

2023

# Georgia Perinatal HIV Surveillance Report

Division of Epidemiology - HIV Epidemiology Section



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# BACKGROUND

## **Interventions to prevent vertical transmission of HIV include:**

1. Adequate prenatal care, including HIV testing and adherence to antiretroviral therapy (ART)
2. HIV viral suppression by time of delivery
3. Receiving intravenous ART during labor and delivery
4. Cesarean section delivery
5. Infant receipt of primary ART (and secondary ART for high-risk situations)

Vertical transmission of HIV can occur during pregnancy, labor and delivery, or post-partum through breastfeeding. Without any intervention, the risk of transmission of HIV from pregnant woman to child ranges from 15-45%<sup>1</sup>. However, the risk of transmission can be reduced to less than 1% when appropriate preventative action is taken<sup>2</sup>. Successful prevention of vertical transmission of HIV requires interventions that span the prenatal, labor and delivery, and post-partum periods. This coordinated effort is critical to ensure that no infant is perinatally infected with HIV.

Diagnosis of HIV and receipt of effective treatment, ideally before pregnancy or as early as possible in pregnancy, are key components of prevention of perinatal transmission. In addition to mandating HIV testing at the start of prenatal care, Georgia law also mandates third trimester testing to ensure that pregnant women infected during pregnancy are diagnosed in time to prevent perinatal transmission. During labor and delivery, successful prevention of vertical transmission of HIV requires that all providers know the HIV status and, if HIV-positive, recent viral load of every pregnant woman who presents to deliver at their facility. The woman's viral load at delivery determines the set of recommended transmission prevention measures. For women with a viral load <1000 copies/ml by delivery, it is recommended that the infant receive zidovudine (ZDV) prophylaxis for 4-6 weeks after birth. For women with a viral load  $\geq$ 1000 copies/ml or an unknown viral load at delivery, the following prevention intervention are recommended: (1) receipt of ZDV intravenously (IV) administered for at least three hours prior to delivery, (2) delivery via cesarean section to minimize the infant's exposure during delivery, and (3) infant receipt of ZDV plus at least one other additional antiviral after birth.

Clinical guidelines now support informed decision-making between a mother and her healthcare team regarding breastfeeding. If a mother decides to breastfeed, then additional virological monitoring is recommended for both mother and child for the duration of breastfeeding. After cessation of breastfeeding, additional virologic testing should be done on the child to determine the child's HIV status<sup>4</sup>.

Overall improvements in prevention of vertical transmission of HIV in recent years is likely due to increased efforts in improving patient follow-up and provider adherence to proper guidelines in caring for women before, during, and after delivery.



# SUMMARY

## KEY PREVENTION SUCCESSES:

- 80% of women with HIV who delivered a live infant in 2023 were diagnosed **prior to pregnancy**.
  - Earlier diagnosis allows for retention in care and viral suppression as early as possible, ideally before conception or as early as possible during pregnancy.
- 99% of women with HIV who delivered a live infant in 2023 were diagnosed **prior to delivery**.
- Almost all (99.5%) of infants received ZDV at delivery as recommended.
- Most women (88%) received the proper interventions indicated during labor and delivery and postpartum.
  - Chart review of cases where the woman and baby did not receive all interventions almost always revealed valid reasons for interventions not being provided. Reasons why interventions were not given are briefly described below and in detail further in the report on Table 3.
  - **There was one documented exposure where the mother's self-reported viral load status was not supported by laboratory evidence leading to several missed mother interventions.**

## KEY PREVENTION GAPS:

### HIV care for all pregnant women of childbearing age

- Ensure all women are diagnosed with HIV and in care prior to delivery:
  - o Among the 15% of women who were not suppressed at delivery, 67% were diagnosed with HIV before pregnancy.
- Ensure all women are diagnosed with HIV and are in care prior to pregnancy:
  - o 19% of women were undiagnosed prior to pregnancy.
  - o 39% of women were virally unsuppressed in the 12 months prior to pregnancy.
- Improve retention in care for all women with childbearing potential living with HIV:
  - o 51% of women of childbearing potential were retained in care and 57% were virally suppressed during 2023.
  - o 85% of all HIV-exposed births were to women with a viral load <1000 copies/ml at delivery, compared to 90% in 2022. Retention to care and achieving viral suppression remain key in reversing the direction of this trend.

