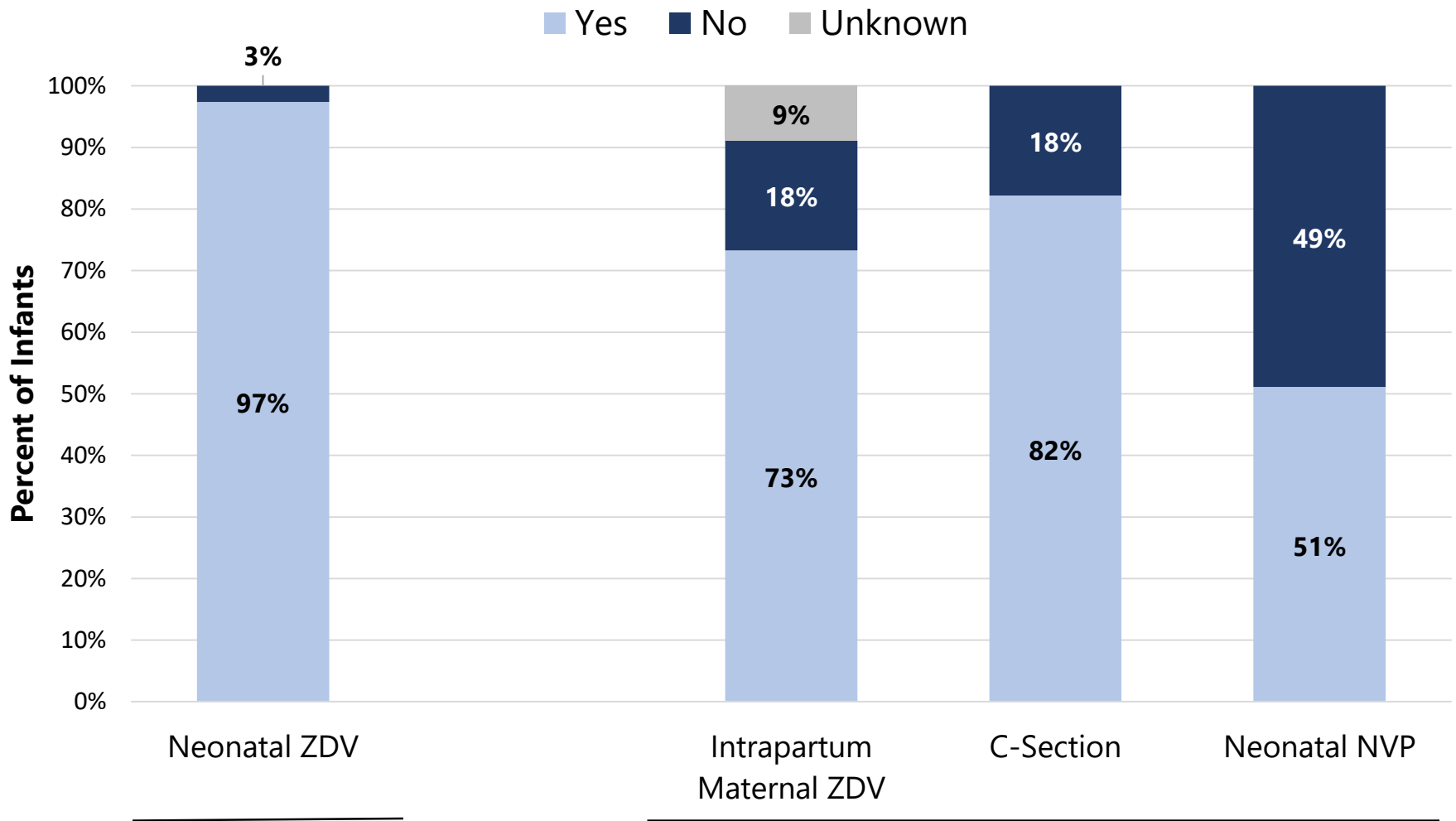
Demographic and birth history characteristics of infants born to women living with HIV, Georgia 2016 (n=196)

DEMOGRAPHICS	N	%
Birth Sex		
Female	104	53.1
Male	92	46.9
BIRTH DETAILS	N	%
Birth Type		
Single	186	94.9
Twins	10	5.1
Delivery Method		
Vaginal	76	38.8
Cesarean	120	61.2
Neonatal Status		
Full Term (≥ 37 weeks)	143	73.3
Premature [†] (< 37 weeks)	52	26.7

