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Shifting Patterns of HIV/AIDS in the United States: A Demographic Analysis from 2010-2022

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Abstract:
The HIV/AIDS epidemic, recognized in 1981, continues to be a dire and significant public health challenge for people living in the United States. This review will cover the demographic shifts in new HIV diagnoses from 2010 to 2022. It aims to answer the essential question of "how has the pattern of infection changed in the last decade?" Data reveals that gay men continue to represent the majority of new infections while racial patterns reveal that while African American/Black are majorly affected with new HIV/AIDS diagnoses, infections in Hispanic/Latino populations are rising sharply. It was also found that populations over 55 years are increasingly becoming more and more vulnerable despite new access to sexual education and treatments like antiretroviral therapy. This review also addresses societal issues and barriers that prevent adequate treatment access. By highlighting emerging new vulnerabilities and persistent disparities, this review aims to inform future public health strategies and underscore the urgency of continued intervention.

Introduction:

What is the AIDS epidemic?

Acquired Immunodeficiency Syndrome (AIDS) is caused when an infection by the Human Immunodeficiency Virus (HIV) leads to the destruction of the immune system. The AIDS epidemic started in the United States in 1981 and continues to affect populations around the world today. To better understand its impact, readers are urged to explore the historical context of the epidemic beyond what is discussed below.

A significant portion of fatal cases involved men who identified as gay. First identified among gay men in the United States, the media latched on to this and spread the idea that AIDS was a "gay disease". Due to this early mischaracterization, the gay community received a large backlash from the public, leading to long-lasting impacts against gay men. The early epidemic planted profound societal impacts and stigma against gay men, even leading to violent attacks against the community (Tsai & Venkataramani 2016). Even today, the lasting fear of infection and spread of misinformation maintains overwhelming discrimination affecting many aspects of daily life (Crew Health, 2021; Sharp & Hahn, 2011). Without any effective treatment, the disease was often fatal. In the mid-1990s, the advent of antiretroviral therapy (ART) turned HIV infection into a chronic condition that is non-fatal and usually manageable. Today, more preventive measures, education, and treatment are available, which have significantly reduced death rates. Still, ART is not a cure and interruption of therapy will proceed to the development of AIDs. Many conditions including social/economical barriers, education, and access to resources are still lending to new HIV infections and difficulty accessing treatments. Understanding these social and structural challenges

also requires a clear sense of how the virus functions at a biological level.

What is HIV?

Human Immunodeficiency Virus (HIV) is a retrovirus, meaning it can convert its RNA genome into DNA. HIV is a bloodborne pathogen that infects immune cells, especially macrophages and CD4 T cells. Once inside a host cell, HIV integrates into the host genome and uses cellular resources to produce new viral particles. These viral particles then continue to infect new immune cells and spread throughout the body, destroying infected cells and leading to exhaustion of immune regulatory cells. This gradually destroys the immune system, leading to immunodeficiency.

What is the disease progression post-HIV infection?

The progression of infection with HIV is typically a relatively slow process that can take years before symptoms of advanced HIV diseases or immunosuppression occur. After exposure, HIV quickly replicates in the bloodstream and lymph nodes, which causes an increase in the viral load and initiates gradual immune system damage. The late phase of HIV infection (AIDS) is characterized by immune deficiency, which leaves people highly susceptible to opportunistic diseases such as tuberculosis, pneumonia, and Candida infections, a newfound symptomatic stage of the disease (Lesserman, 2003). Additionally, the weakening of the immune system increases the risk for certain cancers like Kaposi's sarcoma, non-Hodgkin lymphoma, and invasive cervical cancer (Naif, 2013).

U.S. Demographics and Health Disparities

Today, there is a common misconception that the AIDS epidemic has ended and is no longer a risk for people. Unfortunately, this is very far from the truth. While it is true that the infection rate has slowed considerably, the virus still continues to spread rapidly, especially among demographics that are disproportionately impacted by HIV. Currently, in just the United States, 1.2 million people are living with HIV/AIDS, with 31,800 estimated new HIV infections in 2022 (HIV.gov, 2025). This review aims to bring awareness back to HIV and remind people that there is still work that each and every one of us can help with. This review will take a closer look at data from 2010 and 2022 to reveal how these disparities have shifted over time, offering insight into the forces shaping current infection patterns and potential solutions, including accessible sexual education.

