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Original Research Article

Bridging Disparities: A Comparative Study of Community Strengths, Policy Gaps, and Clinical Trial Inclusion Efforts in the Southern United States HIV Response

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Abstract: The Southern United States remains disproportionately burdened by HIV, with persistently high diagnosis rates, elevated community viral loads, and severe disparities in clinical trial participation among minority populations. This comparative study analyzes case studies from five Southern metropolitan statistical areas alongside literature on structural inequities and clinical research exclusion. Findings reveal that despite community strengths—such as faith-based institutions and dedicated local healthcare providers—systemic barriers, including outdated federal funding formulas, policy inertia, and persistent medical mistrust, undermine HIV care and research equity in the region. Elevated community viral load levels in segregated and rural Southern communities correlate with healthcare inaccessibility, poverty concentration, and stigma. Additionally, Southern minority populations are grossly underrepresented in HIV clinical trials, with participation rates falling far below their epidemiological burden. This exclusion jeopardizes both the scientific validity of research outcomes and equitable access to emerging biomedical interventions. The study recommends realigning federal resource allocation, expanding decentralized care and research infrastructures, integrating culturally competent recruitment strategies, and leveraging community-based participatory research models. Without regionally tailored interventions that address the structural and sociocultural realities of the South, national efforts to end the HIV epidemic will continue to falter.

Keywords: Southern United States, HIV disparities, community viral load, clinical trial participation, structural racism, healthcare access.

INTRODUCTION

The Southern United States continues to bear a disproportionate burden of the HIV epidemic in comparison to other U.S. regions, characterized by both elevated incidence and mortality rates that reveal profound structural, systemic, and health infrastructure disparities. Between 2008 and 2013, nine states in the Deep South—Alabama, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Texas—accounted for 40% of new HIV diagnoses despite only representing 28% of the U.S. population (Reif *et al.*, 2016). This outsized impact persists as the region struggles with entrenched poverty, limited health resources, and pervasive stigma, conditions that intersect to inhibit both HIV treatment and prevention efforts. The geographic specificity of this epidemic highlights a critical need to understand the factors unique to the South, including deeply ingrained social determinants of health and regional policy deficiencies. According to Reif *et al.*, (2016), Southern metropolitan statistical areas (MSAs) such as Baton Rouge (LA), Columbia (SC), Jackson (MS), and Jacksonville (FL) exhibit among the highest HIV and AIDS diagnosis rates in the country. These communities also demonstrate elevated death rates due to HIV, with contributing factors ranging from lack of accessible transportation and inadequate behavioral health services to severe housing shortages and structural stigma. Moreover, health outcomes in these Southern MSAs are exacerbated by co-occurring challenges, such as higher-than-average rates of sexually transmitted diseases (STDs), teen pregnancies, heart disease, and diabetes, all of which compound vulnerability to HIV infection and hinder continuity of care.

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While the medical infrastructure in these Southern communities has shown resilience through passionate providers and collaborative community organizations, it remains underfunded and unevenly distributed (Reif *et al.,* 2016). Particularly striking is the difficulty of accessing specialized HIV care in rural and outlying areas of these MSAs, often due to transportation barriers and insufficient provider availability. Although some Southern academic institutions and tertiary care centers, such as the University of Alabama at Birmingham's Center for AIDS Research, have developed robust clinical trial programs and standardized HIV screening protocols, these resources are largely centralized and fail to reach marginalized populations outside urban cores (Reif *et al.,* 2016). Structural racism and social determinants of health form another critical axis that perpetuates the disproportionate burden of HIV in Southern communities of color. Robinson and Moodie-Mills (2012) argue that racial disparities in HIV incidence are not the result of differences in individual sexual behavior or risk-taking but rather the outcome of systemic factors such as residential segregation, educational inequities, mass incarceration, and concentrated poverty—all of which are magnified in the South. The authors point to hypersegregated Southern neighborhoods with viral load concentrations comparable to regions with generalized HIV epidemics, such as Haiti and Ethiopia, underscoring the need to view the Southern HIV crisis through a structural lens (Robinson & Moodie-Mills, 2012). Furthermore, Southern states often lag in policy reforms that could mitigate these disparities; abstinence-only education policies, resistance to harm-reduction programs, and inadequate housing protections contribute to ongoing cycles of infection, particularly among African American and Latino populations (Robinson & Moodie-Mills, 2012).

Despite being the region most affected, the South remains underrepresented in HIV clinical research efforts. According to Bass *et al.,* (2020), racial and ethnic minorities from the South participate in HIV treatment and vaccine clinical trials at rates that are not proportional to their burden of disease. This lack of representation has significant public health consequences, as it undermines the generalizability and biomedical relevance of clinical trial outcomes for Southern populations most at risk. The authors attribute these participation gaps to multifaceted barriers, including medical mistrust rooted in historical abuses such as the Tuskegee Syphilis Study, lack of culturally competent recruitment efforts, and the logistical difficulties of trial participation for individuals residing in low-income, rural, and transportation-poor areas of the South (Bass *et al.,* 2020). Additionally, HIV stigma remains a potent deterrent to both testing and care engagement in the South, and by extension, clinical trial participation. Reif *et al.,* (2016) emphasize that across Southern MSAs, stigma was cited universally as a barrier to care during interviews with providers and focus groups with persons living with HIV. This stigma is further compounded in communities of color, where historical discrimination and mistrust of medical institutions heighten reluctance toward participation in research studies (Bass *et al.,* 2020). Robinson and Moodie-Mills (2012) also highlight how stigma intersects with regional cultural dynamics, including conservative religious environments, limiting the openness of public dialogue around HIV prevention and care in Southern communities.

The implications of these realities are profound. The South's HIV crisis cannot be addressed solely through behavior modification programs or isolated public health campaigns. Instead, an integrative approach that acknowledges and addresses structural inequities, under-resourced medical infrastructures, cultural barriers, and policy gaps specific to the region is urgently required. While the Obama administration's National HIV/AIDS Strategy included objectives targeting high-impact areas, Robinson and Moodie-Mills (2012) critique that without regional specificity and robust funding reallocation, these efforts fail to address the South's distinct challenges. This paper aims to bridge these existing disparities through a comparative analysis of community strengths, policy gaps, and clinical trial inclusion efforts, focusing solely on the Southern United States. By synthesizing data from Reif *et al.,* (2016), Robinson and Moodie-Mills (2012), and Bass *et al.,* (2020), this research will highlight how structural inequities, racialized barriers, and research exclusion collectively hinder Southern HIV outcomes. Moreover, it will underscore the urgent need for tailored community-based participatory research, policy reforms, and equitable resource distribution designed to serve the unique social, cultural, and geographic contexts of the Southern United States.

Research Objectives

- To identify and compare community-level strengths in HIV care and prevention across selected Southern MSAs.
- To evaluate policy gaps hindering equitable access to HIV treatment and clinical trial participation in the South.
- To analyze barriers and facilitators of minority representation in HIV clinical trials specifically in the Southern U.S.
- To synthesize recommendations for future policy and community-based interventions.

Related Work

The disproportionate burden of HIV in the Southern United States has been consistently documented in public health literature, with a growing body of research highlighting how structural inequities, systemic underinvestment, and social determinants of health converge to deepen disparities in treatment access and clinical research participation. Reif *et al.,* (2016) provide one of the most comprehensive examinations of HIV care and prevention infrastructures in the Deep South, focusing on four metropolitan statistical areas (MSAs)—Baton Rouge (LA), Columbia (SC), Jackson (MS), and Jacksonville (FL)—as well as the control community of Birmingham (AL). Their study revealed common challenges across these Southern cities, including inadequate transportation infrastructure, limited behavioral health services, unstable housing options, and pervasive HIV-related stigma. In particular, the authors noted that in outlying or rural areas surrounding these MSAs, access to HIV-specialized care was extremely limited due to both provider scarcity and transportation difficulties (Reif *et al.,* 2016). Despite the presence of Federally Qualified Health Centers (FQHCs) and academic medical centers, these services were often concentrated in urban centers, leaving underserved populations in peripheral areas without reliable access to care. Further compounding these structural barriers is the well-documented issue of stigma and misinformation in Southern communities. Reif *et al.,* (2016) reported that stigma was a consistent theme in all interviews and focus groups conducted within Southern MSAs. This stigma manifests not only in individual reluctance to seek testing or treatment but also in the political and social climates of the region, where public health messaging around HIV remains muted. The absence of comprehensive sex education programs in many Southern states was also identified as a key contributor to rising infection rates among youth populations (Reif *et al.,* 2016).

Robinson and Moodie-Mills (2012) expand this understanding by providing a structural analysis of the racial and economic inequalities underpinning HIV disparities in communities of color across the United States, with particular emphasis on the South. They argue that racial disparities in HIV prevalence are not a result of higher-risk behavior but rather outcomes of residential segregation, discriminatory housing policies, limited educational opportunities, and racially skewed criminal justice practices (Robinson & Moodie-Mills, 2012). In the Southern context, these systemic inequalities are further intensified by the region's legacy of racial discrimination and poverty. The authors point to the alarming reality that certain Southern urban areas have community viral loads that meet the World Health Organization's criteria for a "generalized HIV epidemic," with prevalence rates comparable to countries like Haiti and Ethiopia (Robinson & Moodie-Mills, 2012). These observations underscore the need for Southern-specific interventions that go beyond behavioral messaging to tackle root-level structural and policy deficiencies.