### Prenatal Care

- Around 39% of pregnant women with HIV in 2023 had inadequate prenatal care; 8% had no or very little prenatal care

## **Guideline-related**

- Some interventions were missed due to issues with timing and testing turnaround times. For issues with timing, several precipitous deliveries prevented the proper administration of ARTs and ordering of a C-section. At some hospitals, the turnaround time for laboratory results combined with a quick delivery upon arrival made it challenging for some hospitals to adhere to perinatal HIV exposure recommendations.

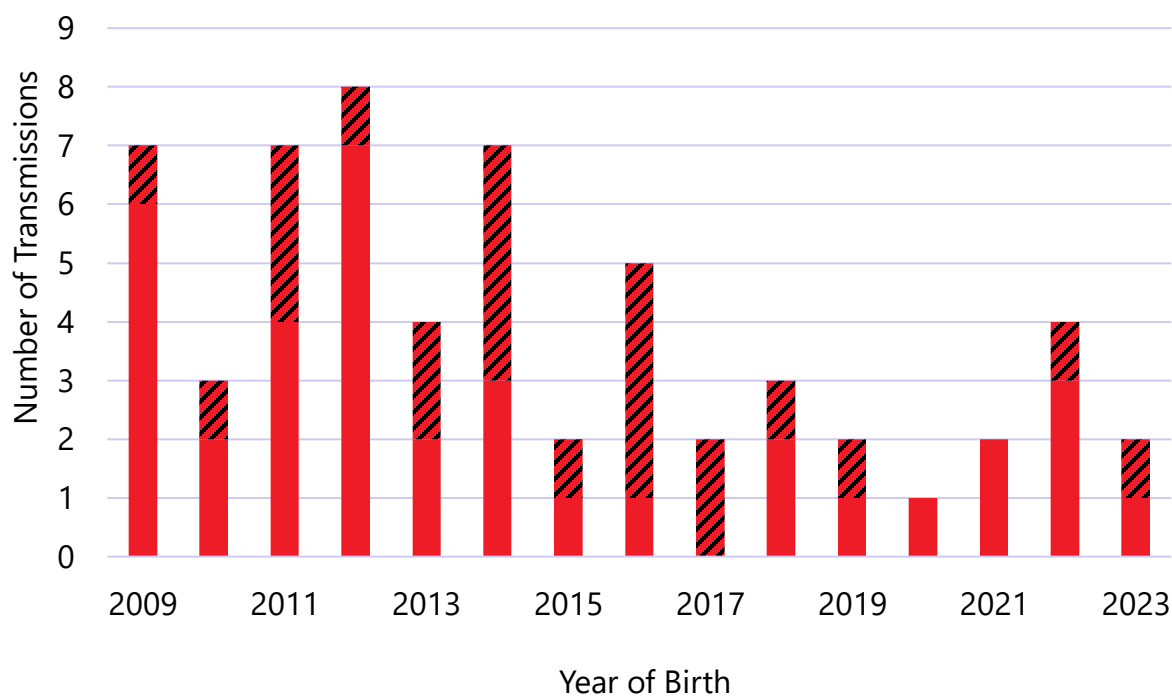
## **PERINATAL TRANSMISSION RATE:**

**The rate of perinatal HIV transmission in Georgia in 2023 is estimated to be 0.9%**

# PERINATAL HIV TRANSMISSION IN GEORGIA, 2023

From 2009–2023, a total of 59 infants born in Georgia were perinatally infected with HIV (Figure 1). 36 of 59 (61%) were born to women residing within the Atlanta metropolitan statistical area (abbreviated as metro) and 39% to women residing in other parts of Georgia (non-metro).

**Figure 1. Perinatal HIV Infections, by year and location of pregnant woman's residence, Georgia, 2009–2023**



■ Metropolitan Atlanta ■ non-Metropolitan Atlanta

*\*Categorization of Metropolitan Atlanta vs. non-metropolitan Atlanta is determined by location of pregnant woman's residence at time of delivery*

## Perinatal HIV exposure surveillance

Perinatal exposure surveillance involves collecting information on all pairs of pregnant women and infants where the woman was known to be HIV positive. In contrast to only collecting information on infants and pregnant women across confirmed cases of perinatal transmission, this allows for quantifying the prevalence of gaps in preventive measures among all infants with perinatal HIV exposure.