Epidemiological Overview:

It is estimated that out of the 47,500 people with new HIV infections in 2010, 78% occurred from gay, bisexual, and other men who reported sexual contact, 25% among individuals reporting heterosexual contact, and 8% from people who inject drugs (Centers for Disease Control and Prevention, 2012). Data from 2022 also indicates that out of the 31,800 estimated new HIV infections in the US, 67% occurred among gay, bisexual, and other men who reported sexual contact, 22% among individuals reporting heterosexual contact, and 7% among individuals who inject drugs (Centers for Disease Control and Prevention, 2025). Importantly, the overall decline in new infections over time demonstrates meaningful progress from awareness efforts, institutional advances, and other social/structural changes, showing that the spread of HIV/AIDS is beyond sexual orientation.

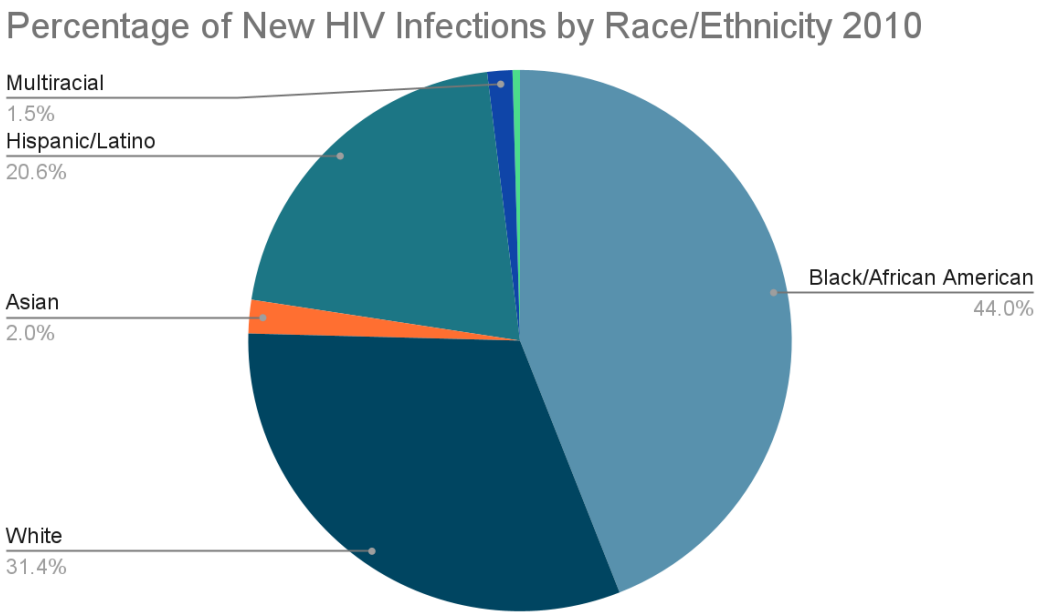

Figure 1. Percentage of New HIV Infections by Race and Ethnicity in 2010. Pie chart showing the percent distribution of new HIV infections across different races/ethnicities in 2010.

