

HIV Care Continuum Report by Health District, Georgia, 2014

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

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Data are presented from known diagnoses and laboratory reports entered into the Georgia Enhanced HIV/AIDS Report System (eHARS). All data are provisional.

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Georgia HIV Core Surveillance Team contributors: Lauren Barrineau-Vejjavija, Victoria Davis, Thelma Fannin, Jane Kelly, Rodriques Lambert, Mildred McGainey, Latoya Moss, Rama Namballa, Doris Pearson, A. Eugene Pennisi, Akilah Spratling, Lakecia Vanerson, and Andrenita West.

This report was prepared by the following staff of the Georgia Department of Public Health: Brian Huylebroeck, Jane Kelly, Rodriques Lambert, A. Eugene Pennisi, Pascale Wortley, and Cherie Drenzek.

Table of Contents

<i>Suggested citation:</i>	2
<i>Acknowledgements</i>	2
Background	4
Commentary	5
Figure 1 HIV prevalence by current district of residence, Georgia, 2014	6
Figure 2 HIV new diagnoses by current district of residence, Georgia, 2014	7
Methodology	8
<i>Georgia Care Continuum Methodology, Persons Living With HIV (PLWH), by Health District, 2012</i>	8
<i>Transmission Category Definitions</i>	8
<i>Multiple Imputation</i>	9
<i>Technical Notes</i>	10
<i>Limitations</i>	11
Section 1: Care Continuum among persons living with diagnosed HIV, by Health District, Georgia, 2014	12
Figure 3 Adults and adolescents living with diagnosed HIV, Georgia, 2014	12
<i>HIV Care Continuum among persons living with HIV, by health district, Georgia, 2014</i>	13
Section 2: Viral suppression among persons living with diagnosed HIV, by Health District, Georgia, 2014	14
Figure 4 Viral Suppression among adults and adolescents retained in care, by race/ethnicity, Georgia, 2014.	15
<i>Viral suppression analysis among persons retained in HIV care, by Health District, Georgia, 2014</i>	15
References	17
Appendix A HIV Surveillance and Reporting Law in Georgia	18

Background

In January 2013, the Centers for Disease Control and Prevention (CDC) released HIV Surveillance Supplemental Report Volume 18, Number 2 *Monitoring Selected National HIV Prevention and Care Objectives by Using HIV Surveillance Data – United States and 6 U.S. Dependent Areas – 2010*.¹ The report provided data by selected jurisdiction on stage of disease at diagnosis of HIV infection in 2010, and on the HIV Care Continuum (previously called the HIV Care Cascade), i.e., linkage to and retention in HIV care and viral suppression. These metrics can be used to monitor progress toward the achievement of objectives outlined in the National HIV/AIDS Strategy for the United States (NHAS), released by the White House in July 2010.² While there is no consensus or “gold standard” for measures of linkage and retention in care, several measures for retention have been reported to correlate³. Selection of appropriate measures must take into consideration availability and accuracy of data collection systems, as well as potential uses of the metrics.

In July 2015, the White House released the new National HIV/AIDS Strategy (NHAS) 2020 goals, including a change to the metric for “linked to care.” Whereas previously the metric for linkage was within 90 days of diagnosis, the new NHAS 2020 goals include Indicator #4: “Increase the percentage of newly diagnosed persons linked to HIV medical care within one month of their HIV diagnosis to at least 85 percent.”⁴ In keeping with this new metric, we report here on linkage to care in Georgia within 30 days of diagnosis, a change from previous reports using 90 days.

Since January 1, 2004, Georgia has a dual reporting system that legally requires HIV/AIDS reporting by both health care providers and laboratories (*O.C.G.A. §31--12--2(b)*). All health care providers diagnosing and/or providing care to a patient with HIV have the obligation to report them using the HIV/AIDS Case Report Form. Case report forms are mandated to be completed within seven (7) days of diagnosing a patient with HIV and/or AIDS or within seven (7) days of assuming care of an HIV positive patient who is new to the provider, regardless of whether the patient has previously received care elsewhere. All laboratories certified and licensed by the State of Georgia are required to report laboratory test results indicative of HIV infection, such as positive Western Blot results, all detectable and undetectable viral loads, and all CD4 counts to the Georgia Department of Public Health (GDPH) HIV/AIDS Epidemiology Section (HAES)⁵.