# METHODS

## DATA SOURCES

A list of all known births to pregnant women with HIV in Georgia in 2023 was compiled through five different data sources to identify infants perinatally exposed to HIV:

- 1 Pregnant woman's HIV status indicated as positive on the infant's birth certificate
- 2 Registry match between birth registry and the HIV Surveillance registry to identify pregnant women with HIV who gave birth
- 3 Pharmacy alert system
  - In place with three hospital pharmacies in Atlanta
  - Sends a notice to Infection Prevention (IP) when any infant dose of ZDV is ordered, identifying the birth of an HIV-exposed infant reported to the Georgia Department of Public Health via the State Electronic Notifiable Disease Surveillance System (SendSS)
- 4 Active reporting of exposed infants by one large hospital
- 5 Reports of infant exposures and infections from providers

## DATA COLLECTION

For all reported perinatal HIV exposures in 2023, data was abstracted from review of the following sources:

- Pregnant woman's labor and delivery (L/D) charts
- Infant birth charts
- Prenatal care records, when available in L/D chart
- Statewide HIV surveillance data (Georgia Enhanced HIV/AIDS Reporting System, eHARS)
- Birth certificate (information on date of initiation of prenatal care and number of visits obtained from birth certificate if not available in chart)

## LIMITATIONS

Limitations of the data presented in this report include:

- Not all perinatal HIV exposures are captured by the surveillance system and the numbers presented may be an undercount of the true number of perinatal exposures.
- Missing laboratory data during the pregnancy period may contribute to an underestimation of the proportion of pregnant women who received any HIV care and achieved viral suppression during pregnancy.
- Prenatal care data was missing for a proportion of infants.
- The time of HIV diagnosis is unknown for a small proportion of pregnant women. They may have been diagnosed before pregnancy, based on laboratory results in eHARS.
- There was incomplete ascertainment of definitive infant HIV status after birth due to incomplete reporting of negative qualitative PCRs and lack of information from pediatric providers. Children are assumed to be HIV negative if no positive virologic HIV tests have been received through routine electronic laboratory reporting. Electronic laboratory reporting is considered to have a high level of completeness.



# TABLES AND FIGURES: 2023

**Table 1. Demographic characteristics of pregnant women with HIV in Georgia who delivered a live birth (n=206), compared to pregnant women without HIV who delivered a live birth, and all women with HIV of childbearing age, 2023**

	Pregnant women with HIV	%	Pregnant women without HIV*	%	All women with HIV of childbearing age**	%
Total	206	100	125,210	100	5,125	100
<b>Age†</b>						
<25 years	37	18.0	30,914	24.7	386	7.5
25-34 years	107	51.9	70,954	56.7	1685	32.9
35+ years	62	30.1	23,342	18.6	3054	59.6
<b>Race</b>						
Black, non-Hispanic	154	74.8	42,990	34.3	3,737	72.9
White, non-Hispanic	15	7.3	52,918	42.3	572	11.2
Hispanic	20	9.7	21,992	17.6	438	8.6
Other or unknown	17	8.3	7,310	5.9	378	7.4
<b>Transmission Category‡</b>						
Heterosexual contact	188	91.2	--	--	4,449	86.8
Injection drug use	5	2.4	--	--	296	5.8
Adult Other	12	5.8	--	--	320	6.2
No risk reported/missing	1	0.0	--	--	60	1.2