**Categories may not add up to total due to missing data*

[†]Infant birth before 37 weeks gestational age

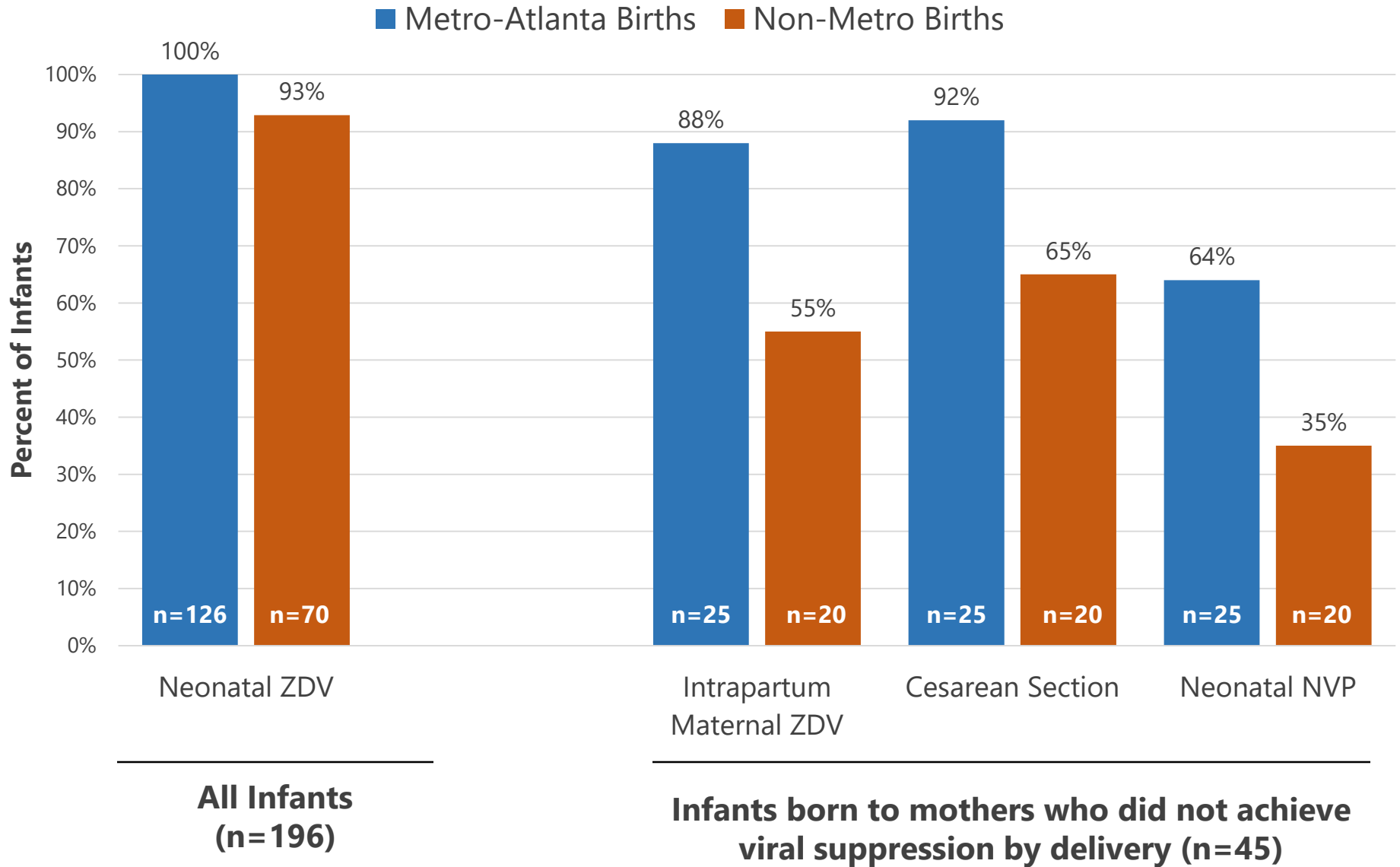
Receipt of recommended labor & delivery prevention measures statewide, Georgia 2016