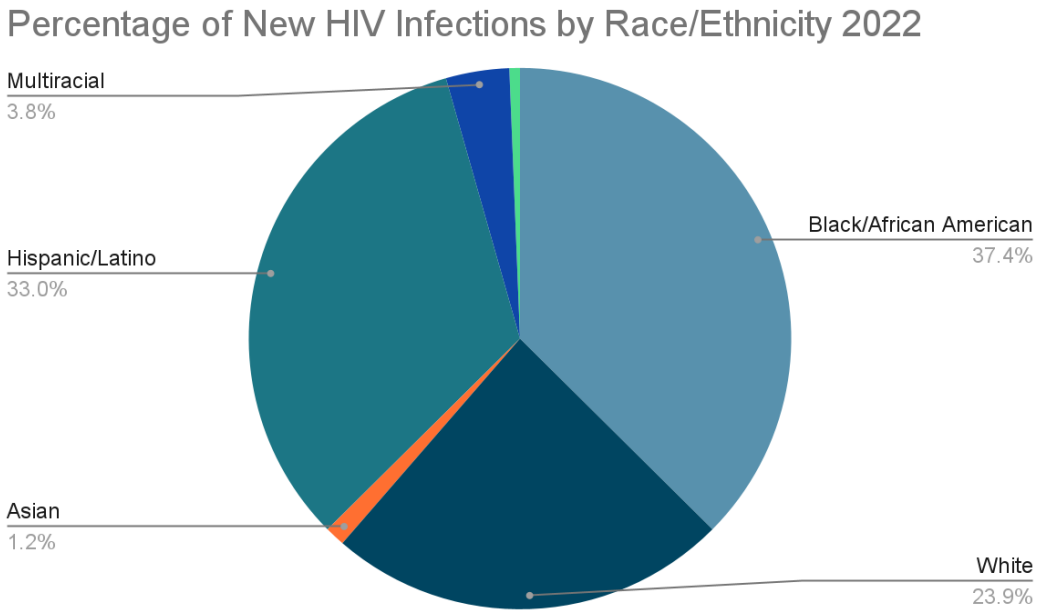

Figure 2. Percentage of New HIV Infections by Race and Ethnicity in 2022. Pie chart showing the percent distribution of new HIV infections across different races/ethnicities in 2022.

Race/Ethnicity:

HIV/AIDS disproportionately affects some races and ethnicities in the United States. Looking at Figure 1, we can see that the highest percentage of new HIV infections in 2010 by race/ethnicity was Black/African American at 44.0% (Centers for Disease Control and Prevention, 2012). Now comparing this percentage to data collected in 2022, we can see that Black/African American decreased to 37.4% of

new infections. Additionally, the Hispanic/Latino percentage in 2022 shot up to 33.0% of new HIV infections, while previously being 20.6%. (Centers for Disease Control and Prevention, 2024). Together this suggests the importance of better messaging in certain racial/ethnic communities, which have been shown to be effective. Previous research has also shown the importance of keeping racial/ethnic differences in mind for HIV/AIDS communication and medical intervention (Bass, D'Avanzo, Alhajji, Ventriglia, Trainor, Maurer, Eisenberg, & Martinez 2020; Carnevale, Zucker, Borsa, Northland, Castro, Molina, Paul, Jose, William, Alwyn, Susan, Peter & Magdalena, 2020). Together this suggests the importance of better messaging in certain racial/ethnic communities.