Categories may not add up to 100% due to missing information

\* HIV status determined from vital records summary

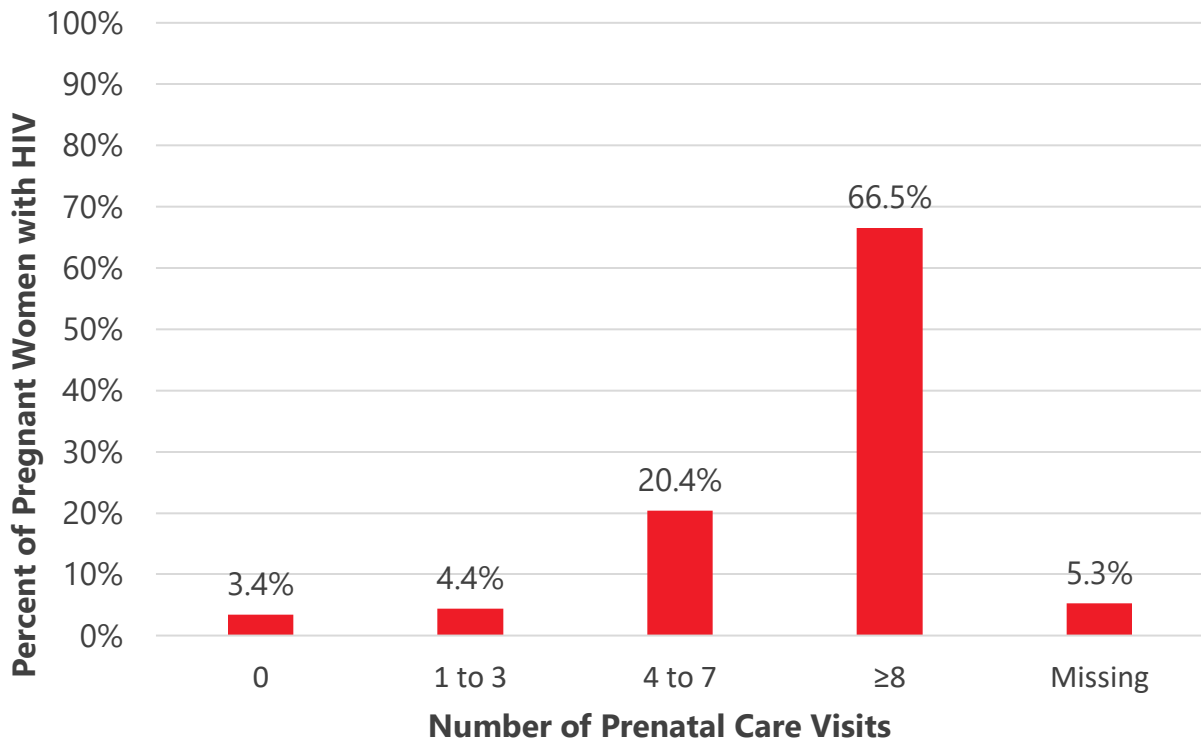
\*\* Based off end of year 2023 HIV surveillance data

† Age for pregnant women is at time of delivery. Childbearing age between 15-44.

‡ Adjusted transmission categories. Multiple imputation was used to account for missing or incomplete transmission risk factors.

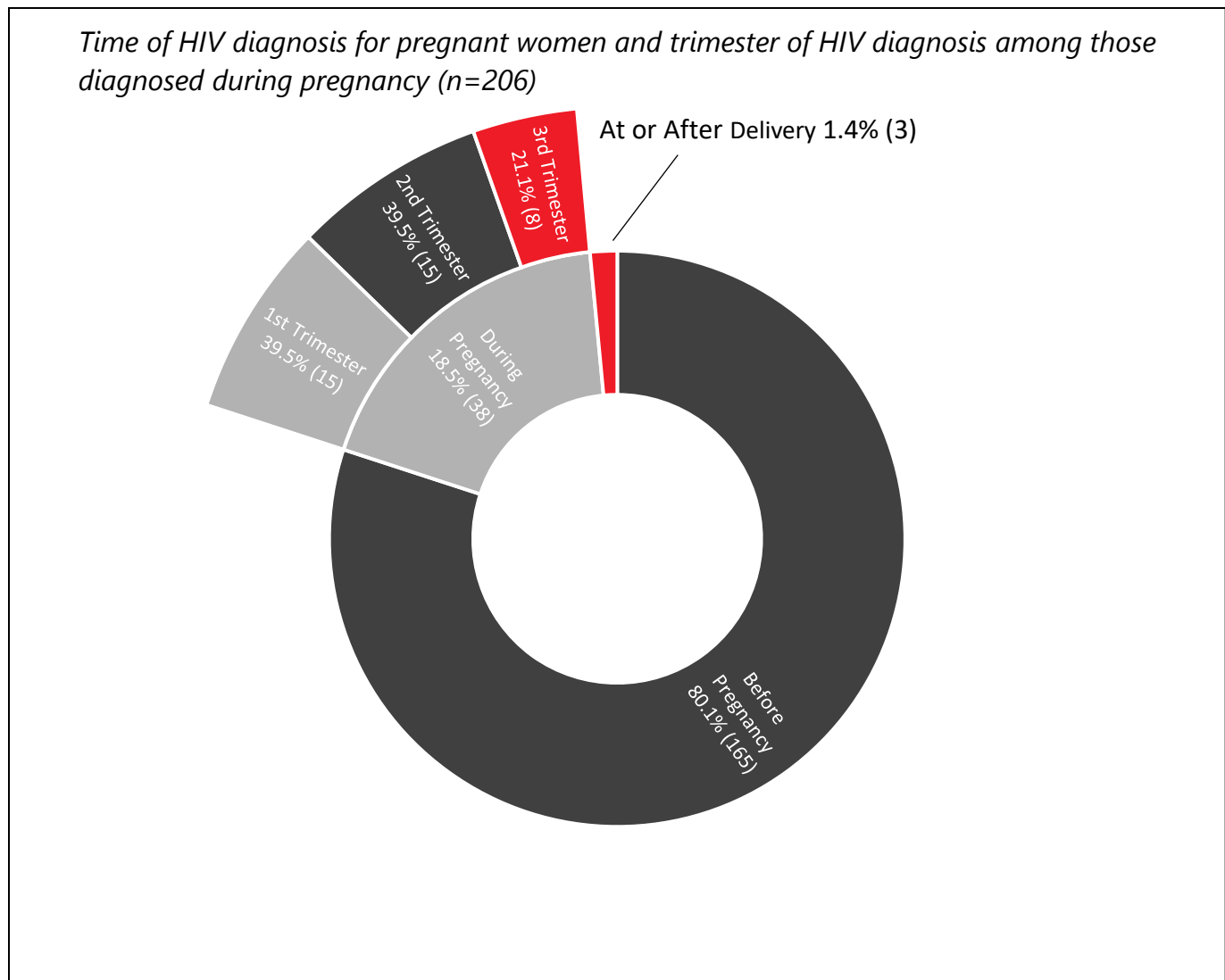
- The majority of pregnant women with HIV (~75%) were Black, non-Hispanic. This majority is similar to all women with HIV of childbearing age; there is no majority for all pregnant women without HIV (34% Black)
- More than half (~52%) of pregnant women with HIV who delivered a live infant in Georgia in 2023 were between 25–34 years of age, and 18% were under 25 years of age. Compared to all pregnant women without HIV, pregnant women with HIV were on average slightly older at time of delivery (~82% age 25 or higher compared to ~75% age 25 or higher), which is in part reflective of the older age distribution of people with HIV compared to the general population of Georgia.
- The most common risk factor for HIV transmission was heterosexual contact, regardless of pregnancy status for all women of childbearing age. A small proportion of pregnant women (2%) had an adjusted risk factor associated with injection drug use, compared to 6% of all women with HIV of childbearing age.