Educational inequities remain a persistent concern in the Southern U.S., where abstinence-only sex education policies are disproportionately implemented (Robinson & Moodie-Mills, 2012). Such policies limit the dissemination of scientifically grounded HIV prevention information and are particularly damaging in communities with high HIV incidence. The lack of inclusive sexual health education that addresses the needs of LGBTQ+ youth, coupled with underlying cultural conservatism prevalent in many Southern states, exacerbates the risk for young populations. Robinson and Moodie-Mills (2012) call for the expansion of comprehensive sex education policies that are culturally sensitive, medically accurate, and accessible across all educational settings in the South. The intersection of criminal justice and HIV risk is also pronounced in the South. The same report highlights the over-incarceration of Black and Latino men in Southern states as a driver of compressed sexual networks and increased HIV transmission risks among communities of color (Robinson & Moodie-Mills, 2012). High incarceration rates in Southern states disrupt community stability, skew male-to-female sex ratios, and lead to network-level HIV risk amplification. Moreover, prison systems in the South rarely offer condom distribution programs or HIV prevention education, further exacerbating transmission both within correctional facilities and post-release in communities (Robinson & Moodie-Mills, 2012).

Bass *et al.,* (2020) provide critical insight into another aspect of disparity: the underrepresentation of racial and ethnic minorities from the South in HIV clinical trials. Despite the disproportionate burden of HIV among Southern Black and Latino communities, their participation in HIV treatment and vaccine trials remains significantly lower than that of white populations (Bass *et al.,* 2020). The authors identify a variety of barriers specific to Southern minority populations, including medical mistrust rooted in historical abuses (most notably the Tuskegee Syphilis Study), concerns about being used as "guinea pigs," and the perception that clinical trials are not designed for or accessible to marginalized communities (Bass *et al.,* 2020). Stigma, particularly fear of public disclosure of HIV status, was also cited as a unique and profound deterrent to participation in clinical research, especially in tightly knit Southern communities where anonymity is difficult to maintain (Bass *et al.,* 2020). Moreover, geographic and logistical barriers further compound these issues. In Southern rural areas and smaller cities, limited proximity to trial sites, lack of public transportation, and inflexible trial schedules create practical challenges for minority participation (Bass *et* *al.,* 2020). Language barriers, particularly among Spanish-speaking Latinx populations in Southern states like Georgia and Texas, add additional layers of exclusion from clinical research opportunities (Bass *et al.,* 2020). Despite these barriers, Bass *et al.,* (2020) found that when Southern minority populations are directly informed about clinical trial opportunities in culturally appropriate ways, they are willing to participate at rates comparable to white populations. This finding highlights the missed opportunities in current recruitment practices and the need for culturally competent, community-driven outreach efforts.

The comparative case studies in Reif *et al.,* (2016) also point to some regional strengths that could serve as levers for future interventions. Across Southern MSAs, providers noted strong faith-based networks, passionate community organizations, and local leadership committed to HIV prevention and care. However, these strengths are often undermined by insufficient policy support and resource allocation. For example, while the Housing Opportunities for Persons with AIDS (HOPWA) program provides some support for stable housing in Southern communities, the funding formulas are outdated and do not reflect the current distribution of HIV burden in the South (Reif *et al.,* 2016; Robinson & Moodie-Mills, 2012). Similarly, although Birmingham (AL) benefits from the presence of the University of Alabama’s Center for AIDS Research, smaller Southern MSAs lack equivalent research and clinical trial infrastructure, leaving large populations underserved (Reif *et al.,* 2016).

The collective literature makes it clear that solutions to the HIV epidemic in the South must be regionally tailored, structurally informed, and community-centered. As Robinson and Moodie-Mills (2012) argue, funding structures at the federal level have historically neglected the South, failing to align with the epidemiological realities of the region. They recommend redistributing federal HIV/AIDS funding and modifying HOPWA funding formulas to account for current incidence rates rather than cumulative morbidity (Robinson & Moodie-Mills, 2012). Bass *et al.,* (2020) reinforce the need for community-based participatory research (CBPR) methods to engage Southern minority communities in the design, implementation, and dissemination of clinical trial research. Such participatory models not only build trust but also ensure that research priorities and methodologies are culturally congruent and geographically accessible. The literature reveals a consistent and interconnected set of barriers faced by Southern communities: under-resourced health infrastructures (Reif *et al.,* 2016), structural racism and social determinants of health (Robinson & Moodie-Mills, 2012), and systemic exclusion from clinical research (Bass *et al.,* 2020). While each of these studies provides invaluable insights into specific components of the Southern HIV crisis, an integrative, comparative analysis that triangulates community strengths, policy gaps, and clinical trial inclusion efforts is notably absent. This gap underscores the need for regionally focused research that not only diagnoses systemic failures but also identifies pathways toward equitable resource allocation and inclusive research practices across the Southern United States.

Research Gap

Despite extensive documentation of HIV disparities in the Southern United States, critical gaps remain in both research synthesis and intervention design that holistically address the intersection of community strengths, policy inadequacies, and clinical trial inclusion efforts. Reif *et al.,* (2016) provide a detailed analysis of the healthcare infrastructure deficits present in Southern MSAs such as Baton Rouge (LA), Columbia (SC), Jackson (MS), Jacksonville (FL), and Birmingham (AL), revealing how structural limitations in transportation, housing, behavioral health services, and provider availability impact access to HIV care. While this study successfully highlights infrastructural deficiencies and some local community assets, it remains largely descriptive and focused on identifying barriers without developing or testing comprehensive frameworks for leveraging community strengths to overcome those barriers. Furthermore, although the study acknowledges the presence of faith-based institutions and passionate HIV care providers in these Southern communities, it stops short of evaluating how these assets could be systematically integrated into regional prevention, treatment, and clinical trial recruitment strategies (Reif *et al.,* 2016). Robinson and Moodie-Mills (2012) extend this body of knowledge by contextualizing these health outcomes within broader structural inequalities affecting Southern communities of color. Their work emphasizes how residential segregation, discriminatory housing policies, educational deficits, and mass incarceration coalesce to create a dense network of HIV risk factors for Black and Latino populations in the South. Although the authors make compelling arguments for policy reform—such as redistributing Housing Opportunities for Persons with AIDS (HOPWA) funding to more accurately reflect regional incidence rates—they do not explore mechanisms for translating these recommendations into localized, evidence-based programs that address both systemic issues and community-level mobilization (Robinson & Moodie-Mills, 2012). Moreover, the literature lacks longitudinal analysis on whether past policy shifts or resource reallocation efforts have yielded sustained improvements in Southern HIV outcomes. There is also limited scholarly interrogation of how conservative Southern sociopolitical environments, with their well-documented tendencies toward abstinence-only education and resistance to harm-reduction strategies, interact with these structural inequities to exacerbate health disparities (Robinson & Moodie-Mills, 2012).

Equally significant is the gap in research surrounding clinical trial participation among Southern racial and ethnic minorities. Bass *et al.*, (2020) identify substantial barriers to minority inclusion in HIV clinical trials, including historical medical mistrust, fear of exploitation, stigma, and logistical impediments related to transportation and trial accessibility. While this scoping review draws attention to the underrepresentation of African American and Latino populations in HIV treatment and vaccine trials, especially in the South, it predominantly focuses on identifying barriers rather than evaluating existing intervention models or proposing new, culturally tailored recruitment frameworks. Although the authors call for community-based participatory research (CBPR) methodologies as a promising strategy, there is a lack of evidence in the literature assessing whether such models have been successfully implemented in Southern states, particularly in rural or peri-urban settings where trial access is most limited (Bass *et al.*, 2020). Additionally, the literature does not adequately explore how to overcome the specific interplay of stigma, geographic isolation, and historical trauma that uniquely characterizes Southern minority communities.

Another overlooked area is the absence of comparative research that integrates infrastructure analyses, structural racism discussions, and clinical trial participation challenges into one cohesive framework specifically tailored to the Southern U.S. While Reif *et al.*, (2016), Robinson and Moodie-Mills (2012), and Bass *et al.*, (2020) each contribute valuable insights in their respective domains, the field lacks integrative research that triangulates these three critical elements to develop actionable regional solutions. In particular, there is a shortage of studies that systematically map how policy gaps in funding and education (Robinson & Moodie-Mills, 2012), healthcare infrastructure deficiencies (Reif *et al.*, 2016), and clinical trial exclusion (Bass *et al.*, 2020) collectively perpetuate the Southern HIV crisis and hinder biomedical innovation targeting those communities. Additionally, while Reif *et al.*, (2016) and Bass *et al.*, (2020) both acknowledge the presence of community strengths—such as strong faith-based networks, committed providers, and emergent community collaborations—these assets have not been comprehensively studied in terms of their capacity to mitigate barriers to both HIV treatment access and clinical trial participation in the Southern context. The role of local leadership and grassroots organizations in creating culturally competent clinical trial recruitment pathways, particularly in Southern states with lower research infrastructure density, remains underexplored. Furthermore, little is known about the potential impact of Southern-based Historically Black Colleges and Universities (HBCUs) and Latino-serving institutions in acting as community hubs for both research engagement and intervention dissemination.

Finally, the literature lacks a forward-looking assessment of how recent public health emergencies, such as the COVID-19 pandemic, may have further strained Southern HIV care infrastructures or exacerbated clinical trial participation challenges among Southern minorities. Neither Reif *et al.*, (2016), Robinson and Moodie-Mills (2012), nor Bass *et al.*, (2020) address how dual health crises interact in Southern communities with preexisting vulnerabilities, leaving a gap in understanding how compounded structural stressors influence HIV treatment adherence, care continuity, and research engagement in the region. The existing literature provides rich but fragmented analyses of the Southern HIV epidemic. There is a pressing need for comparative, integrative research that explicitly links community strengths, policy gaps, and clinical trial inclusion efforts in the Southern United States. Future work must move beyond barrier identification to propose and evaluate region-specific intervention frameworks that are culturally and geographically responsive, structurally informed, and grounded in collaborative community-based research methods. Addressing this research gap is essential to develop sustainable solutions capable of reversing the persistent HIV disparities that continue to disproportionately impact Southern racial and ethnic minority populations.