**All infants
(n=196)**

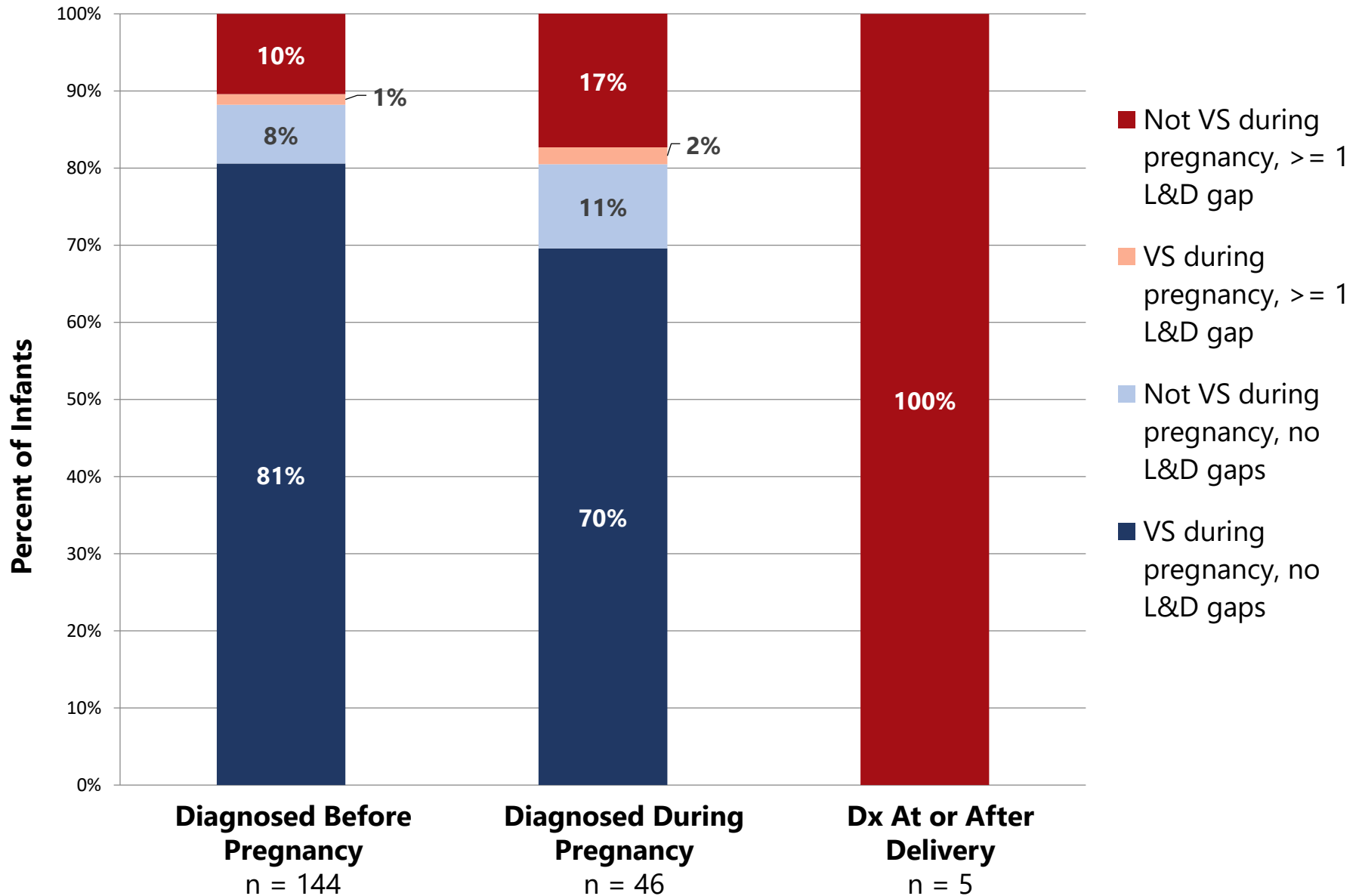
**Infants born to mothers who did not achieve
viral suppression by delivery (n=45)**

Receipt of recommended labor & delivery prevention measures by location of birth, Georgia 2016