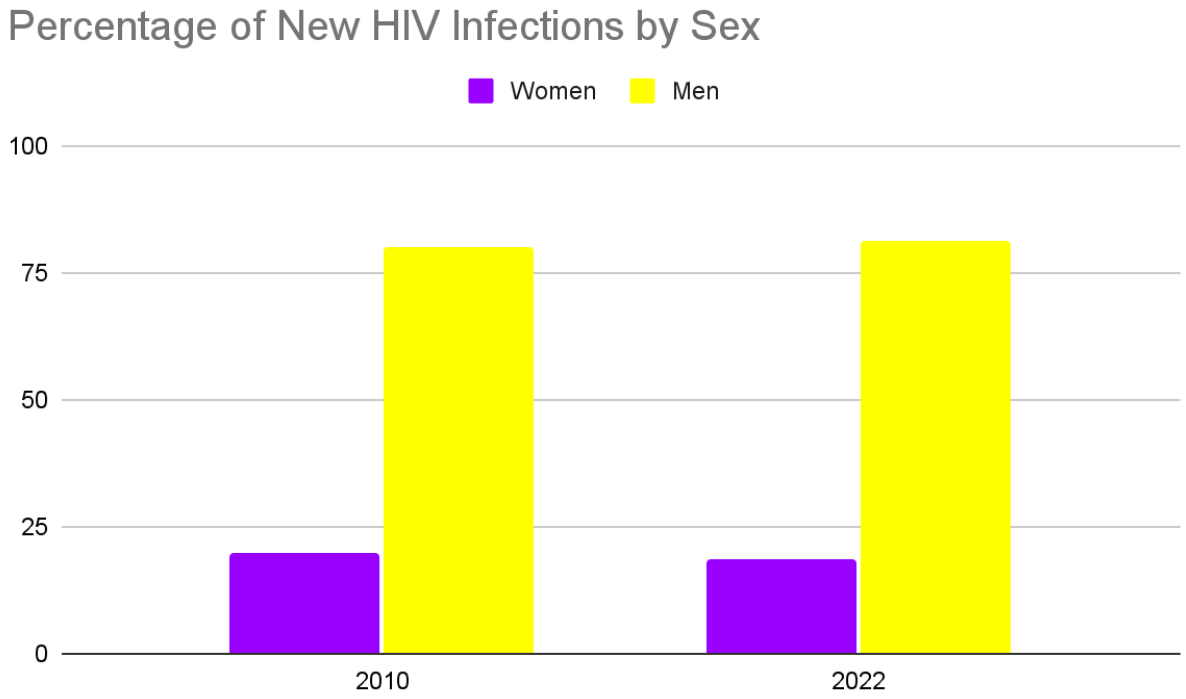

Figure 3. Percentage of New HIV Infections by Sex in 2010 and 2022. Bar graph comparing the percent distribution of new HIV infections by sex in 2010 and 2022

Sex:

In 2010, the number of new HIV infections by sex for women was 20% while the percentage of men was 80% (Centers for Disease Control & Prevention, 2012). Looking at the 2022 data listed on Figure 3, we can see that there was little difference in percentages (18.8% women and 81.2% men), suggesting that HIV infections continue to affect men disproportionately (Centers for Disease Control & Prevention, 2024). This is apparent and reflects the ongoing reality that gay men continue to be the group that is most affected by HIV in the United States. Even with prevention and treatment, there are structural barriers that contribute to higher infection rates.