Recent improvements in the Georgia electronic laboratory reporting (ELR) system have facilitated use of laboratory-based measures for linkage and retention in care. Although other measures such as missed appointments, health care visit consistency, and gaps in care may be assessed at individual health care facilities, it is difficult to accurately gather these measures on a statewide basis in Georgia. For these reasons, measures in this report and previous Georgia Care Continuum reports rely on laboratory data-driven definitions. In addition, multiple measures, such as linked to care within 30 days of diagnosis, any HIV care (at least one CD4 or viral load in 12 months) as well as the Health Resources and Services Administration (HRSA)

medical visit performance measure (at least two CD4 or viral load measures as least three months apart within a 12 month period)⁶ can be useful to various stakeholders in monitoring impact of effort to improve outreach, testing, and care.

Commentary

This report expands upon the *Care Continuum Report, Georgia, 2014* by providing Care Continuum information at the health district level defined by the current addresses of persons living with HIV in Georgia.

The Georgia Department of Public Health (DPH) funds, and collaborates with, 18 separate Public Health Districts throughout the state. Each is comprised of one or more of Georgia's 159 counties and county health departments. Figure 1 shows the number of persons living with HIV (prevalence) and Figure 2 the number of new diagnoses by Health District for Georgia.

Figure 1 HIV prevalence by current district of residence, Georgia, 2014

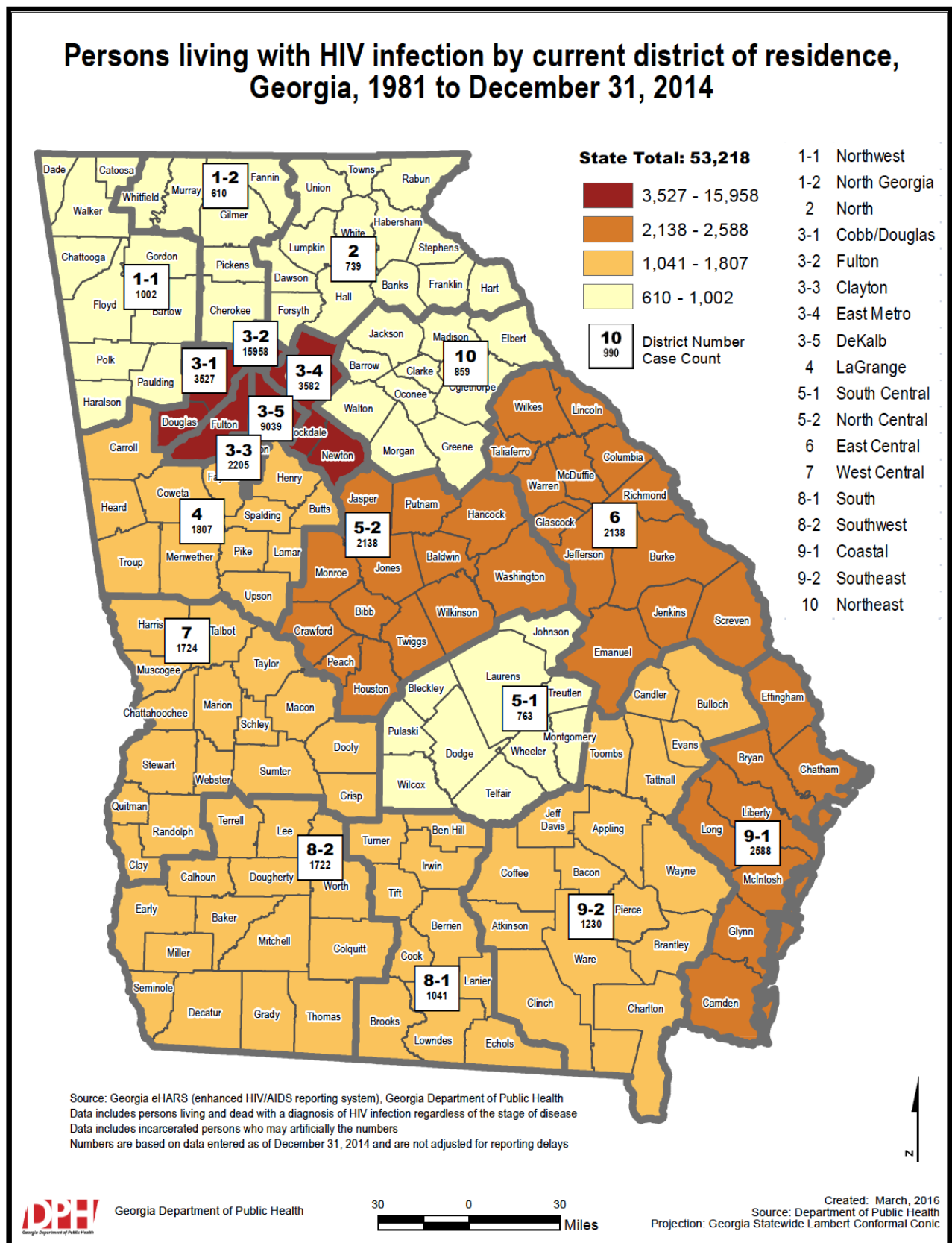
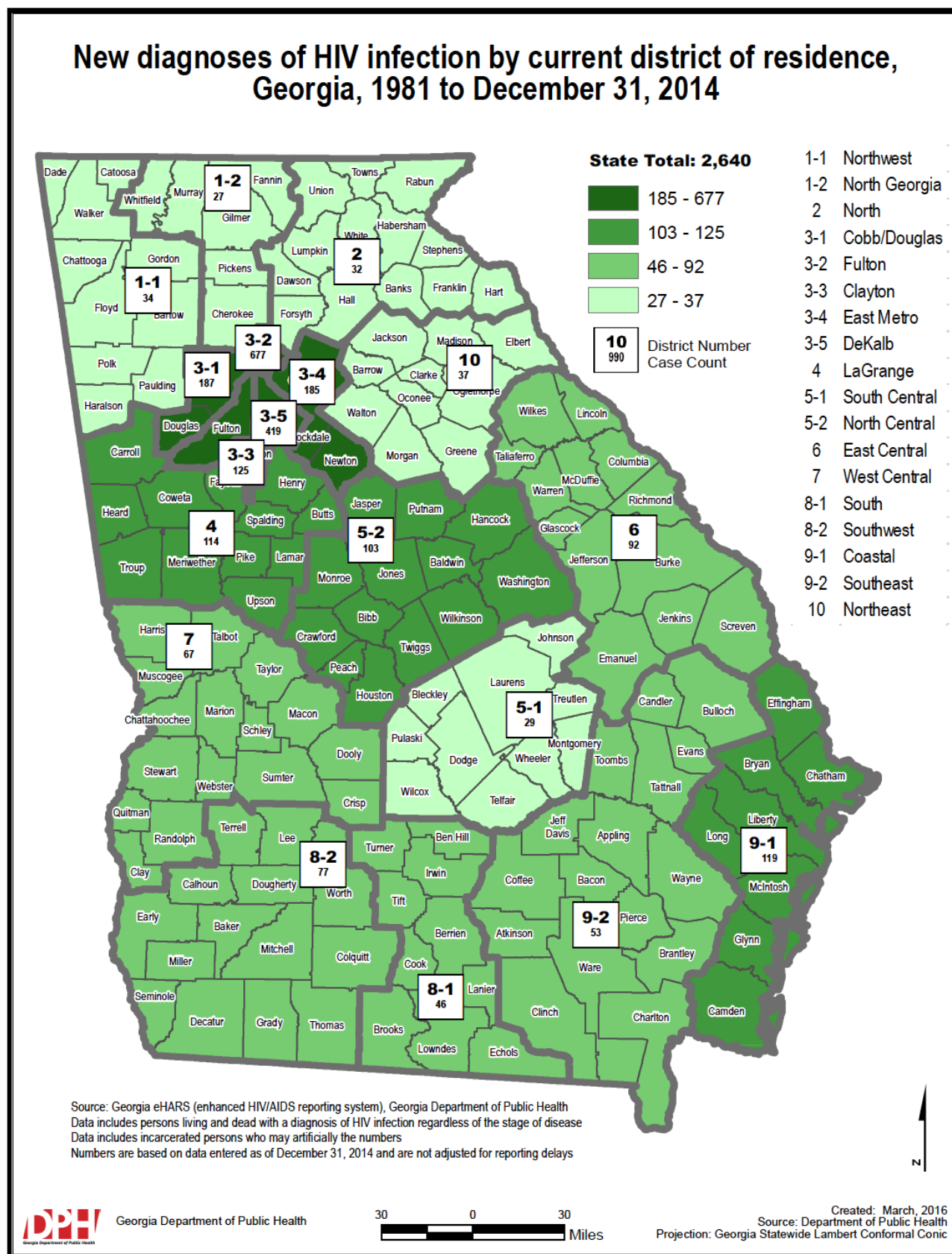