**Figure 2. Number of prenatal care visits for pregnant women with HIV, Georgia 2023**



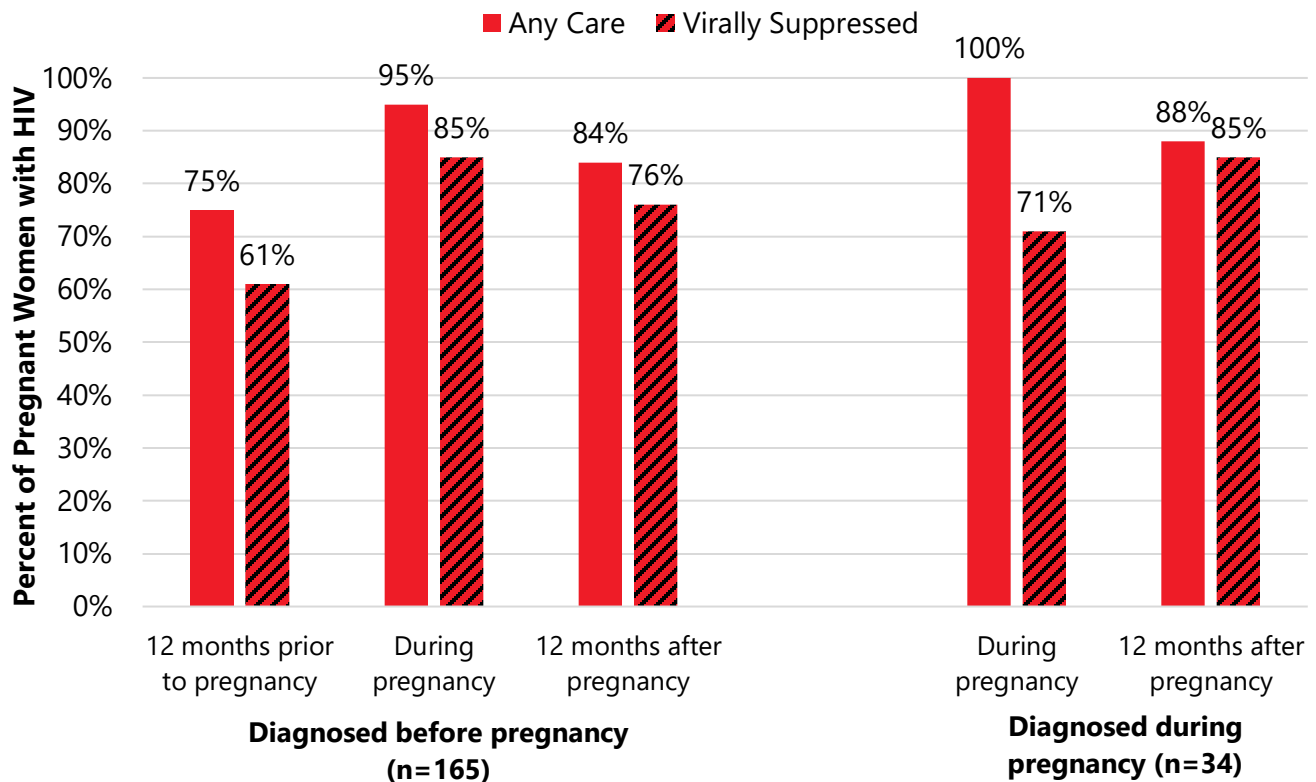
- 8% percent of pregnant women with HIV received no or very little (less than four visits) prenatal care.
- 39% received inadequate prenatal care, which accounts for both the start time during pregnancy and number of prenatal care visits.
  - Inadequate prenatal care is defined as less than five prenatal care visits for infants born before 37 weeks gestational age, less than eight prenatal care visits for infants born at or after 37 weeks gestational age, or prenatal care which began after the first four months of pregnancy.
- 67% received eight or more prenatal care visits.