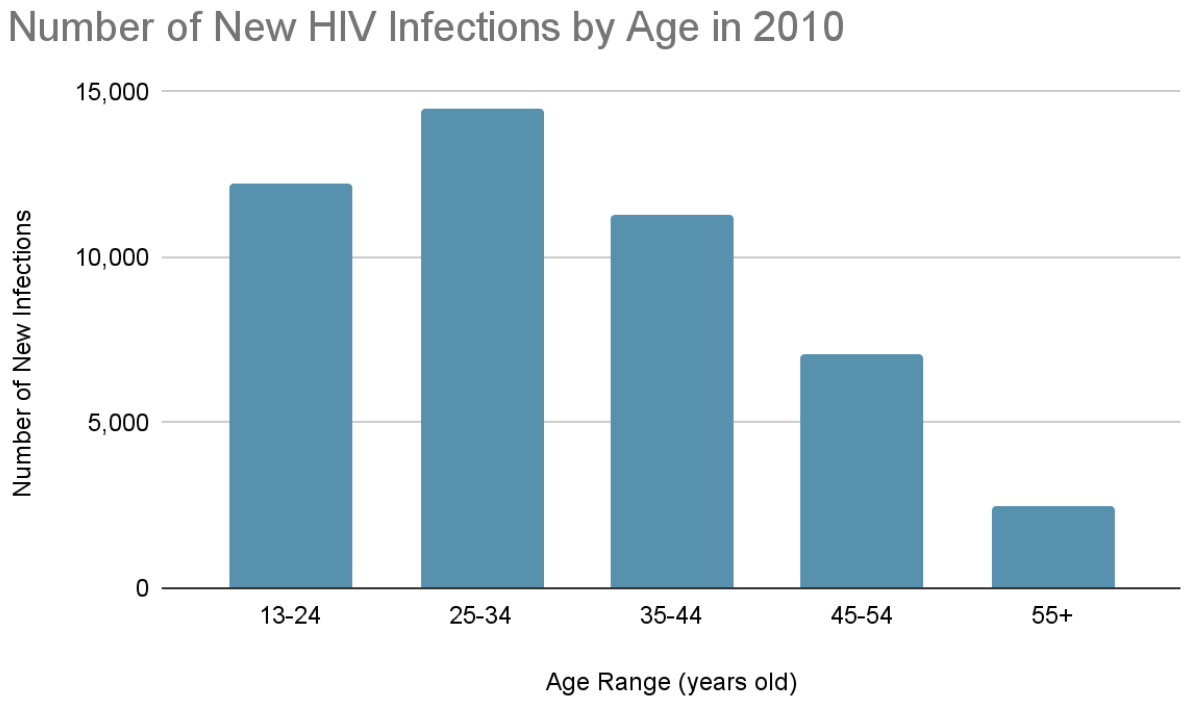

Figure 4. Number of New HIV Infections by Age in 2010. Bar graph comparing number of new infections in age ranges.

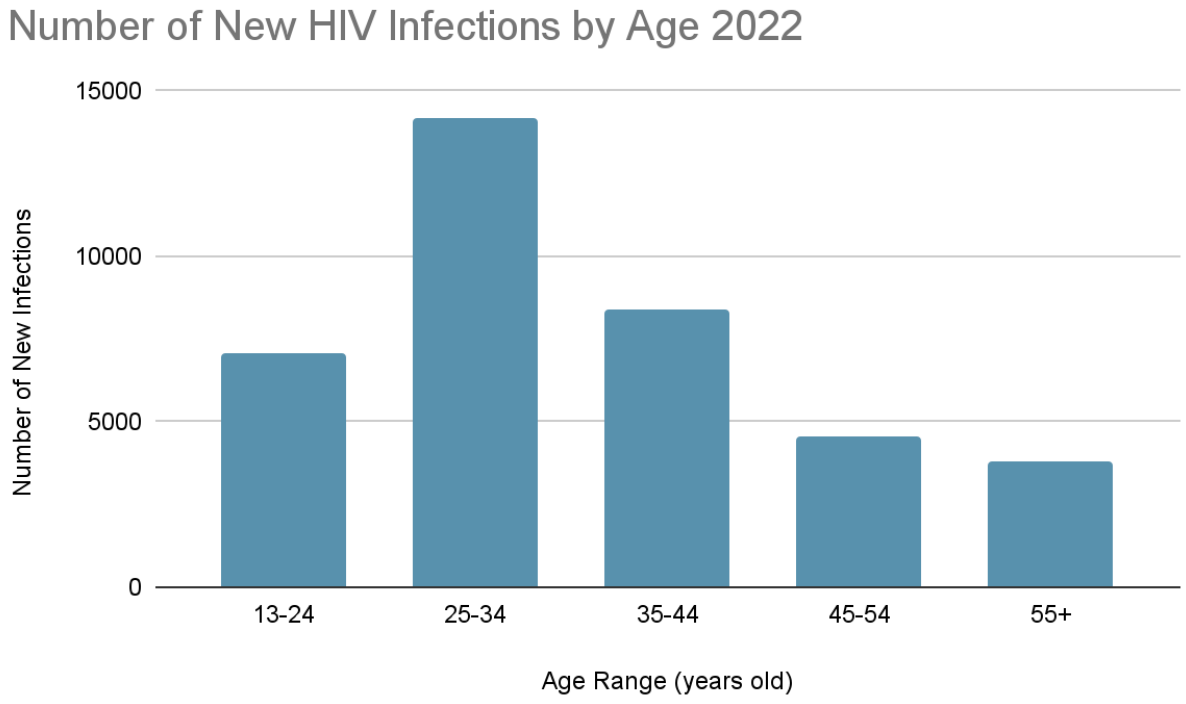

Figure 5. Number of New HIV Infections by Age in 2022. Bar graph comparing number of new infections in various intervals of age in years.