Figure 2 HIV new diagnoses by current district of residence, Georgia, 2014



Methodology

Georgia Care Continuum Methodology, Persons Living With HIV (PLWH), by Health District, 2012

- Persons included are adults and adolescents age 13 and older, diagnosed by 12/31/13, living as of 12/31/14 with current address in one of 18 Health Districts in Georgia
- “Linked to care” within 30 days is measured only for the new diagnoses made in 2014. This linkage measure is different from previous Care Continuum reports for Georgia, and should not be compared to previous years for trend analysis. In the slides and figures, linkage is shown in a different color from the rest of the continuum to emphasize the different denominator.
- “Any HIV care” is defined as having had at least 1 CD4 or viral load (VL) measurement in 2014
- “Retained in care” is defined as having had at least 2 CD4 or VL at least 3 months apart in 2014
- “Viral suppression” (VS) is defined as a VL<200 copies/ml or undetectable in the most recent VL in 2014. Persons with no viral load tests are assumed to be out of care and not virally suppressed.
- Each bar in the continuum is independent of those preceding it; all percentages are of the total number of persons diagnosed with HIV in a category

Current Residence

- Persons are categorized as having a current address in a particular Health District based on the most recent address available in the surveillance system. This address is referred to as their “current” address, though it may be several years old, and may not represent the true current address if they moved and have not have a lab result reported containing an updated address.
- Additionally, persons may receive care in an area different from where they reside, for example, a person living in a non-eligible metropolitan area (EMA) county may receive care in the Atlanta EMA.

Transmission Category Definitions

Transmission category is determined from risk behavior noted on case report forms or obtained through match with other databases (such as CAREWare from the Ryan White Program, or non-HIV sources such as the Georgia DPH tuberculosis and STD surveillance databases). The

transmission category assignments are hierarchical as per CDC methodology and defined as follows:

- MSM is defined as male-to-male sexual contact
- IDU is defined as injection drug use
- The MSM/IDU transmission category includes those persons who reported both male sexual contact and injection drug use
- HET is defined as heterosexual contact with a person known to have, or to be at high risk for, HIV infection
- Other includes the transmission categories of hemophilia, blood transfusion, and perinatal exposure.

Multiple Imputation

Missing data is an ongoing problem in routinely collected data or large-scale epidemiologic studies. Because a substantial proportion of persons with diagnosed HIV infection are reported to the Georgia Department of Public Health without an identified risk factor, multiple imputation methods are used to assign transmission categories to those persons whose diagnoses are reported without a risk factor.

Multiple imputations (MI) is a statistical approach in which missing transmission categories for each person are replaced with plausible values that represent the uncertainty regarding the actual, but missing, values. This is the same statistical strategy that the CDC uses to assign transmission categories to those reported without a risk factor in the national dataset.⁸

Whether these transmission category adjustments using MI introduce any systematic bias in overestimation or underestimation of percentages of HIV infection attributed to specific categories is unknown. Instead of estimating the risk factor distribution probabilities for cases with missing risk factors by a simple redistribution approach, MI draws a random sample of the missing values from its distribution.

Then, instead of filling in a single value for each missing value, MI replaces each missing value with a set of plausible values that reserve the statistical distribution of the imputed variable and the relationship with other variables in the imputation model. The multiply-imputed datasets are then analyzed by using standard procedures for complete data. Results from these analyses are then combined to get the final estimates.

MI is considered a sound approach for large datasets. In an analysis comparing the Care Continuum for the Georgia HIV prevalent population in 2012, stratified by transmission category, estimated with and without use of MI, little difference was found, similar to the

experience with the national dataset.⁸ Specific examples can be found in the slide set “Multiple Imputation, Georgia 2012” found on the Georgia DPH website (<https://dph.georgia.gov/data-fact-sheet-summaries>).

Summary of Methodology Changes

Changes from the Georgia 2012 Care Continuum by Health District Report include:

- Linkage to care is measured by CD4 or VL within 30 days of diagnosis including the day of diagnosis for persons diagnosed in 2014 only. The Georgia 2012 report measured “linked” as within 90 days of diagnosis and excluded laboratory values drawn on the day of diagnosis.
- The term “any HIV care” is used for those having had at least one CD4 or VL in 2014. In previous reports this measure was referred to as “engaged in care”.

