

Perinatal HIV Surveillance Report Georgia, 2019

Georgia Department of Public Health
Division of Health Protection
Epidemiology Program
HIV/AIDS Epidemiology Section



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BACKGROUND

Mother to Child Transmission of HIV

Mother to child 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 mother to child ranges from 15-45%¹. However, the risk of transmission can be reduced to less than 5% when appropriate preventative action is taken¹. Successful prevention of mother to child transmission of HIV (PMTCT) 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.

Maternal 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 women infected during pregnancy are diagnosed in time to prevent perinatal transmission. During labor and delivery, successful PMTCT requires that all providers know the HIV status and, if HIV-positive, recent viral load of every woman who presents to deliver at their facility. Current guidelines indicate the cutoff level for a suppressed viral load at delivery is 1000 viral copies/mL. Maternal viral load at delivery determines the set of recommended transmission prevention measures. For mothers virally suppressed by delivery, it is recommended that the infant receive zidovudine (ZDV) prophylaxis for 4-6 weeks after birth. For women with an unsuppressed or an unknown viral load at delivery, infant ZDV prophylaxis is recommended, as well as three additional prevention interventions: (1) maternal 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 oral nevirapine (NVP) prophylaxis after birth.

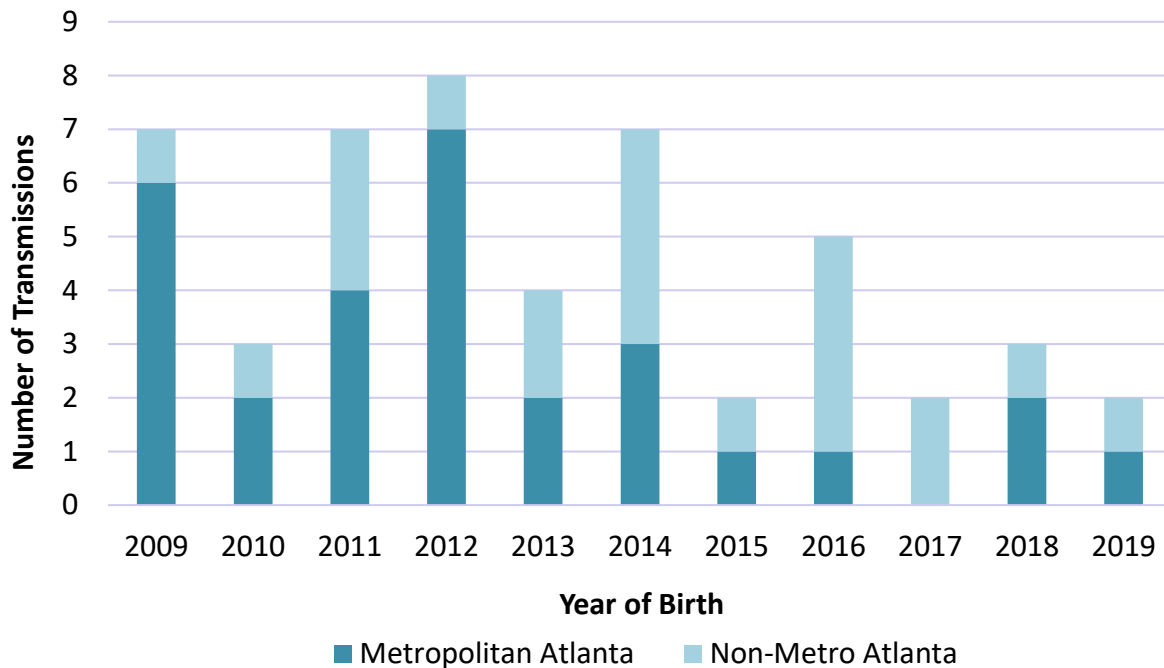
During the post-partum period, infants born to women living with HIV (WLWH) should not be breastfed at any point, regardless of viral suppression status. Current guidelines recommend alternative feeding of infant formula for all infants whose mothers are living with HIV in settings such as the United States, where clean water is readily available for use in formula².