**Figure 3. Time of HIV-diagnosis among pregnant women with HIV who delivered a live infant in Georgia, 2023**



- 80% of women had been diagnosed with HIV before pregnancy.
- Among women diagnosed during pregnancy, eight (21% among those diagnosed during pregnancy) were diagnosed during their third trimester.
- Three women (1%) were diagnosed with HIV at or after delivery.
- Four women were supposedly diagnosed during pregnancy but were already virally suppressed upon a first virologic test done recently after diagnosis (up to one month). ~~It currently cannot be determined if the diagnosis during pregnancy is truly a first diagnosis, or the person was erroneously diagnosed again.~~ These persons were possibly previously diagnosed, but the diagnosis was not reported to Georgia DPH. (This group may be excluded in future figures describing women who were diagnosed during pregnancy)

**Figure 4. Receipt of HIV care and viral suppression for women with HIV before, during and after pregnancy, Georgia, 2023**



*Definitions: Any care - at least one HIV-related lab (CD4 or viral load) in the specified period; Viral suppression (before, during, and after pregnancy) - viral load < 200 copies/mL*  
*- Care continuum estimates exclude women diagnosed at or after delivery (n=3) and women with a diagnosis during pregnancy but already achieved viral suppression around the time of diagnosis (n=4)*

**Any care:**

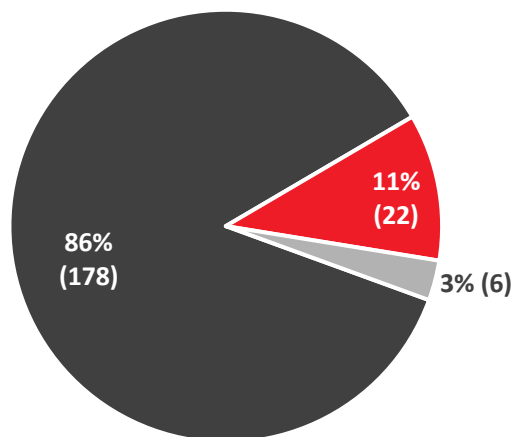
- Among women diagnosed before pregnancy, more received HIV care during pregnancy (95%) than before (75%) or after (84%) their pregnancy.
- Regardless of whether HIV diagnosis occurred before or during pregnancy, fewer women received HIV care in the 12 months post-partum than during pregnancy.

**Viral suppression:**

- For women diagnosed before pregnancy, viral suppression increased during pregnancy, but declined in the 12 months following delivery
- For women diagnosed during pregnancy, viral suppression was lower compared to women diagnosed before pregnancy. These women however were more likely to be virally suppressed in the 12 months following delivery compared to women who were diagnosed before pregnancy.