Age:

Some age groups are disproportionately affected by HIV. In 2010, the number of new HIV infections in the 13-24 age group was 12,200 (Centers for Disease Control and Prevention, 2012) In 2022, this number dropped to 7,099. (Centers for Disease Control and Prevention, 2024). For ages 25-34, there was no significant change from 14,500 (2010) to 14,160 (2022). For ages 35-44, the number was 11,300 in 2010 and 8,367 in 2022. From 45-54, the number was 7,100 compared to 2022's count of 4,576 people with new HIV infections. Lastly, there were 2,500 new infections among those aged 55+ in 2010, while in 2022 the 55+ age group experienced 3,779 infections. Overall, we observe a downward trend in new HIV infections across all age categories from 2010 to 2022, except in the 55+ age group. All data above were gathered from the CDC reports on new HIV infections in 2010 (Centers for Disease Control and Prevention, 2012) and 2022 (Centers for Disease Control and Prevention, 2024), respectively. The data suggests that although prevention and treatment efforts have reduced the number of new HIV infections among younger and middle-aged populations, elders are still vulnerable. The increase in infections among people 55+ could suggest that there are significant gaps in sexual education and a potentially persistent stigma against testing and prevention in elder communities. It would be important for groups spreading awareness to better understand how to reach this age community.

Geographic Locations:

Additionally, some geographic locations are more concentrated with new HIV infections (Centers for Disease Control and Prevention, 2024). For example, in 2022, the South accumulated almost half (49%) of the 31,800 new HIV infections, the West (23%), the Midwest (14%), and the Northeast (14%) (Center for Disease Control and Prevention, 2016). These statistics highlight ongoing disparities by creating a mathematical percentage of HIV infections, which can visualize the levels of prevention/education, testing, and treatment accessibility in a geographic location. For example, in the South, several factors like poverty, lack of access to healthcare, and community stigma are markers for high rates of HIV infections (AIDSVu, 2025; Conner, Adatorwovor, Robbins, Mmachinga-Asaolu, Showalter, & Oser, 2025). This again suggests the importance of types of messaging and communication, and that physical location serves as an indicator of where to devote more effort and communication research.

Social and Structural Barriers

There are many societal barriers that hinder access to adequate health care and education. These include, individuals who are unaware of their HIV infection, societal criticism and stigma around the disease, increased risk for mental health issues and substance abuse. People living with HIV/AIDS often face physical boundaries preventing access to treatment as well (Dombrowski, Simoni, Katz, & Golden, 2015). These reasons include lack of transportation, absence of health insurance, limited availability of specialized HIV care, cost of treatment, and finally low health literacy- the ability to obtain, process, and understand health information to make informed decisions about their health (Bowleg, Malekzadeh, Mbaba, & Boone, 2022). This raises the importance of institutional efforts for healthcare accessibility.

Discussion & Conclusion:

This research highlights the persistent and evolving nature of the HIV/AIDS epidemic in the United States. While medical advancements such as antiretroviral therapy have transformed HIV from a fatal diagnosis into a more manageable chronic condition, the virus continues to disproportionately affect marginalized

communities.Throughout this review, it is clear that many social and institutional factors affect the spread of HIV/AIDS, rejecting the notion that HIV/AIDS is inherently caused by any sexual orientation. Although demographic data from 2010 and 2022 reveal that gay and bisexual men remain the most impacted group, with racial disparities shifting—Black/African American individuals still bear the highest burden, while Hispanic/Latino infections have risen significantly (Centers for Disease Control & Prevention 2012, Centers for Disease Control & Prevention 2024), other factors show disparity in different communities as well. Age trends show a decline in new infections among younger populations, yet an increase among those aged 55+, suggesting changing risk factors and gaps in outreach. Geographically, the South remains a hotspot, underscoring regional inequities in healthcare access, education, and stigma (Sullivan et al., 2021). There are several systemic factors that contribute to these disparities. Some examples include socioeconomic status: income limits access to healthcare, testing, and treatment, inadequate sexual education, healthcare inequalities from racism and homophobia, stigma and discrimination, and irregularity in HIV prevention and care services due to COVID-19 (Alzate Angel, Pericàs, Taylor, and Benach, 2018). The HIV/AIDS epidemic is far from over. While progress has been made, it is apparent that systemic inequities continue to fuel new infections. Yet, there is hope. With targeted interventions, compassionate policy, and sustained public awareness, we can move closer to ending the epidemic—not just medically, but socially and structurally.

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