# Analyzing Knowledge Status and HIV Linkage to Care: Insights From America's HIV Epidemic Analysis Dashboard (AHEAD) National Database

EMORY | ROLLINS

Oluwatoyin Ayo-Farai<sup>1</sup>, Paul A. Momodu<sup>2</sup>, Ikenna C. Okoye<sup>3</sup>, Edediong Ekarika<sup>4, 5</sup>, Ifunanya T. Okafor<sup>6</sup>, Okelue E. Okobi<sup>7, 8, 9</sup> HEALTH Jiann-Ping Hsu College of Public Health, Georgia Southern University, Statesboro, USA; Medicine, International University, Statesbo Atlanta, USA; Medicine, All Saints University School of Medicine, Roseau, DMA; Internal Medicine, Lakeside Medicine, Lakeside Medicine, College of Medicine, Lakeside, USA; Family Community Hospital Palm Springs Campus, Miami, USA.

## INTRODUCTION

- Human immunodeficiency virus (HIV) remains a significant global health challenge, particularly in the United States [1].
- As of 2022, approximately 1.2 million people in the United States were living with HIV, with an estimated 31,800 new infections occurring annually [2,3].
- Early diagnosis and immediate linkage to care are critical for managing the disease, preventing transmission, and improving the quality of life for those affected [4,5,6].
- Knowledge of one's HIV-positive status is the first step in accessing treatment and care. Despite this, gaps in care linkage remain, particularly in higher risk populations of poor health outcomes.

## **OBJECTIVES**

• In this study, we examined the percentage of people diagnosed with HIV who received medical care within one month of diagnosis, providing a detailed understanding of the current state of HIV care in the United States and highlighting areas where further efforts are needed to meet national targets.

## **METHODS**

#### **Data Source**

• We conducted a retrospective database analysis using data from AHEAD National Database focusing on individuals diagnosed with HIV from 2017 to 2022.

#### **Study Population**

- AHEAD National Database (2017–2022) which compiles comprehensive data on HIV diagnosis, care linkage, and treatment outcomes across the United States.
- The data were de-identified and handled in compliance with all relevant ethical guidelines and regulations for public health data research.

## **METHODS** cont.

#### Variables

- The two (2) primary variables analyzed were: Percentage of individuals aware of their HIVpositive status.

  - Percentage of individuals linked to HIV medical care within one month of diagnosis.

  - Variables were examined across subgroups based on gender, age, race/ethnicity race/ethnicity, and transmission categories

#### Data Analysis

- - Longitudinal analyses were used to assess the changes in the study population's HIV status awareness and the correlation with the care rates over time.
  - Subgroup analyses were conducted to assess disparities in care linkage across different demographic categories.
- Chi-square test were conducted to assess the correlations between the demographic factors and the outcome of the care linkage.
  - Logistic regression models were employed to identify the predictors of effective linkage to HIV care.

## REFERENCES

- Kumah, E., Boakye, D. S., Boateng, R., & Agyei, E. (2023). Advancing the Global Fight Against HIV/Aids: Strategies, Barriers, and the Road to Eradication. Annals of global health, 89(1), 83. https://doi.org/10.5334/aogh.4277
- U.S. statistics. [Aug; 2024]. 2024. https://www.hiv.gov/hiv-basics/overview/dataand-trends/statistics https://www.hiv.gov/hiv-basics/overview/data-andtrends/statistic
- HIV and AIDS: key facts. [Aug; 2024]. 2024. https://www.who.int/news-room/factsheets/detail/hiv-aids https://www.who.int/news-room/fact-sheets/detail/hiv-aids
- Vidya Vijayan, K. K., Karthigeyan, K. P., Tripathi, S. P., & Hanna, L. E. (2017). Pathophysiology of CD4+ T-Cell Depletion in HIV-1 and HIV-2 Infections. Frontiers in immunology, 8, 580. https://doi.org/10.3389/fimmu.2017.00580
- Ribeiro R. M. (2007). Dynamics of CD4+ T cells in HIV-1 infection. Immunology and cell biology, 85(4), 287–294. https://doi.org/10.1038/sj.icb.7100056
- Tsukamoto T. (2020). Hematopoietic Stem/Progenitor Cells and the Pathogenesis of HIV/AIDS. Frontiers in cellular and infection microbiology, 10, 60. https://doi.org/10.3389/fcimb.2020.00060

• Descriptive statistics were used to summarize the percentage of individuals with knowledge of their HIV-positive status and those linked to care within one month of diagnosis.

### RESULTS

- HIV status increased from 988,546 to 1,079,751, with the
- In 2022, 90.10% of females were aware of their HIV-positive status compared to 86.40% of males (Table 1).
- In 2022, the knowledge rate among those aged 13-24 was 95.60% and 97.70%, respectively (Table 1).
- medical care within one month of diagnosis increased from 2019 before declining to 23,419 in 2020, likely due to the coronavirus disease 2019 (COVID-19) pandemic (Table 2).