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

Perinatal HIV transmission in Georgia, 2009-2019

From 2009-2019, a total of 50 infants born in Georgia were perinatally infected with HIV (Figure 1). During 2009-2012, 19 out of 25 (76%) were born to mothers residing in metro Atlanta and 24% to mothers residing in other parts of Georgia. During 2013-2019, 10 of 24 (42%) were born to mothers residing in metro Atlanta, and 58% to mothers residing in other parts of Georgia.

Figure 1. Perinatal HIV Infections, by year and location of mother’s residence, Georgia, 2009-2019



**Categorization of Metro Atlanta vs. non-metro is determined by location of mother's residence*

Perinatal HIV exposure surveillance

Perinatal exposure surveillance involves collecting information on all mother-baby pairs where the mother was known to be living with HIV. In contrast to collecting information only for infected infants and their mothers, this allows for quantifying the prevalence of gaps in preventive measures among all infants with perinatal HIV exposure.

METHODS

Data Sources

A master list of all known births to HIV-positive mothers in Georgia in 2019 was compiled through three different data sources to identify infants perinatally exposed to HIV:

- 1) Maternal HIV status indicated as positive on the infant’s birth certificate
- 2) Pharmacy alert system
 - In place with 3 hospital pharmacies in Atlanta

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- Sends a notice to Infection Prevention (IP) when any infant dose of ZDV is ordered, identifying the birth of an HIV-exposed infant which is reported by IP to DPH via the State Electronic Notifiable Disease Surveillance System (SendSS)
- 3) Active reporting of exposed infants by 2 large hospitals
 - 4) Reports of infant exposures and infections from providers.

Data Collection

For all reported HIV-exposed births in 2019 on the master list, data was abstracted from review of the following sources:

- Maternal labor and delivery (L/D) charts
- Infant birth charts
- Prenatal care records, when available in L/D chart
- Statewide HIV surveillance data
- 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:

- The master list of HIV-exposed births is incomplete.
- Missing lab data during the pregnancy period may contribute to an underestimation of the proportion of women who received any HIV care and achieved viral suppression during pregnancy.
- Prenatal care data was missing for a proportion of infants.
- 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 lab reporting is considered to have a high level of completeness.

TABLES AND FIGURES

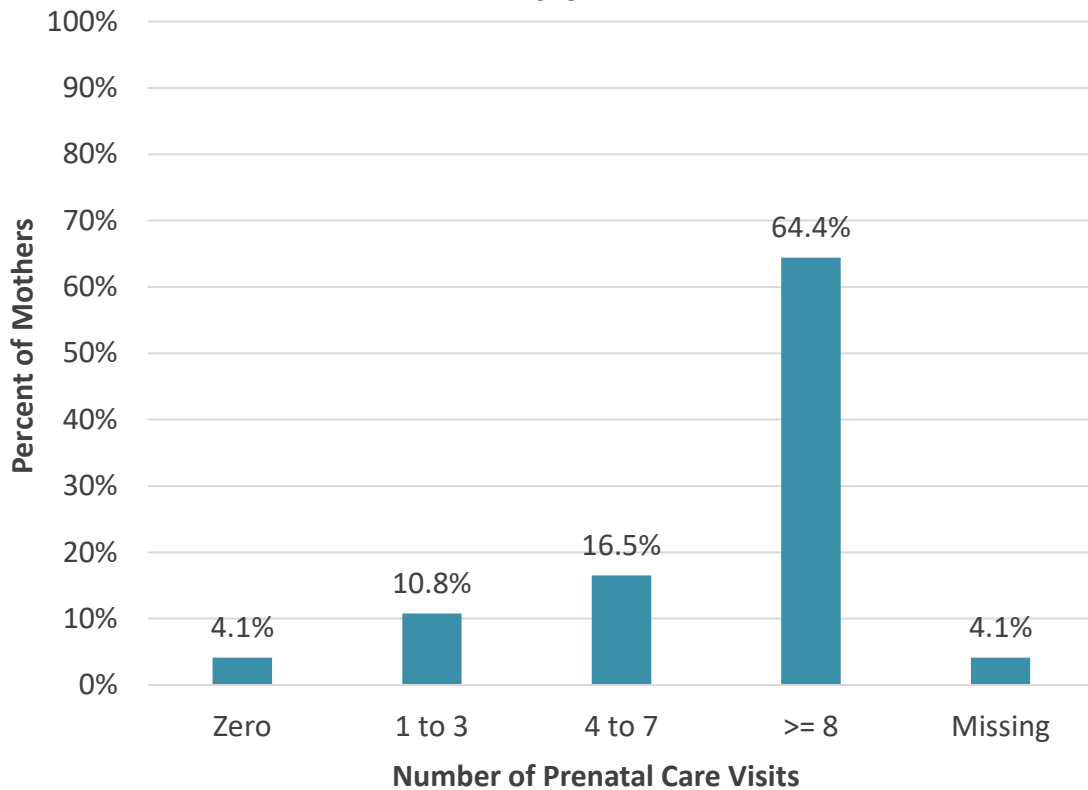
Table 1. Demographic characteristics of women living with HIV who delivered a live infant, Georgia 2019 (n=194)