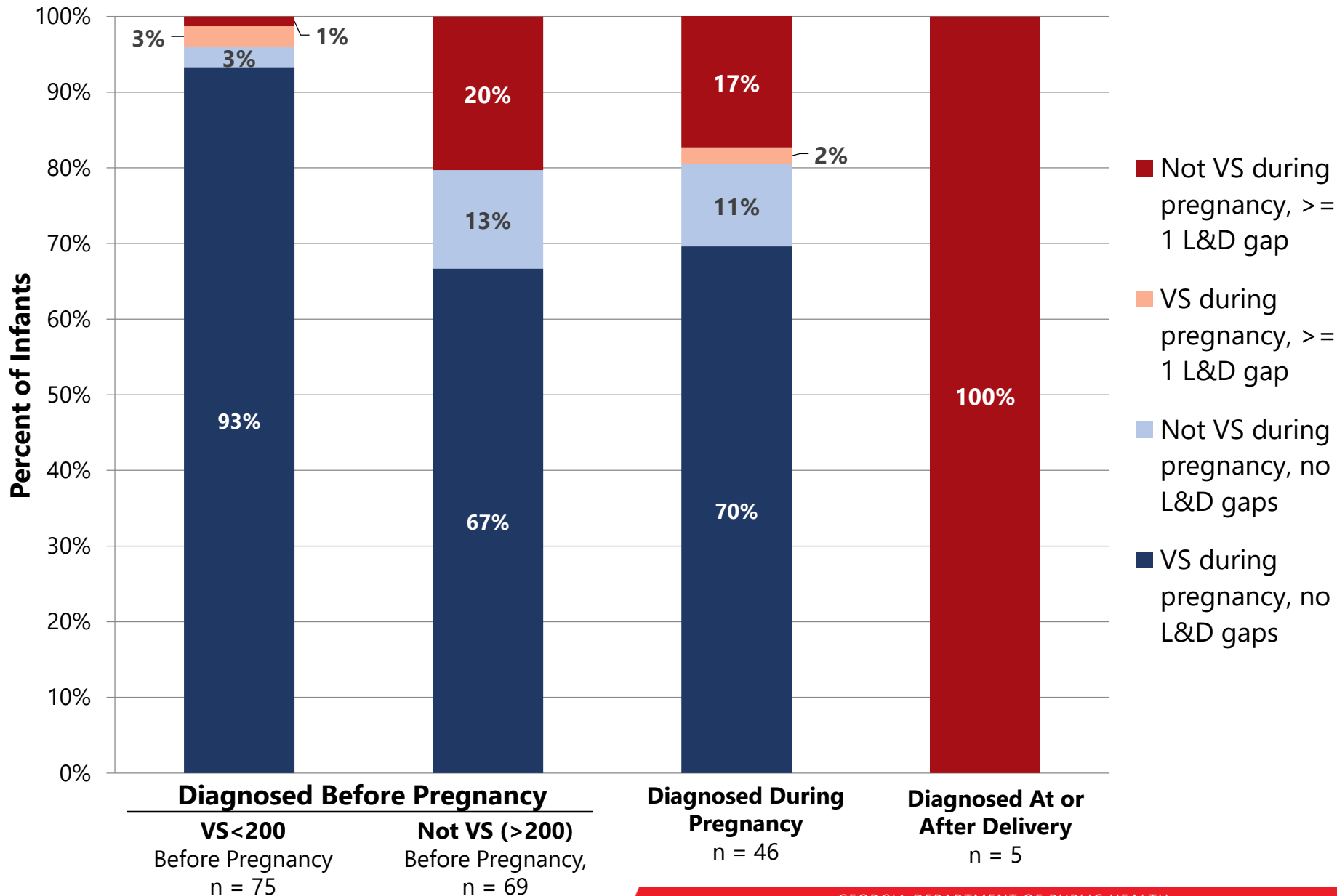


*4 births in non-metro area were missing intrapartum maternal ZDV information

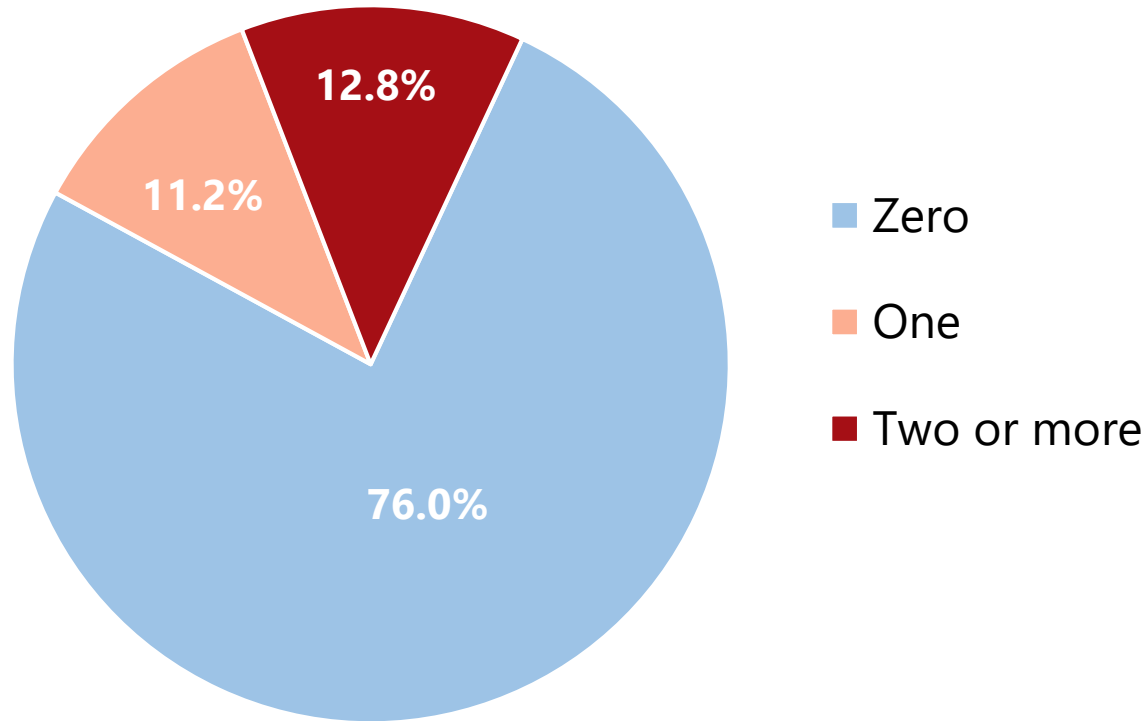
Maternal viral suppression by delivery and receipt of all labor & delivery (L&D) interventions, by time of maternal HIV diagnosis, Georgia 2016