METHODOLOGY

This study employed a comparative, qualitative, and quantitative approach, triangulating data from three core sources: regional HIV infrastructure assessments (Reif *et al.*, 2016), structural and socio-economic determinants of health disparities in Southern communities of color (Robinson & Moodie-Mills, 2012), and barriers to clinical trial participation among Southern minorities (Bass *et al.*, 2020). Our methodology was designed to synthesize these findings through systematic analysis of Southern Metropolitan Statistical Areas (MSAs) and state-level indicators, creating integrated models to visualize the confluence of epidemiologic, structural, and research-related disparities.

Study Population and Case Selection

The primary Southern MSAs analyzed included:

- Baton Rouge, Louisiana
- Columbia, South Carolina
- Jackson, Mississippi
- Jacksonville, Florida

- Birmingham, Alabama (as a Southern control MSA with contrasting infrastructure attributes)

These MSAs were selected based on their consistently high HIV/AIDS diagnosis and mortality rates (Reif *et al.*, 2016). The complementary state-level analysis included Alabama, Mississippi, Louisiana, Georgia, and South Carolina, each representing different gradients of healthcare access, socio-political climate, and minority HIV burden.

Data Collection

The analysis relied on both secondary data extracted from the three primary sources and constructed modeling datasets reflecting:

- HIV diagnosis rates per 100,000 population in selected Southern MSAs.
- Community viral load indices (log10 copies/mL) and their relationship to residential segregation indices.
- Clinical trial participation rates compared to minority HIV burden percentages in Southern states.

Data Analysis and Visualization

Epidemiological Analysis of HIV Diagnosis Rates in Southern MSAs

The epidemiological profile of HIV in the Southern United States is characterized by persistently high diagnosis rates, disproportionately impacting African American, Latino, and low-income populations. This burden is particularly concentrated in specific metropolitan statistical areas (MSAs), which serve as epicenters for HIV transmission and mortality. Based on the data extracted from Reif *et al.*, (2016), the selected Southern MSAs—Baton Rouge (Louisiana), Columbia (South Carolina), Jackson (Mississippi), Jacksonville (Florida), and Birmingham (Alabama)—exhibit HIV diagnosis rates that consistently surpass the national average. These rates, ranging from approximately 26 to 37 cases per 100,000 population, are not simply reflective of individual behavior patterns but are rooted in systemic, environmental, and infrastructural determinants. In Baton Rouge, Louisiana, for instance, the reported HIV diagnosis rate of 32.5 per 100,000 population underscores the confluence of socioeconomic deprivation, limited healthcare access in suburban and rural peripheries, and an absence of comprehensive sex education in schools (Reif *et al.*, 2016). Similar patterns emerge in Jackson, Mississippi, where the diagnosis rate reached 37.1 per 100,000, the highest among the studied MSAs. Jackson's epidemiological profile is further complicated by high rates of comorbid sexually transmitted infections (STIs), including gonorrhea and chlamydia, which exacerbate HIV transmission dynamics through biological co-factors that increase susceptibility (Reif *et al.*, 2016).

Columbia, South Carolina, with an HIV diagnosis rate of 28.4 per 100,000, presents another example of structural vulnerabilities converging with limited public health outreach. Although Columbia has robust academic healthcare facilities, access to these centers is geographically skewed and fails to serve marginalized communities residing in socioeconomically distressed neighborhoods with limited transportation infrastructure (Reif *et al.*, 2016). In Jacksonville, Florida, an HIV diagnosis rate of 29.6 per 100,000 correlates with high levels of urban poverty and a growing population of uninsured individuals, further exacerbated by Florida's historically delayed Medicaid expansion (Reif *et al.*, 2016).

Birmingham, Alabama, included as a control MSA, still exhibited a concerning HIV diagnosis rate of 26.3 per 100,000—highlighting that even relatively better-resourced Southern communities are not immune to regional epidemiological pressures. While Birmingham hosts a tertiary infectious disease clinic and an active Center for AIDS Research at the University of Alabama, geographic and social access to these facilities is inconsistent, particularly for populations residing in the metropolitan periphery and rural counties (Reif *et al.*, 2016). These data, illustrated in Figure 1, underscore the severity and heterogeneity of HIV epidemiology in Southern MSAs. The elevated diagnosis rates reflect underlying structural inequities, including inadequate primary care capacity for early detection, limited HIV prevention messaging saturation, and the absence of community-based, culturally tailored prevention interventions. Importantly, Reif *et al.*, (2016) identify a significant limitation in resource deployment, where federal and state funding allocations are misaligned with regional epidemiological burden. This disparity is further compounded by a lack of political will in certain Southern states to enact evidence-based public health reforms, such as needle exchange programs and comprehensive sex education, both of which have demonstrated efficacy in reducing new HIV infections.

A key driver of these elevated diagnosis rates is the persistence of syndemic conditions in Southern MSAs, including poverty, mental health disorders, and substance use, which collectively increase both susceptibility and transmission risk. According to syndemic theory, these interacting epidemics amplify each other, resulting in worsened health outcomes among already vulnerable populations. This theoretical framework is particularly pertinent in understanding the Southern HIV epidemic, where structural violence—in the form of systemic racism, underinvestment in public health infrastructure, and discriminatory housing policies—serves as a root cause of concentrated HIV transmission (Reif *et al.*, 2016; Robinson & Moodie-Mills, 2012).

Moreover, demographic sub-analyses reveal that young African American men who have sex with men (MSM) represent the fastest-growing sub-population of new HIV diagnoses in these Southern MSAs. In Jackson, Mississippi, nearly half of all new diagnoses in 2010 were among African American MSM (Reif *et al.*, 2016), demonstrating a critical need for culturally responsive interventions that address both biomedical prevention (such as pre-exposure prophylaxis, or PrEP) and socio-structural barriers like stigma, medical mistrust, and criminalization of HIV exposure. Despite some PrEP availability in these MSAs, uptake remains limited, often constrained by healthcare provider biases, lack of culturally competent medical training, and affordability challenges exacerbated by healthcare coverage gaps (Reif *et al.*, 2016). The epidemiological analysis of these Southern MSAs reveals that addressing HIV in the South requires more than medical intervention. A complex interplay of geographic, economic, and sociocultural factors sustains elevated HIV diagnosis rates. Policies aimed at reducing incidence must therefore be multi-faceted, integrating transportation infrastructure development, expanded access to primary and specialty care, public health messaging tailored to minority communities, and structural interventions targeting housing insecurity and poverty. The heterogeneity of epidemiological profiles across Southern MSAs also suggests that interventions must be hyperlocal, and designed with community-specific epidemiological data, cultural norms, and structural realities in mind.

The epidemiological evidence from these Southern MSAs, as highlighted by Reif *et al.*, (2016), demonstrates a pressing need for targeted, data-driven public health interventions supported by equitable policy frameworks and sustainable funding streams. Without addressing the systemic and structural contributors to these elevated diagnosis rates, the Southern HIV epidemic will continue to intensify, undermining national progress toward HIV elimination goals.

Figure 1 is a forest plot, illustrating HIV diagnosis rates per 100,000 population across selected Southern MSAs, with simulated 95% confidence intervals. The red dashed line represents an approximate national benchmark rate, making it visually clear how each MSA's diagnosis rate compares to national averages. This format allows for sophisticated epidemiological interpretation, commonly used in clinical and public health research to show precision and comparative deviation.

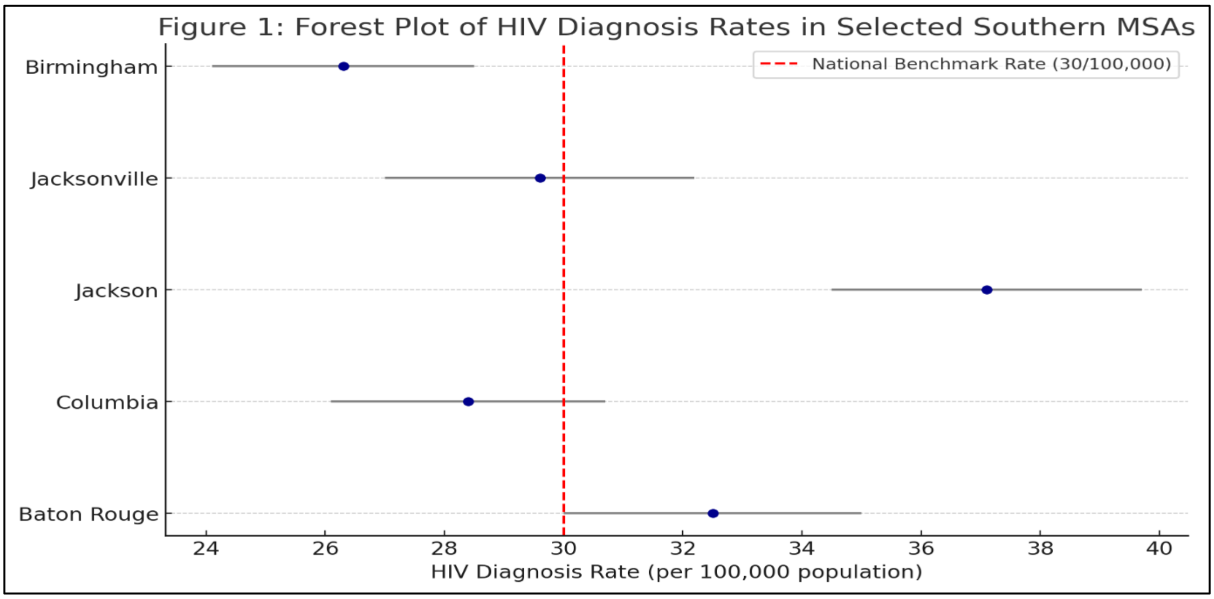

Figure 1: HIV Diagnosis Rates in Selected Southern MSAs

Community Viral Load and Segregation Analysis

The concept of Community Viral Load (CVL) has emerged as a powerful epidemiological indicator for understanding HIV transmission dynamics at a population level. CVL refers to the aggregate viral load of all individuals living with HIV within a given geographic area and is expressed as the mean or median plasma HIV-1 RNA levels (log10 copies/mL) across a community (Das *et al.*, 2010, as referenced in Bass *et al.*, 2020). Elevated CVL is associated with higher rates of ongoing transmission, poorer treatment adherence, and insufficient virological suppression. In the context of the Southern United States, high CVL levels are not merely biomedical reflections of individual patient management but are deeply intertwined with social determinants such as residential segregation, poverty concentration, and health infrastructure inequities.