Tables displaying Care Continuum data for by Health District stratified by sex, age, race/ethnicity, and transmission category are available on the Georgia DPH website at <https://dph.georgia.gov/hiv-care-continuum>.

Technical Notes

This report includes data reported to Georgia DPH HAES from January 1, 2004 (when name-based HIV reporting began in Georgia) through May 2016.

All data reported here are provisional and should be interpreted with caution. Not all HIV infected persons in Georgia have been tested or some may have been tested at a point too early in infection to be detected by the test used. Although HIV reporting is mandated for health care providers and laboratory facilities, not all providers and laboratories may comply, resulting in missing data. Laboratory tests performed in other jurisdictions may not be reported to GDPH and therefore would not be included in these analyses.

Definitions and hierarchy for assignment of transmission category follows the definitions used by CDC.^{7,8} Data by transmission category were statistically adjusted using the multiple imputation method to account for missing risk factor information. Estimates are rounded to the nearest whole number. Data referring to diagnoses of HIV infection and persons living with HIV infection include all persons with HIV infection regardless of stage of disease (Stage 1, 2, 3 [AIDS] or unknown) at the time of diagnosis.

Very few individuals are reported in the transgender category in Georgia. Efforts are underway to improve data collection on gender. This report uses reported birth gender, not current gender identity.

Less than 0.5% of the prevalent population living with HIV in Georgia is American Indian/Alaska Native, Asian or Native Hawaiian/Other Pacific Islander. Because of small cell sizes when stratified by the 18 Health Districts, distribution by race/ethnicity is only reported for Blacks, Hispanic/Latinos, and Whites in this report.

Limitations

Limitations to this report include:

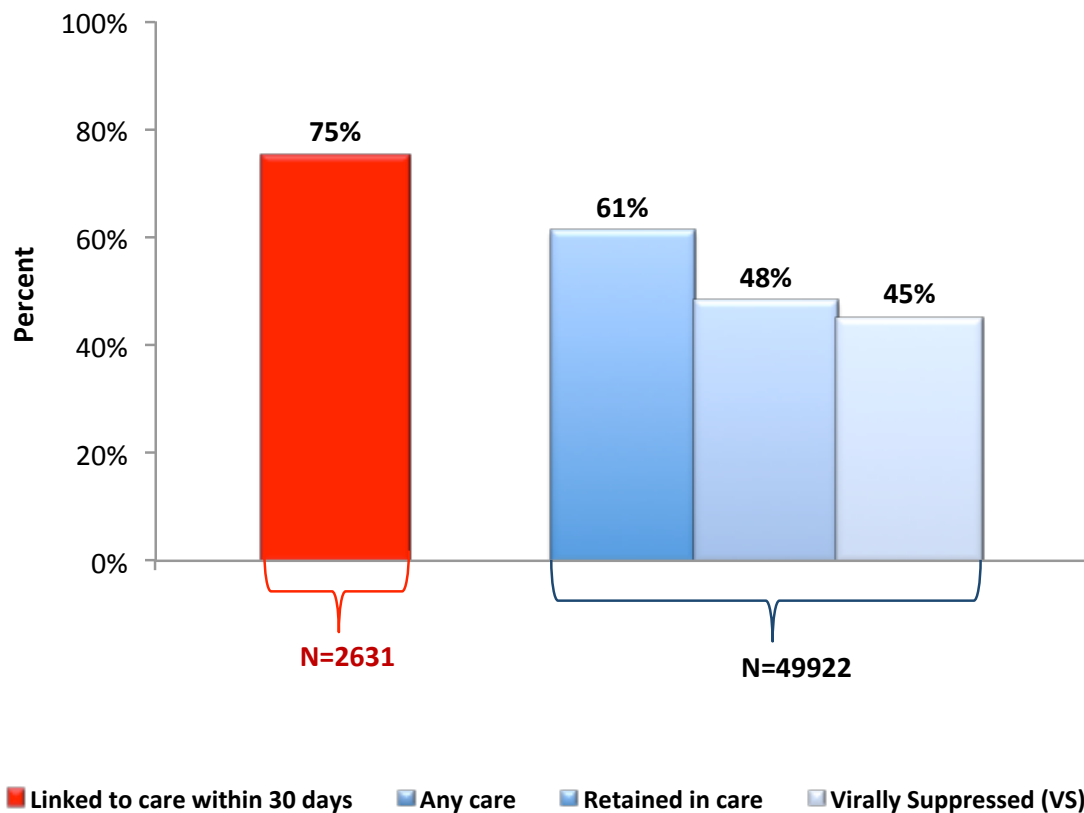
- Incomplete reporting on case report forms of race, sex, complete address at diagnosis and risk behavior (which is used in defining transmission category) limit stratification and comparison among groups.
- Because CDC does not accept reporting of cases missing race/ethnicity or sex to the national database, such cases are not included in the Routine Interstate Duplication Report (RIDR) process. Thus current address information may not be updated upon relocation to another state. Retention in care and VS may be underestimated for cases missing race/ethnicity or sex.
- The high proportion of missing risk behavior information on case report forms limits comparisons among groups.
- The CDC definition of heterosexual transmission limits this category to those with sexual contact with a known HIV-infected partner or those with known increased risk (e.g., MSM or IDU). For example, women who have had heterosexual contact with a man not known to be HIV-infected, bisexual or IDU will be classified as having no identified risk.
- Populations for which data are missing may be fundamentally different from other groups for which race, sex and transmission category are known.
- CD4 or viral load is used as a proxy measure for linkage, engagement and retention in care. If laboratory tests are obtained prior to an HIV care appointment which is not kept, retention in care may be overestimated; conversely, a person may be seen for HIV care without laboratory data marking the visit, resulting in an underestimation of retention in care.
- The number of individuals in some groups is small and caution should be used in interpretation.