| | Women Living with HIV who delivered a live infant | Percent |
|---------------------------------|---|---------|
| Total | 194 | 100 |
| Maternal Age at Delivery | | |
| < 25 years | 44 | 22.6 |
| 25-34 years | 111 | 57.2 |
| 35 + years | 39 | 20.1 |
| Race | | |
| Black, non-Hispanic | 148 | 76.3 |
| White, non-Hispanic | 19 | 9.8 |
| Hispanic | 18 | 9.3 |
| Other or unknown | 6 | 3.1 |
| Transmission Category | | |
| Heterosexual contact | 116 | 59.8 |
| Injection drug use | 2 | 1.0 |
| Perinatal exposure | 15 | 7.7 |
| Missing* | 61 | 31.4 |

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

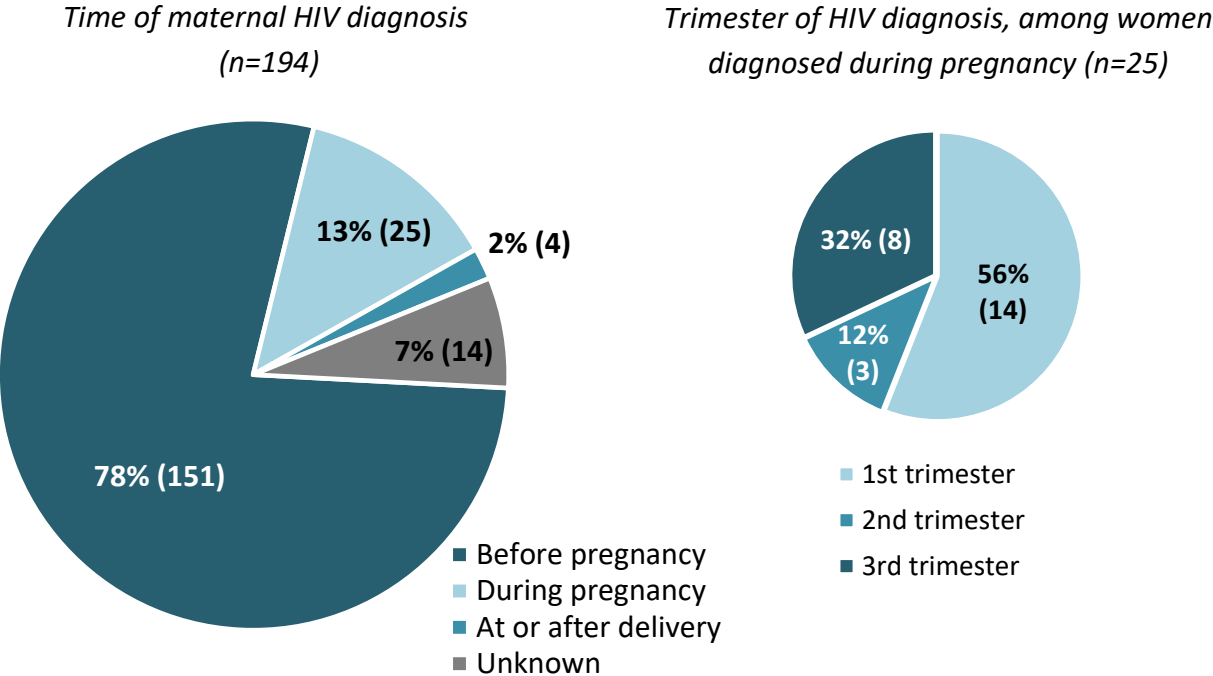
- The majority of mothers (~76%) were black, non-Hispanic.
- More than half (57%) of WLWH who delivered a live infant in Georgia in 2019 were between 25-34 years of age, and about 23% were under 25 years of age.
- The most common risk factor for HIV transmission was heterosexual contact. A small proportion of women (~8%) were perinatally infected with HIV.