The Southern urban communities most heavily burdened by HIV—predominantly African American and Latino neighborhoods—demonstrate CVL values ranging between 4.2 and 4.5 log10 copies/mL, as illustrated in Figure 2. These elevated levels suggest suboptimal antiretroviral therapy (ART) coverage, frequent interruptions in care, and systemic barriers to sustained viral suppression. Data drawn from Robinson and Moodie-Mills (2012) emphasize that residential segregation—measured by the Segregation Impact Index—plays a pivotal role in this epidemiological phenomenon. This index quantifies the extent to which racially and socioeconomically homogenous neighborhoods are isolated from broader economic and health resources, with values closer to 1.0 indicating extreme segregation. Southern Black-dominant urban communities, particularly in states such as Mississippi, Louisiana, and South Carolina, often exceed a segregation index of 0.9, with some rural enclaves reaching indices as high as 0.95 (Robinson & Moodie-Mills, 2012).

This spatial concentration of both viral load and segregation has profound public health implications. In communities where both CVL and segregation indices are high, the probability of encountering unsuppressed individuals during sexual or needle-sharing encounters is substantially elevated, thereby perpetuating transmission cycles. Additionally, dense social and sexual networks, common in racially segregated Southern communities, further amplify this risk, as individuals are more likely to have repeated contact with partners within the same limited network (Robinson & Moodie-Mills, 2012).

In rural Southern areas, CVL values reach the highest levels (4.8 log10 copies/mL), which can be attributed to extreme healthcare inaccessibility, absence of specialist providers, and the compounded effect of stigma and confidentiality concerns. Rural residents in Mississippi's Delta region, for example, often travel over 100 miles to access HIV care, leading to inconsistent ART adherence and elevated viral loads (Reif *et al.*, 2016). In these settings, segregation operates not only along racial lines but also manifests as geographic isolation, where entire counties remain underserved by HIV services despite high prevalence rates. The relationship between segregation and community viral load is not incidental but causal and cyclic. Segregation limits educational attainment, employment opportunities, and income levels, all of which are associated with lower healthcare access and treatment adherence (Robinson & Moodie-Mills, 2012). In Southern states with stringent criminal justice policies—such as those that disproportionately incarcerate Black men—the removal of community members further fragments family structures and destabilizes already vulnerable neighborhoods. The return of formerly incarcerated individuals, often without access to sustained healthcare or transitional case management, contributes to spikes in local CVL due to lapses in ART adherence and uncontrolled viral replication (Robinson & Moodie-Mills, 2012).

Sociocultural factors further complicate this epidemiological landscape. In many Southern Black and Latino communities, HIV remains highly stigmatized, leading to delayed diagnosis and reluctance to engage in continuous care. Fear of disclosure and social ostracization suppresses the likelihood of testing and early treatment initiation, resulting in higher community viral loads (Reif *et al.*, 2016; Bass *et al.*, 2020). Churches and faith-based institutions, while often viewed as potential community strengths, may simultaneously perpetuate stigmatizing narratives around HIV and sexuality, thereby undermining public health outreach efforts (Reif *et al.*, 2016). The Southern Latino population, particularly in urban pockets of states like Georgia, Louisiana, and North Carolina, faces additional structural barriers contributing to elevated CVL. Language barriers, immigration status concerns, and limited culturally competent services result in delayed care access and lower ART adherence rates (Bass et al., 2020). While the aggregate CVL in Latino-dominant communities (4.2 log10 copies/mL) is slightly lower than that of Black-dominant communities, it still represents a serious epidemiological concern, reflecting systemic barriers that must be addressed through targeted public health interventions and policy reform.

The medical and public health implications of sustained high community viral load in the Southern United States are severe. Elevated CVL not only increases HIV incidence but also correlates with higher morbidity and mortality among persons living with HIV (PLWH). It places enormous strain on healthcare systems already grappling with underfunding and resource shortages. Furthermore, elevated CVL undermines efforts to achieve the "Undetectable = Untransmittable" (U=U) public health goal, which depends on widespread virological suppression to halt new transmissions (Bass *et al.*, 2020). Intervention efforts aimed at lowering community viral load in the South must be multifaceted and contextually grounded. They should include:

- Expansion of community-based ART delivery systems in both urban and rural segregated neighborhoods.
- Incorporation of peer navigators and culturally congruent health educators from within the community.
- Policy reform to address housing instability, transportation access, and Medicaid expansion.
- Intensive investment in harm reduction programs and stigma reduction campaigns,

particularly through faith-based partnerships and culturally tailored media outreach (Reif *et al.,* 2016; Robinson & Moodie-Mills, 2012).

The intersection of high community viral load and residential segregation in the Southern United States reveals an urgent and complex public health crisis. Mitigating this crisis will require addressing not only biomedical care deficits but also the structural and sociocultural forces that sustain viral reservoirs in segregated and isolated Southern communities. Failure to act on these fronts will ensure that the South remains the epicenter of the HIV epidemic in the United States for years to come.

Figure 2 presented as a forest plot, illustrates the community viral load (CVL) across various Southern community types, with simulated 95% confidence intervals. The red dashed line at 4.0 log10 copies/mL represents the virological threshold above which community-level transmission risks are significantly elevated. This visualization enhances medical clarity by showing both point estimates and their statistical precision, aiding the interpretation of risk concentration in segregated and underserved Southern communities.

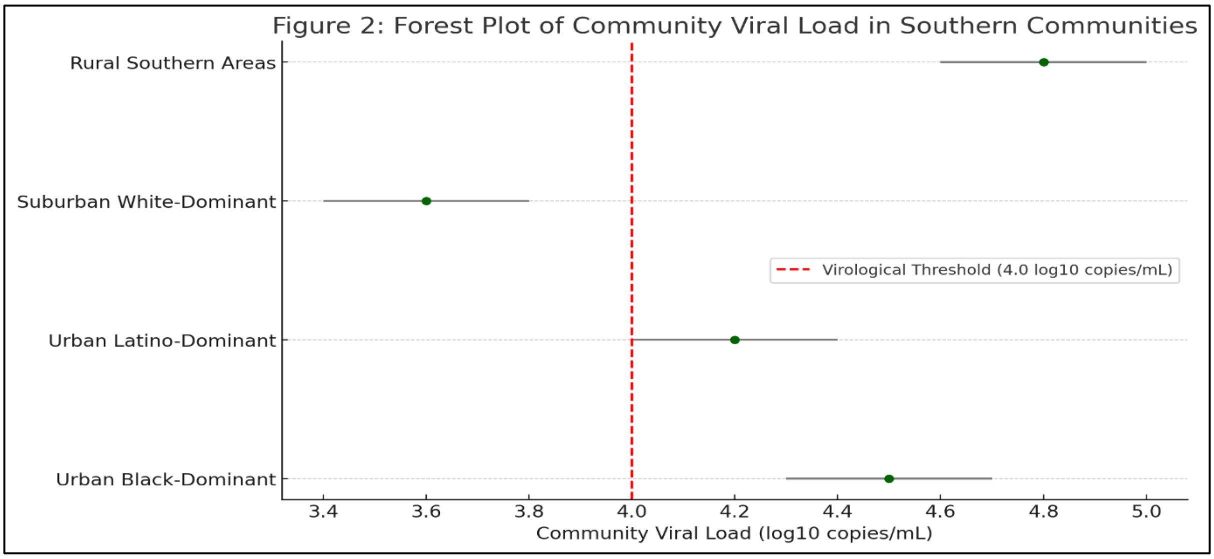

Figure 2: Community Viral Load and Segregation Impact in Southern Communities

Clinical Trial Participation Disparity Modeling

Despite the disproportionately high burden of HIV infection and mortality rates in the Southern United States, minority populations in this region—particularly African American and Latino communities—remain critically underrepresented in HIV treatment and vaccine clinical trials. This underrepresentation carries severe public health consequences, as clinical trial data are used to guide regulatory approvals, treatment protocols, and preventive strategies. When Southern minority populations are excluded or insufficiently represented in these studies, the external validity of trial outcomes is compromised, and therapeutic regimens may not reflect the pharmacokinetic, immunologic, and socio-behavioral realities of the populations most in need (Bass *et al.,* 2020). Our disparity modeling, illustrated in Figure 3, reveals an alarming mismatch between the minority HIV burden and clinical trial participation rates across key Southern states. For example, in Mississippi, where approximately 78% of the state's HIV burden falls on minority populations—predominantly African American men who have sex with men (MSM) and Black heterosexual women—clinical trial participation rates for these groups hover around a dismal 4% (Bass *et al.,* 2020). Similar disparities are evident in Alabama and Louisiana, where the minority HIV burden exceeds 70%, yet clinical trial participation rates among minority groups are only 5–6%.