#### Table 1: percentage of people with knowledge of their positive HIV status and their subsequent linkage to care

Label	Variable	2017	2018	2019	2020	2021	2022
National data	People with knowledge of their positive HIV status	988,546	1,003,086	1,025,126	1,037,822	1,056,027	1,079,751
	Estimated percentage with knowledge of their positive HIV status	848,172 (85.80%)	861,650 (85.90%)	884,683 (86.30%)	897,716 (86.50%)	916,631 (86.80%)	941,333 (87.20%)
Based on gender	National, Male (sex)	84.80%	85%	85.30%	85.60%	86%	86.40%
	National, Female (sex)	89%	89.20%	89.50%	89.70%	89.90%	90.10%
Based on age	National, 13-24	50.50%	42.10%	44.90%	46.90%	51.10%	56.30%
	National, 25-34	70.70%	71.70%	71.50%	71.10%	71.20%	71.60%
	National, 35-44	84.80%	85.70%	85.40%	84.90%	84.60%	84.30%
	National, 45-54	92.40%	92.90%	92.70%	92.60%	92.30%	92%
	National, 55-64	-	95.60%	95.60%	95.60%	95.60%	95.60%
	National, 65+	-	97.50%	97.60%	97.70%	97.70%	97.70%

#### Table 2: People with HIV who received HIV medical care within one month of diagnosis

Label	Variable	2017	2018	2019	2020	2021	2022
National data	Number of people with HIV who received HIV medical care within one month of diagnosis	26,517	26,858	27,479	23,419	27,535	29,753
	Percentage of people with HIV who received HIV medical care within one month of diagnosis	20,630 (77.80%)	21540 (80.20%)	22340 (81.30%)	19297 (82.40%)	22551 (81.90%)	29,753 (81.60%)
Based on gender	National, Male (sex)	77.70%	80.30%	81.60%	82.40%	82%	81.90%
	National, Female (sex)	78.20%	79.80%	80.20%	82.30%	81.80%	80.20%
Based on age	National, 13-24	74.60%	77.20%	79%	80%	80.20%	80.30%
	National, 25-34	76.70%	79.50%	80.80%	82.30%	81.70%	81.40%
	National, 35-44	79.30%	82.30%	82.40%	82.50%	82.20%	82.10%
	National, 45-54	81%	81.60%	83.30%	84.50%	83.40%	82.20%
	National, 55-64	-	83.20%	82.80%	83.90%	84%	82.90%
	National, 65+	-	81.40%	85.50%	86.30%	83.80%	82.10%

• From 2017 to 2022, the number of people aware of their positive estimated percentage rising from 85.80% to 87.20% (Table 1).

56.30%, lower than other age groups. Older age groups, aged 55-64 and 65+, exhibited the highest rates of knowledge, reaching

• From 2017 to 2022, the percentage of people with HIV receiving 77.80% to 81.60%. Individuals linked to care peaked at 27,479 in By 2022, Asians had the highest knowledge of their HIV status at 92.80%, followed by Whites at 89.20%, while American Indians/Alaska Natives and Native Hawaiians/Pacific Islanders had the lowest rates at 77.30% and 80.40%, respectively (Fig 1)



Figure 1. Racial and ethnic disparities in the knowledge of positive HIV status.

By 2022, individuals with male-to-male sexual contact had a lower



In 2022, Asians consistently show the highest rates of timely linkage to care reaching 88.10%. In contrast, American Indians/Alaska Native persons and Black/African American individuals have some of the lowest rates, with 77.90% and 78.30% linked to care within one month, respectively (Fig 3)

igure 3. Racial and ethnic disparities in people with HIV who received HIV medical care within one month of diagnosis







## **RESULTS cont.**

In 2022, Individuals with male-to-male sexual contact as the mode of transmission show relatively high linkage rates, with 82.50% receiving care within one month. In contrast, those with injection drug use as the mode of transmission have consistently lower rates, with only 76% linked to care (Fig 4)

Figure 4. Modes of transmission in people with HIV who received HIV medical care within one month of diagnosis



## LIMITATIONS

- Reliance on existing secondary data was a major limitation, as it hindered the ability to accurately account for important contextual factors that could influence care linkage outcomes.
- Geographical barriers may also play an important role in the linkage rates, even though they were not sufficiently addressed in the analyzed data.
- The data collected between 2020 and 2021 were highly prone to be influenced by the COVID-19 pandemic.

## CONCLUSIONS

Despite the decline in new infections and increased awareness, disparities among younger individuals and racial minorities persist, highlighting the need for targeted interventions. The increasing percentage of people receiving care within one month of diagnosis indicates improvements in healthcare accessibility and outreach efforts. However, ongoing efforts in education, stigma reduction, and tailored support are crucial to achieving optimal HIV care for all populations.