Figure 2. Number of prenatal care visits for pregnant women living with HIV, Georgia 2019



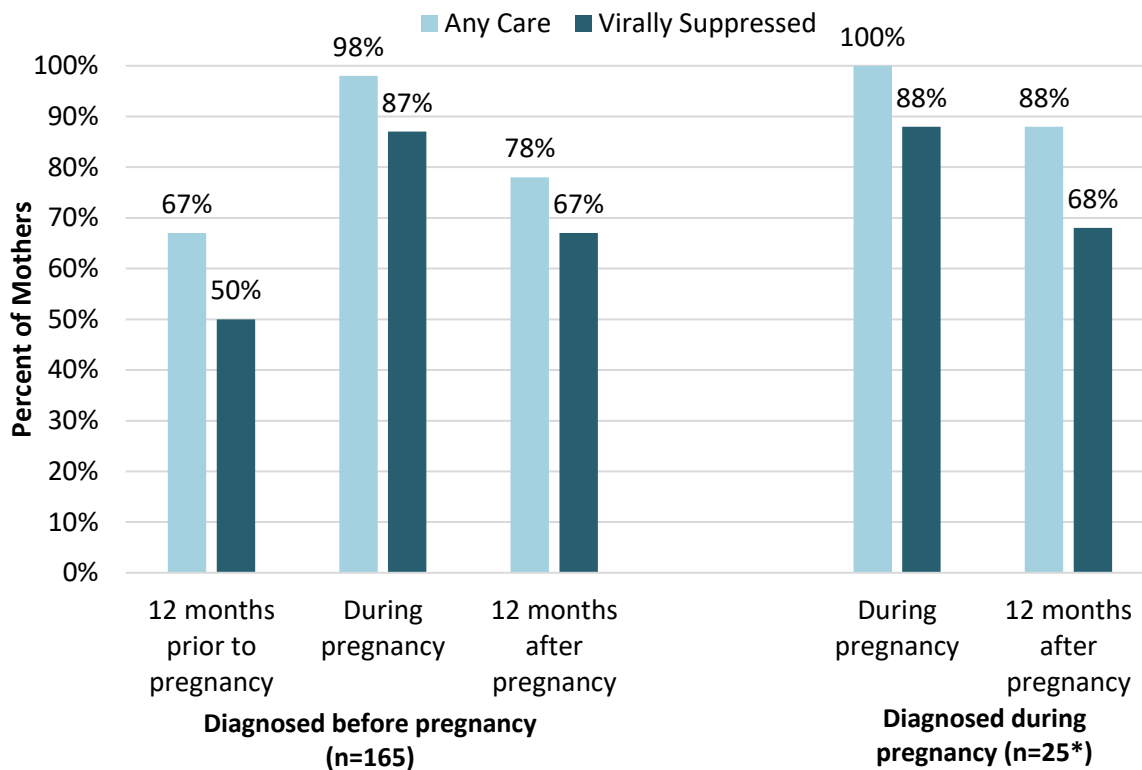
- About sixteen percent of women living with HIV received no or very little (less than four visits) prenatal care.
- Only 64% received eight or more prenatal care visits.
- Approximately 29% received inadequate prenatal care according to the Missouri Index, which accounts for both the start time during pregnancy and number of prenatal care visits.
 - The Missouri Index defines inadequate prenatal care 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.