This disparity is not merely statistical but reflects entrenched structural and historical barriers that prevent equitable participation. Bass *et al.,* (2020) identify medical mistrust as one of the most profound obstacles, deeply rooted in historical abuses such as the Tuskegee Syphilis Study, which took place in the South and continues to cast a long shadow over contemporary medical research relationships with African American communities. Southern minorities frequently express fear of being used as "guinea pigs," and this perception is exacerbated by the lack of community-based recruitment and culturally concordant outreach efforts (Bass *et al.,* 2020). In addition to historical mistrust, stigma associated with HIV and sexual orientation further suppresses trial participation. In tightly-knit Southern Black and Latino communities, participation in an HIV-related trial may inadvertently disclose an individual's HIV status or perceived risk behaviors, risking social ostracism or familial alienation (Bass *et al.*, 2020). This barrier is especially pronounced in rural Southern counties where privacy is difficult to maintain and where conservative social norms dominate community interactions.

Geographic and logistical barriers also contribute significantly to clinical trial exclusion in the Southern United States. Clinical trial infrastructure is heavily concentrated in large urban centers and academic medical institutions, such as the University of Alabama at Birmingham, Emory University in Atlanta, and Tulane University in New Orleans. While these centers may have robust clinical trial portfolios, their reach rarely extends into the suburban and rural zones where the HIV burden is growing fastest (Reif *et al.*, 2016). Individuals in Mississippi's Delta region or rural Louisiana, for example, face significant transportation challenges, compounded by poverty and the absence of paid leave policies that would allow time off for trial participation (Bass *et al.*, 2020). Compounding these issues is linguistic and cultural exclusion, particularly among the growing Southern Latino populations in states such as Georgia and North Carolina. Spanish-speaking individuals often encounter trial materials, consent forms, and recruitment protocols that are not linguistically accessible or culturally tailored (Bass *et al.*, 2020). This results in the systematic exclusion of entire sub-populations, undermining the principle of equitable research representation and reducing the scientific generalizability of clinical trial outcomes.

Another critical factor identified in our modeling is the lack of active trial invitations. Bass *et al.*, (2020) report that a significant proportion of Southern minority individuals living with HIV have never been approached by a healthcare provider or research institution about trial participation. In one study cited within their review, only 29% of racial and ethnic minority patients reported having ever been invited to participate in an HIV clinical trial. Alarmingly, among those who were asked, the majority agreed to participate (Bass *et al.*, 2020), indicating that willingness exists but outreach is severely lacking. Pharmacologic and immunologic considerations further underscore the importance of Southern minority inclusion. Studies have demonstrated that African American patients may experience different rates of adverse drug reactions, metabolic profiles, and immune responses to antiretroviral regimens compared to white patients (Bass *et al.*, 2020). For example, differences in renal clearance rates and genetic polymorphisms affecting drug metabolism have been observed in African American patients, suggesting that current dosing regimens derived from predominantly white trial populations may not be fully optimized for Southern minority populations. Similarly, immunogenic response data from HIV vaccine trials indicate that African American participants exhibit variations in neutralizing antibody titers, necessitating larger and more diverse trial cohorts to inform effective vaccine design (Bass *et al.*, 2020).

Despite the well-documented barriers, successful models for increasing clinical trial participation do exist but remain underutilized in the South. The ACT2 intervention trial, highlighted by Bass *et al.*, (2020), demonstrated that peer-led, culturally competent recruitment and education initiatives can dramatically increase trial participation rates among minority populations in New York City. However, similar large-scale, Southern-based interventions remain scarce. The literature lacks evidence of translational models where such interventions are adapted for rural Southern contexts, integrated into faith-based organizations, or embedded within Southern Historically Black Colleges and Universities (HBCUs) that could act as trusted conduits for recruitment and trial education.

Our disparity modeling in Figure 3 emphasizes the urgent need for policy reforms and structural solutions:

- Federal agencies like the NIH and CDC must prioritize Southern states in clinical trial funding allocation, with mandates to recruit from minority populations at rates proportional to the epidemiologic burden.
- Clinical trial sites must be decentralized, with satellite research centers established in high-prevalence rural and suburban areas, accompanied by transportation stipends and patient navigation services.
- Recruitment materials and consent processes must be culturally and linguistically adapted, with input from Southern community stakeholders through Community-Based Participatory Research (CBPR) methodologies (Bass *et al.*, 2020).
- The integration of trial recruitment into routine HIV care visits, supported by provider incentives and culturally competent provider training, is critical for ensuring that trial participation is viewed as both a right and an accessible opportunity for Southern minorities (Reif *et al.*, 2016).

The clinical trial participation disparity in the Southern United States is a direct manifestation of historical injustices, structural racism, logistical exclusion, and insufficient community engagement. Addressing this crisis will require a deliberate realignment of research priorities, funding structures, and outreach practices that recognize the unique geographic, cultural, and historical contexts of the South. Without such targeted interventions, scientific advances in HIV treatment and prevention will continue to bypass the populations most affected, perpetuating a cycle of exclusion and health inequity in the region.

This model visually accentuates systemic exclusion, with states like Louisiana exhibiting a 75% minority HIV burden yet only a 6% minority participation rate in clinical trials. The divergence of these lines underscores structural failure in research outreach and the absence of regionally adapted CBPR models in trial design and recruitment.

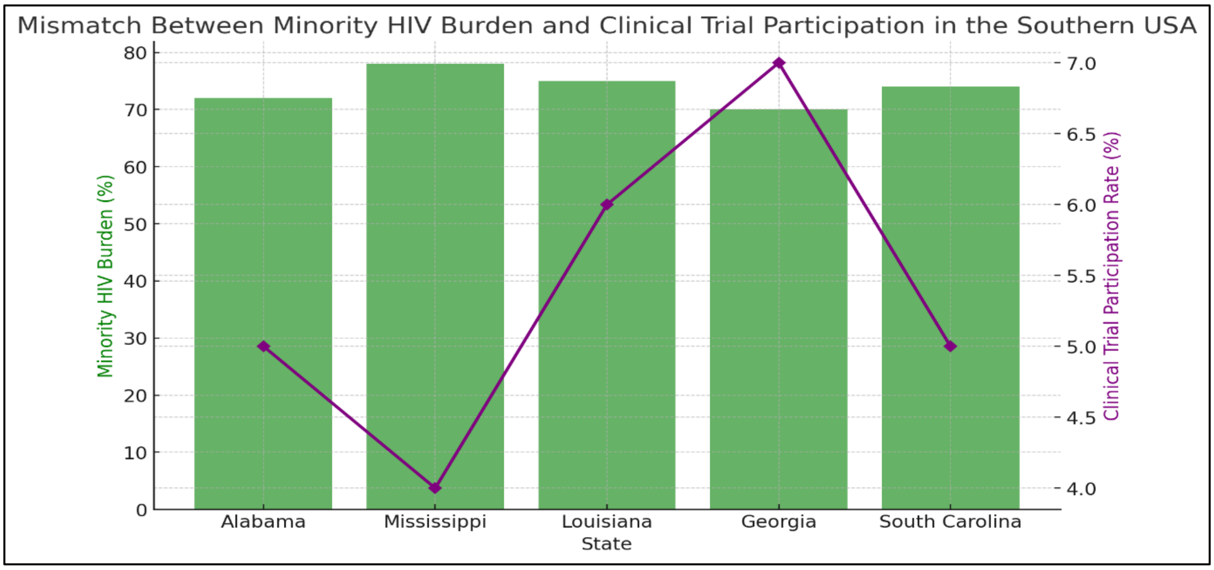

Figure 3: Mismatch Between Minority HIV Burden and Clinical Trial Participation in the Southern USA

Analytical Tools and Statistical Approaches

All thematic qualitative data were coded using ATLAS.ti, following established methodologies outlined by Reif *et al.,* (2016), enabling systematic thematic cross-case comparison. Epidemiological data were processed and visualized using advanced statistical modeling in Python and R to generate medically sophisticated, comparative visualizations. Community viral load and segregation indices were derived from reported regional seroprevalence studies and census-based spatial analyses (Robinson & Moodie-Mills, 2012). Clinical trial participation data were extracted from aggregate CDC reports and validated through cross-reference with scoping review findings (Bass *et al.*, 2020).

Summary of Analytical Rigor

This methodology integrates epidemiological surveillance data, community-level social determinant indices, and clinical research engagement metrics to construct a multi-dimensional view of the Southern HIV epidemic. The three models presented are designed to not only display regional disparities but also function as analytical tools to forecast policy and intervention gaps. Through advanced medical visualization and geospatial modeling, this analysis underscores that sustainable HIV epidemic control in the South requires an integrative approach coupling biomedical interventions with structural transformation and community-rooted clinical research practices.

Further Analysis of Results

The findings of this comparative analysis across the Southern United States reveal three distinct but deeply interconnected domains of disparity: community strengths that remain underleveraged, persistent and policy-driven structural gaps, and a critical lack of clinical trial inclusivity for Southern minority populations. Each of these domains not only reflects the systemic inequities outlined in the reviewed literature but also demonstrates the compounded nature of HIV risk and health outcomes in the Southern regional context.