Despite these limitations, by maintaining methodological consistency across reporting time periods, Georgia DPH uses the HIV Care Continuum to identify disparities and monitor improvements in HIV linkage, retention in care, and ultimately, viral suppression.

Section 1: Care Continuum among persons living with diagnosed HIV, by Health District, Georgia, 2014

Figure 3 (below) shows the HIV Care Continuum for persons living with HIV (PLWH) statewide in Georgia as of 12/31/2012.

Figure 3 Adults and adolescents living with diagnosed HIV, Georgia, 2014



While linkage to care within 30 days of diagnosis for persons diagnosed in 2014 was high at 75%, receipt of any HIV care and retention in care for all persons living with HIV in Georgia was substantially lower at 61% and 48%, respectively. Forty-five percent of Georgians living with diagnosed HIV were virally suppressed (VL<200 or undetectable).

The overall pattern of higher linkage to care within 30 days of diagnosis for newly diagnosed persons, compared with a lower percent of persons living with diagnosed HIV with any HIV care, retention in care, and VS was seen in all Health Districts, but the proportions and disparities varied by Health District.

Tables 1-4 display, by Health District, the total population, number and percent of PLWH, percent linked to care within 30 days among those diagnosed in 2013, receipt of any HIV care in 2014, retained in care in 2014, and virally suppressed (VL<200) on last VL drawn in 2014, stratified by sex, race, age, and transmission category. Those individuals with no VL measurement in 2014 are assumed to be not virally suppressed.

The following tables displaying the HIV Care Continuum by Health District can be found at <http://dph.georgia.gov/data---fact---sheet---summaries>

Table 1. HIV Care Continuum by Health District, Georgia, 2014, by sex

Table 2. HIV Care Continuum by Health District, Georgia, 2014, by race/ethnicity

Table 3. HIV Care Continuum by health district, Georgia, 2014, by transmission category

Table 4. HIV Care Continuum by health district, Georgia, 2014, by age (in years)

Highlights

HIV Care Continuum among persons living with HIV, by health district, Georgia, 2014