Maternal viral suppression by delivery and labor & delivery (L&D) interventions, by maternal HIV diagnosis time and viral suppression pre-pregnancy, GA 2016



Total number of missed prevention measures among all infants born to women living with HIV in Georgia, 2016



**Missed prevention measures considered in this total count include: late maternal HIV diagnosis (after 7th month of pregnancy), unsuppressed maternal viral load at infant delivery, and the following labor & delivery prevention measures: neonatal ZDV, neonatal NVP, maternal IV ZDV, and cesarean delivery. Unknown or missing values were not counted as a missed opportunity.*

Estimated Perinatal HIV Transmission Rate

- 5 perinatal HIV transmissions
- Total known HIV-exposed live births: 228
 - 196 from the “master list” of births (presented here)
 - 32 additional exposed births
 - Match between Georgia Vital Records 2016 birth registry and eHARS
 - Data abstraction not completed
- Estimated transmission rate, Georgia 2016: **2.2%***

**Approximately twice the rate of < 1% that can be achieved when all prevention measures in place.*

Limitations

- Imperfect systems for capturing HIV-exposed infants
- Women (n=12) with unknown viral suppression at delivery
 - Can't determine from HIV Surveillance system (or)
 - Not clear in labor & delivery chart
- Incomplete maternal HIV lab data
 - Possible underestimation of proportion of women who received any HIV care and achieved viral suppression during pregnancy
- Missing detailed data regarding labor & delivery medication
 - Time between birth and NVP/ZDV
 - Length of time mother received IV ZDV
- Missing data for birth history variables (prenatal care)

Key Prevention Successes

- 75% of HIV positive women who delivered a live infant in 2016 were diagnosed prior to pregnancy
 - Earlier diagnosis allows for retention in care and viral suppression as early as possible
- 78% of all HIV-exposed births were to mothers with a suppressed viral load at delivery
 - Minimized transmission risk during labor and delivery.
- Almost all (97%) of infants received ZDV at delivery as recommended
- 76% of mother-baby pairs received all recommended prevention measures

Key Prevention Gaps: Before Infant Delivery

HIV Care for Women:

- 60% of women virally unsuppressed by delivery were diagnosed before pregnancy
 - Key missed opportunity: minimize transmission risk by ensuring all women diagnosed with HIV are in care and virally suppressed prior to pregnancy

Prenatal Care:

- 38% of women living with HIV who delivered in 2016 received inadequate prenatal care

Key Prevention Gaps: Labor & Delivery

Gaps remain in L&D prevention measures statewide

- Most prevalent gap was failure to receive neonatal NVP when indicated (55%)
- Some of these gaps are due to factors out of the hospital's control, depending on the delivery circumstances

For births outside of metro Atlanta (compared to metro Atlanta births):

- More gaps in labor & delivery prevention measures
 - Caveat: more missing data in non-metro areas

Work Underway to Address Gaps

HIV Program:

- Awareness and provider training initiatives implemented
- Efforts to coordinate HIV and prenatal care for women living with HIV
- Use of HIV surveillance data to inform progress towards objectives outlined in the HIV Perinatal Strategic Plan

Survey of pharmacies at birthing hospitals in Georgia

- Stocking and inventorying of ART (especially NVP) for perinatally exposed infants

Ongoing perinatal HIV exposure surveillance

Thank you!

Questions?

Contact:

fay.stephens@dph.ga.gov

pascale.wortley@dph.ga.gov

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