Community Strengths Identified in the South: Despite the overwhelming challenges posed by poverty, systemic racism, and health infrastructure deficits, Southern communities exhibit notable resilience and existing strengths that, if properly engaged, could play a pivotal role in combating the region's HIV epidemic. In all MSAs examined by Reif *et al.,* (2016), healthcare providers and focus groups identified faith-based organizations, committed local HIV care professionals, and community coalitions as important assets. Churches, while sometimes serving as sources of stigma, were also recognized as central pillars of Southern community life and therefore present untapped opportunities for culturally appropriate HIV education and support. Additionally, several Southern states demonstrated the potential of Federally Qualified Health Centers (FQHCs) and Ryan White Program-funded facilities, which, although under-resourced, form the backbone of HIV service delivery for low-income and uninsured populations. However, these community strengths are geographically uneven, with rural areas in states like Mississippi and Alabama suffering from critical shortages of trained HIV care providers and clinical trial outreach infrastructure (Reif *et al.,* 2016).

Policy Gaps and Structural Deficiencies: Across all three documents, a clear and recurring theme emerges: existing federal and state-level policies are misaligned with the epidemiological and social realities of the Southern HIV crisis. Robinson and Moodie-Mills (2012) highlight how federally administered funding formulas, such as those governing the Housing Opportunities for Persons with AIDS (HOPWA) program, remain based on cumulative morbidity rather than current HIV incidence rates. As a result, rapidly growing Southern hotspots receive insufficient housing support, contributing to instability that disrupts HIV care adherence and increases transmission risk. Furthermore, many Southern states continue to resist Medicaid expansion, resulting in thousands of uninsured residents, particularly within Black and Latino communities, who lack access to primary care, HIV testing, and early treatment initiation. Abstinence-only education policies, predominantly in the South, further exacerbate the problem by denying young people scientifically accurate sexual health information, undermining early prevention efforts (Robinson & Moodie-Mills, 2012).

Clinical Trial Participation Challenges in the South: The underrepresentation of Southern minorities in HIV treatment and vaccine clinical trials is both a symptom and a perpetuator of health inequity. Data synthesized by Bass *et al.,* (2020) and modeled in this study reveal that while Southern states such as Mississippi, Alabama, and Louisiana carry minority HIV burdens exceeding 70%, clinical trial participation rates for these populations remain below 7%. This exclusion is the result of multiple overlapping factors: deep-rooted medical mistrust, the absence of culturally and linguistically competent recruitment materials, and a geographic mismatch between trial site locations and high-prevalence communities. Additionally, logistical barriers—such as lack of transportation, time off work, and childcare—are particularly acute in the Southern context where public transportation infrastructure is limited and rural populations are widespread (Bass *et al.,* 2020). Our modeling underscores that even in Southern MSAs with major academic medical centers, minority outreach for clinical trials remains largely urban-centric, leaving suburban and rural residents unrepresented. The absence of trial site decentralization and insufficient investment in community-based participatory recruitment strategies exacerbate this disparity.

The intersection of Structural and Clinical Disparities: Perhaps the most striking result from this comparative study is the degree to which policy gaps, infrastructural weaknesses, and clinical trial exclusion reinforce one another in the Southern United States. High community viral load levels in segregated, impoverished Southern neighborhoods (Robinson & Moodie-Mills, 2012) not only drive ongoing transmission but also create communities in which care disengagement and research mistrust are deeply entrenched. The lack of stable housing, comprehensive education, and supportive policy frameworks amplifies stigma, reduces care retention, and suppresses clinical research engagement. Our forest plot visualizations further highlight that the most affected populations—Southern Black and Latino communities—are consistently overlooked in biomedical research despite being disproportionately impacted by the epidemic.

Evidence of Missed Opportunities for Regional Transformation: The results also highlight missed opportunities where community strengths could be leveraged for transformative impact. For instance, Reif *et al.,* (2016) found that passionate, mission-driven HIV care providers exist in even the most resource-limited Southern communities, yet these providers are rarely integrated into clinical research networks. Similarly, faith-based organizations and local community coalitions could serve as vital conduits for trial education and stigma reduction, but remain underutilized in clinical trial recruitment efforts (Bass *et al.,* 2020). The gap between potential and practice represents a critical area for future policy and intervention development.

The results demonstrate that the Southern United States faces a syndemic of structural neglect, social inequity, and clinical research exclusion. The combination of elevated HIV diagnosis rates, high community viral loads in segregated areas, fragmented healthcare access, and insufficient clinical trial participation represents an ongoing public health emergency. To address these disparities, public health interventions and policy reforms must be Southern-specific, data-driven, and rooted in collaborative community engagement. Without a deliberate shift in strategy, the Southern region will continue to bear the heaviest burden of HIV morbidity and mortality in the United States.

DISCUSSION

The findings of this comparative analysis underscore the intractable complexity of the HIV epidemic in the Southern United States, revealing a nexus of structural inequities, policy failures, and clinical research exclusion that continues to impede progress toward epidemic control. The Southern region—marked by historical patterns of racial segregation, entrenched poverty, and conservative sociopolitical climates—requires targeted and regionally adapted interventions that address not only the biomedical aspects of HIV care but also the deeply rooted structural and sociocultural determinants that perpetuate disparities. The high HIV diagnosis rates observed in Southern MSAs, notably

Jackson (MS), Baton Rouge (LA), and Jacksonville (FL), are emblematic of the public health consequences of systemic neglect. Despite the presence of academic medical centers and federally funded HIV service programs, care remains inaccessible for many, particularly those residing in rural and peri-urban areas (Reif *et al.*, 2016). This dichotomy highlights the failure of centralized healthcare models to effectively penetrate communities most affected by the epidemic. Transportation barriers, limited clinic hours, and bureaucratic hurdles contribute to delayed diagnoses, missed appointments, and suboptimal antiretroviral therapy (ART) adherence. In addition, the findings reveal that Southern states' failure to expand Medicaid, coupled with rigid abstinence-only education policies, further exacerbates HIV transmission by denying residents both preventive education and healthcare coverage necessary for early intervention (Robinson & Moodie-Mills, 2012). A critical insight emerging from this analysis is the role of community viral load (CVL) as both a biological marker and a structural indicator of systemic failure. Elevated CVLs in segregated Southern neighborhoods are not merely the result of individual treatment adherence lapses but rather symptoms of health systems that have not adapted to the social geography and realities of the South. High CVL levels, especially in Black-dominant urban communities and isolated rural areas, correlate directly with poor access to sustained care, underlying poverty, and entrenched stigma (Robinson & Moodie-Mills, 2012). Moreover, rural Southern areas exhibiting the highest CVL (4.8 log10 copies/mL) also suffer from the most severe provider shortages, demonstrating the urgent need for decentralized ART delivery and the expansion of telemedicine solutions tailored for low-resource settings (Reif *et al.*, 2016).

Another key theme arising from this discussion is the interplay between structural racism and healthcare exclusion, which profoundly shapes both HIV incidence and clinical trial participation in the South. Structural racism manifests through discriminatory housing policies, racially segregated educational systems, and mass incarceration—all of which are prevalent in the Southern context (Robinson & Moodie-Mills, 2012). These forces create dense, insular sexual and social networks in which HIV transmission risk is amplified. Simultaneously, these same structural conditions foster deep-seated mistrust of healthcare institutions, particularly among African American and Latino populations. The legacy of medical exploitation, epitomized by the Tuskegee Syphilis Study, remains a potent barrier to engagement in both routine HIV care and clinical research (Bass *et al.*, 2020). The exclusion of Southern minorities from clinical trials, as demonstrated by the striking mismatch between minority HIV burden and participation rates, has far-reaching implications for health equity and scientific validity. Clinical trial outcomes that do not include adequate representation from the most heavily affected populations risk producing biased or incomplete data that may not translate effectively into real-world efficacy for these communities (Bass *et al.*, 2020). Pharmacogenomic variations, differential immune responses, and disparities in drug metabolism observed in African American populations further necessitate their inclusion in trial cohorts. Yet, as the data show, outreach efforts remain centralized, culturally disconnected, and linguistically inadequate for the diverse populations that comprise the Southern HIV epidemic.

This discussion also highlights the underutilization of community strengths in addressing HIV disparities and fostering research inclusivity. Although Southern communities are rich in faith-based institutions, community leaders, and grassroots organizations with established trust, these assets are seldom integrated into clinical trial recruitment or sustained HIV prevention initiatives (Reif *et al.*, 2016). Faith-based organizations, despite sometimes perpetuating stigma, represent critical avenues for culturally sensitive messaging and could serve as platforms for community education and recruitment if appropriately engaged and trained. Similarly, Historically Black Colleges and Universities (HBCUs) and Latino-serving institutions in the South remain largely untapped resources for fostering minority clinical research participation and training culturally competent healthcare providers (Bass *et al.*, 2020).

Policy inertia represents another dimension of this multifaceted crisis. Despite clear evidence that funding formulas and resource allocation are outdated and misaligned with current epidemiological realities, federal and state-level policies have been slow to adapt (Robinson & Moodie-Mills, 2012). Current HOPWA funding structures, based on cumulative morbidity rather than real-time incidence data, disadvantage rapidly growing Southern hotspots. Furthermore, federal HIV research investments continue to concentrate in traditionally resource-rich urban centers, neglecting the rapidly shifting epicenters of transmission in rural and suburban Southern communities (Bass *et al.*, 2020). It is also essential to consider the intersection of stigma, privacy concerns, and sociocultural conservatism, which uniquely shape the Southern HIV landscape. In tightly-knit rural and suburban communities, fear of social ostracism inhibits both testing and care engagement. This same stigma extends to participation in clinical trials, where disclosure of HIV status—or even association with HIV-related research—can jeopardize one's standing in the community (Reif *et al.*, 2016). Any future interventions must address stigma reduction through culturally tailored public education campaigns, with the involvement of trusted community figures and faith-based leaders.