- Note: missing laboratory reports have likely resulted in an underestimate of care continuum measures for Health District 6 (Augusta). These measurements are therefore excluded in this report. Similarly, unusually low proportions of VS among those retained in care for District 9-2 (Waycross) should be viewed with caution as they may reflect a deficit in viral load reporting.
- There was little overall difference by sex in the care continuum, though proportions vary by health district. Among men, any HIV care ranged from 58-69%, retention in care from 45-57%, and VS 38-58% by Health District. For women, any care ranged from 58-70%, retention from 45-56%, and VS from 37-55%.
- A lower percentage of Blacks were virally suppressed compared to Whites in 15/18 Health Districts (HD). The magnitude of the difference was 10 or more percentage points in three HD (2 Gainesville, 5-1 Dublin, 7 Columbus). VS was higher for Blacks than Whites in HD 9-1 Savannah (48% vs. 45%) and 9-2 Waycross (40% vs. 35%), and equal in HD 8-1 Valdosta (45%).
- VS among Hispanic/Latinos was lower than Whites in all HD, equal to Blacks in 3 HD (2 Gainesville, 3-3 Clayton, 3-5 DeKalb), and lower than Blacks in 7 HD (1-1 Rome, 5-1 Dublin, 7 Columbus, 8-1 Valdosta, 8-2 Albany, 9-1 Savannah, 10 Athens).

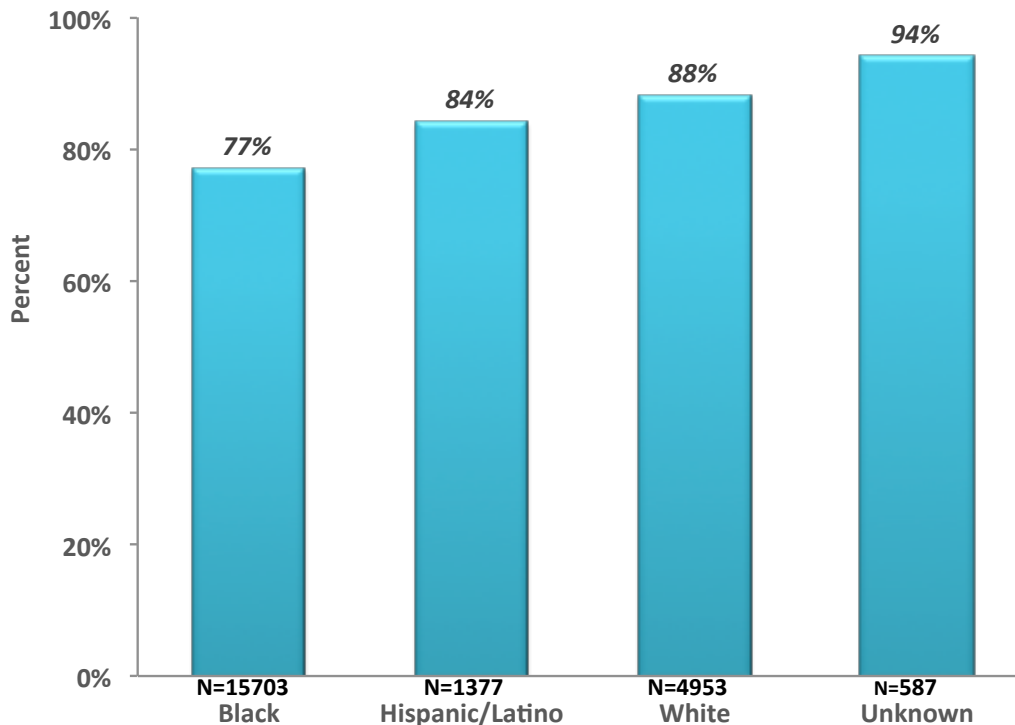
- By transmission category, VS varied widely from 33-63%. VS was lowest among IDU or MSM/IDU for 11/18 and lowest among HET for 3/18 HD. In only 1 HD was VS lowest among MSM. Caution should be used in interpretation, especially when stratification results in small numbers.
- Retention in care and VS were substantially lower among persons 20-24 compared with persons 13-19 for most Health Districts, perhaps reflecting transition to different health care providers as well as different family and societal roles. Fulton HD was the exception with 49% and 50% retention in care, respectively, for these age groups; VS was 36% among persons 20-24 compared with 52% among those 13-19 in Fulton HD.
- VS by age ranged from 20% (age 20-24, HD 8-2 Albany) to 75% (age 55+, HD 1-1 Rome) with lowest VS among those aged 20-24 years and generally increasing VS with increasing age.

Section 2: Viral suppression among persons living with diagnosed HIV, by Health District, Georgia, 2014

A low percent virally suppressed may reflect differences in receipt of any HIV care, retention in care, treatment with and adherence to ART, or missing data. When no viral load for 2014 was reported to the Georgia Department of Public Health, the individual was assumed to be not virally suppressed.