Figure 3. Time of HIV-diagnosis among women living with HIV who delivered a live infant in Georgia, 2019



- Approximately three-quarters of women had been diagnosed with HIV before pregnancy.
- Timing of diagnosis could not be determined for 14 mothers (9%). These mothers had their initial HIV test during pregnancy but were virally suppressed at the time of the test or shortly thereafter, strongly suggesting they had already been diagnosed.
- Among women diagnosed during pregnancy, one third% were diagnosed during their third trimester.
- Four mothers (2%) were diagnosed with HIV at or after delivery.

Figure 4. Receipt of HIV care and viral suppression for women living with HIV before, during and after pregnancy, Georgia, 2019



- *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 delivery.*

- *Women diagnosed before pregnancy include 14 women with unknown time of diagnosis*

- *Care continuum estimates exclude women diagnosed at or after delivery (n=4)*

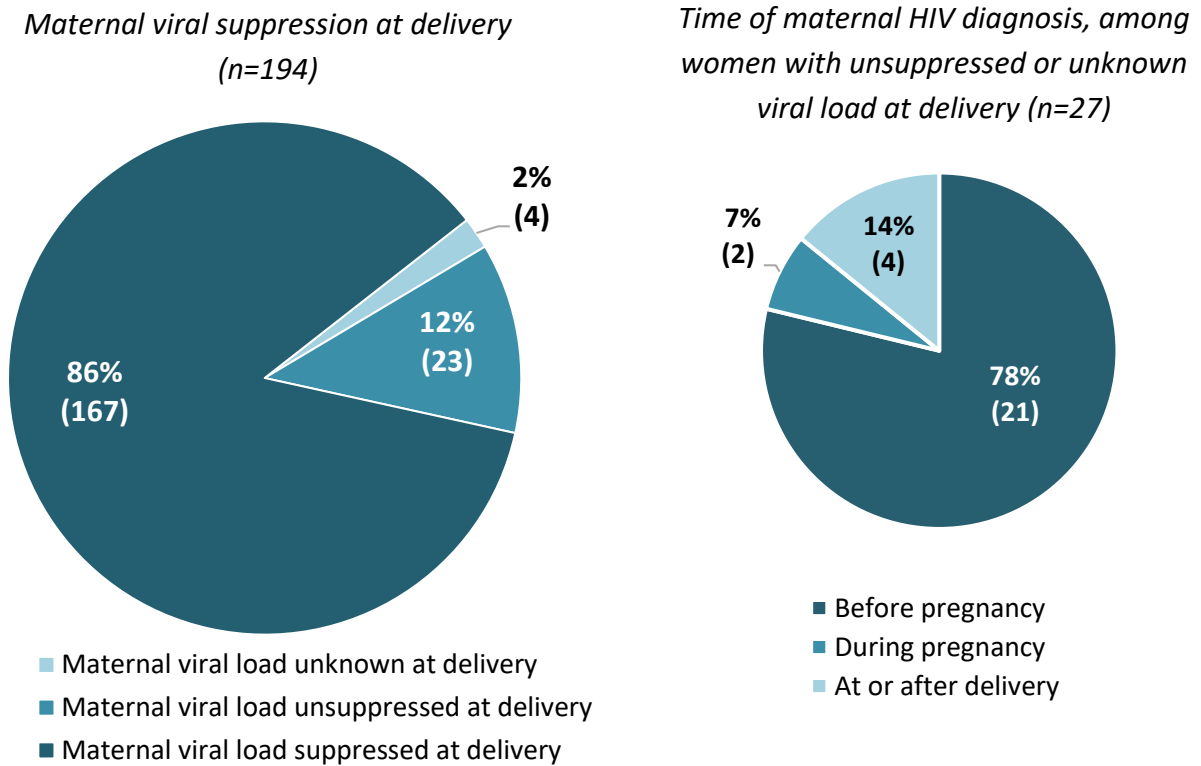
Any care:

- Among women diagnosed before pregnancy, more received HIV care during pregnancy (98%) than before (74%) or after (78%) 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

- 87% of women diagnosed before delivery achieved viral suppression during pregnancy.
- Among women diagnosed before pregnancy, approximately half were virally suppressed during the year preceding pregnancy.
- Fewer women were virally suppressed in the twelve months after pregnancy than during pregnancy, regardless of timing of HIV diagnosis.

Figure 5. Maternal viral suppression by the time of delivery among women living with HIV who delivered a live infant, Georgia, 2019



- 86% of mothers were virally suppressed (<1000 copies/mL) by delivery.
- Among women who did not achieve viral suppression by delivery, more than three quarters (78%) had been diagnosed before pregnancy

Table 2. Demographic and birth history characteristics, HIV-exposed infants born in Georgia, 2019 (n=197)

| | Number of HIV-Exposed Infants | Percent |
|--|-------------------------------|---------|
| Total | 197 | 100 |
| DEMOGRAPHICS | | |
| Birth Sex | | |
| Female | 98 | 49.8 |
| Male | 99 | 50.2 |
| BIRTH DETAILS | | |
| Birth Type | | |
| Single | 194 | 98.5 |
| Twins | 3 | 1.5 |
| Delivery Method | | |
| Vaginal | 84 | 42.6 |
| Cesarean | 113 | 57.4 |
| Neonatal Status | | |
| Full Term (≥ 37 weeks) | 154 | 78.6 |
| Premature [†] (< 37 weeks) | 42 | 21.4 |
| Birth Weight | | |
| Very Low (<1500 g) | 6 | 3.1 |
| Low (≥ 1500 g, <2500 g) | 35 | 17.8 |
| Normal (≥ 2500 g) | 156 | 79.2 |
| LOCATION OF BIRTH | | |
| Regional Perinatal Center [‡] | 79 | 40.7 |
| Geographic Location | | |
| Metro Atlanta | 110 | 56.4 |
| Non-Metro Area [^] | 85 | 43.6 |

*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 mothers and infants can receive the appropriate level of care for all risk levels³ (Grady Memorial Hospital, Phoebe Putney, Piedmont Columbus Hospital, Augusta University Hospital, Memorial); [^]Birth facility located outside of metropolitan Atlanta area.

- Forty three percent of infants were delivered vaginally and 62% via cesarean section.
- Under a quarter (21%) of perinatally HIV-exposed infants were born premature, and 21% were low or very low birthweight.
- Forty-one percent of infants were delivered at Regional Perinatal Centers.
- Forty four percent of infants were born outside the metropolitan Atlanta area