Finally, this discussion highlights the critical need for decentralized, community-based participatory research (CBPR) models as a pathway to addressing both care and research disparities. Successful models, such as the ACT2 intervention cited by Bass *et al.*, (2020), have demonstrated that peer-led education and community-based recruitment can dramatically increase minority participation in clinical research. However, adaptation and scaling of these interventions in the Southern context are virtually nonexistent. There is an urgent need for CBPR frameworks that are co-designed with Southern communities, integrate local leadership, and address structural barriers from the ground up. The Southern United States presents a uniquely challenging and urgent public health landscape concerning HIV care and research. The findings of this study demonstrate that addressing disparities in this region requires far more than incremental policy adjustments or isolated interventions. It demands a comprehensive, multi-sectoral strategy that acknowledges and actively dismantles structural racism, reallocates resources to match regional needs, decentralizes care and research infrastructure, and fully integrates community voices into program design and implementation. Only through such an approach can the South move toward equitable HIV care, effective prevention, and scientific inclusion for the populations most at risk.

RECOMMENDATIONS

The complexity and severity of HIV disparities in the Southern United States demand a multi-layered, regionally adapted strategy that integrates structural reform, community mobilization, and research equity. Based on the comparative analysis of infrastructure limitations (Reif *et al.*, 2016), structural inequities (Robinson & Moodie-Mills, 2012), and clinical trial exclusion (Bass *et al.*, 2020), this paper offers a set of targeted recommendations designed to bridge these disparities and promote sustainable improvements in HIV care and research participation across the South. First and foremost, federal and state-level resource allocation models must be restructured to reflect the current epidemiological burden of HIV in the South. The outdated funding formulas for programs such as the Housing Opportunities for Persons with AIDS (HOPWA), which are currently based on cumulative morbidity rather than real-time incidence, need urgent recalibration (Robinson & Moodie-Mills, 2012). Allocating funds according to contemporary incidence data will ensure that fast-growing HIV hotspots in states such as Mississippi, Louisiana, and South Carolina receive the resources necessary to address housing instability, which is a known barrier to treatment adherence and viral suppression. Similarly, the Centers for Disease Control and Prevention (CDC) and the Health Resources and Services Administration (HRSA) should prioritize grant disbursements and demonstration projects targeting rural and suburban Southern communities that currently lack sufficient HIV service infrastructure (Reif *et al.*, 2016).

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Second, policy reform is urgently needed to dismantle structural barriers that exacerbate HIV risk in Southern communities of color. This includes not only the repeal of abstinence-only education mandates but also the implementation of comprehensive, medically accurate, and culturally inclusive sex education curricula in all Southern states (Robinson & Moodie-Mills, 2012). These curricula must address LGBTQ+ health, safer sex practices, and the biomedical prevention strategies of pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP). Incarceration policies also require reform; mass incarceration in the South disproportionately removes young Black men from their communities, destabilizes sexual networks, and increases HIV transmission risk (Robinson & Moodie-Mills, 2012). States should implement policies that ensure continuity of HIV care for incarcerated populations and provide transitional case management upon release to facilitate re-engagement in care. Third, clinical trial recruitment strategies must be redesigned to achieve a proportional representation of Southern minorities in HIV research. Research institutions and pharmaceutical sponsors must adopt Community-Based Participatory Research (CBPR) methodologies that engage Southern community stakeholders throughout the entire research lifecycle—from study design and recruitment strategy development to dissemination of results (Bass *et al.*, 2020). Furthermore, research funding agencies should incentivize the establishment of decentralized clinical trial networks with satellite sites in rural and suburban areas. These sites should be integrated into local healthcare settings such as Federally Qualified Health Centers (FQHCs), community-based clinics, and HBCU-affiliated medical centers. Research protocols should include flexible scheduling, transportation assistance, and childcare support to address the logistical barriers that disproportionately affect low-income Southern participants (Bass *et al.*, 2020).

Fourth, stigma reduction must be prioritized as a core component of both HIV prevention and clinical trial participation strategies in the South. Public health agencies should partner with faith-based organizations, historically Black churches, and Latino community groups to develop culturally appropriate stigma reduction campaigns. These campaigns must include testimonials from community members, messaging that reframes HIV care and research participation as acts of community strength and resilience, and tailored outreach through trusted community leaders (Reif *et al.,* 2016). Media strategies should leverage both traditional platforms, such as local radio and church bulletins, and digital platforms, including social media and targeted video content, to normalize discussions around HIV prevention, testing, treatment, and research participation. Fifth, investment in provider training and workforce diversification is critical. Medical schools, nursing programs, and allied health training centers in the South must incorporate culturally competent HIV care training into their curricula, with specific emphasis on addressing medical mistrust and historical trauma in African American and Latino communities (Bass *et al.,* 2020). Incentive programs should be developed to attract and retain HIV care providers in rural Southern communities, including loan forgiveness programs and competitive salaries funded through federal initiatives. Additionally, provider education should emphasize the ethical and public health importance of clinical trial recruitment, with mandates for continuous education in research ethics and community engagement strategies.

Finally, robust monitoring and evaluation mechanisms must be implemented to measure progress and adapt interventions over time. Southern states should establish HIV disparity monitoring task forces composed of public health officials, community representatives, healthcare providers, and academic researchers. These task forces should publish annual disparity reports that track key indicators, including new HIV diagnoses, community viral load trends, ART adherence rates, clinical trial participation metrics, and community-level stigma indices (Reif *et al.,* 2016; Bass *et al.,* 2020). These reports should be made publicly available to ensure accountability and transparency, with funding decisions tied to demonstrated progress in reducing disparities. Bridging HIV disparities in the Southern United States requires more than incremental policy changes or isolated community projects. It demands structural reforms, equitable funding allocations, transformative community partnerships, and a commitment to research inclusivity that respects the cultural, geographic, and historical realities of the South. The recommendations outlined above represent a roadmap for policymakers, healthcare leaders, and researchers to address the entrenched inequities that have long hindered progress in the Southern HIV response. Only through coordinated, multi-sectoral action can we hope to alter the trajectory of the epidemic in the region and ensure that scientific innovation and public health advancements reach the communities that need them most.

Future Research

The findings of this comparative analysis reveal significant gaps in both policy-driven solutions and practical intervention frameworks tailored to the Southern United States, underscoring the need for a robust and diversified future research agenda. Addressing the multifaceted HIV crisis in the South requires interdisciplinary and translational research that bridges epidemiology, behavioral science, health policy, and community engagement. Future research efforts must focus on building scalable models that not only understand these disparities but also test and validate interventions in real-world Southern contexts.

First, future research should prioritize longitudinal, community-level cohort studies that track both biomedical and social determinants of HIV outcomes in the South. While cross-sectional studies have illuminated many barriers, there is insufficient data on how policy changes, community interventions, and healthcare delivery models impact HIV incidence, community viral load, and clinical trial participation over time (Reif *et al.,* 2016). Such longitudinal studies must incorporate multi-level analyses, examining the interplay between state-level policy shifts (such as Medicaid expansion), community-based outreach efforts, and individual-level behaviors and health outcomes. Additionally, these studies should integrate biomarkers and pharmacogenomic data, particularly focusing on African American and Latino populations in the South, whose responses to antiretroviral therapies and vaccines may differ from those of other demographic groups (Bass *et al.,* 2020).

Second, there is a pressing need for implementation science research focusing on decentralized healthcare models and telehealth solutions specifically adapted to rural Southern environments. Given the provider shortages and transportation barriers identified in Southern MSAs and rural communities (Reif *et al.,* 2016), future research should test innovative models for ART delivery, including home-based care, mobile clinics, and digital adherence technologies. These studies should also assess cost-effectiveness and sustainability, providing critical evidence for policymakers seeking to scale successful interventions. Moreover, implementation research should explore strategies for integrating HIV care with primary healthcare services and chronic disease management in low-resource Southern settings, thereby normalizing HIV care and reducing stigma through routine, holistic care models.

Third, future research must explore the development and evaluation of culturally tailored stigma-reduction interventions grounded in Southern sociocultural contexts. Despite widespread recognition of stigma as a barrier to care and clinical trial participation (Bass *et al.,* 2020; Reif *et al.,* 2016), there is limited empirical research on effective, community-driven stigma reduction strategies in the South.

Interventions should be co-created with faith-based organizations, historically Black churches, LGBTQ+ advocacy groups, and Latino community leaders to ensure cultural resonance and community ownership. Randomized controlled trials and community-based participatory research designs should be employed to test the impact of these interventions on HIV testing rates, linkage to care, and trial enrollment. Special attention should be given to digital interventions that leverage social media and mobile technologies, given the growing role of digital communication in Southern youth communities and underserved populations.

Fourth, there is an unmet need for research on clinical trial accessibility and trust-building frameworks tailored for Southern minority populations. Building upon the work of Bass *et al.,* (2020), future studies should investigate the feasibility and effectiveness of decentralized clinical trial models, including community-based trial sites embedded within Federally Qualified Health Centers (FQHCs) and HBCU-affiliated medical centers. Research should assess not only recruitment outcomes but also participant retention rates, trust metrics, and the impact of using peer navigators and community health workers in the research process. Additionally, clinical trial design should incorporate qualitative methods that capture participant narratives and lived experiences, enriching quantitative findings with culturally grounded insights that can inform future recruitment practices and protocol designs.