It is helpful to examine the proportion virally suppressed among persons retained in care. For the state overall, there was a small difference in viral suppression among those retained in care by sex (males 82%, females 78%). There were, however, greater differences by race (Figure 4). This analysis of persons retained in care demonstrates that disparities in viral suppression are not always simply a function of access to and retention in care.

Figure 4 Viral Suppression among adults and adolescents retained in care, by race/ethnicity, Georgia, 2014.



Viral suppression analysis among persons retained in HIV care, by Health District, Georgia, 2014

- Among those retained in care, disparity in viral suppression by race was consistent across HD. Blacks had lower percent VS among retained in care than Whites for all HD, equal to Hispanic/Latinos in one HD (9-2 Waycross) and lower than Hispanic/Latinos in all other HD except three (1-1 Rome, 3-5 DeKalb, 5-1 Dublin).
- VS among those retained in care was consistently lower among persons 20-24 compared with those 13-19, with substantial differences in some HD. The reason for the particularly low VS among retained in Fulton County 20-24 year olds (64%) has not been determined and contrasts with the pattern observed in adjacent DeKalb County, where VS among 20-24 year olds retained in care was 79%. This could be an artifact of laboratory reporting.
- Beginning with ages 20-24 years, VS among those retained in care generally increased

with increasing age. VS among those retained in care was highest among persons 55 years and older (81-95%) in all HD except Waycross (58%) where almost half of those age 60+ who were retained in care had no viral load measurement in 2014. It is not known if this represents a reporting artifact, unreported deaths, or receiving care in another state (Waycross HD borders Florida).

- Approximately half of persons living with HIV in Georgia in most demographic categories examined had no viral load reported in 2014, and are considered not suppressed in this analysis. Missing viral load measurements may lead to an underestimate of VS and VS among those retained in care.

Lack of viral suppression may reflect ART not being prescribed, lack of ART adherence, or inappropriate medication choice. An additional consideration is that although individuals are included in this analysis because of documented CD4 and VL values, these laboratory tests may have been drawn during a non-HIV-related hospitalization, or drawn prior to an HIV clinic appointment that was never kept. Conversely, reliance on laboratory reports may contribute to an underestimation of retention in care because visits could occur without labs being ordered, and because lab reporting may be incomplete. Laboratory testing has limitations as a proxy for measuring HIV care.

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Appendix A HIV Surveillance and Reporting Law in Georgia

Complete and timely reporting of HIV infection cases by is critical for monitoring the epidemic in Georgia and ensuring federal funding for public sector HIV prevention, care and treatment services since funding allocation is directly linked to the number of cases.

- Georgia Department of Public Health (DPH), HIV/AIDS Epidemiology Section (HAES) is responsible for monitoring the HIV epidemic in the state by using the enhanced HIV/AIDS Reporting system to collect, manage, analyze and report surveillance data to Centers for Disease Control and Prevention
- Georgia began collecting AIDS case reports in the early 1980s. HIV (not AIDS) reporting was mandated in Georgia on December 31, 2003
- Georgia law (OCGA § 31-22-9.2) requires health care providers to submit a confidential case report for patients diagnosed with HIV infection within seven days of diagnosis to the Georgia DPH HAEP.
- Case report forms are mandated to be completed within seven (7) days of diagnosing a patient with HIV and/or AIDS or within seven (7) days of assuming care of an HIV positive patient who is new to the provider, regardless of whether the patient has previously received care elsewhere.
- All laboratories certified and licensed by the State of Georgia are required to report laboratory test results indicative of HIV infection, such as positive Western Blot results, all detectable and undetectable viral loads, all CD4 counts, and all viral nucleotide sequence results to the Georgia DPH HAEP.

To access the Adult and Pediatric Case Report Forms visit: <http://dph.georgia.gov/reporting-forms-data-requests>

NEW: HIV Electronic Case Reporting through SENDSS

An electronic Adult Case Report Form (eACRF) can be transmitted to Georgia's Department of Public Health through the secure disease reporting system called [SENDSS](#) (State Electronic Notifiable Disease Surveillance System). A user login and password must be assigned. To begin the process, please contact Lauren Barrineau-Vejjajiva, ELR Lab Liaison, at Lauren.Barrineau-Vejjajiva@dph.ga.gov or 404-463-3753. To create a SENDSS authorized user account, or for assistance with an existing account, please contact Angela Alexander, SENDSS Administrator at Angela.Alexander@dph.ga.gov or 404-657-6450.