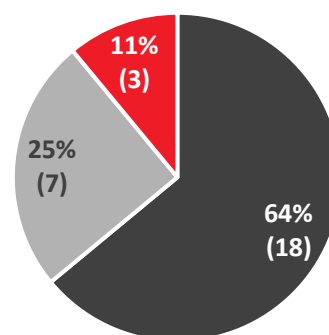
## Figure 5. Viral load at the time of delivery among women with HIV who delivered a live infant, Georgia, 2023

*Viral load of pregnant women at delivery  
(n=206)*



- Viral load < 1000 copies/mL at delivery
- Viral load ≥ 1000 copies/mL at delivery
- Viral load unknown at delivery

*Time of HIV diagnosis,  
among pregnant women  
with viral load ≥ 1000  
copies/ml or unknown at  
delivery (n=28)*



- Before pregnancy
- During pregnancy
- At or after delivery

- 86% of pregnant women had a viral load < 1000 copies/ml by delivery. Six women had an unknown viral load at delivery, due to not having a recent viral load laboratory test within 4-6 weeks of delivery.
  - Four of the women had prenatal care within these 4-6 weeks before delivery, but it cannot be determined if viral load testing was performed at these visits. Prenatal care status was unable to be determined for the other two women.

Among pregnant women with a viral load ≥ 1000 copies/ml at delivery, 64% of them had been previously diagnosed before pregnancy but were not virally suppressed by delivery.

**Table 2. Demographic and birth history characteristics, HIV-exposed infants born in Georgia (n=213), compared to all non-HIV exposed infants born in Georgia, 2023**

	Number of HIV-Exposed Infants*	Percent	Number of non-HIV exposed infants*	Percent
Total	213	100	125,319	100
<b>DEMOGRAPHICS</b>				
<b>Birth Sex</b>				
Female	104	48.8	61,492	49.1
Male	109	51.2	63,826	50.9
<b>BIRTH DETAILS</b>				
<b>Birth Type</b>				
Single	199	93.4	121,253	96.7
Twins (or more)	14	6.6	4,066	3.3
<b>Delivery Method</b>				
Vaginal	89	41.8	77,263	61.8
Cesarean	124	58.2	47,754	38.2
<b>Neonatal Status</b>				
Full Term (≥ 37 weeks)	161	75.6	110,564	88.3
Premature† (< 37 weeks)	52	24.4	14,706	11.7
<b>Birth Weight</b>				
Very Low (<1500 g)	7	3.3	2,106	1.7
Low (≥ 1500 g, <2500 g)	38	17.8	10,593	8.5
Normal (≥ 2500 g)	168	78.9	112,594	89.9
<b>LOCATION OF BIRTH</b>				
Regional Perinatal Center‡	70	32.9	12,557	10.0
<b>Geographic Location</b>				
Metro Atlanta	117	54.9	68,912	67.9
Non-metro Atlanta	96	45.1	32,630	32.1

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

†Infant birth before 37 weeks gestational age

‡Regional Perinatal Centers- regional referral hospitals designated as locations where pregnant women and infants can receive the appropriate level of care for all risk levels: (Grady Memorial Hospital, Phoebe Putney, Piedmont Columbus Hospital, Augusta University Hospital/Wellstar MCG Health Medical Center, Memorial Health University Medical Center)

- Among women with HIV, 42% of infants were delivered vaginally and 58% via cesarean section.
- Under a quarter (24%) of perinatally HIV-exposed infants were born premature, and 21% were low or very low birthweight. A higher proportion of perinatally HIV-exposed infants were born premature and were more likely to be born with less than normal birth weight compared to infants born to women without HIV.
- 33% percent of HIV-exposed infants were delivered at Regional Perinatal Centers.
- 45% percent of HIV-exposed infants were born outside the metropolitan Atlanta area.