Table 3. Interventions received by infants born to mothers by viral suppression status at delivery, Georgia, 2019

| Intervention | Number of infants – n (%) | Comments |
|---|---------------------------|--|
| Infants born to mothers suppressed at delivery* n = 167 | | |
| Infant ZDV | 166 (99%) | 1 infant did not receive intervention: - Infant was not given ZDV as the provider was not aware of guidelines |
| Infants born to mothers unsuppressed at delivery or unknown status at delivery n = 27 | | |
| Maternal IV ZDV during labor | 21 (78%) | 6 mothers did not receive intervention: - Emergent C-section (2) - Presented ready for imminent vaginal delivery (2) - Provider unaware of mother’s HIV status (1) - Mother was diagnosed after delivery (1) |
| C-section performed | 23 (85%) | 4 mothers did not receive intervention: - Presented ready for imminent vaginal delivery (2) - Late viral load test result (1) - Mother was diagnosed after delivery (1) |
| Infant ZDV | 26 (96%) | 1 infant did not receive intervention: - Mother was diagnosed after delivery (1) |
| Infant Nevirapine | 24 (89%) | 3 infants did not receive intervention: - Mother was diagnosed after delivery (1) - Provider was unaware of mother’s HIV status (1) - Mother’s viral load status unknown, no mention of Nevirapine in charts (1) |

*Maternal viral suppression at delivery defined as viral load closest to delivery <1000 copies/mL

- Almost all mothers and infants received interventions indicated during labor and delivery and postpartum. In the great majority of cases when an indicated intervention was not delivered, chart review indicated valid reasons. One infant was not given ZDV due to a provider being unaware of guidelines.

Table 4. Confirmed perinatal HIV transmissions, Georgia 2019

| Birth | Time of Maternal HIV Diagnosis | Viral Suppression at Delivery | Comments |
|-------|--------------------------------|-------------------------------|---|
| 1 | After delivery | No | <ul style="list-style-type: none"> • Mother did not receive 3rd trimester testing |
| 2 | >1 year before delivery | No | <ul style="list-style-type: none"> • Mother had no HIV care during pregnancy • |

Estimated perinatal HIV transmission Rate

Including all known HIV-exposed infants in Georgia in 2019, among 194 HIV-exposed live births, we are aware of 2 perinatal HIV transmissions. The rate of perinatal HIV transmission in Georgia in 2019 is estimated to be 1.0%. The estimated rate of transmission is has decreased over the last few years.

SUMMARY

Key Prevention Successes:

- 78% of HIV positive women who delivered a live infant in 2019 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.
- An additional 9% of women may have been diagnosed before pregnancy, based on labs in eHARS (this subset has erroneously been counted as diagnosed in pregnancy in past reports)
- 86% of all HIV-exposed births were to mothers with a suppressed viral load at delivery, minimizing transmission risk during the labor and delivery period.
- Almost all (99%) of infants received ZDV at delivery as recommended.
- Almost all mothers received the proper interventions indicated during labor and delivery and postpartum.
 - Chart review of cases where the mother-baby pair did not receive all interventions almost always revealed valid reasons for interventions not being provided.

Key Prevention Gaps:

- HIV care for all women of childbearing age
 - **Among women who were not suppressed at delivery, 78%** were diagnosed before pregnancy.
 - Missed opportunity to minimize transmission risk by ensuring all women diagnosed with HIV are in care and virally suppressed prior to pregnancy.
 - Better retention in care for all WLWH would reduce the number of higher risk HIV-exposed births to women virally unsuppressed at delivery.
- Prenatal Care:
 - Almost one third (29%) of HIV-positive mothers in 2019 had inadequate prenatal care; 15% had no or very little prenatal care
- Guideline-related
 - One infant was not given ZDV due to the provider being unaware of the guidelines.
 - One woman delivered without her providers being aware that she was HIV positive (women of unknown status should be tested at delivery).
 - One woman delivered vaginally despite a recent elevated viral load, and a viral load test that was pending when she presented to deliver.
- More information can be found at: <https://dph.georgia.gov/epidemiology/georgias-hiv-aids-epidemiology-section/perinatal-exposure-surveillance#PerinatalExposureCurrentData>

REFERENCES

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

² 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

³Regional Perinatal Centers, Georgia Department of Public Health; <https://dph.georgia.gov/RPC>