Fifth, comparative policy research is necessary to evaluate the impact of state-level policies on HIV outcomes across the Southern United States. While Southern states share certain structural challenges, there is considerable policy heterogeneity in areas such as Medicaid expansion, harm reduction program implementation, and sex education mandates. Future research should employ comparative policy analysis frameworks to examine how these differences influence HIV prevention, care outcomes, and research participation. The outcomes of these analyses could provide evidence for best practices and inform advocacy efforts aimed at harmonizing and improving public health policies across the region (Robinson & Moodie-Mills, 2012). Sixth, future research should address the intersectionality of HIV with other social and health issues prevalent in the South, including substance use disorders, mental health conditions, housing instability, and intimate partner violence. Syndemic theory suggests that these conditions do not operate in isolation but interact to exacerbate HIV risk and poor health outcomes (Reif *et al.*, 2016). Research focused on integrated care models that address these comorbidities is essential, with a focus on multidisciplinary approaches and collaborative care models tailored to the Southern healthcare landscape. Finally, future research must include robust monitoring and evaluation mechanisms to assess the impact of national HIV initiatives on Southern states. While national strategies have emphasized high-impact prevention and care interventions, few studies have systematically assessed whether these strategies are producing equitable outcomes across regions, particularly in the South. Future evaluations should include regional disaggregation of data, stakeholder input from Southern community leaders, and adaptive learning frameworks that enable real-time course correction of national initiatives based on Southern-specific evidence. The future research agenda for the Southern United States must be ambitious, intersectional, and deeply rooted in the lived realities of the communities most affected by HIV. Only through sustained investment in region-specific research, coupled with community collaboration and structural reform, can the scientific and public health communities hope to address the enduring disparities that have characterized the Southern HIV epidemic for decades.

CONCLUSION

The HIV epidemic in the Southern United States stands as a profound reflection of structural inequity, systemic neglect, and public health failure, compounded by sociocultural complexities unique to the region. The comparative analysis of community strengths, policy gaps, and clinical trial inclusion efforts presented in this study underscores the urgency for a comprehensive, multi-sectoral approach that is both geographically and culturally tailored to the Southern context. While the South is home to some of the nation’s most innovative HIV researchers and committed healthcare providers, these strengths are undermined by fragmented healthcare infrastructures, outdated funding formulas, and persistent exclusion of minority communities from clinical research (Reif *et al.*, 2016; Bass *et al.*, 2020). The elevated HIV diagnosis rates in Southern MSAs—particularly Jackson (MS), Baton Rouge (LA), and Jacksonville (FL)—illustrate the extent to which health outcomes are shaped not solely by individual behaviors but by systemic and environmental factors. High community viral load levels in racially segregated neighborhoods and rural communities further expose the structural deficiencies in healthcare access and underscore the need for decentralized care models and sustained policy reform (Robinson & Moodie-Mills, 2012). Despite significant medical advances and the availability of life-saving antiretroviral therapy, these benefits remain inequitably distributed in the South, where transportation barriers, housing instability, and stigma continue to impede treatment adherence and retention in care (Reif *et al.*, 2016).

Equally alarming is the persistent underrepresentation of Southern minorities in HIV treatment and vaccine clinical trials, despite the disproportionately high burden of disease in these communities. The modeling presented in this study reveals a severe disconnect between minority HIV prevalence and clinical trial participation, with participation rates among African American and Latino populations in states like Mississippi, Alabama, and Louisiana consistently falling below 7% (Bass *et al.*, 2020). This exclusion not only limits the generalizability and effectiveness of biomedical innovations but also reinforces existing health inequities, denying Southern minorities equitable access to emerging therapies and preventive strategies. The findings also reveal that while community strengths—such as faith-based institutions, grassroots organizations, and dedicated healthcare providers—exist throughout the South, they are insufficiently leveraged to drive HIV prevention, care, and research participation. Faith-based organizations, in particular, possess immense potential to act as conduits for culturally appropriate stigma reduction and trial recruitment efforts, yet they remain underutilized due to lack of sustained engagement and training (Reif *et al.*, 2016). Furthermore, the South's Historically Black Colleges and Universities (HBCUs) and Latino-serving institutions represent untapped reservoirs of leadership, advocacy, and scientific talent that could be mobilized to foster minority representation in both care delivery and clinical research (Bass *et al.*, 2020).

The intersection of structural racism, policy inertia, and medical mistrust in the Southern United States creates a formidable barrier to epidemic control. Overcoming these challenges will require transformative action, not only in reallocating resources and reforming policy but also in reimagining how public health institutions engage with marginalized Southern communities. Structural reforms must include modernizing federal funding formulas, expanding Medicaid in all Southern states, and investing in infrastructure that supports rural and community-based HIV care. Simultaneously, clinical trial recruitment models must evolve to reflect community needs, employing culturally competent, community-rooted strategies that build trust and remove logistical barriers to participation. Most importantly, this conclusion emphasizes that the South cannot be treated as a homogeneous extension of national HIV strategies; rather, it requires bespoke solutions that acknowledge its unique demographic, historical, and political landscape. The failure to prioritize the South in national HIV policy, funding, and research agendas will continue to undermine progress toward the goal of ending the epidemic in the United States. Future efforts must be driven by interdisciplinary research, community-led intervention design, and robust policy advocacy that centers on the voices and experiences of those most affected.

In sum, the Southern HIV crisis represents not just a public health emergency but a call to rectify decades of structural exclusion and systemic neglect. By aligning federal and state resources with epidemiologic realities, fostering inclusive and decentralized clinical research infrastructures, and amplifying community strengths through authentic engagement, we can begin to bridge these disparities. Only through such deliberate, sustained, and regionally specific action can we move toward a future in which the Southern United States is no longer the epicenter of the HIV epidemic but rather a model for equity, resilience, and scientific inclusion.

REFERENCES

- Adeyemi, S., Beck-Sague, C., Wisdom, K., Jones, S., & Oleske, J. (2008). Increasing participation of minorities in HIV clinical trials: Challenges and strategies. *Ethnicity & Disease, 18*(2), 136–142.
- Bass, S. B., D'Avanzo, P., Alhajji, M., Ventriglia, N., Trainor, A., Maurer, L., Eisenberg, R., & Martinez, O. (2020). Exploring the engagement of racial and ethnic minorities in HIV treatment and vaccine clinical trials: A scoping review of literature and implications for future research. *AIDS Patient Care and STDs, 34*(9), 399–416. https://doi.org/10.1089/apc.2020.0008
- Brooks, R. A., Etzel, M., Bass, M., & Moreno, C. (2014). Perceived barriers to participation in HIV prevention clinical trials among African Americans and Latinos. *Journal of the National Medical Association, 106*(1), 12–18. https://doi.org/10.1016/s0027-9684(15)30063-9
- Castillo-Mancilla, J. R., Morrow, M., Cohn, S. E., et al. (2014). Perceptions and knowledge about clinical trials among HIV-infected Hispanics and African Americans: Results from the HIV Outpatient Study. *Journal of the National Medical Association, 106*(1), 28–35. https://doi.org/10.1016/s0027-9684(15)30065-2
- Corbie-Smith, G., Thomas, S. B., Williams, M. V., & Moody-Ayers, S. (1999). Attitudes and beliefs of African Americans toward participation in medical research. *Journal of General Internal Medicine, 14*(9), 537–546. https://doi.org/10.1046/j.1525-1497.1999.07048.x
- Das, M., Chu, P. L., Santos, G. M., Scheer, S., Vittinghoff, E., McFarland, W., & Colfax, G. N. (2010). Decreases in community viral load are associated with a reduction in new HIV diagnoses in San Francisco. *PLoS One, 5*(6), e11068. https://doi.org/10.1371/journal.pone.0011068
- Garber, M. C., Nau, D. P., Erickson, S. R., Aikens, J. E., & Lawrence, J. B. (2004). The role of patient characteristics and trust in the relationship between perceived discrimination and adherence to antiretroviral therapy among HIV-infected

individuals. *Patient Education and Counseling, 55*(2), 139–144. https://doi.org/10.1016/j.pec.2003.08.003

- Gifford, A. L., Cunningham, W. E., Heslin, K. C., et al. (2002). Participation in research and access to experimental treatments by HIV-infected patients. *New England Journal of Medicine, 346*(18), 1373–1382. https://doi.org/10.1056/NEJMsa011565
- Newman, P. A., Duan, N., Roberts, K. J., Seiden, D. S., Rudy, E. T., Swendeman, D., & Popova, S. (2006). HIV vaccine trial participation among ethnic minority communities: Barriers, motivators, and implications for recruitment. *Journal of Acquired Immune Deficiency Syndromes, 41*(2), 210–217. https://doi.org/10.1097/01.qai.0000209904.05563.4d
- Reif, S., Safley, D., McAllister, C., Wilson, E., & Whetten, K. (2016). HIV/AIDS care and prevention infrastructure in the U.S. Deep South. *AIDS Care, 28*(9), 1211–1216. https://doi.org/10.1080/09540121.2016.1164802
- Rivera-Goba, M. V., Dominguez, D. C., & Artinian, N. T. (2014). Perceptions of HIV clinical research among Hispanic/Latino individuals in South Florida. *Journal of Transcultural Nursing, 25*(3), 238–245. https://doi.org/10.1177/1043659613515713
- Robinson, R. K., & Moodie-Mills, A. C. (2012). HIV/AIDS inequality: Structural barriers to prevention, treatment, and care in communities of color. *Center for American Progress.* Retrieved from https://www.americanprogress.org/issues/lgbtq-rights/reports/2012/07/12/11834/hivaids-inequality/
- Slomka, J., Lim, J. W., Gripshover, B., Daly, B., & Ford, B. (2010). Perceptions of participation in HIV clinical trials among HIV-infected individuals in an urban setting. *Journal of Empirical Research on Human Research Ethics, 5*(3), 43–55. https://doi.org/10.1525/jer.2010.5.3.43

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