**Table 3. Interventions received by infants born to women with HIV in Georgia who had a live birth in 2023, by viral suppression status at delivery**

<b>Intervention</b>	<b>Number of Infants n (%)</b>	<b>Comments</b>
<b>Infants born to women with viral load &lt;1000 copies/ml at delivery*</b> <b>n = 183</b>		
<b>Infant ZDV</b>	183 (100%)	<b>All infants received intervention</b>
<b>Infants born to women with viral load ≥1000 copies/ml or unknown at delivery</b> <b>n = 30</b>		
<b>Pregnant woman given IV ZDV during labor</b>	21 (70%)	<p><b>9 pregnant women did not receive intervention:</b></p> <ul style="list-style-type: none"> <li>- 5 women had a precipitous vaginal delivery</li> <li>- 1 woman self-reported adherence to ART but was not virally suppressed at delivery</li> <li>- 1 woman the baby was born extremely premature (21 weeks) and extremely low birth weight (380g). Was not expected to survive and passed away soon after birth</li> <li>- 2 women the reason for no IV ZDV was unable to be determined</li> </ul>
<b>C-section performed</b>	25 (83%)	<p><b>5 pregnant women did not receive intervention:</b></p> <ul style="list-style-type: none"> <li>- 3 women had a precipitous vaginal delivery</li> <li>- 1 woman self-reported adherence to ART but was not virally suppressed at delivery</li> <li>- 1 woman the baby was born extremely premature (21 weeks) and extremely low birth weight (380g). Was not expected to survive and passed away soon after birth</li> </ul>
<b>Infant ZDV</b>	29 (97%)	<p><b>1 infant did not receive intervention:</b></p> <ul style="list-style-type: none"> <li>- Baby born premature (21 weeks) and extremely low birth weight (380g). Was not expected to survive and passed away soon after birth</li> </ul>
<b>Secondary ARV</b>	26 (87%)	<p><b>4 infants did not receive intervention:</b></p> <ul style="list-style-type: none"> <li>- 1 woman the baby was born extremely premature (21 weeks) and extremely low birth weight (380g). Was not expected to survive and passed away soon after birth</li> <li>- 3 women the reason for no secondary ARV given to the infant was unable to be determined.</li> </ul>

\* Viral load at delivery based on pregnant woman's viral load closest to delivery (within generally a month)





<b>Table 4. Confirmed perinatal HIV transmissions, Georgia 2023</b>			
<b>Birth</b>	<b>Time of HIV Diagnosis for Pregnant Woman</b>	<b>Viral Load at Delivery</b>	<b>Comments</b>
#1	Before pregnancy	>1000 c/mL	<ul style="list-style-type: none"><li>• <b>Baby received all recommended interventions</b></li><li>• Pregnant women self-reported ART adherence and viral suppression but no recent laboratory tests were available to confirm</li><li>• Pregnant woman did not receive IV ZDV nor a C-section based off her self-report</li><li>• Viral load at time of delivery was &gt;1000 c/mL but reported after delivery. Last undetectable viral load was prior to start of pregnancy</li></ul>
#2	Before pregnancy	>1000 c/mL	<ul style="list-style-type: none"><li>• <b>Baby and mother received all recommended interventions</b></li><li>• Pregnant woman did not have any HIV care during pregnancy</li><li>• Pregnant woman may have been experiencing homelessness</li></ul>

### **Estimated perinatal HIV Transmission Rate**

Including all known HIV-exposed infants in Georgia in 2023, among 213 HIV-exposed live births, we are aware of 2 perinatal HIV transmissions. The rate of perinatal HIV transmission in Georgia in 2023 is estimated to be 0.9%, which is a similar rate seen in 2020 and 2021. Further provider education and improved support for all pregnant women with HIV are key to preventing the rate of perinatal HIV transmission from continuing to rise.



# REFERENCES

- <sup>1</sup> World Health Organization, Mother to Child Transmission of HIV;  
<https://www.who.int/teams/global-hiv-hepatitis-and-stis-programmes/hiv/prevention/mother-to-child-transmission-of-hiv>
- <sup>2</sup> Introduction: Recommendations for the Use of Antiretroviral Drugs During Pregnancy and Interventions to Reduce Perinatal HIV Transmission in the United States;  
<https://clinicalinfo.hiv.gov/en/guidelines/perinatal/introduction?view=full>
- <sup>3</sup> Infant Feeding and Transmission of Human Immunodeficiency Virus in the United States. Committee on Pediatric AIDS. Pediatrics Feb 2013, 131 (2) 391-396; DOI: 10.1542/peds.2012-3543
- <sup>4</sup> Infant Feeding for Individuals with HIV in the United States: Recommendations for the Use of Antiretroviral Drugs During Pregnancy and Interventions to Reduce Perinatal HIV Transmission in the United States  
<https://clinicalinfo.hiv.gov/en/guidelines/perinatal/infant-feeding-individuals-hiv-united-states?view=full>